# DRAFT
# ENVIRONMENTAL IMPACT REPORT

**State Clearinghouse Number: 2010082060**

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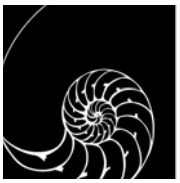
# FREMONT DRAFT GENERAL PLAN UPDATE

PREPARED FOR:
**CITY OF FREMONT**



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**JULY 2011**

*Community Development*
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www.fremont.gov

**City of Fremont Draft General Plan**
**(PLN2005-0190)(SCH# 2010082060)**

**Public Review Period: July 6, 2011 through August 19, 2011**

Notice is hereby given that a Draft Environmental Impact Report (Draft EIR) for the City of Fremont Draft General Plan is available for public comment.

The Draft General Plan, if ultimately adopted as the General Plan, will guide future development in all areas within the City of Fremont.

The Draft EIR comment period extends from **Wednesday, July 6, 2011** through **Friday, August 19, 2011**. Comments on the Draft EIR must be submitted in writing to the Planning Division by **4:00 p.m., Friday, August 19, 2011** for consideration in the Final EIR.

The project is the adoption and implementation of a comprehensive update of the City of Fremont General Plan, which was last comprehensively updated in 1991. The new General Plan lays out a broad vision along with goals, policies and implementation measures to achieve that vision. The updated General Plan includes a land use designation map that will replace the map based on the 1991 plan. The City has established 2035 as the horizon year, or the year by which the City projects is the earliest time period that the growth anticipated in the Plan will be achieved.

The updated General Plan is consistent with state and regional planning efforts to focus growth near existing transit stations and corridors. It anticipates that the vast majority of population growth will occur in the City's Priority Development Areas (PDAs). Additionally, the type of residential growth will be different than the currently predominate use of single family homes. These new dwellings will be of smaller size and household size than the current City profile. Overall, it is anticipated that approximately 2/3 of new households will be multi-family and 1/3 of new households will be single-family.

Job growth assumes new development on available vacant land throughout the City. The majority of job growth will occur outside of PDAs. Job types will be a mix of office, R&D, clean technology, general industrial, warehouse and distribution, and trade uses in the existing business parks of the City. Within PDAs (and specifically within the TOD Overlay) there will be an increase in office and professional uses above and beyond the intensity of use that currently exists. Retail development will likely occur within existing commercial areas, with the noted exception of regional commercial uses near the Dixon Landing/I-880 interchange, and may expand in conjunction with development of new neighborhoods.

The DRAFT General Plan identifies a multi-modal future of the City that deemphasizes the use of the automobile. The DRAFT General Plan considers expansion of transit service, including the extension of BART to San Jose and plans for new Warm Springs and Irvington Stations. The DRAFT General Plan includes improved bicycle and pedestrian infrastructure. Major roadway improvements include continuation of previously planned regional roadway connections.

The Draft EIR identifies potentially significant environmental impacts in the topics of:

- Transportation and Circulation
- Air Quality
- Noise
- Hydrology and Water Quality
- Cultural and Archaeological Resources
- Agricultural Resources
- Utilities and Service Systems
- Global Climate Change

Mitigation has been identified to reduce all potentially significant effects to a less-than-significant level, except for impacts related to unacceptable levels of service at specified intersections and on specified roadway segments, air quality emissions and Clean Air Plan consistency, noise increases related to traffic, noise conflicts of incompatible uses, construction noise, potential demolition of cultural and historic resources, loss or conversion of prime or unique farmland to urban uses, and cumulative greenhouse gas emissions.

No feasible mitigation to fully reduce these impacts were identified.

The Draft EIR is available for public review at the City Development Services Center and the Fremont Main Library during normal business hours, as well as on the City's website at: http://www.fremont.gov/ceqa

The DRAFT General Plan Update documentation can be viewed at http://www.fremont.gov/generalplan

City of Fremont
Development Services Center
39550 Liberty Street (P.O. Box 5006)
Fremont, CA 94537
Mon-Thurs: 8 a.m. – 4 p.m.,
Fri: 8 a.m. – 12 p.m.

Fremont Main Library Branch
Alameda County Library
2400 Stevenson Boulevard
Fremont, CA 94538

Please address any questions or comments regarding the DEIR to:

Dan Schoenholz, General Plan Project Manager
City of Fremont Planning Division
39550 Liberty Street (P.O. Box 5006)
Fremont, CA 94537

dschoenholz@fremont.gov;
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fax. 510-494-4402

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# INTRODUCTION

## PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act and the Guidelines promulgated thereunder (together "CEQA") require an Environmental Impact Report (EIR) to be prepared for any project which may have a significant impact on the environment. An EIR is an informational document, the purposes of which, according to CEQA are "…to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project." The information contained in this EIR is intended to be objective and impartial, and to enable the reader to arrive at an independent judgment regarding the significance of the environmental impacts resulting from the proposed project.

This EIR evaluates the potential environmental impacts that may be associated with the DRAFT Fremont General Plan Update (or the "Project"), which is intended to guide future development within the City of Fremont, California. The Lead Agency is the City of Fremont. Adoption of the General Plan would require subsequent re-zoning within the Fremont. Under the DRAFT General Plan Update, development within Fremont during the planning period would include the development of up to approximately 15,684 new residential units. Office, R&D and industrial development is likely to take place within the approximately 800 acres of developable vacant land within the City's core industrial and commercial areas and on underutilized parcels which currently support non-residential uses.

## EIR REVIEW PROCESS

This EIR is intended to enable City decision makers, public agencies and interested citizens to evaluate the broad environmental issues associated with implementation of the General Plan Update as currently proposed. An EIR does not control the agency's ultimate discretion on the Project. However, as required under CEQA, the agency must respond to each significant effect identified in the EIR by making findings and, if necessary, by making a statement of overriding considerations. In accordance with California law, the EIR on the Project must be certified before any action on the Project can be taken.

During the 45-day review period for this DRAFT EIR, interested individuals, organizations and agencies may offer their comments on its evaluation of Project impacts and alternatives. The comments received during this public review period will be compiled and presented together with responses to these comments in the FINAL EIR. Together, this DRAFT EIR (DEIR) and the FINAL EIR (FEIR) will constitute the EIR for the DRAFT General Plan Update. The Fremont City Council will review the EIR documents and will determine whether or not the EIR provides a full and adequate appraisal of the DRAFT General Plan Update and its alternatives.

In reviewing the DRAFT EIR, readers should focus on the sufficiency of the document in identifying and analyzing the possible environmental impacts associated with the Project. Readers are also encouraged to review and comment on ways in which significant impacts associated with this Project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental impacts. Reviewers should explain the basis for their comments and, whenever possible, should submit data or references in support of their comments.

**The 45-day review period for the DRAFT EIR extends to August 19, 2011.** Comments should be submitted in writing during this review period to:

Dan Schoenholz, Policy and Special Projects Manager
City of Fremont
Community Development Department
39550 Liberty Street (P.O. Box 5006)
Fremont, CA 94537-5006
dschoenholz@ci.fremont.ca.us

Please contact Dan Schoenholz at 510-494-4438 if you have any questions. After reviewing this DRAFT EIR and the FINAL EIR, and after reviewing the recommendation of the City of Fremont Planning Commission regarding the certification of the EIR as adequate and complete, the City Council will be in a position to determine whether or not the EIR should be certified, and whether the DRAFT General Plan Update should be adopted, revised, or rejected. This determination will be based upon information presented on the entirety of the Project, its impacts and probable consequences, and the possible alternatives and mitigation measures available.

## CONTENT AND ORGANIZATION OF THE EIR

A Notice of Preparation (NOP) was issued in August, 2010, to solicit comments from public agencies and the public regarding the scope of the environmental evaluation for the Project. The NOP and all written responses are presented in **Appendix A**. The responses to the NOP were taken into consideration during the preparation of the DRAFT EIR.

Following this brief introduction to the DRAFT EIR, the document's ensuing chapters include the following:

Chapter 2: Executive Summary and Impact Overview, which provides a summary of the significant impacts that would be anticipated with implementation of the General Plan Update, and identifies mitigation measures recommended to reduce or avoid significant impacts.

Chapter 3: Project Description, which provides a brief description of the General Plan Update, the Plan's goals, objectives and policies, and identifies the level of future development anticipated under the Plan.

Chapter 4: Setting, Impacts and Mitigation Measures, which describes existing conditions, identifies potentially significant environmental impacts, and recommends mitigation measures to reduce or avoid those impacts in each environmental topic area.

Chapter 5: Alternatives, which provides an evaluation of alternative development scenarios for Fremont and describes other alternatives that have been considered but not evaluated further in the DRAFT EIR.

Chapter 6: Other CEQA Considerations, which provides the mandatory analysis of overall impacts of the General Plan Update, including growth-inducement, significant unavoidable or irreversible environmental impacts and cumulative impacts.

Chapter 7: Report Preparation, which identifies those involved in the preparation of the DRAFT EIR, a list of persons and agencies contacted, and reference documents reviewed and cited.

Appendices, including the Notice of Preparation and responses to the Notice of Preparation, and detailed information related to the traffic analyses, air quality, noise and biological resources conducted for the DRAFT EIR.

In Chapter 4, existing conditions are discussed in the "Setting" sections, followed by a "program-level" evaluation of type of environmental impacts that may be associated with implementation of the DRAFT General Plan Update and the mitigation measures that would reduce or eliminate these impacts, where feasible.

## LEVEL OF REVIEW

The DRAFT EIR provides a "program-level" review of the types of environmental impacts that may be associated with implementation of the DRAFT General Plan Update. In accordance with CEQA Guidelines, Section 15168(b), a Program EIR:

- Provides an occasion for more exhaustive consideration of the effects and alternatives than would be practical in an EIR on an individual action;
- Ensures consideration of cumulative impacts that might be slighted in a case-by-case analysis;
- Avoids duplicative reconsideration of basic policy considerations,
- Allows the Lead Agency to have greater flexibility to deal with basic problems or cumulative impacts; and
- Allows reduction in paperwork.

The Program EIR identifies the general effects of development envisioned under the DRAFT General Plan Update. The degree of specificity in the DRAFT EIR reflects the level of detail provided in the DRAFT General Plan Update. Following City of Fremont adoption of the General Plan Update, subsequent development activities and other actions would be necessary to implement the Policies included in the Plan. This DRAFT EIR addresses the potential environmental impacts of those subsequent actions to the extent possible, given the conceptual nature of the DRAFT General Plan Update. When subsequent individual development projects are proposed within the City of Fremont, additional site-specific environmental review will be required to evaluate and disclose project-level impacts in accordance with CEQA, as well as to demonstrate conformance with General Plan Update Goals and Policies. This approach is consistent with CEQA Guidelines Section 15168(c), which states that "subsequent activities must be examined in the light of the Program EIR to determine whether an additional environmental document must be prepared."

It should be noted that the level of residential and non-residential development assumed for the purposes of the EIR evaluation is much greater than the level of development that has actually taken place in Fremont in recent times, and represents an "upper limit" set of assumptions for development during the planning period to provide the basis for the assessment of potential environmental impacts at a "program" level. The level of development assumed under the DRAFT General Plan Update would accommodate all of the City of Fremont's "fair share" of the regional housing need, but development decisions are often driven by economic factors which would not be influenced in any substantive way by the Plan. Although the DRAFT General Plan Update would permit more intensive development than has been experienced in recent years, it is probable that actual development during the planning period may not match the levels assumed for the purposes

of the EIR evaluation. As a result, actual environmental impacts associated with development under the DRAFT General Plan Update during the planning period may ultimately turn out to be less than those described in this program-level EIR, depending on the level of development that actually occurs in Fremont during that time.

## INTENDED USES OF THE EIR

This EIR has been prepared as a Program EIR, and will be used to provide City of Fremont decision-makers and the general public with relevant environmental information to use in considering the following actions:

- Adoption of the General Plan Update; and
- Implementation of actions pursuant to and described in the DRAFT General Plan Update, including proposed changes to zoning, subject to further CEQA review as required when more specific details of various implementation actions are determined.

Specifically, this EIR constitutes and is designated as a "program environmental impact report" for purposes of Public Resources Code Section 21090(a). Any new projects (such as private or public development activities) that might occur within the City of Fremont following adoption of the General Plan Update will be subject to subsequent environmental review pursuant to CEQA. Such review will determine whether:

- A project is exempt from further review;
- The activity is adequately covered by this EIR, so that no further CEQA review is needed;
- A Negative Declaration, with or without mitigations, is required; or
- An EIR is required (including, for example, a Subsequent EIR, a Supplemental EIR or a new EIR).

As contemplated by CEQA, this program-level EIR is intended to serve as the basis for further CEQA review that may be appropriate for specific new development projects in Fremont. Consistent with CEQA Guidelines Section 15168(c), subsequent activities must be examined in light of the Program EIR to determine whether an additional environmental review document must be prepared. If a later activity would have effects that were not examined in the DRAFT General Plan Update Program EIR, a new Initial Study would be needed to lead either to an EIR or Negative Declaration as the appropriate environmental review document.

As provided by Section 15168 of the CEQA Guidelines, this EIR is a Program EIR. The vision, guiding principles, land use designations, goals, policies and implementation actions of the General Plan Update comprise the "program" that is evaluated in this Program EIR. Subsequent activities undertaken by the City and project proponents to implement the General Plan Update will be reviewed in context of this Program EIR to determine the appropriate level of further environmental review required under CEQA.

Such subsequent implementation activities may include the following:

- Updating and amending the Zoning Ordinance
- Updating and amending the Zoning Map consistent with the adopted General Plan
- Preparation and approval of Community Plans, and other development plans and planning documents
- Preparation and approval of Climate Action Plan
- Preparation and approval of updates to the Bicycle Master Plan and Pedestrian Master Plan
- Preparation and approval of design guidelines, including Multi-Family Design Guidelines, and historic preservation plans
- Preparation and approval of tentative subdivision maps, variances, conditional use permits, and other land use permits and entitlements consistent with the General Plan
- Preparation and approval of development agreements
- Updating and amending Engineering Standard Specifications
- Preparation and approval of the Capital Improvement Program (CIP)
- Acquisition or disposition of City property
- Issuance of any other permits and approvals necessary for implementation of the updated General Plan
- Updates to the City's Housing Element and other General Plan Elements

Following the certification of the EIR and adoption of the General Plan Update by the City of Fremont, other agencies may use this Program EIR in the approval of subsequent implementation activities. These agencies may include, but are not limited to the following:

Local Agencies

- City of Fremont
- County of Alameda Agencies
- Alameda County Water District
- Union Sanitary Sewer District
- Fremont Unified School District
- Santa Clara County Agencies
- Fremont Redevelopment Agency

State and Regional Agencies

- California Department of Fish and Game
- California Department of Conservation
- California Department of Housing and Community Development (HCD)
- California Department of Transportation (Caltrans)
- State Water Resources Control Board/San Francisco Bay Regional Water Quality Control Board
- Metropolitan Transportation Commission (MTC)
- Association of Bay Area Governments (ABAG)
- Bay Area Air Quality Management District (BAAQMD)
- San Francisco Bay Conservation and Development Commission (BCDC)
- Bay Area Rapid Transit District (BART)

Federal Agencies

- Federal Emergency Management Agency (FEMA)
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service

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# 2

# EXECUTIVE SUMMARY

## PROJECT UNDER REVIEW

The DRAFT EIR describes the environmental consequences of implementing the Fremont DRAFT General Plan Update. A Program EIR addresses a series of related actions that can be characterized as one large project. This Program EIR, as defined by CEQA Guidelines Section 15168, is designed to fully inform City decision-makers, other responsible agencies, and the general public of the potential environmental consequences of General Plan Update adoption. Implementation of the General Plan Update would enable the City of Fremont to accommodate significant additional development. The EIR assumes up to approximately 15,684 new dwelling units, and office, R&D and industrial development likely to take place through 2035. Development will be a combination of redevelopment of existing sites and development of approximately 800 acres of vacant commercial and industrial land throughout the city. A detailed description of the DRAFT General Plan Update is provided in **Chapter 3: Project Description.**

## SUMMARY OF IMPACTS AND MITIGATION MEASURES

This summary provides an overview of the analysis contained in **Chapter 4: Environmental Analysis**. CEQA requires a summary include a discussion of:

- Potential areas of controversy;
- Significant impacts;
- Significant unavoidable impacts; and
- Alternatives.

### POTENTIAL AREAS OF CONTROVERSY

Issues raised by reviewing agencies, organizations, and members of the public as potential areas of controversy during the scoping process include: safety at rail crossings; potential noise associated with traffic; access to waterfront areas; the potential effects associated with an anticipated rise in sea level; the long-term availability of water to support development

anticipated under the DRAFT General Plan Update; the ability of the Plan to address potential hazards within Fremont; and the need to assess the capacity of wastewater conveyance capacity in areas where development is anticipated under the Plan.

## SIGNIFICANT IMPACTS

Under CEQA Guidelines, Section 21060.5 and Section 21068, a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Implementation of the DRAFT General Plan Update has the potential to generate significant environmental impacts in several areas, including Transportation and Circulation, Air Quality, Noise, Hydrology and Water Quality, Cultural and Archaeological Resources, Agricultural Resources, Biological Resources, Utilities and Service Systems and Global Climate Change (see **Table 2-1**, below).

## SIGNIFICANT UNAVOIDABLE IMPACTS

As discussed in **Chapter 4: Environmental Analysis**, implementation of the DRAFT General Plan Update would result in the following significant unavoidable impacts:

Development anticipated under the DRAFT General Plan Update would be expected to result in unacceptable AM peak hour Level of Service (LOS) E operations at 6 intersections, unacceptable PM peak hour LOS E operations at 5 intersections, unacceptable AM peak hour LOS F operations at 25 intersections, and unacceptable PM peak hour LOS F operations at 26 intersections.

**Impact TRA-1: Unacceptable Level of Service at Alvarado Boulevard/Deep Creek Road Intersection (#1).** During the A.M. peak hour, the addition of Draft General Plan Update-related traffic would result in a significant impact at the intersection of Alvarado Boulevard/Deep Creek Road. The intersection of Alvarado Boulevard/Deep Creek Road is LOS C under the Existing Condition, and would deteriorate to LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**.

**Mitigation TRA-1: Modification of Alvarado Boulevard/Deep Creek Road Intersection (#1).** By modifying the intersection as shown in Figure 4.3, the intersection average delay for the A.M. peak hour would improve from 76.9 seconds to 66.4 seconds. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the LOS would remain at LOS E. Further modifications to the intersection cannot be recommended due to the fact that improvements would be made by another agency, and due to the proximity of private homes or the adjacent I-880 overpass structure. Therefore, this would remain a ***significant and unavoidable*** impact following implementation of **Mitigation TRA-1**.

**Impact TRA-3: Unacceptable Level of Service at Paseo Padre Parkway/Decoto Road Intersection (#4).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Decoto Road. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Decoto Road is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**.

**Mitigation TRA-3: Modification of Paseo Padre Parkway/Decoto Road Intersection (#4).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 156.9 seconds to 82.9 seconds. Similarly, the P.M. peak would improve from 123.5 to 82.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along each of the quadrants of the intersection.

With this mitigation in place, the intersection average delay would improve. However, the LOS would remain at LOS F for both the A.M. and P.M. peak hours. Therefore, this mitigation would be ***significant and unavoidable***.

**Impact TRA-5: Unacceptable Level of Service at I-880 NB Ramps/Decoto Road Intersection (#6).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 NB Ramps/Decoto Road. For the A.M. and P.M. peak hours, the intersection of I-880 NB Ramps/Decoto Road is LOS D and B, respectively, under the Existing Condition, and would deteriorate to LOS F and E, respectively, in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-5: Modification of I-880 NB Ramps/Decoto Road Intersection (#6).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 167.1 seconds to 73.4 seconds. Similarly, the P.M. peak would improve from 67.4 to 27.2 seconds. This mitigation may require acquisition of additional right-of-way, reconstruction of the overpass at I-880 and utility relocations. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and LOS C in the P.M. Because of the LOS E condition, the potential reconstruction of the overpass at I-880, and the fact that improvements would be made by another agency, this would be a ***significant and unavoidable*** impact.

**Impact TRA-7: Unacceptable Level of Service at Paseo Padre Parkway/Isherwood Way Intersection (#11).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Isherwood Way. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Isherwood Way is LOS C under the Existing Condition, but would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-7: Modification of Paseo Padre Parkway/Isherwood Way Intersection (#11).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 143.5 seconds to 118.6 seconds. Similarly, the P.M. peak would improve from 152.5 to 113.9 seconds. This mitigation would require modification of existing traffic signal hardware, travel lane re-striping and the modification of raised concrete medians on northbound approaches to Paseo Padre Parkway.

With this mitigation in place, the intersection average delay would improve. However, the level of service for the A.M. and P.M. peak hours would remain at LOS F. Therefore, this impact would be ***significant and unavoidable***.

**Impact TRA-8: Unacceptable Level of Service at Paseo Padre Parkway/Thornton Avenue Intersection (#12).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Thornton

Avenue. For the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Thornton Avenue is LOS D under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-8: Modification of Paseo Padre Parkway/Thornton Avenue Intersection (#12).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 217.5 seconds to 39.8 seconds. Similarly, the P.M. peak would improve from 146.0 to 87.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner of the intersection.

With this mitigation in place, the intersection LOS would improve to LOS C in the A.M., but remain LOS F in the P.M. The A.M. impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure. The P.M. impact, however, would be ***significant and unavoidable***.

**Impact TRA-10: Unacceptable Level of Service at Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Peralta Boulevard. For the P.M. peak hour, the intersection of Paseo Padre Parkway/Peralta Boulevard is LOS D, under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located along select Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-10: Modification of Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 164.7 seconds to 133.7 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southeast corner.

With this mitigation in place, the P.M. peak hour would remain at an LOS worse than LOS E and, therefore, this would be a ***significant and unavoidable*** impact.

**Impact TRA-11: Unacceptable Level of Service at Paseo Padre Parkway/Mowry Avenue Intersection (#21).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-11: Modification of Paseo Padre Parkway/Mowry Avenue Intersection (#21).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 107.0 seconds to 94.8 seconds. Similarly, the P.M. peak would improve from 94.1 to 63.6 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along both Paseo Padre Parkway approaches.

With this mitigation in place, the intersection LOS would remain LOS F in the A.M. and improve to LOS E in the P.M. The A.M. operation would remain at an LOS F worse than LOS E and, therefore, would be a ***significant and unavoidable*** impact. The P.M. impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-12: Unacceptable Level of Service at Fremont Boulevard/Mowry Avenue Intersection (#22).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Mowry Avenue. For the P.M. peak hour, the intersection of Fremont Boulevard/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-12: Modification of Fremont Boulevard/Mowry Avenue Intersection (#22).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 123.1 seconds to 87.4 seconds. This

mitigation would entail minor restriping along the eastbound Mowry Avenue approach, but would not require acquisition of additional right-of-way or utility relocations along the southwest corner.

With this mitigation in place, the intersection LOS would remain LOS F in the P.M. peak hour. The P.M. impact would remain at an LOS worse than LOS E and therefore would be a ***significant and unavoidable*** impact.

**Impact TRA-13: Unacceptable Level of Service at Blacow Road/Mowry Avenue Intersection (#24).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Blacow Road/Mowry Avenue is LOS C under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

The improvements necessary to mitigate this intersection would require the narrowing or closing of the frontage road along Blacow Road. However, current Fire Code regulations will not permit the magnitude of modifications that are required. Therefore, this intersection is considered "built-out" and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to existing structures. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

If the intersection were modified to include an additional northbound right turn lane, then the average delay would then improve to 77.8 seconds (LOS E) in the A.M. peak hour and 68.0 seconds (LOS E) in the P.M. peak hour.

**Impact TRA-14: Unacceptable Level of Service at Mission Boulevard/Niles Canyon Road Intersection (#28).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Niles Canyon Road. For the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Niles Canyon Road is LOS D and E, respectively under the Existing Condition, and would both deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant***

project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-14: Modification of Mission Boulevard/Niles Canyon Road Intersection (#28).** By modifying the intersection as shown in **Figure 4.3**, changing the traffic signal to protected phasing operation and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 307.7 seconds to 195.6 seconds. Similarly, the P.M. peak hour would improve from 215.2 seconds to 183.6 seconds. This mitigation would entail minor restriping along eastbound Niles Canyon Road, but would not require acquisition of additional right-of-way or utility relocations.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS F worse than LOS E and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-15: Unacceptable Level of Service at Mission Boulevard/Mowry Avenue Intersection (#29).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Mowry Avenue is LOS F under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 74.5 seconds during the A.M. peak hours and 63.5 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-15: Modification of Mission Boulevard/Mowry Avenue Intersection (#29).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection (which is under Caltrans jurisdiction), average delay for the A.M. peak hour would improve from 250.0 seconds to 120.9 seconds. Similarly, the P.M. peak hour would improve from 242.3 seconds to 108.3 seconds. This mitigation would entail minor restriping along the southbound Mission Boulevard approach and would not require acquisition of additional right-of-way or utility relocations.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS E allowed

for regionally influenced intersections and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-16: Unacceptable Level of Service at Mission Boulevard/Walnut Avenue Intersection (#30).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Walnut Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Walnut Avenue is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on the close proximity to single family homes and railroad tracks. Acquisition of additional right-of-way and utility relocation may not be feasible at this intersection. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-17: Unacceptable Level of Service at Mission Boulevard/Stevenson Boulevard Intersection (#34).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Stevenson Boulevard. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Stevenson Boulevard is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on a review of adjacent right-of-way and existing structures. Significant modifications to the tunnel underneath the railroad toward the south would be required to widen Mission Boulevard and improve this location. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-18: Unacceptable Level of Service at Blacow Road/Stevenson Boulevard Intersection (#37).** During the A.M. and P.M. peak hours,

the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Stevenson Boulevard. For the A.M. and P.M. peak hours, the intersection of Blacow Road/Stevenson Boulevard is LOS E and F, respectively under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 25.8 seconds during the A.M. peak hour and 11.6 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-18: Modification of Blacow Road/Stevenson Boulevard Intersection (#37).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 83.7 seconds to 78.1 seconds. Similarly, the P.M. peak would improve from 131.5 to 89.2 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner adjacent to the ARCO fuel station.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and remain LOS F in the P.M. The A.M. would still have an increase in intersection average delay greater than 4.0 seconds and, therefore, this would be a ***significant and unavoidable*** impact. The P.M. would have an increase in intersection average delay less than 4.0 seconds and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-20: Unacceptable Level of Service at Grimmer Boulevard/Blacow Road Intersection (#43).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Grimmer Boulevard/Blacow Road. For both the A.M. and P.M. peak hours, the intersection of Grimmer Boulevard/Blacow Road is LOS F and D, respectively under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-20: Modification of Grimmer Boulevard/Blacow Road Intersection (#43).** By modifying the intersection as shown in **Figure 4.3** and

optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 157.1 seconds to 70.6 seconds. Similarly, the P.M. peak would improve from 80.1 to 51.5 seconds. This mitigation may require acquisition of significant additional right-of-way and utility relocations at every corner.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and LOS D in the P.M. The A.M. would still have an LOS worse than LOS D and, therefore, this would be a ***significant and unavoidable*** impact. The P.M. would have an LOS D, and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-22: Unacceptable Level of Service at Union Street-Fremont Boulevard/Washington Boulevard Intersection (#48).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Union Street - Fremont Boulevard/Washington Boulevard. For both the A.M. and P.M. peak hours, the intersection of Union Street - Fremont Boulevard/Washington Boulevard is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This five-legged intersection at five corners in Irvington is "built-out", and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to existing buildings and historic resources. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-23: Unacceptable Level of Service at Fremont Boulevard/Auto Mall Parkway Intersection (#50).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Auto Mall Parkway is LOS D and E, respectively under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project

impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection is "built-out", and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to the existing overhead power structures, adjacent drainage canal and railroad overpass. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-25: Unacceptable Level of Service at I-880 SB Ramps/Fremont Boulevard Intersection (#53).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 SB Ramps/Fremont Boulevard. For the A.M. peak hour, the intersection of I-880 SB Ramps/Fremont Boulevard is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out" and additional modifications beyond those already planned are not feasible based on a review of adjacent topography and the close proximity to the overpass at I-880. Roadway reconstruction and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-27: Unacceptable Level of Service at Osgood Road/Auto Mall Parkway Intersection (#56).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Osgood Road/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Osgood Road/Auto Mall Parkway is LOS E and F, respectively, under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection is "built-out" and additional modifications beyond those already planned beyond the planned widening of Auto Mall Parkway to six lanes are not likely feasible. Expansion of the roadway on its northern edge toward Fry's, and relocation of the overhead utility structure would create additional capacity to improve the intersection. This intersection is bounded by bridge structures directly to the east and the west, and overhead

power lines to the north. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-28: Unacceptable Level of Service at I-680 SB Ramps/Durham Road Intersection (#57).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-680 SB Ramps/Durham Road. For the P.M. peak hour, the intersection of I-680 SB Ramps/Durham Road is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on a review of adjacent topography and close proximity to the overpass at I-680. Significant roadway modifications may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-30: Unacceptable Level of Service at Warm Springs Boulevard/ Mission Boulevard (SR–262) Intersection (#62).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262). For the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262) is LOS E and D, respectively, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-30: Modification of Warm Springs Boulevard/Mission Boulevard (SR-262) Intersection (#62).** By modifying the intersection to include a southbound right-turn free movement and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 405.9 seconds to 154.6 seconds. Similarly, the P.M. peak would improve from 395.0 to 174.4 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations at the northwest corner of the intersection. Alternatively the City, in cooperation with Caltrans, will consider grade separation options for the intersection to improve the cross connection ability of the highway

between I-680 and I-880. In the event that this becomes a reality, then this location will need to be re-evaluated with revised geometric considerations. Construction of an "urban interchange" would improve operations, but have considerable right-of-way acquisition issues on existing businesses.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS E and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-32: Unacceptable Level of Service at Warm Springs Boulevard/Kato Road – Scott Creek Road Intersection (#64).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road. For both the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road is LOS D, under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-32: Modification of Warm Springs Boulevard/East Warren Avenue Intersection (#64).** By modifying the intersection as shown in **Figure 4.3,** converting the westbound right turn to overlap operation and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 167.6 seconds to 138.8 seconds. Similarly, the P.M. peak hour would improve from 195.8 seconds to 137.3 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the north-east corner of the intersection.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS D and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-33: Unacceptable Level of Service at Fremont Boulevard/Dixon Landing Road Intersection (#68).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Dixon Landing Road. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Dixon Landing Road is LOS B, under the

Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

Additional modifications at this intersection are not feasible beyond those already assumed as part of the approved Creekside Landing Development Project, based on a review of available right-of-way or the close proximity to existing bridge over Coyote Creek and overhead power utilities. Significant roadway modifications may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact AIR-1:** **Conflict with CAP Assumptions.** Development anticipated following adoption of the DRAFT General Plan Update would increase population and employment in the City, leading to additional air pollutant emissions. City-wide vehicle miles traveled (VMT) is projected to increase at a faster rate than the city's population, which conflicts with Clean Air Plan (CAP) assumptions. This is a ***significant*** impact.

A key element in air quality planning is to make reasonably accurate projections of future human activities that are related to air pollutant emissions. When the 1991 CAP was updated (Bay Area 2010 Clean Air Plan), it utilized the most recent projections developed by ABAG and vehicle activity projected by the MTC. These projections were based on the most recent projections at the time using land use designators developed by cities and counties through the General Plan process. Planning assumptions are constantly being updated, so the 2010 BAAQMD CEQA Air Quality Guidelines recommend that growth be planned such that vehicle travel does not increase at a rate greater than population growth. This alleviates the need to evaluate impacts against a moving target (i.e., ABAG projections that are constantly updated).

According to the California Department of Finance, Fremont's estimated population was 218,128 on January 1, 2010. The Association of Bay Area Governments (ABAG) projects that Fremont population will grow to 256,200 persons by 2035, a growth rate of about 0.6 percent per year. Because of the City's vision for "strategically urban" development (described in more detail in Chapter 3, Project Description), the City is estimating for purposes of evaluating DRAFT General Plan Update potential environmental impacts that Fremont's population will grow to 263,585 in 2035. This is considered by the City as the highest level of potential growth that could be reasonably accommodated under the DRAFT General Plan Update.

Traffic modeling conducted in support of the DRAFT General Plan Update forecasts vehicle miles traveled in Fremont (as well as the entire Alameda County) for existing conditions and future conditions with the DRAFT General Plan Update. With development anticipated under

the DRAFT General Plan Update, vehicles miles traveled (VMT) in both Fremont and Alameda County would increase by 61 percent over existing or baseline conditions. This would equate to a 2.0 percent per year increase in VMT, which would far exceed the projected rate of population growth. It should be noted that the VMT forecasting is based on traffic models that are prone to over-predicting vehicle activity due to the inability of the models to properly internalize trips or double-counting of trips. Since the rate of projected VMT growth would exceed the rate of projected population growth, this would be considered a significant impact.

Beyond the implementation of the DRAFT General Plan Update programs and policies, there are no feasible measures that would reduce this impact to a level considered less than significant. While policies and other BAAQMD regulations or programs would reduce impacts to air quality, the growth in VMT could disrupt or hinder the effectiveness of the CAP that relies on reductions in traffic-related emissions resulting from land use decisions. This would be considered a ***significant and unavoidable*** impact.

**Impact AIR-3:** **Construction Period Dust, Emissions and Odors.** Construction of development projects under the DRAFT General Plan Update would result in temporary emissions of dust, diesel exhaust and odors that may result in both nuisance and health impacts. Without appropriate measures to control these emissions, these impacts would be considered ***significant***.

Construction of development projects under the DRAFT General Plan Update would involve demolition, site preparation and grading, building erection, paving and use of paints or solvents. Two primary types of emissions would occur: dust from ground disturbances and exhaust emissions.

*Dust Emissions*

Dust would be generated during demolition, grading and construction activities. Most of the dust would result during demolition activities and site preparation. The amount of dust generated would be highly variable, and is dependent on the size of the area disturbed, amount of activity, soil conditions and meteorological conditions. Typical winds during late spring through summer are from the northwest. Afternoon winds in late spring and summer can be gusty when conditions are dry. Sensitive land uses will be near some of the construction projects. Dust emissions from construction could contribute to regional $PM_{10}$ emissions.

Although construction activities would be temporary and local, they would have the potential to cause both nuisance and health-related air quality impacts. $PM_{10}$ is the pollutant of greatest concern associated with dust. If uncontrolled, $PM_{10}$ levels downwind of actively disturbed areas could possibly exceed State standards. In addition, dust fall on adjacent properties could be a nuisance. If uncontrolled, dust generated by grading and construction activities represents a significant impact associated with DRAFT General Plan Update-related

development. Policy 7-7.2: Reduce Air Contaminant Levels and Implementation 7-7.2.A: Construction Practices, would require construction practices that reduce dust and other particulate emissions and require watering of exposed areas at construction sites. The BAAQMD CEQA Air Quality Guidelines have identified "Best Management Practices" to reduce dust and $PM_{10}$ emissions during construction. Implementation of these measures would reduce dust and $PM_{10}$ emissions to a level considered less than significant. Without implementation of these measures for construction projects that involve grading or large site disturbances, significant emissions of $PM_{10}$ are possible.

*Construction Exhaust Emissions*

Construction impacts would be a source of exhaust emissions from construction vehicles. Exhaust from construction equipment and associated heavy-duty truck traffic emits diesel particulate matter, which is a known Toxic Air Contaminant. In the current CEQA Guidelines, the BAAQMD has developed procedures or guidelines for identifying impacts from temporary construction activities where emissions are transient. These thresholds, however, do not apply to Plan-level impacts.

Diesel exhaust in the form of diesel particulate matter or DPM is a TAC. Use of heavy-duty equipment in close proximity to sensitive receptors may cause significant exposures of persons to TACs or $PM_{2.5}$. In general, exposures are expected to be less than significant given the relatively short duration of construction activities. Currently, the BAAQMD recommends that exposure to TACs from construction activity should be based on cancer risks, chronic non-cancer risks and $PM_{2.5}$ exposures. BAAQMD commissioned a screening level construction heath risk assessment that found projects that involve more than 6 months of heavy construction with sensitive receptors located within 330 feet (100 meters) may have significant exposures[1]. Use of newer construction equipment along with mitigation measures can greatly reduce exposures to sensitive receptors near construction sites. However, the construction exhaust emissions would be considered significant if measures to reduce NOx and DPM emission are not included during construction for larger projects.

*Hazardous Emissions from Construction*

Given the age of some buildings in Fremont that could be demolished or renovated as part of construction under the DRAFT General Plan Update, asbestos-containing materials may be present. Investigations would be required to identify these materials prior to any construction activities. Demolition activities would require permits from the BAAQMD if removal or disturbance of hazardous materials were to occur. For instance, the handling of asbestos containing materials is subject to BAAQMD Regulation 11 – Hazardous Pollutants, Rule 2 – Asbestos Demolition, Renovation and Manufacturing. Asbestos is a TAC that has been

[1] BAAQMD. 2010. Screening Tables for Air Toxics Evaluation During Construction, Version 1.0. May.

known to cause a number of disabling and fatal diseases such as asbestosis, lung cancer, and mesothelioma. There is no identified safe level of exposure to asbestos; therefore, all exposure to asbestos should be avoided. Project applicants would be required to consult with the BAAQMD's Enforcement Division prior to handling materials that may contain asbestos. Adherence to this requirement on a project-by-project basis ensures that asbestos-related impacts would be less than significant. The regulation is designed to employ the best available dust mitigation measures in order to reduce and control dust emissions for both onsite workers and the public.

The BAAQMD CEQA Air Quality Guidelines do not identify Plan-level thresholds that apply to construction. Although construction activities at individual project sites are expected to occur during a relatively short time periods, the combination of temporary dust from activities and diesel exhaust from construction equipment poses both a health and nuisance impact to nearby receptors. In addition, NOx emissions during grading and soil import/export for large projects may exceed the BAAQMD NOx emission thresholds. Without application of appropriate control measures to reduce construction dust and exhaust, construction period impacts would be considered a ***potentially significant impact***.

**Mitigation AIR-3: Implement BAAQMD-Recommended Measures to Control Particulate Matter Emissions during Construction.** Measures to reduce diesel particulate matter and PM10 from construction are recommended to ensure that short-term health impacts to nearby sensitive receptors are avoided.

Dust ($PM_{10}$) Control Measures:

- Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.
- Cover all hauling trucks or maintain at least two feet of freeboard.
- Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.

- Limit traffic speeds on any unpaved roads to 15 mph.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend construction activities that cause visible dust plumes to extend beyond the construction site.
- Post a publicly-visible sign(s) with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Additional Measures to Reduce Diesel Particulate Matter and $PM_{2.5}$ and other construction emissions:

- The developer or contractor shall provide a plan for approval by the City or BAAQMD demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the year 2011
- Clear signage at all construction sites will be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site.
- The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).
- Properly tune and maintain equipment for low emissions.

Implementation of **Mitigation AIR-3** would be sufficient to reduce exhaust emissions from most construction projects to a level considered ***less than significant***, but larger projects, due to their size and construction schedule, might have exhaust emissions that exceed the BAAQMD significance thresholds for construction exhaust emissions. Therefore, it is possible that in some circumstances, the impact would remain ***significant and unavoidable***.

**Impact NOI-2: Traffic-Related Increase in Existing Noise Levels.** Development anticipated under the DRAFT General Plan Update would result in increased traffic, with increased traffic-related noise levels. Along

roadways where this increase in noise levels above existing levels would exceed 3 dBA $L_{dn}$, this would represent a ***significant*** impact.

Development facilitated by the DRAFT General Plan Update would increase traffic within the City. Projected changes to traffic noise levels from existing levels were calculated by comparing SoundPlan model runs utilizing existing and future traffic scenarios. A substantial noise level increase is considered to be 3 dBA $L_{dn,}$ since noise levels were modeled along major roadways where existing levels approach or exceed "Acceptable" levels. Along most roadways, noise level changes would be 3 dBA $L_{dn}$ or less. The changes in noise levels along all modeled roadway sections are shown in **Table 4-37**, above. Roadways experiencing a substantial increase in noise include portions of Auto Mall Parkway, Central Avenue, Fremont Boulevard, Mission Boulevard, Paseo Padre Parkway, Peralta Boulevard, Thornton Avenue, Warm Springs Boulevard, and Washington Boulevard. Most of these roadway segments include land uses which are noise sensitive such as residences. This is considered a ***significant*** impact.

Methods available to mitigate project-generated noise level increases would need to be studied on a case-by-case basis. Noise reduction methods could include the following:

- New or larger noise barriers or other noise reduction techniques could be constructed to protect sensitive outdoor use areas and existing residential land uses where reasonable and feasible. Final design of such barriers should be completed during project level review.

- Alternative noise reduction techniques could be implemented, such as re-paving streets with "quieter" pavement types such as Open-Grade or Rubberized Asphalt Concrete. The use of "quiet" pavement can reduce noise levels by 2 to 5 dBA depending on the existing pavement type, traffic speed, traffic volumes, and other factors.

- Installing traffic calming measures to slow traffic.

- Affected residences could be provided building sound insulation such as sound rated windows and doors on a case-by-case basis as a method of reducing noise levels in interior spaces.

Given the scope of the DRAFT General Plan Update and expected noise level increases resulting from project traffic, it may not be reasonable or feasible to reduce project-generated traffic noise for all affected receivers. The increase in development density would increase noise levels noticeably. Measures available to reduce the project noise level increases would not likely be reasonable or feasible in all areas, therefore, the impact would be considered ***significant and unavoidable***.

**Impact NOI-3:** **Noise Impacts Associated with Incompatible Land Uses.** The proposed high density mixed-use and transit-oriented development

would introduce commercial uses adjacent to residential land uses. Commercial uses have not been identified, but such uses would probably include retail stores, restaurants, or cafes. New commercial development proposed along with, or next to, residential development could result in noise levels exceeding City standards. Typical noise levels generated by loading and unloading would be similar to noise levels generated by truck movements on local roadways. Mechanical equipment would also have the potential to generate noise, and would represent be a ***potentially significant*** noise impact.

New commercial, office, or other non-residential development could produce noise (HVAC, loading docks, etc.) that could affect existing residences or other noise-sensitive land uses. New projects developed under the DRAFT General Plan Update would be subject to the City's noise limits for stationary sources established in the Safety Element of the General Plan and the zoning ordinance, which set limits for permissible noise levels during the day and night according to the land use zoning of the area. This would be the City's tool to ensure that existing residences and other noise-sensitive land uses would not be exposed to excessive noise from these types of noise sources.

**Mitigation NOI-3:** **Project-Specific Noise Analysis.** Noise levels at residential property lines from commercial development should be maintained not in excess of the noise limits in revised Table 10-12 (Action 8.1.3) – see Mitigation 1. The approvals of the commercial development should require a noise study demonstrating how the business, including loading docks, refuse areas, and ventilation systems, would meet these standards and would be consistent with the City's noise standards.

The implementation of the above measure would reduce the impact to a level considered ***less than significant*** in most circumstances. However, the temporary transitional nature of some commercial areas transitioning into mixed use neighborhoods will result in conflicts with existing development and new development. Due to the desired transition, there will be potential conflicts between land uses that cannot be effectively mitigated in the short term. This would be a ***significant and unavoidable*** impact under those circumstances.

**Impact NOI-4:** **Construction Noise.** Businesses and residences would be intermittently exposed to high levels of noise throughout the DRAFT General Plan Update planning horizon. Construction would temporarily elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more, which would represent a ***potentially significant*** impact.

Residences and businesses would be affected by construction noise. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas

immediately adjoining noise sensitive land uses, or when construction lasts over extended periods of time. Major noise generating construction activities include removal of existing pavement and structures, site grading and excavation, building erections, paving and landscaping. Urban development forms include a wider variety of construction equipment types and phases than typical low-scale suburban development. In some cases, residences would be directly adjacent or in close proximity to construction activities of both residential and commercial development sites.

The highest construction noise levels would be generated during grading and excavation, with lower noise levels occurring during building construction. Large pieces of earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 to 85 dBA measured at a distance of 50 feet from the site during busy construction periods. In addition, pile-driving may occur at some of the project sites. This type of construction activity can produce very high noise levels of approximately 105 dBA at 50 feet, which are difficult to control. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. Intervening structures or terrain would result in lower noise levels.

Although construction noise would be localized to the individual site location, businesses and residences would be intermittently exposed to high levels of noise throughout the planning horizon. Construction would elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or higher. Such a large increase in the noise level, although short-term in duration, would be a ***potentially significant*** impact.

**Mitigation NOI-4:** **Modification, Placement and Operation of Construction Equipment.** Construction equipment should be well maintained and used judiciously to be as quiet as practical. The following measures, when applicable, are recommended best practices to reduce noise from construction activities near sensitive uses:

Standard Development

- Ensure that construction activities (including the loading and unloading of materials and truck movements) are limited to the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.

- Ensure that excavating, grading and filling activities (including warming of equipment motors) are limited to between the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.

- Contractors equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.

- Contractors utilize "quiet" models of air compressors and other stationary noise sources where technology exists.

- Site plan for large sites loading, staging areas, stationary noise-generating equipment, etc. as far as feasible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.

- Comply with Air Resource Board idling prohibitions of uneasy idling of internal combustion engines.

Additional measures that may be applicable to significant or prolonged construction projects:

Extended Projects with High-Intensity Construction Equipment (this would apply to projects with extended periods of concentrated construction with heavy equipment such as pile drivers):

- Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.

- Construct solid plywood fences around construction sites adjacent to operational business, residences or noise-sensitive land uses.

- A temporary noise control blanket barrier could be erected, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling.

- Route construction related traffic along major roadways and as far as feasible from sensitive receptors.

- Businesses, residences or noise-sensitive land uses adjacent to construction sites should be notified of the construction schedule in writing. Designate a "construction liaison" that would be responsible for responding to any local complaints about construction noise. The liaison would determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and institute reasonable measures to correct the problem.

Conspicuously post a telephone number for the liaison at the construction site.

The City applies a construction hours ordinance to new development to limit exposure to noise in the most noise sensitive of time periods, nighttime and weekends. Applying construction hours mitigates most noise impacts of new development in Fremont. Application of the above best practice techniques to manage noise, as applicable to the site specific situation, would further reduce noise exposure and result in a ***less than significant*** impact to temporary noise exposure from construction of individual new development. Although the above measures would reduce noise generated by the construction of individual development projects, the impact would remain ***significant and unavoidable*** where planned development is concentrated and includes phased construction with residential development, such as the Downtown Area of the City Center and urban development in PDAs, as a result of the extended period of time that adjacent occupants would be exposed to construction noise.

**Impact NOI-5:** **Construction Vibration.** Residences, businesses, and historic structures could be exposed to construction-related vibration resulting in cosmetic cracking (non-structural) during the excavation and foundation work of buildings associated with development anticipated under the DRAFT General Plan Update, a ***potentially significant*** impact.

There are no applicable state plans, policies, regulations or laws related to ground-borne vibration from construction activities, but guidance developed by the California Department of Transportation (Caltrans) has been used in past construction vibration impact assessments. Caltrans uses a vibration limit of 12.7 mm/sec (0.5 inches/sec), PPV for buildings structurally sound and designed to modern engineering standards. A conservative vibration limit of 5 mm/sec (0.2 inches/sec), PPV has been used for buildings that are found to be structurally sound but structural damage is a major concern. For historic buildings or buildings that are documented to be structurally weakened, a conservative limit of 2 mm/sec (0.08 inches/sec), PPV is often used to provide the highest level of protection. All of these limits have been used successfully, and compliance to these limits has not been known to result in appreciable structural damage. All vibration limits referred to herein apply on the ground level and take into account the response of structural elements (i.e. walls and floors) to ground-borne vibration.

Construction of projects within Fremont may, in some cases, be located directly adjacent to existing structures, including historic structures. Construction activities may include demolition of existing structures, site preparation work, excavation of below grade levels, foundation work, pile driving, and new building erection. Demolition for an individual site may last several weeks, and at times may produce substantial vibration. Excavation for underground levels would also occur on some project sites, and vibratory pile-driving could

be used to stabilize the walls of the excavated area. Piles or drilled caissons may also be used to support building foundations.

Pile-driving has the potential of generating the highest ground vibration levels and is of primary concern to architectural damage, particularly when it occurs within 100 to 200 feet of sensitive structures. Vibration levels generated by pile-driving activities would vary depending on project conditions such as soil conditions, construction methods, and equipment used but could exceed the recommended PPV thresholds to avoid architectural damage. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may also potentially generate substantial vibration in the immediate vicinity.

Depending on the proximity of existing structures to each construction site, the structural soundness of the existing buildings, and the methods of construction used, vibration levels may be high enough to damage existing structures. Given the scope of the DRAFT General Plan Update and the proximity of many existing structures, groundborne vibration impacts would be considered ***potentially significant***.

As with any type of construction, vibration levels may at times be perceptible. However, construction phases that have the highest potential of producing vibration (pile-driving and use of jackhammers and other high power tools) would be intermittent and would only occur for short periods of time for any individual project site. By use of administrative controls such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with least potential to affect nearby businesses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception.

**Mitigation NOI-5:** **Limitations on Construction Activities Generating Excessive Vibration.** The following best practice measures when applicable are recommended to reduce vibration from construction activities:

- Comply with construction hours ordinance to limit hours of exposure.
- Avoid impact pile-driving where possible. Drilled piles causes lower vibration levels where geological conditions permit their use.
- Minimize or avoid using vibratory rollers and tampers near sensitive areas.
- When vibration sensitive structures are adjacent to a subject site, survey condition of existing structures and when necessary

perform site specific vibration studies to direct construction activities. Contractors shall continue to monitor effects of construction activities on surveyed sensitive structures and offer repair or compensation for damage.

- Construction management plans for substantial construction projects shall include predefined vibration reduction measures, notification requirements for properties within 200 feet of construction schedule, and contact information for on-site coordination and complaints.

It may not be possible to avoid using pile-drivers, vibratory rollers and tampers entirely during construction associated with high density development anticipated under the DRAFT General Plan Update. Due to the density of development anticipated in Fremont, notably in the Downtown of City Center and PDAs, some of these activities may take place near sensitive areas. In these cases, the mitigation measures listed above may not be sufficient to reduce groundborne vibrations below to a level considered less than significant. Therefore, this impact would be ***significant and unavoidable***.

**Impact CUL-1: Possible Demolition/Degradation of Historic Resources.** Despite the many safeguards and substantial protections in place in City policies, ordinances and regulations, it is theoretically possible that development under the DRAFT General Plan Update could result in the material impairment of historic resources that are unknown to the City and likely to have gained significance subsequent to 1955. The limited possibility of such an adverse change to a CEQA-defined historic resource would constitute a ***potentially significant*** impact (see criteria No. 1, listed above in "Significance Criteria.)"

**Mitigation CUL-1:** **Compliance with City of Fremont Historical Resource Protection Policies, Design Guidelines, Regulations and Programs.** Required compliance with the City's extensive set of applicable historical resources protection policies, design guidelines, regulations and programs set forth in the DRAFT General Plan Update, Irvington Concept Plan, Niles Concept Plan, Centerville Specific Plan, Fremont Historic Resources Ordinance, Fremont Register of Historic Resources, and City Zoning Code Historic Overlay District in Niles serves to substantially reduce this potential impact. The policies and implementing measures set forth in DRAFT General Plan Update Goal 4-6, Historic Preservation, also serve to mitigate this impact. In those instances where development projects are proposed which could result in the demolition or material impairment of any structure, building or

object constructed prior to 1955, the City must evaluate the application to determine if there is sufficient significance and integrity to merit classification as a Potential Fremont Register Resource or formal designation as a Register Resource (DRAFT General Plan Update Implementation 4-6.1A). Where a structure, building or object has been classified as a Potential Fremont Register Resource or formally identified as a Register Resource, the development proposal must be modified to ensure protection/preservation of those historic resources, consistent with applicable guidelines. Despite these protections, it remains possible that a future project, after going through all applicable processes could result in the demolition of an historical resource, or otherwise cause the significance of the resource to be "materially impaired" (as defined in CEQA Guidelines section 15064.5(b)(2)). This possibility constitutes a ***significant and unavoidable*** impact for CEQA purposes.

As indicated above, although implementation of this mitigation measure would reduce potential impacts to historic resources to a level considered less than significant in most instances, there remains a limited possibility that demolition or substantial material alteration of historic resources could occur, which would represent a ***significant and unavoidable*** impact.

**Impact AG-1:** **Conversion of Agricultural Land to Urban Uses.** Implementation of the DRAFT General Plan Update could result in the irrevocable conversion of existing agricultural land currently designated by the California Department of Conservation as "Prime Farmland" (the Guardino parcel) or "Unique Farmland" (I-680/Palm properties) to urban uses. This would represent a ***potentially significant and unavoidable*** impact.

The Guardino parcel is the only site in Fremont which has been identified by the Department of Conservation as "Prime Farmland" that is designated for urban uses under existing land use regulations and under the DRAFT General Plan Update. This parcel is located within a TOD overlay identified in the DRAFT General Plan Update, and the City has longstanding plans for its ultimate residential development, given its location in central Fremont and proximity to public transit. The I-680/Palm properties are the only sites in Fremont which have been identified by the Department of Conservation as "Unique Farmland" that are designated for urban uses under existing land use regulations and under the DRAFT General Plan Update.

Potential mitigation for conversion of farmland would include rezoning of the properties to open space to limit the development potential of property and ensure its continued availability for use in agricultural production. A second mitigation measure option would be

to extract an impact fee for conversion of the land for the purpose or restoring or conserving other lands in the City related to agricultural production. Both of these measures are unlikely to be feasible as the limiting of their development as infill sites within the City would not be consistent with the DRAFT General Plan Update vision and goals for infill development. Additionally, there is no commercial agricultural production in and around Fremont to support the conservation of land through the collection of impact fees. Impact fees would not serve to restore or protect additional lands in the City related to agricultural production.

When residential development of the Guardino parcel actually takes place in the future (resulting in the loss of "Prime Farmland") and when development of the I-680/Palm properties actually takes place in the future (resulting in the loss of "Unique Farmland"), this would represent a ***significant and unavoidable*** impact associated with implementation of the DRAFT General Plan Update.

**Impact GCC-1: Potential Exceedance of Future BAAQMD Regulatory Thresholds for Greenhouse Gas Emissions.** While the GHG emission analysis conducted for the DRAFT EIR shows that the DRAFT General Plan Update conforms to BAAQMD-established performance levels standards for emissions through 2020, there are no established BAAQMD regulatory thresholds through 2035. In the absence of BAAQMD guidelines, the operative standard is AB32, which requires an 80 percent reduction from 1990 levels by 2050. Although it is likely that the per-service-population GHG emissions from new development in Fremont in the years subsequent to 2020 will continue to decrease, it is difficult to estimate the magnitude of the decrease. Much depends on actions of the Federal and State governments, as these entities have a much greater ability to effect emission reductions than do local governments. It is, therefore, possible (absent sufficiently aggressive action at the State and Federal levels) that development in Fremont between 2020 and 2035 will result in a ***cumulatively significant and unavoidable*** impact.

## CUMULATIVE IMPACTS

As defined in Section 15355 of the CEQA Guidelines, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely-related past, present and reasonably foreseeable probably future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Land Use and Planning

Development anticipated under the DRAFT General Plan Update would result in a more urbanized Fremont, with relatively high-intensity land uses located in the City Center and in Town Centers where residents and workers would have alternatives to the use of private automobiles. This development pattern would not be expected to result in any cumulative physical disruption of existing communities within Fremont. Since there are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, implementation of the DRAFT General Plan Update would have no related cumulative impacts associated with conflicts with such plans. Implementation of the applicable DRAFT General Plan Update policies related to land use compatibility would limit potential cumulative impacts associated with anticipated development to a level considered ***less than significant***.

Aesthetics

Development anticipated under the DRAFT General Plan Update would contribute to a cumulative change in the visual character of the region that may be associated with all future development in the San Francisco Bay Area. However, as indicated above, development in Fremont would not be expected to degrade the existing visual character of Fremont, and, by extension, would not degrade the existing visual character of the region. Implementation of the DRAFT General Plan Update would not result in any substantive adverse effects to scenic vistas or scenic resources, and would not contribute to any cumulative loss of scenic vistas or resources within the region. Although additional development under the DRAFT General Plan Update would have the potential to increase light and glare locally and cumulatively within the region (particularly as it might adversely affect the night sky), effective implementation of Policy 4-4.6 would reduce potential cumulative lighting-related impacts associated with future development in Fremont to a level considered ***less than significant***.

Population, Employment and Housing

Under the DRAFT General Plan Update, higher density residential and mixed-use development would be directed toward those areas best served by public transit, in an effort to reduce reliance on private automobiles (with a corresponding reduction in traffic, air pollutants and greenhouse gases generated per person).

Transportation and Circulation

As indicated in the discussion of Impacts, above, development anticipated under the DRAFT General Plan Update would be expected to contribute a portion of the cumulative traffic anticipated on local roadways in 2035 (see **Appendix B [C]**), and would, therefore, make a cumulative considerable contribution to traffic congestion at numerous intersections. In some instances, these impacts could be reduced to a level of less than significant through effective

implementation of the Mitigations identified above, but in most instances, traffic congestion at impacted intersections would represent a significant and unavoidable cumulative impact associated with implementation of the DRAFT General Plan Update.

Air Quality

According to the BAAQMD CEQA Air Quality Guidelines, additional analysis to determine cumulative impacts of a plan is not necessary. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels at which a project or plan's individual emissions would be cumulatively considerable. Impacts to local air quality, which were found to be less than significant, have already included cumulative traffic conditions. However, implementation of the DRAFT General Plan Update was considered to conflict with the regional Clean Air Plan, because it could increase VMT to a greater rate than population growth. This was identified above as a ***significant and unavoidable*** impact.

While the DRAFT General Plan Update includes a policies and implementing measures to reduce TAC exposures, it also allows for development of land in a manner that could potentially exceed an increase of 10 or 100 chances of cancer risk in a million. Implementation of **Mitigation AIR-2** would minimize potential TAC impacts to reduce the impact to a level considered ***less than significant***.

Implementation of **Mitigation AIR-3** would be sufficient to reduce exhaust emissions from most construction projects to a level considered ***less than significant***, but larger projects, due to their size and construction schedule, might have exhaust emissions that exceed the BAAQMD significance thresholds for construction exhaust emissions. Therefore, it is possible that in some circumstances, the impact would remain ***significant and unavoidable***.

Noise and Vibration

As indicated in the discussion of traffic-related noise effects in **Impact NOI-2**, above, development anticipated under the DRAFT General Plan Update would result in traffic increases that could be expected to result in an increase in noise levels in excess of existing noise levels along some local roadways, which would represent a ***significant and unavoidable*** cumulative noise impact. There are several major construction projects that may take place during the planning period under the auspices of other agencies which could be expected to result in noise and vibration impacts similar to those identified in **Impact NOI-4** and **Impact NOI-5**, above. These include work on the BART extension to San Jose, and possible grade separation projects, which, when taken together with development anticipated under the DRAFT General Plan Update, could be considered contributors to a ***significant and unavoidable*** cumulative increase in construction noise and vibration within adjacent portions of Fremont during the planning period.

Hydrology and Water Quality

The analysis of cumulative surface water quality and hydrology impacts includes future growth and development within the local drainage area for surface water and the Niles Cone subbasin for groundwater quality impacts. Those issues for which implementation of the DRAFT General Plan Update would have no impact are not analyzed, because Plan implementation would have no potential to contribute to cumulative impacts.

Development anticipated under the DRAFT General Plan Update, in combination with other development in the region, would contribute to an increase in impervious surface in the watershed area that could increase the quantity and velocity of stormwater runoff and reduce groundwater recharge. Any additional impervious areas would decrease the amount of rainfall expected to infiltrate into the ground and would result in higher peak flows in area drainages. Increased peak flows could exacerbate flooding problems along the drainage lines that experience flooding under existing conditions. If post-construction flows were not controlled, existing flooding problems could be exacerbated, and additional flooding and channel bank scouring could take place, resulting in an adverse impact on drainage and flooding.

However, all future and planned projects in the region would be required to comply with the requirements of the State Water Resource Control Board C.3 regulations and coordinate with City and County construction and flooding regulations, including (for projects located within Fremont) City of Fremont Conservation and Safety Policies. The SWRCB regulations require the incorporation of post-construction stormwater controls, which include measures to reduce stormwater pollutants, or otherwise minimize the change in rate and flow of stormwater runoff. Each project would convey its stormwater runoff via different drainage systems, which would be required to have adequate capacity for any increased runoff. Therefore, the implementation of the DRAFT General Plan Update, in combination with other planned projects, would have a ***less than significant*** cumulative impact to drainage or flooding.

Geology, Soils and Seismicity

Geologic and soil-related impacts associated with future development in the Fremont would involve potential hazards associated with site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each development site would be specific to that site, and its users and would not be common or contribute to (or be shared with, in an additive sense) the impacts associated with other sites. In addition, development on each site would be subject to uniform site development and construction standards designed to protect public safety. Therefore, provided the policies and implementation measures included in the Safety Element of the DRAFT General Plan Update are carried out, potential cumulative impacts related to geology and soils would be considered ***less than significant***.

Hazards and Hazardous Materials

Implementation of the DRAFT General Plan Update would result in increased population and a commensurate increase in the number of sites handling hazardous materials in the City. However, the cumulative impact is expected to be slight, and identified DRAFT General Plan Update policies, as well as California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential cumulative hazardous materials impacts of Plan implementation. Implementation of the DRAFT General Plan Update would also result in new construction in areas that are subject to wildland fire hazards. However, implementation of the DRAFT General Plan Update would not result in a cumulative impact on wildland fire hazards in surrounding areas. Cumulative hazards and hazardous materials impacts are considered ***less than significant***.

Cultural and Archaeological Resources

Any demolition of historic resources to occur within Fremont following adoption of the DRAFT General Plan Update could be regarded as a cumulative contribution to the on-going loss of historic resources within the Bay Area, which would be considered a ***significant and unavoidable*** cumulative impact associated with development under the Plan. Effective implementation of the applicable DRAFT General Plan Update policies, implementation actions and mitigation measures identified above would be expected to reduce any potential development-related impacts associated with alteration of historic structures or disturbance of undiscovered archaeological resources, paleontological resources or human remains to a level considered less than significant, which would also reduce any corresponding potential cumulative impact to a level considered ***less than significant***.

Agricultural Resources

Any conversion of land which is currently in agricultural use to non-agricultural uses would contribute to an on-going cumulative loss of agricultural land in the Bay Area, which could be considered a ***significant and unavoidable*** cumulative impact associated with implementation of the DRAFT General Plan Update.

Biological Resources

The City of Fremont has urban development (e.g., residential, commercial and industrial uses) to the north and south in the cities of Union City and Milpitas. It also has urban development to the west in the City of Newark, an enclave along the west central side of the City. Open space and grazing areas are present in the East Bay Hills to the east, and extensive wetlands are present along the margins of San Francisco Bay to the west. The DRAFT General Plan Update continues the open space preservation policies of two voter-approved hill initiatives known as Measures “A” and Measure “T.”

Approved, planned, proposed, and reasonably foreseeable projects, existing land use conditions and planned development under the DRAFT General Plan Update, and planned and proposed land uses and development patterns in communities near the City have the potential to adversely affect the biological resources in the region and could contribute to the loss of potential habitat within the region. Future developments would require on- and off-site improvements to provide water, wastewater, storm drainage, solid waste disposal, and other such services at the City's required level of service. Anticipated development, public projects, and related improvements could contribute to the loss of potential habitat within the region.

On a cumulative level, the land uses may contribute to a loss of potential habitat for special-status species that currently inhabit the area or could inhabit the area in the future. In addition to potential direct impacts on biological resources from project implementation, the increased human presence would be anticipated to cause potential indirect impacts. These could disturb breeding and foraging behavior of wildlife, and if so may result in a significant and unavoidable cumulative impact. Another indirect impact would be stormwater runoff. Each project is required to participate in the NPDES permit program for stormwater runoff, which effectively reduces water quality impacts to below a level of significance. Planned urbanization of the Fremont area would create new sources of light and glare. While project-specific measures would be undertaken to orient or shield lights to minimize illumination of adjacent lands, the combined effect of all new developments approved or planned in the area may create a significant and unavoidable cumulative impact associated with increased human presence.

Planned, proposed and foreseeable projects covered under the DRAFT General Plan Update, in combination with other reasonably foreseeable projects in adjacent cities and unincorporated County areas, could result in direct mortality and loss of habitat for special-status species and waters of the U.S and State, including wetlands. This would be a ***potentially significant cumulative*** impact.

Many biological communities within the Fremont area and the region are critically important for the protection of several sensitive species. Development under the DRAFT General Plan Update may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development within surrounding areas, may result in significant cumulative impacts. Future development within the City of Fremont and the surrounding vicinity would have an unknown and unquantifiable impact on special-status species, biologically sensitive habitats, and potentially jurisdictional features (wetlands and waters of the U.S. and State). The loss of wetlands and other waters within Fremont would result in a decline in water quality condition, which may result in adverse effects to downstream aquatic resources and riparian habitat. Furthermore, increased development and disturbance created by human activities (e.g., fires, increased nighttime lighting) would result in direct mortality, habitat loss, and deterioration of habitat suitability. These impacts are considered cumulatively considerable.

Implementation of the DRAFT General Plan Update policies will reduce the development-related impacts to these resources to a level considered ***less than significant*** through either resource avoidance or replacement measures. Therefore, the cumulative contribution to impacts on these resources associated with implementation of the DRAFT General Plan Update would be considered ***less than cumulatively considerable***.

Mineral Resources

As DRAFT General Plan Update Policy 7-5.1 would be expected to protect existing mineral resources and locally-important mineral recovery sites from incompatible uses, development anticipated within Fremont would not be expected to add to any cumulative loss of access to existing mineral resources or mineral recovery sites within the region, and any related cumulative impacts would be considered ***less than significant***.

Public Services

Increased population and employment under the DRAFT General Plan Update would place increased demands on all public services, not just within Fremont, but within the region as well. However, these increases would not necessarily be expected to result in a corresponding need to build new public facilities or to expand existing public facilities in order to maintain existing levels of public service within Fremont or the region. In the absence of such a need, cumulative impacts related to the provision of public services would be considered ***less than significant***. As individual development projects are proposed following adoption of the DRAFT General Plan Update, specific project-related effects related to the provision of public services will need to be evaluated within the context of maintaining existing levels of service, budgetary constraints, and the long-term plans of service providers to adjust to anticipated population and employment growth within Fremont and the region.

Infrastructure and Utilities

Development under the DRAFT General Plan Update would be expected to result in an increase in the total population and in the number of businesses within Fremont, with a corresponding increase in the demand for utility services. Additional growth is anticipated during the planning period within the region as well, so development anticipated within Fremont would contribute to a cumulative increase in the demand for water, wastewater treatment, solid waste disposal, energy and communications service throughout the region. Implementation of the mitigation measures identified above, and the relevant polices of the DRAFT General Plan Update, would be expected to reduce the local contribution to the cumulative increase in regional utility demand to a level considered ***less than significant***.

Global Climate Change

While the GHG emission analysis presented above shows that the DRAFT General Plan Update conforms to BAAQMD-established performance levels standards for emissions through 2020, there are no established BAAQMD regulatory thresholds through 2035. In the absence of BAAQMD guidelines, the operative standard is AB32, which requires an 80 percent reduction from 1990 levels by 2050. Although it is likely that the per-service-population GHG emissions from new development in Fremont in the years subsequent to 2020 will continue to decrease, it is difficult to estimate the magnitude of the decrease. Much depends on actions of the Federal and State governments, as these entities have a much greater ability to effect emission reductions than do local governments. It is, therefore, possible (absent sufficiently aggressive action at the State and Federal levels) that development in Fremont between 2020 and 2035 will result in a ***cumulatively significant and unavoidable*** impact.

## ALTERNATIVES TO THE DRAFT GENERAL PLAN UPDATE

The two alternatives to the DRAFT General Plan Update that are analyzed in this DRAFT EIR are:

- The No Project/Development Under Existing General Plan alternative, which considers the impacts of development that would be anticipated under the existing General Plan land use designations and current zoning.

- The Development Trend Growth alternative, in which anticipated development in Fremont over the planning period would be consistent with the land use designations established in the DRAFT General Plan Update, but it is assumed that a total of approximately 10,000 new residential units would be built and that the total number of local jobs would increase to 130,000 during the planning period, based on a continuation of local growth trends of the past ten years.

Evaluation of Alternatives

Development anticipated under the DRAFT General Plan Update, the existing General Plan (No Project alternative) or the Development Trend Growth alternative would result in a significant increase in the number of people living and working in Fremont, as well as a related increase in the amount of vehicle traffic on local roadways. Most of the types of potential development-related impacts associated with the DRAFT General Plan Update and both alternatives can generally be reduced to a level considered less than significant through the implementation of mitigation measures identified in the DRAFT EIR, although some potentially significant and unavoidable impacts associated with implementation of the DRAFT General Plan Update (e.g., potential demolition of historic structures, potential conversion of agricultural land) would be anticipated under any alternative as well. The major difference in the impacts associated with implementing the DRAFT General Plan

Update or either of the two alternatives evaluated relates to the VMT which would result from anticipated development, and the related air quality and noise effects associated with those vehicle trips. Development under the Development Trend Growth alternative would generate less VMT than would development under the DRAFT General Plan Update, although the similar focus on transit-oriented development could be expected to result in some reduction in vehicle trips in both instances. The much lower level of development anticipated under the No Project alternative, however, would result in a lower VMT value (approximately 90 percent of the VMT associated with the Development Trend Growth alternative, and approximately 87 percent of the VMT associated with the DRAFT General Plan Update), and as a result, this alternative would result in less congestion on local roadways (although a number of intersections would still be subject to significant and unavoidable impacts related to level of service), and a proportional reduction in the volume of air pollutants and noise generated by vehicles. For this reason, the No Project alternative would be considered the "environmentally superior" alternative, although development under the existing General Plan would not be consistent with the vision, guiding principles and goals of the DRAFT General Plan Update.

CEQA Guidelines require that where the No Project alternative is also identified as the "environmentally superior" alternative, another alternative which would represent the "environmentally superior" in the absence of the No Project alternative should then be identified. In this case, given the smaller number of daily vehicle trips relative to those anticipated under the DRAFT General Plan Update, the Development Trend Growth alternative would be considered the "environmentally superior" alternative in the absence of the No Project alternative. Development under this alternative would result in less traffic, a lower VMT, less roadway congestion (and less related air pollution and noise) than would be the case under the DRAFT General Plan Update, but more than would be anticipated with development under the No Project alternative.

## SUMMARY TABLE

Information in **Table 2-1: Summary of Significant Impacts and Mitigation Measures** has been organized to correspond with the environmental issues discussed in **Chapter 4: Environmental Analysis**. The Table is arranged in three columns: 1) Significant Impact; 2) Mitigation Measures; and 3) Level of Significance With Mitigation. For a complete discussion of potential impacts and recommended mitigation measures, please refer to the appropriate environmental topic discussions in **Chapter 4: Environmental Analysis**.

**TABLE 2-1: SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES**

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| **Transportation and Circulation** | | |
| **Impact TRA-1: Unacceptable Level of Service at Alvarado Boulevard/Deep Creek Road Intersection (#1).** During the A.M. peak hour, the addition of Draft General Plan Update-related traffic would result in a significant impact at the intersection of Alvarado Boulevard/Deep Creek Road. The intersection of Alvarado Boulevard/Deep Creek Road is LOS C under the Existing Condition, and would deteriorate to LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**. | **Mitigation TRA-1: Modification of Alvarado Boulevard/Deep Creek Road Intersection (#1).** By modifying the intersection as shown in Figure 4.3, the intersection average delay for the A.M. peak hour would improve from 76.9 seconds to 66.4 seconds. This location is also under the jurisdiction of Caltrans. | **Significant and Unavoidable** |
| **Impact TRA-2: Unacceptable Level of Service at Fremont Boulevard/Paseo Padre Parkway Intersection (#3).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Paseo Padre Parkway. The intersection of Fremont Boulevard/Paseo Padre Parkway is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-2: Modification of Fremont Boulevard/Paseo Padre Parkway Intersection (#3).** By modifying the intersection as shown in **Figure 4.3**, the intersection average delay for the P.M. peak hour would improve from 80.3 seconds to 53.0 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the northeast corner. | Less than Significant |
| **Impact TRA-3: Unacceptable Level of Service at Paseo Padre Parkway/Decoto Road Intersection (#4).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Decoto Road. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Decoto Road is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**. | **Mitigation TRA-3: Modification of Paseo Padre Parkway/Decoto Road Intersection (#4).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 156.9 seconds to 82.9 seconds. Similarly, the P.M. peak would improve from 123.5 to 82.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along each of the quadrants of the intersection. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| **Impact TRA-4: Unacceptable Level of Service at Fremont Boulevard/Decoto Road Intersection (#5).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Decoto Road. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Decoto Road is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-4: Modification of Fremont Boulevard/Decoto Road Intersection (#5).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 105.4 seconds to 70.7 seconds. Similarly, the P.M. peak would improve from 107.1 to 74.0 seconds. This mitigation would require significant lane re-striping along Fremont Boulevard, as well acquisition of additional right-of-way and utility relocations along the northbound and southbound approaches to Fremont Boulevard. | Less than Significant |
| **Impact TRA-5: Unacceptable Level of Service at I-880 NB Ramps/Decoto Road Intersection (#6).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 NB Ramps/Decoto Road. For the A.M. and P.M. peak hours, the intersection of I-880 NB Ramps/Decoto Road is LOS D and B, respectively, under the Existing Condition, and would deteriorate to LOS F and E, respectively, in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-5: Modification of I-880 NB Ramps/Decoto Road Intersection (#6).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 167.1 seconds to 73.4 seconds. Similarly, the P.M. peak would improve from 67.4 to 27.2 seconds. This mitigation may require acquisition of additional right-of-way, reconstruction of the overpass at I-880 and utility relocations. This location is also under the jurisdiction of Caltrans. | **Significant and Unavoidable** |
| **Impact TRA-6: Unacceptable Level of Service at I-880 SB Ramps/Decoto Road Intersection (#7).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 SB Ramps/Decoto Road. For the A.M. peak hour, the intersection of I-880 SB Ramps/Decoto Road is LOS C under the Existing Condition and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-6: Modification of I-880 SB Ramps/Decoto Road Intersection (#7).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 94.9 seconds to 31.5 seconds. This mitigation may require acquisition of additional right-of-way, reconstruction of the overpass at I-880 and utility relocations. This location is also under the jurisdiction of Caltrans. | Less than Significant |
| **Impact TRA-7: Unacceptable Level of Service at Paseo Padre Parkway/Isherwood Way Intersection (#11).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan | **Mitigation TRA-7: Modification of Paseo Padre Parkway/Isherwood Way Intersection (#11).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Isherwood Way. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Isherwood Way is LOS C under the Existing Condition, but would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | average delay for the A.M. peak hour would improve from 143.5 seconds to 118.6 seconds. Similarly, the P.M. peak would improve from 152.5 to 113.9 seconds. This mitigation would require modification of existing traffic signal hardware, travel lane re-striping and the modification of raised concrete medians on northbound approaches to Paseo Padre Parkway. | |
| **Impact TRA-8: Unacceptable Level of Service at Paseo Padre Parkway/Thornton Avenue Intersection (#12).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Thornton Avenue. For the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Thornton Avenue is LOS D under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-8: Modification of Paseo Padre Parkway/Thornton Avenue Intersection (#12).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 217.5 seconds to 39.8 seconds. Similarly, the P.M. peak would improve from 146.0 to 87.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner of the intersection. | **Significant and Unavoidable** |
| **Impact TRA-9: Unacceptable Level of Service at Fremont Boulevard/Central Avenue Intersection (#16).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Central Avenue. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Central Avenue is LOS C under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-9: Modification of Fremont Boulevard/Central Avenue Intersection (#16).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 121.5 seconds to 51.7 seconds. Similarly, the P.M. peak would improve from 109.9 to 75.8 seconds. This mitigation would require modification of raised concrete medians, and travel lane re-striping on the northbound approach to Fremont Boulevard. | Less than Significant |
| **Impact TRA-10: Unacceptable Level of Service at Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Peralta Boulevard. For the P.M. peak hour, the intersection of Paseo Padre | **Mitigation TRA-10: Modification of Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 164.7 seconds to 133.7 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| Parkway/Peralta Boulevard is LOS D, under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located along select Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | the southeast corner. | |
| **Impact TRA-11: Unacceptable Level of Service at Paseo Padre Parkway/Mowry Avenue Intersection (#21).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-11: Modification of Paseo Padre Parkway/Mowry Avenue Intersection (#21).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 107.0 seconds to 94.8 seconds. Similarly, the P.M. peak would improve from 94.1 to 63.6 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along both Paseo Padre Parkway approaches. | **Significant and Unavoidable** |
| **Impact TRA-12: Unacceptable Level of Service at Fremont Boulevard/Mowry Avenue Intersection (#22).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Mowry Avenue. For the P.M. peak hour, the intersection of Fremont Boulevard/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-12: Modification of Fremont Boulevard/Mowry Avenue Intersection (#22).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 123.1 seconds to 87.4 seconds. This mitigation would entail minor restriping along the eastbound Mowry Avenue approach, but would not require acquisition of additional right-of-way or utility relocations along the southwest corner. | **Significant and Unavoidable** |
| **Impact TRA-13: Unacceptable Level of Service at Blacow Road/Mowry Avenue Intersection (#24).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Blacow Road/Mowry Avenue is LOS C under the | No feasible mitigation identified. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | | |
| **Impact TRA-14: Unacceptable Level of Service at Mission Boulevard/Niles Canyon Road Intersection (#28).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Niles Canyon Road. For the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Niles Canyon Road is LOS D and E, respectively under the Existing Condition, and would both deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-14: Modification of Mission Boulevard/Niles Canyon Road Intersection (#28).** By modifying the intersection as shown in **Figure 4.3**, changing the traffic signal to protected phasing operation and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 307.7 seconds to 195.6 seconds. Similarly, the P.M. peak hour would improve from 215.2 seconds to 183.6 seconds. This mitigation would entail minor restriping along eastbound Niles Canyon Road, but would not require acquisition of additional right-of-way or utility relocations. | **Significant and Unavoidable** |
| **Impact TRA-15: Unacceptable Level of Service at Mission Boulevard/Mowry Avenue Intersection (#29).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Mowry Avenue is LOS F under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 74.5 seconds during the A.M. peak hours and 63.5 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-15: Modification of Mission Boulevard/Mowry Avenue Intersection (#29).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection (which is under Caltrans jurisdiction), average delay for the A.M. peak hour would improve from 250.0 seconds to 120.9 seconds. Similarly, the P.M. peak hour would improve from 242.3 seconds to 108.3 seconds. This mitigation would entail minor restriping along the southbound Mission Boulevard approach and would not require acquisition of additional right-of-way or utility relocations. | **Significant and Unavoidable** |
| **Impact TRA-16: Unacceptable Level of Service at Mission Boulevard/Walnut Avenue Intersection (#30).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission | No feasible mitigation identified. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| Boulevard/Walnut Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Walnut Avenue is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | | |
| **Impact TRA-17: Unacceptable Level of Service at Mission Boulevard/Stevenson Boulevard Intersection (#34).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Stevenson Boulevard. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Stevenson Boulevard is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | No feasible mitigation identified. | **Significant and Unavoidable** |
| **Impact TRA-18: Unacceptable Level of Service at Blacow Road/Stevenson Boulevard Intersection (#37).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Stevenson Boulevard. For the A.M. and P.M. peak hours, the intersection of Blacow Road/Stevenson Boulevard is LOS E and F, respectively under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 25.8 seconds during the A.M. peak hour and 11.6 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-18: Modification of Blacow Road/Stevenson Boulevard Intersection (#37).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 83.7 seconds to 78.1 seconds. Similarly, the P.M. peak would improve from 131.5 to 89.2 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner adjacent to the ARCO fuel station. | **Significant and Unavoidable** |
| **Impact TRA-19: Unacceptable Level of Service at Fremont Boulevard/Grimmer Boulevard Intersection (#42).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a | **Mitigation TRA-19: Modification of Fremont Boulevard/Grimmer Boulevard Intersection (#42).** By modifying the intersection as shown in **Figure 4.3**, changing to a protected phase operation and optimizing the signal timing, the intersection | Less than Significant |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| significant impact at the intersection of Fremont Boulevard/Grimmer Boulevard. For the P.M. peak hour, the intersection of Fremont Boulevard/Grimmer Boulevard is LOS D under the Existing Condition, and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | average delay for the P.M. peak hour would improve from 56.7 seconds to 38.5 seconds. This mitigation will not require acquisition of additional right-of-way and utility relocations along the north-east corner adjacent to the creek. | |
| **Impact TRA-20: Unacceptable Level of Service at Grimmer Boulevard/Blacow Road Intersection (#43).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Grimmer Boulevard/Blacow Road. For both the A.M. and P.M. peak hours, the intersection of Grimmer Boulevard/Blacow Road is LOS F and D, respectively under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-20: Modification of Grimmer Boulevard/Blacow Road Intersection (#43).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 157.1 seconds to 70.6 seconds. Similarly, the P.M. peak would improve from 80.1 to 51.5 seconds. This mitigation may require acquisition of significant additional right-of-way and utility relocations at every corner. | **Significant and Unavoidable** |
| **Impact TRA-21: Unacceptable Level of Service at Grimmer Boulevard/Auto Mall Parkway Intersection (#44).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Grimmer Boulevard/Auto Mall Parkway. For the P.M. peak hour, the intersection of Grimmer Boulevard/Auto Mall Parkway is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-21: Modification of Grimmer Boulevard/Auto Mall Parkway Intersection (#44).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 103.4 seconds to 77.7 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the south-west corner adjacent to the Chevron Station. | Less than Significant |
| **Impact TRA-22: Unacceptable Level of Service at Union Street-Fremont Boulevard/Washington Boulevard Intersection (#48).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the | No feasible mitigation identified. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| intersection of Union Street - Fremont Boulevard/Washington Boulevard. For both the A.M. and P.M. peak hours, the intersection of Union Street - Fremont Boulevard/Washington Boulevard is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | | |
| **Impact TRA-23: Unacceptable Level of Service at Fremont Boulevard/Auto Mall Parkway Intersection (#50).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Auto Mall Parkway is LOS D and E, respectively under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | No feasible mitigation identified. | **Significant and Unavoidable** |
| **Impact TRA-24: Unacceptable Level of Service at Fremont Boulevard/South Grimmer Boulevard Intersection (#51).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/South Grimmer Boulevard. For the A.M. peak hour, the intersection of Fremont Boulevard/South Grimmer Boulevard is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-24: Modification of Fremont Boulevard/South Grimmer Boulevard Intersection (#51).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 186.8 seconds to 82.2 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southbound and eastbound approaches. | Less than Significant |
| **Impact TRA-25: Unacceptable Level of Service at I-880 SB Ramps/Fremont Boulevard Intersection (#53).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 SB | No feasible mitigation identified. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| Ramps/Fremont Boulevard. For the A.M. peak hour, the intersection of I-880 SB Ramps/Fremont Boulevard is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | | |
| **Impact TRA-26: Unacceptable Level of Service at Paseo Padre Parkway/Driscoll Road Intersection (#55).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Driscoll Road. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Driscoll Road is LOS C under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-26: Modification of Paseo Padre Parkway/Driscoll Road Intersection (#55).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 65.1 seconds to 49.5 seconds. Similarly, the P.M. peak would improve from 61.2 to 38.4 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the south-west corner. | Less than Significant |
| **Impact TRA-27: Unacceptable Level of Service at Osgood Road/Auto Mall Parkway Intersection (#56).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Osgood Road/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Osgood Road/Auto Mall Parkway is LOS E and F, respectively, under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | No feasible mitigation identified. | **Significant and Unavoidable** |
| **Impact TRA-28: Unacceptable Level of Service at I-680 SB Ramps/Durham Road Intersection (#57).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-680 SB Ramps/Durham Road. For the P.M. peak hour, the intersection of I-680 SB Ramps/Durham Road is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the | No feasible mitigation identified. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | | |
| **Impact TRA-29: Unacceptable Level of Service at Osgood Road – Warm Springs Boulevard/South Grimmer Boulevard Intersection (#61).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Osgood Road - Warm Springs Boulevard/South Grimmer Boulevard. For the A.M. and P.M. peak hours, the intersection of Osgood Road - Warm Springs Boulevard/South Grimmer Boulevard is LOS F and C, respectively, under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-29: Modification of Osgood Road – Warm Springs Boulevard/South Grimmer Boulevard Intersection (#61).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 352.3 seconds to 55.3 seconds. Similarly, for the P.M. peak hour, would improve from 410.5 seconds to 62.9 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations. | Less than Significant |
| **Impact TRA-30: Unacceptable Level of Service at Warm Springs Boulevard/ Mission Boulevard (SR–262) Intersection (#62).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262). For the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262) is LOS E and D, respectively, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-30: Modification of Warm Springs Boulevard/Mission Boulevard (SR-262) Intersection (#62).** By modifying the intersection to include a southbound right-turn free movement and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 405.9 seconds to 154.6 seconds. Similarly, the P.M. peak would improve from 395.0 to 174.4 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations at the northwest corner of the intersection. Alternatively the City, in cooperation with Caltrans, will consider grade separation options for the intersection to improve the cross connection ability of the highway between I-680 and I-880. In the event that this becomes a reality, then this location will need to be re-evaluated with revised geometric considerations. Construction of an "urban interchange" would improve operations, but have considerable right-of-way acquisition issues on existing businesses. | **Significant and Unavoidable** |
| **Impact TRA-31: Unacceptable Level of Service at Warm Springs Boulevard/East Warren Avenue Intersection (#63).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/East Warren Avenue. For the A.M. peak hour, the intersection of Warm | **Mitigation TRA-31: Modification of Warm Springs Boulevard/East Warren Avenue Intersection (#63).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 69.0 seconds to 37.5 seconds. This mitigation may require construction of a "pork chop island" to channelize traffic from | Less than Significant |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| Springs Boulevard/East Warren Avenue is LOS C under the Existing Condition, and would deteriorate to LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | westbound Warren Avenue to northbound Warm Springs Boulevard, acquisition of additional right-of-way and utility relocations. | |
| **Impact TRA-32: Unacceptable Level of Service at Warm Springs Boulevard/Kato Road – Scott Creek Road Intersection (#64).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road. For both the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road is LOS D, under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | **Mitigation TRA-32: Modification of Warm Springs Boulevard/East Warren Avenue Intersection (#64).** By modifying the intersection as shown in **Figure 4.3,** converting the westbound right turn to overlap operation and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 167.6 seconds to 138.8 seconds. Similarly, the P.M. peak hour would improve from 195.8 seconds to 137.3 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the north-east corner of the intersection. | **Significant and Unavoidable** |
| **Impact TRA-33: Unacceptable Level of Service at Fremont Boulevard/Dixon Landing Road Intersection (#68).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Dixon Landing Road. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Dixon Landing Road is LOS B, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**. | No feasible mitigation identified, | **Significant and Unavoidable** |
| **Air Quality** | | |
| **Impact AIR-1: Conflict with CAP Assumptions.** Development anticipated following adoption of the DRAFT General Plan Update would increase population and employment in the City, leading to additional air pollutant emissions. City-wide vehicle miles traveled (VMT) is projected to increase at a faster | No feasible mitigation identified. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| rate than the city's population, which conflicts with Clean Air Plan (CAP) assumptions. This is a ***significant*** impact. | | |
| **Impact AIR-2: Possible Exposure of Sensitive Receptors to Unhealthy Levels of TACs and $PM_{2.5}$.** Development anticipated under the DRAFT General Plan Update may expose sensitive receptors to TACs and $PM_{2.5}$ through development of new sensitive receptors and non-residential development that may be sources of TACs and $PM_{2.5}$. Such exposure would represent a ***potentially significant*** impact. | **Mitigation AIR-2: Modify Implementation Measures of the DRAFT General Plan Update to Minimize Potential Exposures of Sensitive Receptors to TACs.** Implementation 7-7.3A: Prohibit Sensitive Receptors in Poor Air Quality Areas shall be modified as follows:<br><br>"Minimize exposures of new sensitive receptors/land uses near sources of TACs such as freeways, rail lines, stationary air pollutant sources, and industrial areas where existing or projected air quality problems exist. The following measures should be considered to reduce TAC exposures:<br><br>• Site-specific studies to identify significance of TAC exposure to identify whether or not additional mitigation measures are necessary, if so, implement the following examples of site-specific mitigation measures:<br><br>o Site design to reduce TAC exposure;<br><br>o Phased developments that delay occupancy of areas with highest TAC exposure to allow for the effects of lower future TAC emissions from CARB and BAAQMD regulations or standards that are currently in effect (these regulations or standards require time to become more effective);<br><br>o Landscape planning that includes trees or other vegetation to reduce TAC exposure;<br><br>o Install and maintain filtration systems of fresh air intakes to buildings that sensitive receptors would occupy. Such a measure shall only be undertaken after site-specific studies have identified the magnitude of exposures and | Less than Significant |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | level of reductions necessary to minimize exposures to acceptable levels; and<br><br>o Reduce emissions at sources through a number of measures that may include physical treatments to stationary sources, restrictions on the use of those sources, parking/idling restrictions, and truck routing requirements." | |
| **Impact AIR-3: Construction Period Dust, Emissions and Odors.** Construction of development projects under the DRAFT General Plan Update would result in temporary emissions of dust, diesel exhaust and odors that may result in both nuisance and health impacts. Without appropriate measures to control these emissions, these impacts would be considered ***significant***. | **Mitigation AIR-3: Implement BAAQMD-Recommended Measures to Control Particulate Matter Emissions during Construction.** Measures to reduce diesel particulate matter and PM10 from construction are recommended to ensure that short-term health impacts to nearby sensitive receptors are avoided.<br><br>Dust ($PM_{10}$) Control Measures:<br>• Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.<br>• Cover all hauling trucks or maintain at least two feet of freeboard.<br>• Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.<br>• Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.<br>• Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).<br>• Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.<br>• Limit traffic speeds on any unpaved roads to 15 mph.<br>• Replant vegetation in disturbed areas as quickly as possible. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | • Suspend construction activities that cause visible dust plumes to extend beyond the construction site.<br>• Post a publicly-visible sign(s) with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.<br>Additional Measures to Reduce Diesel Particulate Matter and $PM_{2.5}$ and other construction emissions:<br>• The developer or contractor shall provide a plan for approval by the City or BAAQMD demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the year 2011<br>• Clear signage at all construction sites will be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site.<br>• The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).<br>• Properly tune and maintain equipment for low emissions. | |
| **Noise and Vibration** | | |
| **Impact NOI-1: Exposure of New Land Uses to Excessive Noise Levels.** Those living and working at sites which may be developed in the future (particularly residential uses adjacent to principal streets and railroad lines), could be exposed to excessive noise levels following development anticipated under the DRAFT General Plan Update. This would be considered a ***potentially significant*** impact. | **Mitigation NOI-1A: Project-Specific Planning for Noise Reduction.** Utilize site planning to minimize noise in residential outdoor activity areas (backyards of single family homes and shared outdoor space in multi-family developments) by locating the areas behind noise barriers, the buildings, in courtyards, or orienting the terraces to alleyways rather than streets, whenever possible. | Less than Significant |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | The goal is a maximum noise level of 60 dBA $L_{dn}$ from roadway traffic and BART with conditionally acceptable levels in urban development areas of 65 dBA $L_{dn}$, and 70 dBA $L_{dn}$ from railroad trains.<br><br>**Mitigation NOI-1B: Revision of DRAFT General Plan Update Noise/Land Use Compatibility Policies.** Revise and clarify the following General Plan policies related to Noise and Land Use Compatibility to facilitate the project review and CEQA process as they relate to community noise:<br><br>*Policy 10-8.1: Site Development Acceptable Noise Environment.* A noise environment which meets acceptable standards as defined by the State of California Building Code and local policies contained herein.<br><br>• Implementation 10-8.1.A: New development projects shall meet acceptable exterior noise level standards. The "normally acceptable" noise standards for new land uses established in Land Use Compatibility for Community Exterior Noise Environments shown in Figure 10-11 shall be used as modified by the following:<br><br>The goal for maximum acceptable noise levels in residential areas is an Ldn of 60 dB(A). This level shall guide the design of future development, and is a goal for the reduction of noise in existing development. A 60 Ldn goal will be applied where outdoor use is a major consideration (e.g., backyards in single family housing developments and recreation areas in multi-family housing projects). The outdoor standard will not normally be applied to small decks associated with apartments and condominiums, but these will be evaluated on a case-by-case basis. When the City determines that providing an outdoor Ldn of 60 dB(A) or lower cannot be achieved after the application of appropriate mitigations an Ldn of 65 dB(A) may be permitted at the discretion of the City Council.<br><br>Indoor noise level shall not exceed an Ldn of 45 dB(A) in new housing units. A noise | |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | insulation study, conforming to the methodology of the State Building Code, shall be prepared for all new housing, hotels, and motels exposed to an exterior Ldn of 60 dB(A) or greater and submitted to the building department prior to issuance of a permit.<br><br>Railroad noise sources may create instances when the outdoor noise exposure criterion can exceed 65 Ldn up to 70 Ldn for future development, recognizing that train noise is characterized by relatively few loud events. Railroad noise influence shall be evaluated independent of other noise sources. Indoor noise level shall not exceed an Ldn of 45 dB(A) in new housing units. Typical maximum instantaneous noise level in bedrooms at night should not exceed 50 dB(A). Typical maximum instantaneous noise levels in other rooms and bedrooms during the daytime should not exceed 55 dB(A). The typical maximum noise level is the maximum level that is exceeded during 30 percent of the measured passbys, based on the measurement of at least 10 events during the daytime and the nighttime.<br><br>Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space and shall be evaluated on a case-by-case basis. Interior noise levels in offices generally should be maintained at 45 Leq (hourly average) or less.<br><br>• Implementation 10-8.1.B: Continue to use noise guidelines and contours to determine if additional noise studies are needed for a proposed new development. Prepare a format and guidelines for noise studies.<br><br>• Implementation 10-8.1.C: Limit new residential development, excepting vertically integrated mixed use development, where the ambient noise level due to commercial or industrial noise sources will exceed the noise level | |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | standards as set forth in Table 10-12, Noise and Land Use Compatibility Standards for Industrial and Commercial Noise, modified by the following as necessary unless effective mitigation measures are incorporated into the design of the project:<br><br>• The noise level standards specified in Table 10-12, shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Where the ambient noise level exceeds the noise level standards, the standards shall be adjusted upwards to the ambient levels.<br><br>*Policy 10-8.2: Acceptable Noise Environment.* Guidelines articulated by Figure 10-11 are not intended to be applied reciprocally. In other words, if an area currently is below the desired noise standards, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of potential for adverse community response based on a substantial increase in existing noise levels, regardless of the compatibility guidelines. | |
| **Impact NOI-2: Traffic-Related Increase in Existing Noise Levels.** Development anticipated under the DRAFT General Plan Update would result in increased traffic, with increased traffic-related noise levels. Along roadways where this increase in noise levels above existing levels would exceed 3 dBA $L_{dn}$, this would represent a ***significant*** impact. | No feasible mitigation identified. | **Significant and Unavoidable** |
| **Impact NOI-3: Noise Impacts Associated with Incompatible Land Uses.** The proposed high density mixed-use and transit-oriented development would introduce commercial uses adjacent to residential land uses. Commercial uses have not been identified, but such uses would probably include retail stores, restaurants, or cafes. New commercial development proposed along with, or next to, residential development could result in noise levels exceeding City standards. Typical noise levels generated by loading and unloading would be similar to noise levels generated by truck movements on local roadways. Mechanical equipment would also have the potential to generate noise, and would | **Mitigation NOI-3: Project-Specific Noise Analysis.** Noise levels at residential property lines from commercial development should be maintained not in excess of the noise limits in revised Table 10-12 (Action 8.1.3) – see Mitigation 1. The approvals of the commercial development should require a noise study demonstrating how the business, including loading docks, refuse areas, and ventilation systems, would meet these standards and would be consistent with the City's noise standards. | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| represent be a ***potentially significant*** noise impact. | | |
| **Impact NOI-4: Construction Noise.** Businesses and residences would be intermittently exposed to high levels of noise throughout the DRAFT General Plan Update planning horizon. Construction would temporarily elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more, which would represent a ***potentially significant*** impact. | **Mitigation NOI-4: Modification, Placement and Operation of Construction Equipment.** Construction equipment should be well maintained and used judiciously to be as quiet as practical. The following measures, when applicable, are recommended best practices to reduce noise from construction activities near sensitive uses:<br><br><u>Standard Development</u><br><br>• Ensure that construction activities (including the loading and unloading of materials and truck movements) are limited to the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.<br><br>• Ensure that excavating, grading and filling activities (including warming of equipment motors) are limited to between the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.<br><br>• Contractors equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.<br><br>• Contractors utilize "quiet" models of air compressors and other stationary noise sources where technology exists.<br><br>• Site plan for large sites loading, staging areas, stationary noise-generating equipment, etc. as far as feasible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.<br><br>• Comply with Air Resource Board idling prohibitions of uneasy idling of internal combustion engines.<br><br>Additional measures that may be applicable to significant or prolonged construction projects: | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | Extended Projects with High-Intensity Construction Equipment (this would apply to projects with extended periods of concentrated construction with heavy equipment such as pile drivers):<br>• Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.<br>• Construct solid plywood fences around construction sites adjacent to operational business, residences or noise-sensitive land uses.<br>• A temporary noise control blanket barrier could be erected, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling.<br>• Route construction related traffic along major roadways and as far as feasible from sensitive receptors.<br>• Businesses, residences or noise-sensitive land uses adjacent to construction sites should be notified of the construction schedule in writing. Designate a "construction liaison" that would be responsible for responding to any local complaints about construction noise. The liaison would determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the liaison at the construction site. | |
| **Impact NOI-5: Construction Vibration.** Residences, businesses, and historic structures could be exposed to construction-related vibration resulting in cosmetic cracking (non-structural) during the excavation and foundation work of buildings associated with development anticipated under the DRAFT General Plan Update, a ***potentially significant*** impact. | **Mitigation NOI-5: Limitations on Construction Activities Generating Excessive Vibration.** The following best practice measures when applicable are recommended to reduce vibration from construction activities:<br>• Comply with construction hours ordinance to limit hours of exposure.<br>• Avoid impact pile-driving where possible. Drilled piles causes lower vibration levels where geological conditions permit their | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | use.<br><br>• Minimize or avoid using vibratory rollers and tampers near sensitive areas.<br><br>• When vibration sensitive structures are adjacent to a subject site, survey condition of existing structures and when necessary perform site specific vibration studies to direct construction activities. Contractors shall continue to monitor effects of construction activities on surveyed sensitive structures and offer repair or compensation for damage.<br><br>• Construction management plans for substantial construction projects shall include predefined vibration reduction measures, notification requirements for properties within 200 feet of construction schedule, and contact information for on-site coordination and complaints. | |
| **Hydrology and Water Quality** | | |
| **Impact HYD-1: Increased Runoff to Laguna Creek Drainage Facility.** Development within the tributary area of Laguna Creek (generally Irvington and northeastern parts of the Mission San Jose Community Plan Area) has the potential to contribute runoff beyond the existing flood control capacity of Laguna Creek. This represents a ***potentially significant*** impact. | **Mitigation HYD-1: Include an Implementation Measure as part of DRAFT General Plan Update Policy 10.3-2 Design to Minimize Flooding to Acknowledge Laguna Creek as an Area of Design Concern.** Additionally, implementation should include an update to the City's Flood Control Ordinance with measures that ensure that prior to issuance of building permits for a project with a potential net increase in stormwater runoff, the City finds that a flood control management and design plan results in no net increase in runoff or consistency in runoff volumes modeled by Alameda County Flood Control and Water Conservation District. | Less than Significant |
| **Cultural and Archaeological Resources** | | |
| **Impact CUL-1: Possible Demolition/ Degradation of Historic Resources.** Despite the many safeguards and substantial protections in place in City policies, ordinances and regulations, it is theoretically possible that development under the DRAFT General Plan Update could result in the material impairment of historic resources that are unknown to the City and likely to have gained | **Mitigation CUL-1: Compliance with City of Fremont Historical Resource Protection Policies, Design Guidelines, Regulations and Programs.** Required compliance with the City's extensive set of applicable historical resources protection policies, design guidelines, regulations and programs set forth in the DRAFT General Plan Update, Irvington Concept Plan, Niles Concept Plan, Centerville Specific Plan, Fremont Historic | **Significant and Unavoidable** |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| significance subsequent to 1955. The limited possibility of such an adverse change to a CEQA-defined historic resource would constitute a ***potentially significant*** impact (see criteria No. 1, listed above in "Significance Criteria.)" | Resources Ordinance, Fremont Register of Historic Resources, and City Zoning Code Historic Overlay District in Niles serves to substantially reduce this potential impact. The policies and implementing measures set forth in DRAFT General Plan Update Goal 4-6, Historic Preservation, also serve to mitigate this impact. In those instances where development projects are proposed which could result in the demolition or material impairment of any structure, building or object constructed prior to 1955, the City must evaluate the application to determine if there is sufficient significance and integrity to merit classification as a Potential Fremont Register Resource or formal designation as a Register Resource (DRAFT General Plan Update Implementation 4-6.1A). Where a structure, building or object has been classified as a Potential Fremont Register Resource or formally identified as a Register Resource, the development proposal must be modified to ensure protection/preservation of those historic resources, consistent with applicable guidelines. Despite these protections, it remains possible that a future project, after going through all applicable processes could result in the demolition of an historical resource, or otherwise cause the significance of the resource to be "materially impaired" (as defined in CEQA Guidelines section 15064.5(b)(2)). This possibility constitutes a ***significant and unavoidable*** impact for CEQA purposes. | |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| **Impact CUL-2: Possible Disturbance of Unidentified Subsurface Archaeological Resources.** Ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction or disturbance of unidentified subsurface archaeological resources, which would represent a ***potentially significant*** impact. | **Mitigation CUL-2: Halt Work/ Archaeological Evaluation/Site-Specific Mitigation.** If archaeological resources are uncovered during construction activities, all work within 50 feet of the discovery shall be redirected until a qualified archaeologist can be contacted to evaluate the situation, determine if the deposit qualifies as an archaeological resource, and provide recommendations. If the deposit does not qualify as an archaeological resource, then no further protection or study is necessary. If the deposit does qualify as an archaeological resource, then the impacts to the deposit shall be avoided by project activities. If the deposit cannot be avoided, adverse impacts to the deposit must be mitigated. Mitigation may include, but is not limited to, archaeological data recovery. Upon completion of the archaeologist's assessment, a report should be prepared documenting the methods, findings and recommendations. The report should be submitted to the City, the project proponent and the NWIC. | Less than Significant |
| **Impact CUL-3: Possible Disturbance of Unidentified Subsurface Paleontological Resources.** Although no paleontological resources are currently known to exist in those portions of the City where development would be anticipated under the DRAFT General Plan Update, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction of unidentified subsurface paleontological resources, which would represent a ***potentially significant*** impact. | **Mitigation CUL-3: Halt Work/Paleontological Evaluation/Site-Specific Mitigation.** Should paleontological resources be encountered during construction or site preparation activities, such works shall be halted in the vicinity of the find. A qualified paleontologist shall be contacted to evaluate the nature of the find and determine if mitigation is necessary. All feasible recommendations of the paleontologist shall be implemented. Mitigation may include, but is not limited to, in-field documentation and recovery of specimen(s), laboratory analysis, the preparation of a report detailing the methods and findings of the investigation, and curation at an appropriate paleontological collection facility. | Less than Significant |
| **Impact CUL-4: Possible Disturbance of Unidentified Human Remains.** Ground-disturbing activities associated with new construction and related underground utility installation could result in the disturbance of unidentified subsurface human remains. Although DRAFT General Plan Policy 4-6.10 would require coordination with representatives of local Native American organizations to ensure protection of Native American resources, the evaluation of human remains which may be uncovered during construction activity would represent a ***potentially significant*** impact. | **Mitigation CUL-4: Halt Work/ Coroner's Evaluation/Native American Heritage Consultation/ Compliance with Most Likely Descendent Recommendations.** If human remains are encountered during construction activities, all work within 50 feet of the remains should be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and any associated grave goods. The archaeologist shall recover scientifically-valuable | Less than Significant |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
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| | information, as appropriate and in accordance with the recommendations of the MLD. Upon completion of the archaeologist's assessment, a report should be prepared documenting methods and results, as well as recommendations regarding the treatment of the human remains and any associated archaeological materials. The report should be submitted to the City, the project proponent and the NWIC. | |
| **Agricultural Resources** | | |
| **Impact AG-1: Conversion of Agricultural Land to Urban Uses.** Implementation of the DRAFT General Plan Update could result in the irrevocable conversion of existing agricultural land currently designated by the California Department of Conservation as "Prime Farmland" (the Guardino parcel) or "Unique Farmland" (I-680/Palm properties) to urban uses. This would represent a ***potentially significant and unavoidable*** impact. | No feasible mitigation identified. | **Significant and Unavoidable** |
| **Infrastructure and Utilities** | | |
| **Impact UTIL-1: Increased Water Demand.** Development anticipated under the DRAFT General Plan Update would exceed that currently anticipated under the existing General Plan, and that difference in the level of anticipated development over the planning period would place additional unanticipated demand on projected ACWD water supplies. This would represent a ***potentially significant*** impact associated with implementation of the DRAFT General Plan Update. | **Mitigation UTIL-1A: Incorporation of ACWD's "Water Efficiency Measures for New Development" in all Development Projects.** In order to minimize additional demands on potable water supplies, new development shall be required to install the latest technology in water efficient plumbing fixtures, irrigation systems and landscaping according to the California Green Building Code (CalGreen). Consult with ACWD on incorporating "Water Efficiency Measures for New Development".<br><br>**Mitigation UTIL-1B: Coordinate Use of Recycled Water with ACWD.** For development projects located in areas where recycled water is made available, developers shall coordinate with ACWD on the installation of separate, non-potable water distribution systems (i.e., purple pipe) for landscape irrigation and other non-potable water needs. | Less than Significant |
| **Impact UTIL-2: Sanitary Sewer Conveyance Capacity Constraints.** Individual development projects that may be proposed in areas designated for residential densities exceeding 29.9 units per acre in the DRAFT General Plan Update could exceed the capacity of the existing local sanitary sewer conveyance system serving the specific project. This would represent a ***potentially*** | **Mitigation UTIL-2: Include Implementation Measure Supporting Updates to Master Plans and Coordinate Site-Specific Analysis of Project-Related Effects on the Sanitary Sewer Conveyance System/Project-Related Contribution to Necessary Capacity Expansion.** Support update of Sewer Conveyance Master Plan by USD as an implementation measure of the General Plan. As individual development projects | Less than Significant |

| Potential Environmental Impacts | Recommended Mitigation Measures | Resulting Level of Significance |
|---|---|---|
| ***significant*** environmental impact. | are proposed in areas designated for residential densities exceeding 29.9 units per acre, coordinate development review process with USD analysis for sanitary sewer capacity and conveyance. | |
| **Global Climate Change** | | |
| **Impact GCC-1: Potential Exceedance of Future BAAQMD Regulatory Thresholds for Greenhouse Gas Emissions.** While the GHG emission analysis conducted for the DRAFT EIR shows that the DRAFT General Plan Update conforms to BAAQMD-established performance levels standards for emissions through 2020, there are no established BAAQMD regulatory thresholds through 2035. In the absence of BAAQMD guidelines, the operative standard is AB32, which requires an 80 percent reduction from 1990 levels by 2050. Although it is likely that the per-service-population GHG emissions from new development in Fremont in the years subsequent to 2020 will continue to decrease, it is difficult to estimate the magnitude of the decrease. Much depends on actions of the Federal and State governments, as these entities have a much greater ability to effect emission reductions than do local governments. It is, therefore, possible (absent sufficiently aggressive action at the State and Federal levels) that development in Fremont between 2020 and 2035 will result in a ***cumulatively significant and unavoidable*** impact. | No feasible mitigation identified. | **Significant and Unavoidable** |

# 3

# PROJECT DESCRIPTION

## DRAFT GENERAL PLAN UPDATE

### INTRODUCTION

Under California law, every city and county is required to have a general plan. The general plan is a comprehensive long range guide to the physical development of the community. All development decisions made by the City must be in conformance with the General Plan.

The project analyzed in this EIR is the adoption and implementation of a comprehensive update of the City of Fremont General Plan, which was last comprehensively updated in 1991. The new General Plan lays out a broad vision along with goals, policies and implementation measures to achieve that vision. The updated General Plan includes a land use designation map that will replace the map based on the 1991 plan. The City has established 2035 as the horizon year, or the year by which the City projects is the earliest time period that the growth anticipated in the Plan will be achieved.[1] However, the increment of described growth is the basis of the analysis overall, and the 2035 reference provides a context for growth and change.

It should be noted that the update and this EIR do not technically include the Housing Element, which was updated and adopted in July 2009 and certified by the California Department of Housing and Community Development Department on October 15, 2009. A separate CEQA analysis and determination were prepared for the Housing Element at that time. The overall General Plan Update is consistent with the Housing Element plan to increase housing opportunities in the City and requires no amendments to the Housing Element for consistency with the proposed project.

[1] It should be noted that for much of the General Plan Update process, the project was referred to as "General Plan 2030". However, 2035 is now being used as the horizon year for two reasons. First, due to the "Great Recession" of 2008-09, job numbers decreased substantially as did projections for future job growth, suggesting that the growth envisioned in the Plan will take longer to occur than originally envisioned. Second, regional agencies initiated a number of planning activities with 2035 as the horizon year, so choosing the same horizon year makes it easier to integrate the Fremont General Plan with regional growth models.

## PROJECT LOCATION

**Figure 3.1** shows the project's regional location. Fremont is located in the San Francisco Bay Area in southern Alameda County. It is bounded on the north by Union City and Hayward, to the south by Milpitas, to the west by Newark and San Francisco Bay, and to the east by unincorporated Alameda County. Major existing transportation facilities include Interstate 880, Interstate 680, State Routes 84, 238, and 262, BART, Capital Corridor and Altamont Commuter Express track and stations.

The area covered by the DRAFT General Plan Update consists entirely of the land within the incorporated limits of the City.

## VISION STATEMENT

As part of the DRAFT General Plan Update, the City Council adopted a vision statement meant to capture at a high level the future desired by the community. The vision statement reads:

> *Fremont will serve as a national model of how an auto-oriented suburb can evolve into a sustainable, strategically urban, modern city.*

## GUIDING PRINCIPLES

In addition to the vision statement, the Council adopted a set of eleven "guiding principles" that described in slightly more detail - but still at a high level - the precepts that guide the Plan. These guiding principles (paraphrased for brevity) include:

- **A Sustainable Community:** establishing sustainability - the ability to meet the needs of the current generation without jeopardizing the ability of future generations to do the same - as an overarching theme of the General Plan

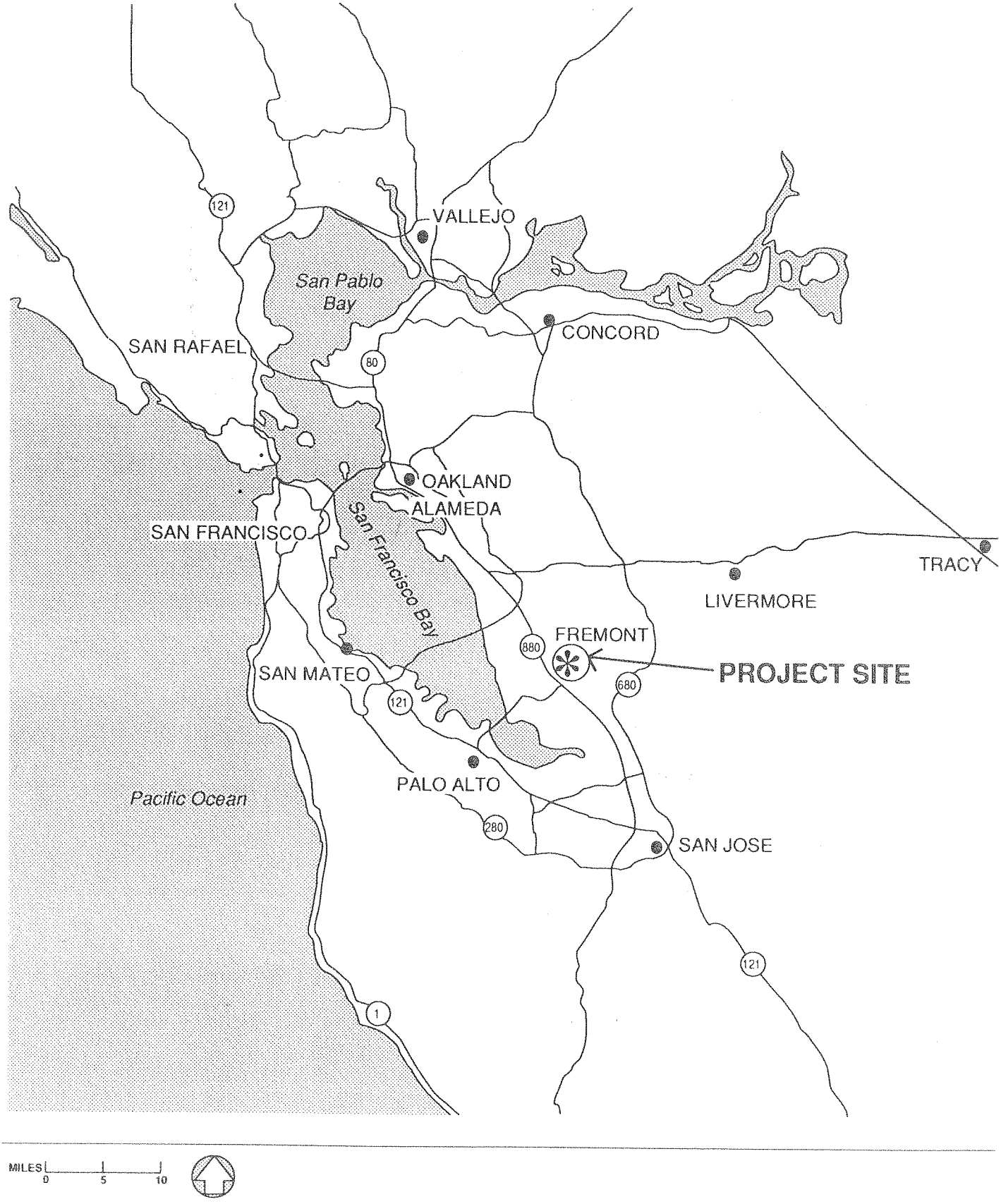
- **Becoming Strategically More Urban:** focusing future housing growth near transit hubs and corridors, becoming more urban in strategic locations

- **Mobility - It's Not Just About Cars:** balancing the needs of automobile drivers with those of public transit, bicyclists, and pedestrians

- **Enhancing Fremont's Parks and Open Space:** retaining and enhancing Fremont's "Open Space Frame" and continuing to supplement the outstanding parks system

- **An Inclusive Community:** cultivating Fremont's ethnic, income and age diversity by ensuring availability of housing across the economic spectrum and by implementing policies and programs supporting youth and older adults

**Figure 3.1: Project Location**



- **Vibrant Centers:** preserving and enhancing the unique identities of each of Fremont's town centers while promoting a successful and distinctive City Center to serve as a unifying identity for the community

- **A Diversified and Successful Local Economy:** ensuring Fremont's industrial and commercial sectors include a continued array of successful business, large and small; and a broad range of retail, including higher-end retail and restaurants

- **A Well-Designed Urban Landscape:** guiding new development so that as Fremont continues to evolve, the City's built environment evolves with it

- **Preservation and Enhancement of Single Family Neighborhoods:** preserving and enhancing single-family homes and neighborhoods so the City maintains its character as a desirable location for family life

- **Community Life:** providing a safe community with high-quality, equitable and fiscally responsible public safety services, utilities, parks, libraries and schools; also a healthy community with access to healthy food and high-quality health care

## OBJECTIVES

The purpose of the DRAFT General Plan Update is to provide the City with a current and relevant vision for its long term growth and development. Specific objectives of the project include:

- Update the existing General Plan prepared in 1990 with a new plan that reflects the goals and vision of the community through the year 2035;

- Ensure the General Plan Update achieves compliance with state laws and applicable regulations;

- Ensure that the long term growth and development of the City is done in a sustainable fashion with an emphasis on conservation and efficient use of resources;

- Ensure a high quality of development with an urban design aesthetic for place making;

- Preserve, acknowledge and embrace the City's cultural and historic heritage;

- Create strong economic sustainability that attracts jobs, provides services in all sectors

- Increase the tax base and revenue to support desired City services

- Allow neighborhoods to grow and evolve to improve the health, safety, general welfare and overall quality of life for all in the City

- Increase use of alternative means of transportation and reduce vehicle miles traveled by providing for attractive and convenient transportation alternatives and places supporting multiple modes of travel;

- Provide a safe and efficient pedestrian and bicycle network throughout the entire City;

- Preserve the City's Open Space Frame and allowed continued enhancement and preservation of all open space areas in the City.

## ORGANIZATION OF THE DRAFT GENERAL PLAN UPDATE

Under California Government Code Section 65302, a general plan is required to contain seven "elements" or chapters. The DRAFT General Plan Update includes six of the seven State-mandated elements, including Land Use, Circulation, Conservation, Open Space, Noise and Safety. (The seventh required element, Housing, was updated and adopted in July, 2009). The updated General Plan also includes several optional elements, including Sustainability, Community Character, Economic Development, Public Facilities, Parks and Recreation, and Community Plans.

The DRAFT General Plan Update is organized for internal consistency and readability and some required elements are combined or renamed. **Table 3-1** shows where the required elements are found in the updated General Plan.

**TABLE 3-1: COMPARING REQUIRED GENERAL PLAN ELEMENTS WITH UPDATED GENERAL PLAN ELEMENTS**

| Required General Plan Element | Chapter in Updated General Plan |
|---|---|
| Land Use | Land Use |
| Circulation | Mobility |
| Open Space | Land Use |
| Conservation | Conservation |
| Safety | Safety |
| Noise | Safety |
| Housing | Housing (previously adopted) |

Additional Optional Elements include:

- Community Character
- Economic Development
- Sustainability
- Public Facilities
- Parks and Recreation
- Community Plans

The updated General Plan also includes an Introduction that summarizes demographic data and lays out the vision and guiding principles; and an Implementation chapter that shows in tabular form the various action steps, when they are expected to be completed, and the responsible entity.

## DRAFT GENERAL PLAN UPDATE GOALS

Each element of the DRAFT General Plan Update (with the exception of the Introduction, Sustainability and Implementation elements) includes goals, policies, and implementation measures specific to that topic. The Housing goals are included for reference, but were already adopted with the Housing Element in July, 2009.

Goals are broad statements of aspirations held by the community; they are ideal end-states which are not always achievable. Policies provide clear direction for decision making; they indicate how the City intends to head toward the goal. Implementation actions are those specific measures and programs the City intends to undertake in the near, mid or long term, consistent with the goal and policy.

## LAND USE DESIGNATIONS

The proposed General Plan Update includes 20 land use designations. It consolidates the existing 1991 General Plan commercial designations from six to four and includes a revised Mixed Use designation. It consolidates the number of existing residential designations from 15 to five. The number of industrial designations remains the same at three, although two of the names changed to better reflect the intended type of industrial user. The open space and public designations also remain relatively the same with one new City Park designation and also several name changes. The overlay designations include a new Transit Oriented Development (TOD) Overlay and Areas of Interest, as well as retention of the Study Area Overlay. The Mineral Resource Overlay and Commercial-Industrial Overlay have been deleted from the land use designations. The zoning ordinance will serve as the tool for

implementing the range of allowable development height, bulk and intensity within the boundaries established by the designation.

**Figure 3.2** is the new Land Use diagram that is included in the updated Plan. As a comparative reference, existing General Plan land use designations are shown on **Figure 3.3**.

Residential Designations

*Hillside Residential (Less than 8.7 units per net acre where previously subdivided; less than 2.3 units per net acre elsewhere)*

The Hillside Residential designation generally corresponds to existing neighborhoods within the boundaries set by Measure A, Fremont's 1981 Hillside Initiative and further defined by the Hillside Combining Zoning District. Hillside Residential areas may include single-family lots, hobby farms, estates, and open space. These areas often have steep terrain, environmental constraints, and other natural features that preclude higher densities. Hillside Residential areas also include existing single-family subdivisions, clustered housing with common open space, and other planned developments. The intent of the Hillside Residential designation is to preserve the character of existing hillside neighborhoods and achieve compatible resource conservation and safety objectives. Outside of existing subdivisions and planned developments, new lots less than 20,000 square feet are prohibited. Within existing subdivisions and planned developments, lots less than 20,000 square feet currently exist, but further increases in density (through subdivision and lot splits) are not permitted. Correlating zoning includes the R-1-40 and R-1-20 districts. R-1-10, R-1-8, and Planned District zoning are also present in established subdivisions.

*Low Density Residential (2.3 to 8.7 units per net acre)*

The Low Density designation corresponds to most of Fremont's single-family residential neighborhoods. These areas are characterized by subdivisions of detached homes, usually on lots of 5,000 to 10,000 square feet. Low Density areas may also include larger-lot subdivisions in the 10,000 to 20,000 square foot range. Multiple zoning districts apply within Low Density Residential areas to distinguish areas with different minimum lot sizes. The high end of the density range, which would result in lots less than 6,000 square feet, is only permitted where specific conditions are met as established by the General Plan and Planned District zoning. Other compatible uses, such as schools, child care centers, parks, and religious facilities, may also locate in areas with this designation. Correlating zoning includes R-1-10, R-1-8, R-1-6 and R-2 districts.

*Low-Medium Density Residential (8.8 to 14.5 units per net acre)*

The Low-Medium Density designation is intended for patio home (zero lot line) development, mobile home parks, and older parts of the city characterized by a mix of single-family homes and small multi-unit buildings. Net density in these areas generally ranges

from 8.8 to 14.5 units per acre, corresponding to site area allowances of 3,000 to 5,000 square feet per unit. While a mix of housing types is present, these areas retain the basic character of single-family neighborhoods, such as front and rear yards, driveways, and garages. Other compatible uses, such as schools, child care centers, parks, and religious facilities, may also locate in areas with this designation. Correlating zoning includes small lot Planned Developments, R-2, R-G and some of the lower density R-3 districts.

*Medium Density Residential (14.6 to 29.9 units per net acre)*

The Medium Density designation applies to garden apartments, condominiums, flats, townhouses, and low-rise multi-family complexes. Net densities in these areas generally range between 14.6 and 29.9 units per net acre, corresponding to site area allowances of 1,450 square feet per unit to 3,000 square feet per unit. These areas are multi-family in character, but retain some of the suburban characteristics such as landscaped yards, off-street parking, common open space, and low building heights. Structures in these areas are generally less than four stories tall and have surface parking, however they may include a mix of housing types and densities as an overall development plan. Other compatible uses, such as schools, child care centers, parks, and religious facilities, may also locate in areas with this designation. Correlating zoning includes the R-3 district zones and the R-G zone.

*Urban Residential (30 to 70 units per net acre)*

The Urban Residential designation applies to apartment buildings and condominiums that are generally four stories or more. Densities exceed 30 units per net acre and may be as high as 70 units per net acre, corresponding to site area allowances of 625 to 1,450 square feet per unit. On larger parcels with this designation, common open space and other shared amenities are typically provided. Structured parking is also usually included. Other compatible uses, such as schools, child care centers, parks, and religious facilities, may also locate in areas with this designation. While this designation is principally intended for residential development, some mixed use development (i.e., apartments above retail shops/services/offices) may be allowed under certain conditions. Densities above 70 units per net acre may also be permitted under certain conditions. Correlating zoning in Urban Residential areas includes the higher density R-3 zones and the R-4 zone.

**Figure 3.2: DRAFT General Plan Update Land Use Diagram**

Community Development Department- Planning Division
39550 Liberty Street, P.O. Box 5006
Fremont, California 94537-5006
www.fremont.gov/planning

# General Plan 2030

## Land Use

### Planned Land Use

- City Boundary
- Commercial- City Center
- Commercial- General
- Commercial- Regional
- Commercial- Town Center
- Commercial- Mixed Use
- Industrial- General
- Industrial- Service
- Industrial- Tech
- Open Space- Park
- Open Space- Private
- Open Space- Resource Conservation/Public
- Open Space- Hill Face
- Open Space- Hill
- Open Space- Hill Area (Measure A)
- Public Facility
- Residential- Urban
- Residential- Medium
- Residential- Low-Medium
- Residential- Low
- Residential- Hillside Residential
- Area of Interest- other
- Study Area
- TOD Overlay
- Ridgeline
- Toe of the Hill
- Route Extension- Planned
- Union Pacific Railway
- BART Line
- BART Station- Existing or Proposed
- TRAIN Station- Existing or Proposed
- Fire Station
- Park
- School

**The information conveyed on this map is dynamic and may have changed after this map was printed. Please consult the Planning Division or other appropriate agency for the most recent information or status.**

**Users should verify designations, policies, regulations, and restrictions before making project commitments.**

0 0.5 1 2 3 Miles

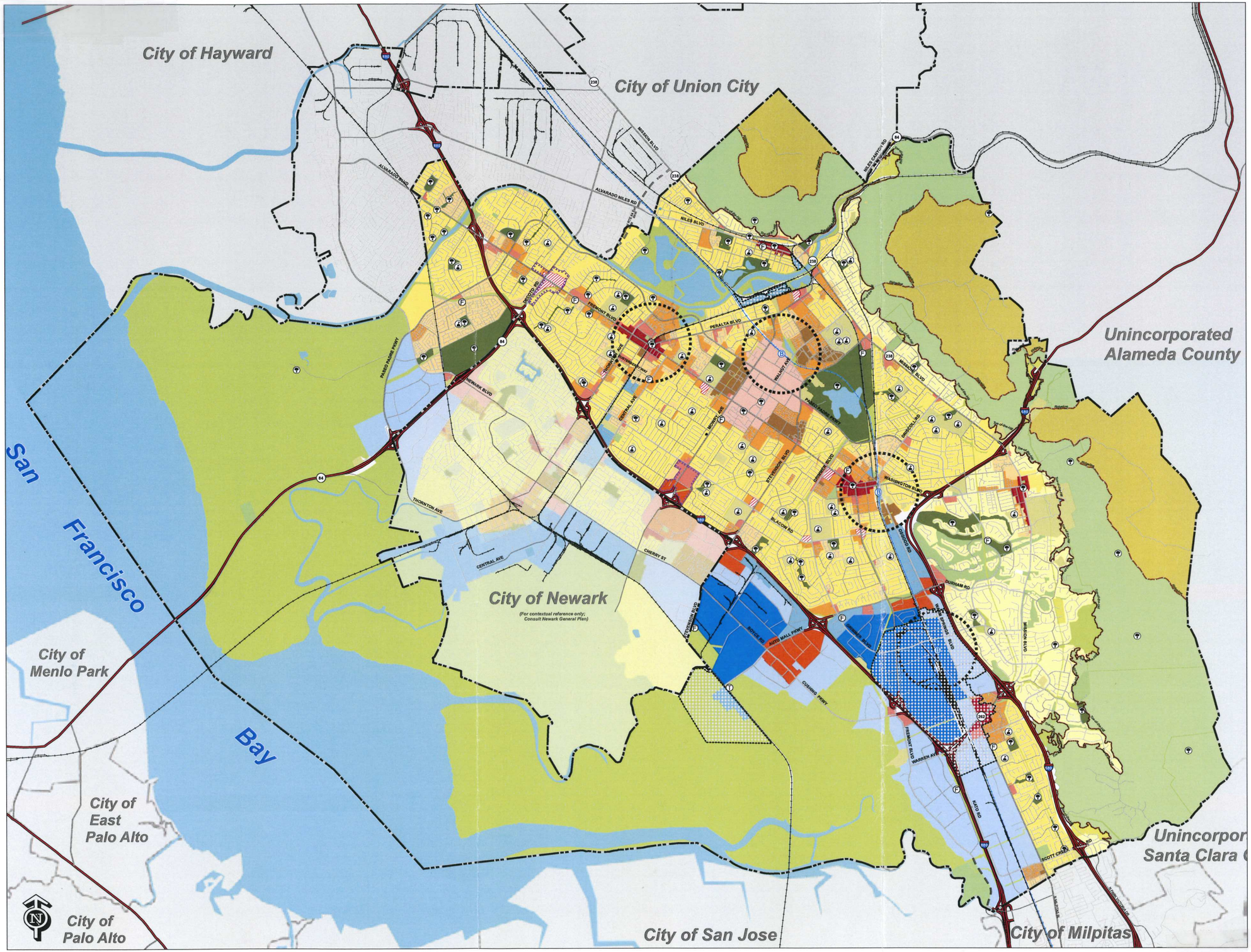



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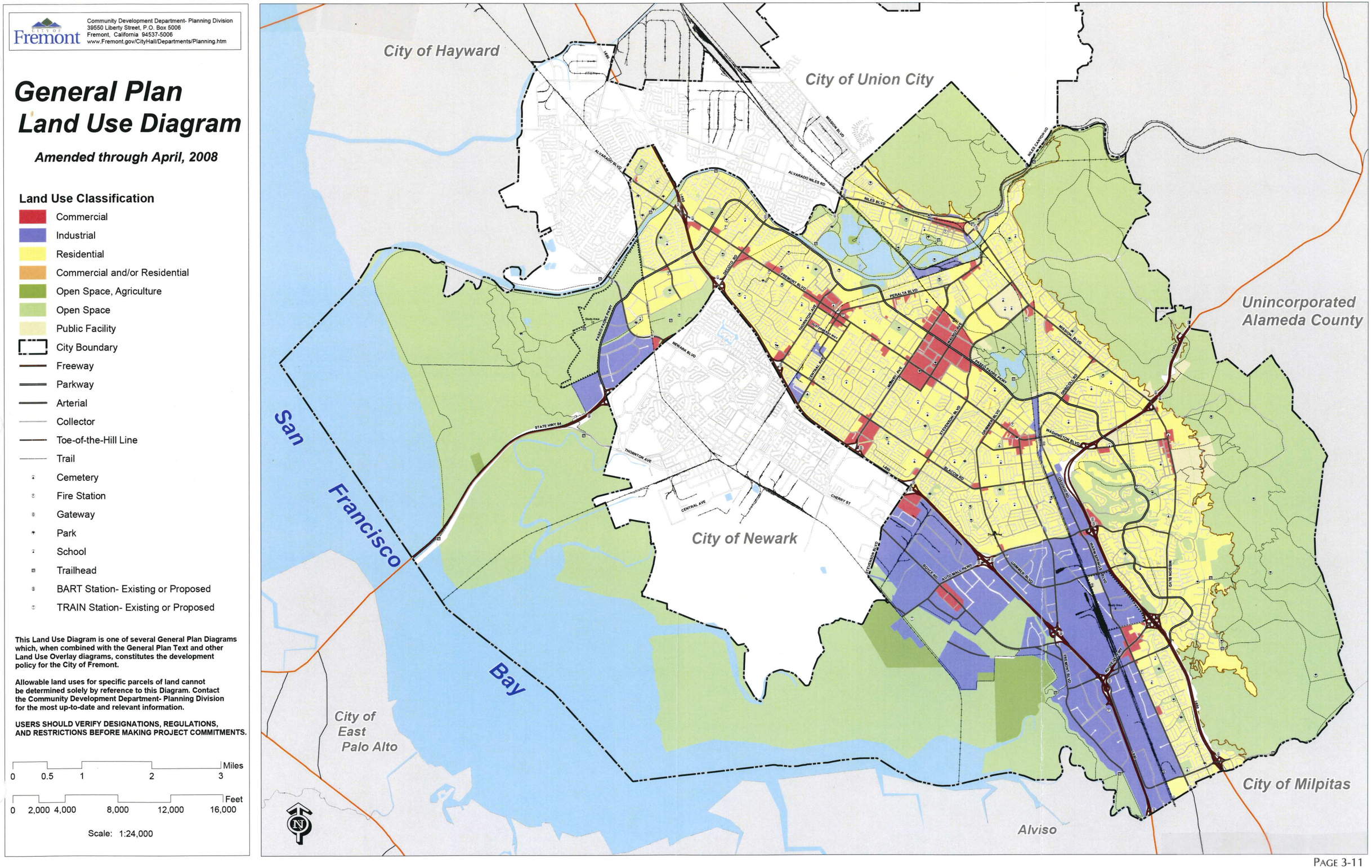
**Figure 3.3: Existing Fremont General Plan Land Use Diagram**



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Commercial Designations

*City Center*

The City Center designation applies to the 460+ acre area in the heart of Fremont. The area was envisioned as Fremont's downtown more than 50 years ago and today includes a mix of mostly auto-oriented commercial, office, civic, health care, and limited residential uses. Looking forward, City Center will become more urban in character, with more intense infill development and redevelopment, particularly within ½ mile of BART. Trees, sidewalks, benches, plazas, public art and other amenities that make the streets pedestrian-friendly and create a "Main Street" ambiance are envisioned. While the City Center includes local-serving uses, it is envisioned primarily as a regional commercial center, employment center, and entertainment and cultural center. The designation also accommodates mid to high-rise residential projects and mixed use projects incorporating housing above non-residential uses. The spatial distribution of uses is further guided by policies in this Element, other elements of the General Plan, the Zoning Ordinance, and the Downtown Community Plan. In particular, the Downtown Community Plan should be referenced for development standards and design guidelines for projects in the Downtown area.

Non-residential projects in the City Center are subject to a minimum FAR of 0.80 and maximum FAR of 1.5. Mixed use projects with ground floor commercial and residential uses above are subject to a minimum FAR of 1.25 and maximum FAR of 2.5. FAR increases of up to 3.0 are permitted within the TOD overlay. Mixed use projects located within the TOD Overlay are subject to minimum residential density of 50 units per acre. Such sites or projects may be zoned for exclusive residential uses even though they fall within the City Center General Plan designation.

*Town Center*

The Town Centers on the General Plan Land Use Map correspond to the original business districts of Niles, Irvington, Centerville, and Mission San Jose, and a cluster of established neighborhood shopping centers in the Warm Springs District. Each area includes an aggregation of different businesses and services that meets the needs of the surrounding community. While the character of each Town Center varies, all are intended to be pedestrian-oriented with an attractive and distinct identity, along with amenities such as small parks, public art, and plazas. In some centers, such as Niles, identity is already well established through the building fabric and streetscape. In others, such as Warm Springs, identity will need to be shaped by future planning decisions. Typical uses in Town Centers include local services, retail, eating and drinking establishments, civic facilities, housing, and mixed-use development.

Non-residential projects in the Town Centers are subject to a maximum FAR of 0.5. Mixed-use projects with ground floor commercial and residential uses above are subject to a

maximum FAR of 1.25. FAR increases up to 2.5 are permitted where a TOD overlay has been applied. Minimum FARs of 0.5 and minimum residential densities of 30 units/acre also apply when the site is located within the TOD overlay (e.g. Irvington, Centerville).

*General Commercial*

The General Commercial designation applies to low-scale commercial and office uses located along the city's arterials and collector streets. Some of these areas were developed as auto-oriented "strip" shopping centers while others are freestanding offices, commercial uses, or clusters of businesses meeting the day-to-day needs of Fremont residents. Multiple zoning designations apply within this category to distinguish their different physical characteristics and uses. The zoning designations generally correspond to neighborhood retail uses, office uses, and service commercial uses. Typical retail commercial uses might include supermarkets, drug stores, restaurants, and miscellaneous small local-serving stores and services. Typical office commercial uses might include banks, finance, real estate, medical and dental offices, and professional services. Typical service commercial uses might include hotels, gas stations, fast food restaurants, used car sales, and minor auto repair businesses.

Mixed-use projects with ground floor commercial and residential uses above are permitted in the retail-oriented zoning district, but not in the office or service commercial districts. The allowable FAR in General Commercial areas ranges from a maximum of 0.30 for non-residential projects up to a maximum of 0.80 for mixed-use projects.

*Regional Commercial*

Regional Commercial areas include large-scale commercial uses serving a citywide or regional market, typically on large sites along freeways or major arterials. Retail uses within this category usually have large floor areas and high sales volumes and may be considered shopping "destinations" by consumers from Fremont and other cities across the Bay Area. Uses such as furniture and electronic stores, auto dealerships, home improvement stores, department stores, and "big box" retailers are included. Smaller and more local-serving retail stores and personal services are generally not appropriate but could be allowed if complementary to a regional use. The permitted FAR in these areas is 0.30, with higher FARs permitted for hotels on a case by case basis. Residential uses are not permitted.

*Mixed Use*

The Mixed Use designation applies to specific areas of the City that may be appropriate for mixed commercial and residential projects, but are not within a TOD overlay. This designation has been applied to areas of the City that are beyond the half-mile radius of the BART and ACE stations, but still would be attractive locations for projects that combine commercial and higher-density residential uses. A range of commercial uses, such as retail, restaurants, personal services and offices are permitted within the Mixed Use designation.

Housing is permitted but not required; however, a substantially higher FAR is applied to incentivize mixed use development on these properties.

The allowable FAR in areas designated Mixed Use ranges from a maximum of 0.50 for non-residential projects to a maximum of 1.25 for mixed-use projects that include residential. All uses and development shall be evaluated for land use compatibility with adjacent uses. Residential projects without commercial uses are not permitted in these areas.

Industrial Designations

*Service Industrial*

This designation accommodates a variety of industrial uses which are generally oriented toward local businesses and residents. These include auto repair and servicing, machine shops, woodworking and carpentry shops, equipment rental and storage, small warehouse and delivery operations, self-storage facilities, printers, small wholesalers, and other small-scale industrial operations. A limited number of office, commercial recreation, and group assembly uses also occur within these areas. Service Industrial areas are often located on the perimeter of the City's larger industrial districts and in various locations in other parts of the City. Given their proximity to more sensitive uses, activities such as the handling of hazardous materials are strictly limited and buffering from adjacent uses may be required. A permitted FAR of 0.35 applies.

*Tech Industrial*

This designation primarily applies to areas used for research and development, "clean and green" tech, and related technological, administrative, sales, and engineering facilities. These areas play an essential role in the Silicon Valley economy and provide a high volume of business-to-business sales tax for Fremont. Manufacturing is permitted, provided that characteristics such as noise, vibration, and odor do not generate significant impacts. Warehousing, wholesaling, and distribution facilities also may locate within these areas. A moderate level of hazardous materials handling and storage may occur.

Some of the Tech Industrial areas, such as Bayside and Ardenwood, are characterized by a campus-like environment of one and two story buildings on large parcels. Architectural and landscape standards have been applied in these areas to maintain high standards of visual quality. Other areas with this designation have a more varied mix of parcels and uses. A permitted FAR of 0.35 applies, although FARs of up to 0.45 are permitted for manufacturing and warehouse uses.

*General Industrial*

This is the broadest of the three industrial designations, accommodating such uses as heavy manufacturing, warehousing, recycling facilities, and corporation yards. These areas have

been mapped to recognize the greater potential of these uses to generate off-site impacts, including noise, odors, vibration, and truck traffic. General industrial uses may also handle and store larger quantities of hazardous materials, and may require extensive areas for outdoor storage. Buffering and screening may be required to enhance public rights-of-way and ensure land use compatibility. General Industrial areas support a wide range of quality jobs, generate a significant amount of revenue, and provide essential services that underpin the local and regional economies. This designation limits encroachment of potentially incompatible uses, such as retail, office, group assembly, and other non-traditional industrial uses. A permitted FAR of 0.35 applies.

Open Space and Public Designations

*City Park*

This category includes parks that are owned and operated by the City of Fremont, including active and passive recreation areas. It also includes lands that are owned by the City and intended to become City Parks in the future. Typical uses include athletic fields, playgrounds, trails, tennis courts, and recreation centers. The appropriate uses in any given park are based on the park's classification and standards, and are further defined in the City's Parks Master Plan and the Parks and Recreation Element. City Parks are generally subject to a height limit of 35 feet, with some exceptions, and an impervious surface coverage limit of 15 percent.

*Resource Conservation and Public Open Space*

The Resource Conservation and Public Open Space category includes open spaces that are owned by public or quasi-public agencies other than the City of Fremont. Open spaces with this designation include regional parks such as Coyote Hills, and land owned by the San Francisco Public Utilities Commission (Hetch Hetchy Aqueduct), the Ohlone Community College District, and the U.S. Fish and Wildlife Service (Don Edwards Wildlife Refuge). This designation also includes PG&E transmission line rights-of-way and Alameda County Flood Control and Water Conservation District easements and rights-of-way. Resource Conservation and Public Open Space lands will remain as permanent open space through the horizon year of this Plan. A limited number of recreational and regional park improvements, such as trails or interpretive nature centers, may be appropriate. However, the focus in most areas is on the preservation of natural open space and restoration and enhancement of native habitat. Consistent with the 1981 and 2002 voter initiatives, public land in the hill areas is excluded from this category and is mapped separately under "Hill Area Open Space".

*Private Open Space*

The Private Open Space designation applies to private land set aside as open space within planned communities. It also applies to private uses with an open space character (such as golf courses and cemeteries). Some agricultural uses, such as livestock grazing, orchards, and small scale cultivation of crops, may be acceptable within these areas. With the exception of

ancillary structures related to the open space use, development is not permitted in areas with this designation.

*Hill Area Open Space*

The Hill Area Open Space designation applies to most of the open lands defined by voter-approved Measure A (Hillside Initiative of 1981) and Measure T (Hill Area Initiative of 2002). This designation includes two sub-areas, and a total of three designations, each depicted differently on the DRAFT General Plan Update Land Use Map.

Lands above the Toe of the Hill (TOH)-Measure T

Measure T applies to Fremont's eastern Hill Area and includes all land above the TOH, extending south and east to Alameda Creek and Calaveras Creek. The TOH is the line along the base of the hills where the natural grade first becomes 20 percent or more. The area defined by Measure T is further identified as the Hill Face Open Space and the Hill Open Space. Each of these is shown in a different shade of green on the Land Use Map.

- *Hill Face Open Space* is identified as all land between the TOH and the Ridgeline. The Ridgeline is a visual feature along the high point of the Hills established from a point of origin 1.5 miles away. Very low density uses may be allowed at a density of one unit per 20 acres for existing parcels. Outdoor recreation and limited public and quasi-public uses are allowed. Grazing and other agricultural activities are also allowed.

- *Hill Open Space* is identified as land within the Hill Area beyond the Ridgeline and outside of the Hill Face. This land is primarily located east of the Ridgeline. Very low density residential uses may be allowed at a density of one unit per 20 acres for existing parcels and one unit per 100 acres for any future annexed parcels. Limited outdoor recreation and other agricultural activities are also allowed.

Lands generally lying east of Mission Blvd and I-680 and below TOH-Measure A

- *Hillside Open Space* applies to rural parcels generally lying east of Mission Boulevard and/or Interstate 680, up to the TOH. Compatible uses include passive outdoor recreation, agriculture, and rural residential development. Future residential development in this area may not exceed one unit per acre for unconstrained land and one unit per four acres for constrained lands. However, even lower densities shall be maintained where severe environmental constraints are present. For the purpose of calculating allowable density, environmentally constrained portions of property (such as slopes over 20 percent) shall be excluded.

*Public Facility*

The Public Facility designation generally applies to non-open space parcels owned by public agencies or utilities. The designation includes City facilities, public schools, water and sanitary district facilities, transit agency facilities, utilities, and other federal, state, county, and local government facilities. Not all public facilities appear under this designation - for map legibility purposes, facilities less than one acre in size that are similar in character to adjacent uses may be shown with the adjacent use designation. For example, individual fire stations and branch libraries may not appear on the map. Conversely, sites designated as Public Facility are not precluded from future private use through joint public-private development, provided such development is consistent with the policies of the General Plan. Allowable development intensity on Public Facility properties is determined on a case-by-case basis; a 45-foot height limit generally applies.

Overlay Designations

*Transit Oriented Development (TOD) Overlay*

Transit Oriented Development (TOD) is an overlay designation applied to areas generally within a ½ mile radius of the Fremont BART Station, the future BART Stations in Irvington and Warm Springs, and the ACE/Amtrak Station in Centerville. The Overlay only applies to property with an underlying designation in one of the seven commercial and industrial categories, or the Urban Residential category. Each TOD area is unique. However, they share a common goal of maximizing transit use through density, land use mix, building form, and design. Each TOD is intended to be a vibrant pedestrian-oriented district. The particular mix of uses around a given station will vary depending on surrounding land use, access, infrastructure, and other factors. TOD areas will generally have more intense development than immediately surrounding areas in order to support transit ridership and promote a sense of place. Low-intensity auto-oriented uses that do not take advantage of the proximity to transit will be discouraged.

Parking requirements, setbacks, and other development standards are aimed at encouraging transit use and walkability, although public and on-street parking should be sufficient to anticipate and accommodate vehicle trips from Fremont neighborhoods to each respective station. FARs may range from 1.0 to 3.0 depending on location, with higher FARs typically permitted in mixed use projects that incorporate housing over ground floor commercial uses or high rise office buildings. Minimum FARs would typically apply and will be specified through zoning, but in no case would the minimum FAR be less than 0.5. If additional major investments in public transit (additional rail stations or light rail systems) are made in the future, this designation could be applicable in other locations.

*Study Area*

The Study Area designation is used to identify areas or properties where changes to the current General Plan designations are likely to be proposed in the future. It would be premature to change the designation at this time due to the need for future study and impact assessment. As appropriate, the City may undertake or authorize studies of these areas to respond to General Plan Amendment proposals or changing circumstances in the city. All Study Areas have an underlying General Plan designation that will remain in effect until a Plan amendment is formally approved. General Plan text has been provided for each Study Area, and should be consulted for further guidance (see the Community Plan Element for details).

*Areas of Interest*

The Area of Interest designation is used identify areas of the City where no land use change is envisioned, but may include vacant or underutilized land that has the potential for new development or redevelopment over the long term. These areas may include other design-based policies related to form, scale, function, landscaping. They may also identify gateways areas where other special design treatment is warranted.

## FOCUSED CHANGE FOR UPDATED GENERAL PLAN

The following discussion highlights significant areas of change related to the proposed General Plan Update compared to the current 1991 General Plan. In essence, the direction of the new General Plan reflects that as a community Fremont is no longer expanding outward and growing in the same manner or rate prescribed in the 1991 General Plan. The proposed General Plan Update reinforces the vision to become "strategically urban" as a way to meet economic development, housing, sustainability, and open space objectives.

City Center

The updated General Plan envisions the transformation of the Central Business District (current designation) into a pedestrian-oriented urban district known as "City Center." The City Center is planned to contain a mix of office, retail, health care, government, high-density residential, cultural, and entertainment land uses that takes advantage of its central location, proximity to BART, and access to major corridors through the City. Within the City Center, individual planning efforts will focus development objectives. The initial effort to focus development includes development of the Downtown Community Plan, formerly the "Focus Area" of the Central Business District Concept Plan.

*Downtown*

The Downtown, a sub-area of the City Center, is the subject of a more specific Community Plan that is incorporated in the General Plan. The Community Plan envisions development at an average FAR of 1.5 and with multiple mid-rise buildings that allow for 2,500 housing

units and an additional 1.5 million square feet of commercial development. The intent of the Plan is to facilitate economic development and housing needs within the context of a sustainably designed neighborhood.

Town Centers

The core of each of Fremont's original towns - Centerville, Irvington, Mission San Jose, Niles, and Warm Springs - is designated as a "Town Center" in the updated General Plan. While the character of each Town Center varies, the goal is for pedestrian-oriented districts with amenities such as retail frontage, public art, and small parks and plazas. The updated General Plan includes a number of related policy changes, including expansion of the existing Civic Park category from the City Center to include the Town Centers; creation of "art zones" to allow art to be concentrated in areas with more pedestrian activity; a focus on creating a walkable center in Warm Springs, where few vestiges remain of the former town's commercial district; and in some cases an increase in allowable development intensity in strategic locations.

Transit Oriented Development (TOD) Overlay

The updated General Plan establishes TOD overlay zones within approximately a half-mile of transit stations (the existing Fremont BART station, the proposed Irvington and the planned Warm Springs BART Stations, and the Centerville train station) that will encourage higher-intensity development in these areas. These areas roughly correspond to "Priority Development Areas" that the City has identified to the regional transportation and land use agencies as preferred locations for future housing growth and investment in the regional transportation infrastructure.

Within the TOD overlay zones, the updated General Plan allows for increased development intensity, prohibits new low intensity uses, reduces the predominance of parking, and encourages urban style parks, complete streets, and public art as a way to make these areas more pedestrian-friendly and urban in character. The TOD overlay expands upon existing concepts that already existing in the current General Plan for the City Center (formerly Central Business District).

Study Areas

Areas where change is anticipated but where additional analysis is necessary to identify the proper land use designation or mix of designations are identified as Study Areas on the Land Use map. The South Fremont/Warm Springs Study Area is the largest of these; others include the Shinn Terminus Property and the Henkel Property.

Areas of Interest

In addition to the Study Areas, the Land Use Map identifies Areas of Interest where no land use change is envisioned, but may include vacant or underutilized land that has the potential for new development or redevelopment over the long term. Areas of Interest include the Mowry East and Mowry Landing shopping centers and vacant land near the intersection of Fremont Boulevard and Decoto Road.

Community Character Element

The updated General Plan includes a new Community Character element that focuses on the contextual relationship between people, space and the built environment. The element lays out guidelines for achieving desired design character in different parts of the community: a more urban environment in the City Center; an interesting blend of old and new in the Town Centers; and attractive, multi-modal corridors and streetscapes in many locations.

Sustainability

Sustainability is an over-arching theme of the updated General Plan. The Sustainability element contains no goals or policies; rather, it serves as an index to sustainable measures found in all other elements. These include goals and policies related to waste reduction, recycling and composting, energy conservation, green buildings, and greenhouse gas emission reductions, among others. Policies related to sustainability are labeled in the Plan with a "sustainability icon" so they can be easily identified.

Mobility

The proposed Mobility Element stresses the importance of balancing vehicle transportation needs with needs of other modes of transportation. The Mobility Element works in combination with the Land Use and Community Character Elements to recognize the streets are not just infrastructure for automobile traffic but are, in fact, public spaces. Additionally, the proposed Element institutes a variable level of service (LOS) policy for signalized intersections, with more congestion acceptable in "strategically urban" locations.

## DEVELOPMENT ASSUMPTIONS

The updated General Plan is consistent with state and regional planning efforts to focus growth near existing transit stations and corridors. It anticipates that the vast majority of population growth will occur in the City's Priority Development Areas (PDAs). Additionally, the type of residential growth will be different than the currently predominate use of single family homes. The development projections include a substantial increase in multi-family dwellings and development at densities greater than 30 units per acre. These new dwellings will be of smaller size and household size than the current City profile. Overall, it is

anticipated that approximately 2/3 of new households will be multi-family and 1/3 of new households will be single-family.

Job growth assumes new development on available vacant land throughout the City. The City has approximately 800 acres of vacant commercial and industrial land. Approximately 25 percent of the vacant land exists within the boundaries of a PDA. This indicates that the majority of employment growth will occur outside of the PDAs in existing industrial areas, with some redevelopment and intensification within PDAs. Job types will be a mix of office, R&D, clean technology, general industrial, warehouse and distribution, and trade uses in the existing business parks of the City. Within PDAs (and specifically within the TOD Overlay) there will be an increase in office and professional uses above and beyond the intensity of use that currently exists. Retail development will likely occur within existing commercial areas, with the noted exception of regional commercial uses near the Dixon Landing/I-880 interchange, and may expand in conjunction with development of new neighborhoods.

The DRAFT General Plan Update is a long-term planning document that considers development potential that occurs through the year 2035. However, the increment of described growth (**Table 3-2**) is the basis of the analysis overall and the 2035 reference provides a basis for context of the growth and change, but is not to be considered a time limit on the development or "buildout" of the General Plan.

The DRAFT General Plan Update assigns land use policy and associated densities and intensities to all properties within the City. The DRAFT General Plan Update development scenario did not assume the full growth potential of the entire City - the theoretical amount of development that would occur if every parcel in the plan area were built or rebuilt to the new maximum allowable density and intensity set forth in the General Plan Update - because a number of factors make this theoretical build out extremely unlikely. These factors include economic and market conditions, the existing urban context, construction requirements and costs, policies and programs that limit new growth within the existing regulatory environment. As such, the City has assumed that not every property in the City would be developed at the maximum residential densities or nonresidential intensities allowed by the DRAFT General Plan Update.

The growth in the City will likely follow the same patterns as the broader Bay Area and Silicon Valley economy in the next 10 years, with an acceleration of growth and change after the first 10 years in response to changes in market demand and policies regulating development. ABAG projections provide reasonable economic and market demand and growth estimates for the Bay Area. ABAG's long-term projections are a combination of economic and policy forecasting to estimate market demand. ABAG projects that growth will ebb and flow based on demand, and rates will likely be an average of 0.5 percent for the near term and accelerate in the long-term for an average growth rate of 0.8 percent during the life of the DRAFT General Plan Update.

The DRAFT General Plan Update project kickoff began in earnest in 2007 and 2008 with extensive community outreach and preparation of background reports. The Notice of Preparation for the General Plan Update was issued in the summer of 2010. The existing conditions and background reports primarily reviewed conditions of the City in 2008. The 2008 conditions represent a slightly more robust activity and higher intensity of use of existing development than currently represented by 2010 activity. Overall population figures have not changed substantially, and overall employment has been flat to declining since 2008. The 2008 traffic conditions have been carried forward as an appropriate approximation of the 2010 conditions due to the economic slowdown and drop in economic activity and stabilized population growth. Quantitative analysis for traffic, noise, and air quality incorporated 2008 conditions as existing conditions. Notable changes since 2008 include development of approximately 900 additional homes, the closure of NUMMI, and the loss of its associated 5,000 jobs.

**TABLE 3-2: GROWTH ASSUMPTION COMPARISON**

| | Population | Households | Jobs | Non-Residential Square Feet |
|---|---|---|---|---|
| Baseline 2010 Built | 214,089[1] | 73,989[1] | 115,000[3] | 47,570,000[3] |
| Baseline 2008 Traffic Study Counts Built[5] | 214,576[1] | 72,492[3,4] | 94,000[2] | 46,400,000[6] |
| Baseline 2010 Occupied | 214,089[1] | 71,004[1] | 90,400[2] | 36,000,000[6] |
| ABAG Projections 2009 for 2035 | 256,200 | 85,990 | 127,800 | NA |
| GP Update for 2035 | 259,000 | 89,673 | 158,583 | 62,570,000 |
| Difference Baseline Built and GP | +45,000 | +15,684 | +43,583 | +15,000,000 |

[1] Census 2010, ACS 2008

[2] ABAG Projections 2009

[3] City of Fremont GIS

[4] Housing Element Annual Report 2010

[5] Industrial employment areas had a similar vacancy rate (15-20 percent) compared to 2010, with the exception that NUMMI was still in operation.

[6] Draft General Plan Update Studies, also includes adjustment for NUMMI Closure

Public Improvements

*Roadway Improvements*

The DRAFT General Plan Update assumes a variety of improvements to local roadways by 2035. Improvements would include, but not be limited to, cape seal, roadway resurfacing, curb, gutter and sidewalk replacement and modification of roadways consistent with the City's Complete Streets policy. Other major roadway improvements include systematic travel lane expansion and widening of select roadways and coordination and timing of the traffic signal operations in response to the demands of the system.

The City also has a current list of roadway capacity improvements known as the Transportation Improvement Program funded primarily by transportation impact fees (TIF). The Plan assumes construction of these facilities on an as needed and revenue-dependent basis. Improvements range from minor modifications to intersection lane configurations to expansion of roadways with new lanes. TIF projects include improvements to bicycle and pedestrian facilities and modification to the traffic signal network of the City. Among other improvements, major improvements include the widening of Automall Parkway with an additional lane in each direction, completion of Fremont Boulevard improvements between Cushing Parkway and Gateway Boulevard, completion of Warm Springs Boulevard between Grimmer Boulevard and Mission Boulevard, and modifications to the intersection of Warm Springs Boulevard and Mission Boulevard.

*Grade Separations*

The DRAFT General Plan Update assumes two grade separation projects to occur over the planning horizon. Both grade separations will accommodate the BART extensions to San Jose. The grade separations will eliminate current at-grade rail crossing at Warren Avenue and Kato Road, both located in South Fremont.

*Fremont Boulevard Extension*

The DRAFT General Plan Update assumes the extension and completion of Fremont Boulevard south to Dixon Landing Road in Milpitas. The extension is approximately ¾ of a mile.

*East-West Connector*

The DRAFT General Plan Update assumes the completion of the East-West connector, a more direct route between Interstate 880 and Mission Boulevard through Fremont, and partially Union City. The project includes the widening and improvement to Decoto Road and Paseo Padre Parkway in Fremont. It also includes the construction of a new roadway between Paseo Padre Parkway and Mission Boulevard. A project specific EIR for the East-West Connector was certified by the Alameda County Transportation Commission, formerly Alameda County Transportation Improvement Authority, in Summer of 2009.

*Bicycle and Pedestrian Design*

The DRAFT General Plan Update assumes a variety or bicycle and pedestrian improvement project to help implement the vision of the General Plan. Some of these include general pedestrian improvement project along existing streets to widen sidewalks, provide pedestrian streetscape amenities, and add bike lanes. Other more specific projects include conversion of the abandoned UPRR corridor to a trail via the "Rails to Trails" program; Greenbelt Gateway project along Grimmer Boulevard to enhance pedestrian and bicycle facilities and access to Central Park; pedestrian walkway improvements in the downtown area along Capitol Avenue; and, to provide a dedicated pedestrian walkway between downtown to Fremont BART.

*BART/Transit Improvements*

The DRAFT General Plan Update assumes transit improvements including the extension of BART to San Jose, with the construction of new stations in Irvington and Warm Springs/South Fremont, increased ACE/Capitol Corridor service in Centerville, and improved bus service to meet demand with a focus along Fremont Boulevard corridor, the Osgood/Warm Springs Boulevard corridor, and within the City Center.

*Streetcar System*

The DRAFT General Plan Update includes a long term implementation measure to develop a streetcar system along Fremont Boulevard when ridership warrants such a system and funding is available. It is anticipated that such a system would not be developed until the end of the planning horizon of the General Plan, if at all. Such a long term goal is desirable, but may not be realistic given the constraints to such a system. The City would rely on increased bus service, and even bus rapid transit, prior to development of a fixed rail streetcar system. Therefore, the operation of streetcar system is not contemplated as part of the analysis of the DRAFT General Plan Update.

## ANTICIPATED ADOPTION AND IMPLEMENTATION

Adoption of the updated General Plan is anticipated in 2011. The updated Plan will be in effect 30 days after adoption. A matrix of General Plan implementation measures, including timeframes and responsible entities, will be attached to the General Plan (although not officially adopted as part of the General Plan, so that it can be used as a working document and not require a General Plan amendment for modifications). Early implementation measures will include updates to the Zoning Ordinance for General Plan consistency and updates to the City's impact fee schedule to reflect infrastructure needs identified in the Plan.

# INTENDED USES OF THE EIR

As provided by Section 15168 of the CEQA Guidelines, this EIR is a Program EIR. The vision, guiding principles, land use designations, goals, policies and implementation actions of the General Plan Update comprise the "program" that is evaluated in this Program EIR. Subsequent activities undertaken by the City and project proponents to implement the General Plan Update will be reviewed in context of this Program EIR to determine the appropriate level of further environmental review required under CEQA.

Such subsequent implementation activities may include the following:

- Updating and amending the Zoning Ordinance
- Updating and amending the Zoning Map consistent with the adopted General Plan
- Preparation and approval of Community Plans, and other development plans and planning documents
- Preparation and approval of Climate Action Plan
- Preparation and approval of updates to the Bicycle Master Plan and Pedestrian Master Plan
- Preparation and approval of design guidelines, including Multi-Family Design Guidelines, and historic preservation plans
- Preparation and approval of tentative subdivision maps, variances, conditional use permits, and other land use permits and entitlements consistent with the General Plan
- Preparation and approval of development agreements
- Updating and amending Engineering Standard Specifications
- Preparation and approval of the Capital Improvement Program (CIP)
- Acquisition or disposition of City property
- Issuance of any other permits and approvals necessary for implementation of the updated General Plan
- Updates to the City's Housing Element and other General Plan Elements

Following the certification of the EIR and adoption of the General Plan Update by the City of Fremont, other agencies may use this Program EIR in the approval of subsequent implementation activities. These agencies may include, but are not limited to the following:

Local Agencies

- City of Fremont
- Alameda County Agencies
- Alameda County Water District
- Union Sanitary Sewer District
- Fremont Unified School District
- Santa Clara County Agencies
- Fremont Redevelopment Agency

State and Regional Agencies

- California Department of Fish and Game
- California Department of Conservation
- California Department of Housing and Community Development (HCD)
- California Department of Transportation (Caltrans)
- State Water Resources Control Board/San Francisco Bay Regional Water Quality Control Board
- Metropolitan Transportation Commission (MTC)
- Association of Bay Area Governments (ABAG)
- Bay Area Air Quality Management District (BAAQMD)
- San Francisco Bay Conservation and Development Commission (BCDC)
- Bay Area Rapid Transit District (BART)

Federal Agencies

- Federal Emergency Management Agency (FEMA)
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service

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# 4

# ENVIRONMENTAL ANALYSIS

## A. LAND USE

### SETTING

Background

Fremont was incorporated in 1956, joining five neighboring communities in southern Alameda County with a total population of about 22,500 people (Niles, Centerville, Irvington, Warm Springs and Mission San Jose). The original five towns that composed Fremont at incorporation are still evident, although they are now referred to as "districts". Each district has its own distinctive retail and service commercial area, and a distinctive circulation network, while four of the five districts (Niles, Irvington Centerville and Mission San Jose) have significant historic elements (the historic commercial center in Warm Springs has been replaced by a newer commercial area). Additionally, the lands between the historic districts have been principally developed since incorporation of the City. These areas are predominantly suburban in nature, with single-family detached homes with some multifamily development around commercial areas, and some concentrated neighborhoods of apartments and condominium development.

Industrial development has occurred in the southwestern area of the City on land set aside for industrial use when the City first incorporated. Industrial and business park development has also occurred on the northwestern side of the City in an area more recently designated for industrial use west of I-880 and north of SR 84.

With the growth of the technology industry and the emergence of "Silicon Valley" in northern Santa Clara County, Fremont grew rapidly as a bedroom community. The City provided homes for many workers in the electronics industry that commuted west across State Route 237 to their jobs in Palo Alto, Sunnyvale, Mountain View and Santa Clara, as well as for workers at the Fremont General Motors and the Milpitas Ford auto assembly plants. Still other workers commuted to industrial jobs in steel, shipping, and warehousing in Hayward, San Leandro, Oakland and Emeryville, and some commuted to office jobs in San Francisco.

As Silicon Valley grew, Fremont began to emerge as a city with a diversifying industrial base. The City had ample lands zoned for industry west of Interstate 880, and high technology companies began to shift production to Fremont. The City has a diverse industrial base of trade and wholesale, manufacturing, high-technology research and development (R&D), and a

concentration of medical office uses in the City Center. Against the backdrop of the recent economic recession since 2009, there has been a very high level of vacancy in existing industrial building stock. Notably the former New United Motors Manufacturing Incorporated (NUMMI) automotive manufacturing plant closed in 2010. The plant closure accounted for a temporary drop of approximately 5,000 which has been partially offset by utilization of a portion of the plant by Tesla for production of electric cars.

The City has maintained an "open space frame" that provides visual and physical access to the natural environment, and adds to the special character of the City. The frame has been largely implemented through public action. In the east, the City is framed by its open hills. Development in the Hill Area is controlled by initiatives passed in 2002 and 1981. The other major element of the City's open space frame is the Baylands on the west. Much of the baylands area is incorporated as salt ponds, in the San Francisco Bay National Wildlife Refuge or Coyote Hills Regional Park.

Existing Land Use

There are approximately 57,020 acres (90 square miles) within the Fremont city limits. This includes approximately 7,411 acres of water and salt ponds located in San Francisco Bay and 4,704 acres of streets and roads as public right-of-way. The net land area without these two components is approximately 44,905 acres. The City's existing land use has been calculated using Alameda County Assessor tax codes for assessed value and use, refined where appropriate to reflect actual known land use (see **Table 4-1**).

*Residential*

Fremont's single-family land use is spread throughout the entire city from north to south. There is no housing in the Baylands or Industrial areas. The Warm Springs, Mission San Jose, Niles and North Fremont areas are predominantly single-family.

Other than single-family detached homes, Fremont contains a variety of townhomes, condominiums and apartments. Most of these units are constructed in two- or three-story attached buildings. The Centerville, Irvington and Central areas have the largest concentration of medium- to high-density housing, although they also support single-family homes. Multi-story residential buildings above three to four stories are rare in Fremont, although some do exist. A growing share of multi-family townhome development has been built in the last ten years as Fremont's land supply has been reduced and the City has increased density to accommodate housing needs. The result of this has been numerous residential projects containing attached townhome units in the mid-density ranges, 7 to 23 units per acre.

Higher density housing has been developed in or near the City Center, primarily in the area near the BART station. Other high density projects have been approved in the City Center and some other areas of the City, but have not yet been developed.

**TABLE 4-1: EXISTING LAND USE**

| Land Use Category | Existing Acreage | Percent of Total |
|---|---|---|
| Residential – Rural | 206 | 0.36 |
| Residential – Single-Family | 7,746 | 13.62 |
| Residential – Mixed-Type | 418 | 0.72 |
| Residential – Multi-Family | 892 | 1.56 |
| Residential Subtotal | 9,262 | 16.27 |
| Mixed Use | 15 | 0.03 |
| Office | 211 | 0.41 |
| General Commercial | 865 | 1.50 |
| Commercial Subtotal | 1,091 | 1.94 |
| Institutional | 412 | 0.63 |
| Public/Utility/ROW | 14,736 | 25.77 |
| Public/Institutional Subtotal | 15,148 | 26.40 |
| Open Space – Conservation | 18,588 | 32.72 |
| Open Space – Active Recreation | 790 | 1.39 |
| Open Space – Agriculture | 5,438 | 9.54 |
| Open Space – Private | 860 | 1.49 |
| Open Space Subtotal | 25,676 | 45.13 |
| Light Industrial | 2,970 | 5.20 |
| Heavy Industrial | 424 | 0.74 |
| Industrial Subtotal | 3,394 | 5.95 |
| Vacant | 2,449 | 4.32 |
| Total | 57,020 | 100.0 |

*Commercial*

The largest commercial area in Fremont is the CBD, which comprises 460 acres (NOTE: The DRAFT General Plan Update identifies a new land use designation, "City Center", with an area of 430 acres, which encompasses the area now designated "CBD" under the current General Plan). Commercial development within the CBD is mostly found in office buildings, strip retail and community-oriented shopping centers. The City also has smaller nodes of commercial development located in each of the historic town centers (Niles, Warm Springs, Irvington, Centerville and Mission San Jose). These commercial areas, with the exception of Warm

Springs, are typical of pedestrian-oriented commercial district with local shops, services and restaurants. The original Warm Springs commercial center has been replaced by a larger auto-oriented commercial area located at the intersection of Mission and Warm Springs Boulevards. Fremont's commercial areas provide community-wide services while also helping to provide identity for each district. Numerous neighborhood-serving commercial shopping centers are also located throughout the City.

Another commercial area (Pacific Commons) is located on the west side of I-880 near the City's Auto Mall. This regionally-oriented shopping center consists of both large big-box retailers and smaller retail and restaurant uses. This area is currently designated as Industrial in the City's existing General Plan, and contains a Commercial-Industrial Overlay to allow commercial uses.

*Industrial*

Fremont lies at the intersection of two of the Bay Area's most significant economic sub-regions, Silicon Valley and the I-80/880 Corridor. Fremont's local economy is formed by and tied to the economic trends in the broader region. Correspondingly, Fremont's industrial lands are primarily concentrated in three core areas adjacent to the Silicon Valley and the I-80/880 Corridor. They consist of Ardenwood Technology Park, Bayside Industrial and South Fremont. These three areas provide approximately 3,340 net acres of industrial land, a building inventory of 38.6 million square feet, and approximately 60,000 jobs. The South Fremont and Bayside Industrial areas comprise the majority of the core industrial area, with 90 percent of this land inventory. Ardenwood Technology Park, located in the North Fremont Community Plan Area, comprises the remaining 10 percent (or 345 acres) of core industrial land.

*Open Space*

One of Fremont's unique attributes is the "open space frame" that surrounds the City, with the hills to the east and wetlands to the west. Much of Fremont's open space is in public ownership, most notably the East Bay Regional Parks District and the federal Don Edwards San Francisco Bay National Wildlife Refuge. Open space lands also include the City's extensive municipal park system.

Open space lands in private ownership include properties in the hills that are primarily used for conservation and open space, as the topography and terrain are not conducive to development. They also include lands classified as agricultural that support salt ponds, quarries, Hill Area grazing land, rangeland and cropland. Other private open spaces include undeveloped areas in multi-family developments and cemeteries. The City's Zoning Ordinance requires a percentage of private open space for townhome/condominium developments and hillside Planning Districts.

*Institutional*

Institutional uses include churches, hospitals, private schools and nursing homes. Although these uses are located throughout the City, the CBD contains the majority of the City's health care uses and hospitals.

*Mixed-Use*

The Mixed-Use land use classification is essentially a combination of existing residential and commercial designations. Mixed-use buildings typically include ground floor commercial uses, with residential uses located above. Densities range from 15 to 35 units per acre. Although the existing General Plan designates 48 acres for mixed-use development, only 15 acres have been developed in mixed-use to date. Mixed-use is allowed in most commercial districts through a Planned District zoning process.

Existing General Plan Land Use Designations

**Table 4-2** provides a comparison between the existing land uses within Fremont, and the area in each of the major land use designations under the current Fremont General Plan.

**TABLE 4-2: EXISTING LAND USE AND EXISTING GENERAL PLAN LAND USE**

| Land Use Category | Existing Use | Existing General Plan |
|---|---|---|
| Residential | 9,262 acres | 10,517 acres |
| Commercial | 1,076 acres | 1,007 acres |
| Industrial | 3,394 acres | 4,907 acres |
| Open Space | 25,676 acres | 27,924 acres |
| Public/Institutional | 15,148 acres | 12,617 acres |
| Mixed-Use | 15 acres | 48 acres |
| Vacant | 2,449 acres | n/a |
| Total | 57,020 acres | 57,020 acres |

**Table 4-2** indicates that in some instances, existing commercial and public/institutional uses have exceeded the land area designated for them in the existing General Plan. This is in part due to the fact that some existing commercial areas (e.g., Pacific Commons and the Automall Corridor) are designated as Industrial in the existing General Plan. The Public/Institutional acreages exceed existing General Plan designations because existing public right-of-way is included in this category, but not in the existing General Plan land use acreages. In all other instances, there is still adequate acreage designated in the existing General Plan to accommodate additional uses.

Planning Areas

For analytical purposes, the Fremont Community Development Department has divided the city into 10 planning areas (NOTE: Under the DRAFT General Plan Update, the currently-identified "Planning Areas" become "Community Plan Areas", with some boundary modifications in some areas.). These are:

- Baylands Planning Area: This area includes lands which are under San Francisco Bay, salt ponds, wetlands, seasonal wetlands, and other uses associated with the Bay and wildlife habitat. The San Francisco Bay National Wildlife refuge occupies the vast majority of this Planning Area and, along with Coyote Hills Regional Park, provides most of the City's wetlands within this Planning Area. With the exception of the salt ponds and former landfill, virtually all of this Planning Area is protected for habitat and other resource conservation uses.

- Centerville Planning Area: This Planning Area includes the commercial district of the former town of Centerville, centered at the intersection of Peralta Boulevard and Fremont Boulevard where two East Bay highways met near an important railroad line. Surrounding the commercial areas of Centerville are several residential neighborhoods. While a majority of the land is devoted to single-family detached homes, many apartments and condominiums have been built along major boulevards such as Paseo Padre Parkway. A portion of the Alameda Creek Regional Trail passes through this Planning Area, and Quarry Lakes Regional Recreation Area provides recharge for the Niles Cone groundwater aquifer.

- Central Planning Area: There are three distinct sub-areas within the Central Planning Area:

    - The Central Business District (CBD) is generally the area between the Fremont BART station on the east, Mowry Avenue on the north, Fremont Boulevard on the west (extending to Argonaut Way at the Hub), and Stevenson Boulevard to the south. The CBD contains approximately 3,000,000 square feet of office uses (including medical uses), and 1,700,000 square feet of commercial uses (NOTE: The DRAFT General Plan Update identifies a new land use designation, "City Center", with an area of 430 acres, which encompasses the area now designated "CBD" under the current General Plan).

    - The Central Residential Area surrounds the CBD on all sides. East of the BART tracks is an area of single-family neighborhoods and high-density residential areas. The City has focused its highest density residential land use designations around the CBD and near the Fremont BART station to take maximum advantage of proximity to transit and add to the vitality of the CBD. On the north and south of the CBD are other predominantly single-family residential areas.

    - The Industrial Area is defined as the area between the railroad tracks near Alameda Creek, which houses the U.S. Gypsum Company.

  Central Park, the main library, the city offices and police headquarters are also located within this Planning Area.

- Irvington Planning Area: This Planning Area includes the core commercial district of the former town of Irvington, which developed around the "five corners" at Fremont Boulevard, Washington Boulevard and Bay Street. Irvington still retains many buildings dating from before 1900. The Irvington commercial center spreads east on Washington Boulevard, toward the railroad, extends in both directions on Fremont Boulevard from Washington Boulevard, and west on Grimmer Boulevard from Fremont Boulevard. The Planning Area also includes a newer commercial center near the Mowry Avenue/I-880 interchange. The area surrounding the Planning Area's commercial core is primarily single-family residential in character. It includes historic residential areas and pre-incorporation subdivisions dating from the 1950s, as well as newer development that has taken place since incorporation. There are also apartments and condominiums located along major roads and around the commercial center. Irvington has some older industrial areas long the railroads, but these areas are generally underutilized due to isolation from other industrialized areas.

- Mission San Jose Planning Area: This Planning Area includes the original settlement and town of Mission San Jose that is the oldest continuously-settled area in Fremont, dating to the founding of the Mission in 1797. Many historic buildings remain in the commercial center, located within a two-block radius of the rebuilt Mission. Just south of the Mission is Ohlone College, a two-year California Community College facility. Surrounding the commercial center is a mix of older and newer homes at various densities, with the majority being single-family homes. Further away from the commercial center towards I-680 there is a rugged area of foothills, most of which are now developed with single-family homes, some apartments and condominium projects. In the hills above Mission Boulevard are subdivisions including single-family homes and, further into the hills, large custom homes. There is only one small industrial site in the Planning Area.

- Niles Planning Area: This Planning Area includes the original town of Niles that originated as an agricultural and horticultural center for the Bay Area, as well as a railroad hub where one leg of the intercontinental railroad was completed with a golden spike in 1869. It had a brief stint as a movie-making center, and retains historic store-fronts along Niles Boulevard (many of which are devoted to antique sales). The residential areas in this Planning Area range from the historic homes adjacent to the commercial center, to newer neighborhoods at the base of the hills along Mission Boulevard. This Planning Area is somewhat isolated from the rest of Fremont, with Alameda Creek on one side, the quarries on another, and the hills on another. Access to Niles from the rest of Fremont is either via Mission Boulevard or Niles Boulevard.

- Northern Plain Planning Area: There are several distinct sub-areas created by major physical barriers which separate the various parts of the Planning Area:

    - Ardenwood New Town is located west of I-880 and south of Alameda Creek, and was developed in 1977. It is bordered on the south by the Ardenwood Regional preserve, a park owned by the City of Fremont and managed by the East Bay

Regional Park District as a working historic farm. To the west is the Ardenwood Industrial Park.

- Northgate (Old Alviso School) Neighborhood is a continuation of the single-family residential areas and neighborhood-serving shopping areas in Centerville to the south. It is bordered on the east by the Alameda Creek flood control channel, and on the west by I-880.

- Ardenwood Industrial Park is located west of Ardenwood New Town, and was planned to provide jobs for the residents of Ardenwood and to capitalize on the expected overflow of high-tech industries seeking new space across the Dumbarton Bridge from Silicon Valley.

- North Fremont is the area north of Alameda Creek and west of I-880, which is largely surrounded on other sides by Union City. It is a small residential neighborhood of single-family homes.

- Open Space includes a portion of the original Patterson farm and a portion of the Coyote Hills Regional Park.

- Warm Springs Planning Area: Virtually none of the small historic commercial portion of this Planning Area remains. The commercial center of Warm Springs is now the shopping center complex and other commercial buildings at the intersection of Mission Boulevard and Warm Springs Boulevard. Remnants of Warm Springs' historic past can be seen in the "Hidden Valley" area off Stanford Avenue, where the original springs still flow. A significant portion of the Warm Springs residential area is immediately adjacent to a major industrial area across Warm Springs Boulevard, extending south from Mission Boulevard. Some residential neighborhoods in this area date back to the 1950s, while newer homes and large custom homes have been built in the hills east of Mission Boulevard and I-680. Some condominium and apartment development has taken place near the commercial center of this Planning Area.

- Industrial Planning Area: This Planning Area comprises over 4,000 acres extending west from Warm Springs Boulevard to I-880, and west to the Baylands Planning Area. In recent years, development in this area has included the 337,000 square foot NADEV modern printing facility and the approximately 300,000 square-foot Solyndra solar manufacturing facility (of an entitled 610,000 square feet), Other recent development in this area includes the Auto Mall and major retail space within the Pacific Commons area. Some land in the western portion of the Planning Area is now part of the San Francisco Bay National Wildlife Refuge.

  Within the Industrial Area, the Pacific Commons area encompasses 670 acres, of which approximately 300 acres was dedicated to wildlife refuge in 2000. Approximately 1,100,000

square feet of research and development/office space was developed within the Pacific Commons area prior to 2002. Since a rezoning in 2004, approximately 1.2+ million square feet of retail space has been developed for national tenants such as Target, Costco, Lowe's Kohl's, and Nordstrom's Rack in the Pacific Commons area.

- Hill Planning Area: The City's eastern hills rise above Mission Boulevard and I-680 to form an open space backdrop to the City, extending eastward to the City limits. This Planning Area includes Niles Canyon, Mission Pass and the Mission Hills, but excludes a small area at the mouth of Niles Canyon and at the base of Mission Pass. Beyond the City's boundary there is a significant amount of hill land in private ownership, and the City considers this area to be part of an Expanded Planning Area shown as part of the Hill Planning Area for planning purposes. The Planning Area can be divided into seven distinct units:

    - Base of the Hills is located below the toe of the hill (defined as a line along the base of the hills along which the natural grade is a maximum of 20 percent) between Mission Boulevard (and I-680) and a line which demarcates the beginning of the steeper hills.

    - The Hill Face is an area that extends from the "Toe of the Hill" to the "Ridgeline" (defined as the visual ridges seen from Mission Boulevard, I-680 and other locations). There are only a few houses located on the Hill Face, which has special geologic constraints to development and unique biological resources.

    - Niles Hills is a wedge of land east of the Hill Face and north of Niles Canyon extending to the Union City limits. It is characterized by steep terrain and rolling hills, and is undeveloped.

    - Mission Hills West is bounded by Mission Boulevard, the south branch of Mission Creek, I-680, Durham Road and Paseo Padre Parkway. It is largely developed with a mixture of low-density semi-custom homes, clustered residential development, the undeveloped Antelope Hills trail park, and dedicated open space.

    - Vargas Plateau West extends easterly from the visible ridgeline to the City's eastern City limits, and extends north from I-680 to the steeply sloped land dropping off to Niles Canyon. The Vargas Plateau includes areas of rolling hills and relatively flat terrain, as well as highly constrained, steep slopes and biologically sensitive creek areas. It supports a small number of homes.

    - Vargas Plateau East is physically part of the Vargas Plateau, but outside the City's existing boundaries.

- Mission Creek is the area east of the visible ridge and south of I-680, and supports only a few homes.

- Sheridan Road is located south of I-680. Some of this area is an extension of the Sunol Valley, with relatively flat land and rolling hills, while other areas are steeply sloped similar to portions of the Mission Creek area. Existing uses include nurseries and quarries, in addition to agriculture.

The ridgeline varies in elevation from about 1,800 feet on the northern end of the Planning Area to 2,500 feet at Mission Peak near the southern end of the Planning Area.

Approximately 2,800 acres of the Hill Planning Area are in public ownership, including 2,596 acres in the Mission Peak Regional Preserve (managed by the East Bay Regional Park District).

Important natural resources found in the Hill Planning Area include wetlands, habitat for a variety of plant and animal species, and mineral resources. Much of the Planning Area is agricultural land used for grazing. More than 20 intermittent creeks drain into Lake Elizabeth or to the Bay. Some creeks in the northern section of the Planning Area drain into Alameda Creek, and become part of the community's water supply.

Development in most of the Hill Planning Area is controlled by the Hill Area Initiative, and development outside the City's boundaries is controlled by Alameda County.

Community, Specific and Concept Plans

The City of Fremont has existing concept and/or specific plans for various planning areas in the City. These plans take a more detailed approach to land use, transportation and urban design than the General Plan. These plans also set forth land use goals for future implementation. They have all been prepared subsequent to the existing General Plan and, while they foster the goals of the existing General Plan, they also present long-term goals that have been taken into account in development of the DRAFT General Plan Update (NOTE: Under the DRAFT General Plan Update, the currently-identified "Planning Areas" become "Community Plan Areas", with some boundary modifications in some areas).

*Central Business District Concept Plan*

The CBD Concept Plan presents a land use concept and development vision for the Central Business District. The Planning Area covers 430 acres, which includes 324 acres of development and 80 acres of public streets. The Plan describes the existing conditions and uses, size and scale of buildings, major destinations and the planning timeframe. It discusses existing General Plan policies related to development in the CBD, including transit and pedestrian orientation, development continuity, public open spaces and plazas, and public art. Zoning details are discussed, as well as view corridors, underutilized sites and parking. These conditions provide a framework for the Plan's vision and goals.

The Plan envisions smaller focus areas to serve as hubs of activities and a mix of uses including retail, office, entertainment, open space and cultural arts organized around a main street. This street is envisioned as Capitol Avenue between Paseo Padre Parkway and its extension to Fremont Boulevard. The goals of the Plan include: 1) Create a recognizable and memorable mixed-use Downtown which people can take pride in and want to visit; 2) Improve the overall streetscape, design and pedestrian orientation in the CBD including connections to BART; 3) Encourage a network of strategically-place public and private parking facilities that support economic vitality, particularly for small businesses; 4) Reflect history, as appropriate, and Fremont's cultural diversity in the design and development of the Downtown including establishing a Cultural Arts Center in the CBD Focus Area.

*Centerville Specific Plan*

The Centerville Specific Plan provides for revitalization of the Centerville Study Area, which is the corridor concentrated along Fremont Boulevard from Mowry Avenue to Decoto Road. This area is also a Redevelopment Area. The Plan primarily focuses on the historic commercial area in Centerville. The Specific Plan identifies existing land use, open space, heritage conservation and infrastructure improvements. It also provides community design guidelines and an implementation program.

The four primary goals of the Plan are to: 1) Revitalize the historic community business district while preserving its historic resources; 2) Provide new housing opportunities in locations undergoing land use transition; 3) Provide additional open space to meet future need; and 4) To link open space resources in Centerville with those of the City and the region. To assist in achieving these goals, the Study Area was divided into various Sub-Areas to focus on specific goals for each. The Specific Plan has been found to be consistent with relevant goals and policies of the existing Fremont General Plan. The Plan also seeks to implement a number of Land Use, Open Space and Historic Conservation General Plan goals and policies by encouraging preservation, revitalization and development in strategic areas.

*Niles Concept Plan*

The Niles Concept Plan presents a land use concept and development vision for the core of the Niles District, which is also a Redevelopment Area. The overall vision of the Concept Plan is to revitalize Niles as an attractive and lively destination for visitors and residents, and to strengthen its pedestrian scale, small town character and economy. The Concept Plan describes existing uses, general plan and zoning conditions, and existing retail business and commerce. Based on these existing conditions and Niles' history, a vision is laid out for its future. This includes creating a diverse retail mix, incorporating a daytime population, creating a central gathering place or plaza, establishing Niles as a regional destination, preserving its heritage and improving transportation access. Strategies are identified to accomplish this vision, including a retail business strategy, historic preservation strategy, community design strategy, and transportation and land use strategies.

*Mission San Jose (Design Guidelines and Bryant Street Conservation Area)*

The Mission San Jose Design Guidelines were created to help conserve and enhance the existing character of the Mission San Jose Historic Overlay District. The Guidelines describe and illustrate how to properly design buildings and landscapes in relation to the historic district context and facilitate project review. The Guidelines also provide a standard for staff and decision-makers to measure the adequacy of a development project. They address a number of items, including building setbacks and FAR, outdoor spaces, parking, building design, signs and landscaping.

The Mission San Jose Conservation Area and the Bryant Street Conservation Area are sub-districts of Mission San Jose, and consist of smaller parcels and homes that were developed prior to incorporation. These areas have special characteristics, such as small, narrow lots and small single-family historic homes. As such, this area needs special consideration when reviewing proposals for development and redevelopment.

*South Fremont/Warm Springs Specific Plan*

The City of Fremont has an existing policy to create a Specific Plan for the future BART Warm Springs Station area that has been carried through to the DRAFT General Plan Update as a Study Area. The City of Fremont is in the process of preparing a Specific Plan for approximately 800 acres of land that includes the Warm Springs BART Station area. This Plan will help determine the appropriate development, character and land use mix for this portion of the City in anticipation of the Warm Springs BART Station. The area is subject to an economic study to discern baseline information on existing conditions in the station area, an economic development and revitalization strategy, and discusses preliminary planning issues relevant to preparing a specific plan. Subsequent planning efforts will include the preparation and evaluation of alternative development scenarios for the area, a final description of the preferred plan, development guidelines and an implementation approach.

Regulatory Setting

Development within Fremont is regulated by the current General Plan, any Specific Plan which may apply within the area proposed for development, the Zoning Ordinance, subdivision regulations, any applicable Design Guidelines, and the Local Hazards Mitigation Plan 2010.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Physically divide an established community;

2) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or

3) Conflict with any applicable habitat conservation plan or natural community conservation plan.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update land use policies is intended to guide future land use to achieve the community's vision for the future:

- *Policy 2-1.1: Fremont in the Region.*
- *Policy 2-1.2: A Complete City.*
- *Policy 2-1.3: Fremont's Open Space "Frame".*
- *Policy 2-1.4: Neighborhoods.*
- *Policy 2-1.5: Fremont City Center.*
- *Policy 2-1.6: Town Centers.*
- *Policy 2-1.7: Becoming a More Transit-Oriented City.*
- *Policy 2-1.8: Mixed Use Emphasis.*
- *Policy 2-1.9: Thoroughfares as Multi-use Corridors.*
- *Policy 2-1.10: Pedestrian Scale*.
- *Policy 2-1.11: Infill Emphasis.*
- *Policy 2-2.1: Opportunity Areas for Growth and Change.*
- *Policy 2-2.2: Integrating Land Use and Transportation Choices.*
- *Policy 2-2.3: Sustainable Development and Building.*
- *Policy 2-2.4: Use of the General Plan Land Use Map.*
- *Policy 2-2.5: Zoning and Subdivision Regulations.*
- *Policy 2-2.6: Residential Density Ranges.*

- *Policy 2.2-7: Building Height and Intensity.*
- *Policy 2-2.8: Constrained Land.*
- *Policy 2-2.9: Adequacy of Infrastructure.*
- *Policy 2-2.10: Growth Management.*
- *Policy 2.2-11: Problem Parcels.*
- *Policy 2-2.12: Land Banking.*
- *Policy 2-2.13: Public-Private Partnerships.*
- *Policy 2-2.14: Maintaining Development Continuity.*
- *Policy 2-2.15: Land Use and Technology.*
- *Policy 2-3.1: Neighborhood Diversity.*
- *Policy 2-3.2: Neighborhood Reinvestment.*
- *Policy 2-3.3: Neighborhood Centers.*
- *Policy 2-3.4: Infill Development.*
- *Policy 2-3.5: Balance of Services, Amenities, and Uses.*
- *Policy 2-3.6: Connectivity.*
- *Policy 2-3.7: Green Neighborhoods.*
- *Policy 2-3.8: Location of Higher Density Housing.*
- *Policy 2-3.9: Home Occupations.*
- *Policy 2-3.10: Non-Residential and Civic Uses in Residential Areas.*
- *Policy 2-3.11: Gated Developments.*
- *Policy 2-3.12: Community Preservation.*
- *Policy 2-3.13: Social and Environmental Justice.*
- *Policy 2-4.1: Centers.*

- *Policy 2-4.2: Retail Hierarchy.*
- *Policy 2-4.3: Corridors.*
- *Policy 2-4.4: Scale of Commercial Development.*
- *Policy 2-4.5: Meeting a Range of Needs.*
- *Policy 2-4.6: Conversion of Older Shopping Centers and Commercial Uses.*
- *Policy 2-4.7: Co Location of Public Services in Centers.*
- *Policy 2-4.8: Connectivity and Centers.*
- *Policy 2-4.9: Making Shopping Centers More Pedestrian Friendly.*
- *Policy 2-4.10: Activating Commercial Centers.*
- *Policy 2-4.11: Access and Parking.*
- *Policy 2-4.12: Mixed Use and Multi-family Housing as a Component of Centers.*
- *Policy 2-4.13: Hotels.*
- *Policy 2-4.14: Use of Older and Historic Residences for Commercial Activities.*
- *Policy 2-4.15: Commercial Uses and Public Health.*
- *Policy 2-5.1: Land Supply and Job Growth.*
- *Policy 2-5.2: Range of Employment Districts.*
- *Policy 2-5.3: Conversion of Industrial Land to Other Uses.*
- *Policy 2-5.4: Regulation of Employment-Generating Land Uses.*
- *Policy 2-5.5: Offices.*
- *Policy 2-5.6: Employment Growth and the Transportation System.*
- *Policy 2-5.7: Access to Commercial Transportation.*
- *Policy 2-5.8: Industrial Land Use Compatibility.*
- *Policy 2-5.9: Optimizing the Use of Industrial Land.*

- *Policy 2-5.10: Encroachment of Incompatible Uses.*
- *Policy 2-5.11: Employee-Serving Uses.*
- *Policy 2-5.12: Transportation Demand Management.*
- *Policy 2-5.13: Amenities in Employment Districts.*
- *Policy 2-6.1: Open Space Land Use Categories.*
- *Policy 2-6.2: Hill Area Initiatives.*
- *Policy 2-6.3: Baylands.*
- *Policy 2-6.4: Parks.*
- *Policy 2-6.5: Linear Open Space Connections.*
- *Policy 2-6.6: Agriculture.*
- *Policy 2-6.7: Environmentally Sensitive Use of Open Space.*
- *Policy 2-6.8: Private Open Space.*
- *Policy 2-6.9: Protection of Planned Development Open Space.*
- *Policy 2-6-10: Sphere of Influence*.
- *Policy 4-1.11: Neighborhood Barriers.*
- *Policy 11-2.1: Emphasis on Industrial Uses.*
- *Policy 11-2.2: Industrial Intensification and Reuse.*
- *Policy 11-2.3: Non-Industrial Activities in Service Industrial Areas.*
- *Policy 11-2.4: Extent of Retail Uses.*
- *Policy 11-2.5: Pacific Commons.*
- *Policy 11-2.6: Auto Mall.*
- *Policy 11-2.7: Warm Springs Corridor.*
- *Policy 11-3.1: Fremont Boulevard as Centerville's "Main Street".*

- *Policy 11-3.2: Centerville Town Center Revitalization.*
- *Policy 11-3.3: Centerville Opportunity Sites.*
- *Policy 11-3.4: Leveraging Centerville Rail Transit.*
- *Policy 11-3.7: Connectivity in Centerville.*
- *Policy 11-3.11.: Fremont/Decoto.*
- *Policy 11-3.12: Central Avenue to the Railroad.*
- *Policy 11-4.1: City Center Sub-Districts.*
- *Policy 11-4.3: Mixed Use Emphasis.*
- *Policy 11-4.5: Cultural and Entertainment Uses.*
- *Policy 11-4.6: City Center as a Health Care District.*
- *Policy 11-4.7: City Center Office Space*
- *Policy 11-4.8: City Center as Fremont's Government Core.*
- *Policy 11-4.15: Fremont Boulevard Beyond City Center.*
- *Policy 11-4.16: Shinn Terminus.*
- *Policy 11-4.17: Upper Mowry Corridor.*
- *Policy 11-4.18: Central Park.*
- *Policy 11-4.19: BART Station Area Neighborhoods.*
- *Policy 11-5.1: Development on Constrained Land.*
- *Policy 11-5.2: Allowable Uses in the Hill Area.*
- *Policy 11-5.3: Hill Face Open Space.*
- *Policy 11-5.4: Hill Area Outside Hill Face and Ridgeline.*
- *Policy 11-5.5: Consistency of Future Projects with Hill Area Standards.*
- *Policy 11-5.6: Resolution of Conflicting Policies and Ordinances for the Hill Area.*

- *Policy 11-5.7: Hill Area Minimum Parcel Size, Lot Line Adjustments, and Certificates of Compliance.*
- *Policy 11-5.8: Easements Limiting Further Development.*
- *Policy 11-5.10: Development Standards for Hill Area Sites.*
- *Policy 11-5.11: Minimizing Impacts Through Site Planning.*
- *Policy 11-5.12: Identifying Constrained Lands.*
- *Policy 11-5.15: Hill Area Transfer of Density to Less Sensitive Areas.*
- *Policy 11-5.23: Hill Area Clustering.*
- *Policy 11-6.1: Five Corners.*
- *Policy 11-6.2: Irvington's Development Focus.*
- *Policy 11-6.3: Retail Development.*
- *Policy 11-6.7: Irvington BART Station.*
- *Policy 11-6.10: North of Irvington Station Area.*
- *Policy 11-6.11: Osgood Road Corridor.*
- *Policy 11-6.12: Grimmer North.*
- *Policy 11-6.13: Grimmer South.*
- *Policy 11-6.14: Fremont Boulevard.*
- *Policy 11-6.15: Mixed Use Development at Former Shopping Centers.*
- *Policy 11-6.16: Mowry Gateway.*
- *Policy 11-6.17: Laguna Creek.*
- *Policy 11-6.18: Irvington Residential Areas.*
- *Policy 11-7.1: Mission San Jose Design Guidelines and Regulations.*
- *Policy 11-7.3: Variable Building Setbacks.*
- *Policy 11-7.9: Neighborhood Conservation District.*

- *Policy 11-7.11: Measure A.*
- *Policy 11-8.2: Opportunity Sites in Niles.*
- *Policy 11-8.3: Niles Retail Mix.*
- *Policy 11-8.6: Niles Town Plaza.*
- *Policy 11-8.7: Pedestrian-Oriented Town Center.*
- *Policy 11-8.12: Conversion of Remnant Industrial Parcels.*
- *Policy 11-8.13: Mission Boulevard as a Community Gateway.*
- *Policy 11-8.14: Niles Canyon Gateway.*
- *Policy 11-8.16: Maintaining Niles Neighborhoods.*
- *Policy 11-9.1: North Fremont Neighborhoods.*
- *Policy 11-9.2: North Fremont Retail Opportunities.*
- *Policy 11-9.3: Ardenwood Technology Park.*
- *Policy 11-9.4: North Fremont Open Space.*
- *Policy 11-9.5: Community Identity.*
- *Policy 11-10.1: South Fremont as an Employment Center.*
- *Policy 11-10.2: South Fremont/ Warm Springs BART Station.*
- *Policy 11-10.6: Auto Mall Parkway Corridor.*
- *Policy 11-11.1: Maintaining Warm Springs Residential Areas.*
- *Policy 11-11.2: Warm Springs Town Center.*
- *Policy 11-11.7: Land Use Compatibility.*
- *Policy 11-11.9: Hillside Areas.*

## IMPACTS AND MITIGATION MEASURES

Existing General Plan Policy LU 1.11 (Transitions) is consistent with DRAFT General Plan Policy 2-4.4 (Scale of Commercial Development) and related Implementation measure 2-4.4A (Scale Transitions) and Policy 4-3.8 (Massing and Scale).

Existing General Plan Policy LU 1.14 (Open Space/Vistas) and related Policy LU 1.15 have no comparable Policies in the DRAFT General Plan Update.

Existing General Plan Policy LU 2.3 (Building Heights) and the related Table 3.5 (Commercial Intensity and Height) would be modified by DRAFT General Plan Update Policy 2-2.7 (Building Height and Intensity). However, Policy 2-2.7 does not list specific heights or FAR, but rather references zoning. The Land Use designations do cite FAR ranges.

Existing General Plan Policy LU 2.34, Policy 2.35 and Policy 2.36 relate to development in high-volume commercial areas. DRAFT General Plan Update Policy 2-2.2 (Integrating Land Use and Transportation Choices) and Policy 2-4.4 (Scale of Commercial Development) have the same general intent.

Existing General Plan Policy LU 3.1 (Industrial Designations) and the related table 3-6 (Industrial Land Use, Intensity and Height) is somewhat similar to DRAFT General Plan Policy 2-5.2.

Physical Division of an Existing Community

Development anticipated under the DRAFT General Plan Update would not be expected to result in the physical division of any existing community within Fremont. Most future development is to be directed toward the PDAs (which are generally areas where urban development has already taken place), and planned mobility improvements identified in the DRAFT General Plan Update would not physically divide any existing communities. Overall, the DRAFT General Plan Update stresses the importance of improved connectivity. Implementation of Policy 4-1.11, above, would be expected to effectively limit the potential for future physical division of existing neighborhoods, and development under the DRAFT General Plan Update would have ***no impact*** in terms of physically dividing any existing community.

Conflict with Applicable Land Use Plans/Policies/Regulations

Implementation of the DRAFT General Plan Update would result in development that would substantially increase the intensity of land uses in those portions of the city (e.g., PDAs, including City Center and the Town Centers) where strategic urbanization is desired beyond what would be permitted under current plans, policies and regulations. However, this need not be considered a "conflict" with existing land use plans, policies and regulations, since these would permit additional development in these areas (although not to the extent anticipated under the DRAFT General Plan Update). Implementation of the applicable DRAFT General Plan Update policies would continue to protect Fremont's hill areas and baylands, and would ensure

that future development maintain compatibility with existing residential neighborhoods, reducing potential conflicts with current land use plans, policies and regulations to a level considered ***less than significant***.

Conflict with Habitat Conservation Plan/Natural Community Conservation Plan

There are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, and implementation of the DRAFT General Plan Update would not conflict with any such plans (***no impact***).

Cumulative Impacts

Development anticipated under the DRAFT General Plan Update would result in a more urbanized Fremont, with relatively high-intensity land uses located in the City Center and in Town Centers where residents and workers would have alternatives to the use of private automobiles. This development pattern would not be expected to result in any cumulative physical disruption of existing communities within Fremont (***no cumulative impact***).

Implementation of the applicable DRAFT General Plan Update policies related to land use compatibility would limit potential cumulative impacts associated with anticipated development to a level considered ***less than significant***.

There are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, and implementation of the DRAFT General Plan Update would not conflict with any such plans (***no cumulative impact***).

# B. AESTHETICS

## SETTING

Visual Character

Different areas of Fremont have differing character and diverse built forms. To the southwest, Fremont has nearly 12,000 acres of wetlands, much of which are adjacent to the City's built areas and industrial lands. To the northeast, the foothills of Mission Peak provide a backdrop of protected open space and afford panoramic views of the City and San Francisco Bay. Much of the built area of Fremont is composed of residential neighborhoods, with a number of commercial districts incorporating various types of development. Residential areas consist predominantly of suburban one- and two-story single-family homes, with multi-family residences located along some arterials and dispersed in neighborhoods. However, there are a number of taller and more intense uses of office, hotels and multi-family buildings than typical suburban uses that are interspersed throughout the City. Several of Fremont's Planning Areas have distinct built forms, as described below:

- The Central Planning Area includes the Central Business District, the location of almost all of the taller buildings in Fremont, as well as mid-rise commercial buildings close to the BART station. It includes a range of uses such as retail, office, banks, hospitals and residential. The core commercial area of the district is significantly made up of the Fremont Hub and The Crossroads shopping center.

- The Niles Planning Area contains a compact, seven-block commercial main street adjacent to the Niles hills and the Alameda Creek, with its more immediate setting between the railroad alignments and the residential grid of the Niles neighborhoods. The commercial buildings of central Niles have a great diversity in architectural styling and detail relative to the district's small size. The architectural styles of the surrounding residential structures represent various historic time periods ranging from 19$^{th}$ century Victorian, pre-war, and early 20$^{th}$ century Craftsman Bungalow and Spanish Revival style architecture.

- Most buildings in the Irvington Planning Area are one or two stories tall, with some three-story multi-family residential structures. Retail ranges is size from a regional retailer to smaller neighborhood-serving businesses. Generally the surrounding residential areas consist of older single-family residences on small lots. Multi-family garden apartment complexes and condominium developments are located on several larger half block areas or aggregated parcels. Recently, four-story multi-family development projects have been built at high densities in the Irvington area.

- The Centerville Planning Area was originally an agricultural and commerce center. Over time, suburban communities have been established around the original settlement and

commercial core, and auto-oriented land uses and patterns have emerged as the Centerville District extended along Fremont Boulevard. The historic retail core contains the district's largest and oldest concentration of retail structures. Surrounding the central commercial district are low-density residential neighborhoods composed of single-family detached homes characteristic of the post-war period, newer multi-family units and a few mixed-use buildings.

- The Mission San Jose Planning Area is centered on the historic Mission and comprised of a small commercial center, charming neighborhoods, visitor-oriented activities and a number of family-owned businesses. Surrounding the commercial center is a mix of older and newer homes. Many of the neighborhoods uphill are single-family residences built after the 1980s, and the newer development closer to the commercial center features condos with ground floor retail.

Scenic Resources

The existing General Plan has an Objective to preserve the visual character of the City's Open Space Frame and other unique natural visual elements of Fremont. The Frame includes the Hill Face, Baylands, Alameda Creek flood control channel and adjacent, publicly-owned open space areas (Ardenwood Regional Park, Alameda Creek Quarries). Other unique natural elements include Central Park and Lake Elizabeth, as well as Landmark Trees. Overall scenic views are considered part of the CBD concept plan and for development above the Toe-of-the-Hill as defined by the Hill Area Initiative of 2002 in the manner that it may affect hill views from public places.

Principally, the significant scenic resources of Fremont are the backdrop to the east of the East Bay Hills rising up above the City, and the wide expansive view to the west of the San Francisco Bay and across the Bay to the Peninsula. The existing General Plan identifies the following natural gateways to Fremont: Mission Pass, Niles Canyon, and State Route 84 through the Coyote Hills.

The following routes are designated as scenic routes in the existing General Plan for the purpose of prioritizing roadway and landscape treatments and consideration of broad views of resources throughout the City:

- I-680
- State Route 84 through Niles Canyon
- State Route 84 from the western City limits to I-880
- Mission Boulevard
- Paseo Padre Parkway

- Fremont Boulevard
- Mowry Avenue
- Stevenson Boulevard
- Warm Springs Boulevard
- Washington Boulevard
- Hill Area Roads (including Morrison Canyon Road, Vargas Road and Mill Creek Road)
- BART Alignment through Fremont

Light and Glare

Although much of central Fremont is largely built-out, highly urbanized, and the source of substantial light and glare from associated structures, vehicles, roadways and parking areas, the eastern Hills Area and the western Baylands remain relatively undeveloped, and do not usually generate substantial light or glare. However, both the Hill Area and Baylands are adjacent to urban development and exposed to light and glare under existing conditions. There are also several large undeveloped areas (e.g., portions of Patterson Ranch, portions of some of the City's larger parks, etc.) where there is limited light or glare being generated under most conditions.

Regulatory Setting

Fremont voters approved the Hill Area Initiative of 2002 to strengthen protection of the hills against over-development. Adopted policies of the Initiative applicable to the Hill Planning Area (which includes parts of Niles, Mission San Jose and Warm Springs, as well as land currently outside the City's eastern boundary) include:

- Height of buildings shall not exceed 35 feet.
- All buildings on a parcel shall be placed within a contiguous "development envelope" not to exceed two acres.
- The maximum aggregate floor area for all floors in buildings on a parcel may not exceed one percent of the parcel's area, or 20,000 square feet, whichever is less.
- Development shall utilize clustering, density transfer and other techniques to maximize open space, minimize environmental and visual impact and encourage development in the Hill Area outside the Hill Face and Ridgeline.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Have a substantial adverse effect on a scenic vista;

2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state or locally designated scenic highway;

3) Substantially degrade the existing visual character or quality of the site and its surroundings; or

4) Create a new source or substantial light or glare which would substantially and adversely affect daytime or nighttime views in the area.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies from the Community Character Element are intended to manage changes and improve aesthetic character of the City as it moves toward its vision as a strategically urban City:

- *Policy 4-1.1: Element of City Form.*
- *Policy 4-1.2: Neighborhoods.*
- *Policy 4-1.3: Centers.*
- *Policy 4-1.4: Corridors.*
- *Policy 4-1.5: Pedestrian-Friendly Corridors.*
- *Policy 4-1.6: Employment Districts.*
- *Policy 4-1.7: Open Space Frame.*
- *Policy 4-1.8: Respecting Natural Terrain and Landform.*
- *Policy 4-1.9: Strengthen Identity Through Planning.*
- *Policy 4-1.10: Landmarks.*
- *Policy 4-1.11: City and Neighborhood Gateways,*
- *Policy 4-1.12: Neighborhood Barriers.*

- *Policy 4-1.13: Cultural Diversity and Place.*
- *Policy 4-3.1: Design Excellence.*
- *Policy 4-3.2: Architecture and Identity.*
- *Policy 4-3.3: Commercial Building Design.*
- *Policy 4-3.4: Drive-thru and Gasoline Station Design.*
- *Policy 4-3.5: "Franchise" Architecture.*
- *Policy 4-3.6: Industrial and Office Design.*
- *Policy 4-3.7: Parking Lot Location.*
- *Policy 4-3.8: Massing and Scale.*
- *Policy 4-3.9: Single Family Homes.*
- *Policy 4.3-10: Multi-Family Residential Areas.*
- *Policy 4-3.11: Common Areas and Open Spaces.*
- *Policy 4-3.12: Development of Urban Residential and Mixed Use Projects.*
- *Policy 4-3.12: Planned Districts.*
- *Policy 4-4.6: Lighting.*
- *Policy 4-5.1: Buffering and Screening.*
- *Policy 4-5.2: Sound Walls.*
- *Policy 4-5.3: Underground Utility Lines.*
- *Policy 4-5.4: Interstate Highways.*
- *Policy 4-5.5: Scenic Routes.*
- *Policy 4-5.6: Tree Planting and Preservation.*
- *Policy 4-5.7: Landscape Design.*

The DRAFT General Plan Update relies on polices to protect the natural features found in its open space frame. It emphasizes consideration of the vistas on a broad, city-wide perspective or from important public places for the benefit of the general public. Additionally, the DRAFT General Plan Update identifies landmarks (built and natural) for the purpose or accentuating identity and orientation in different neighborhoods of the City. Gateways are planned primarily as a signage program in accordance with needs to improve neighborhood identity. Scenic corridors serve the purpose of identifying important transportation alignments throughout the City to plan for aesthetic improvements and maintain the surrounding character attributes.

Scenic Corridors

The Community Character Element of the DRAFT General Plan Update identifies the following Scenic Corridors, as shown on Diagram 4-6:

- Paseo Padre Parkway (State Route 84 to East Warren Avenue)
- BART Line (Union City border to Milpitas border)
- Mission Boulevard (Union City border to I-880/Warren Avenue Interchange)
- State Route 84 (San Francisco Bay to Interstate 880)
- Niles Canyon Road (Mission Boulevard to Fremont boundary)
- Interstate 680 (Mission Boulevard to Fremont boundary)

## IMPACTS AND MITIGATION MEASURES

Existing General Plan Policy LU 1.14 (Open Space/Vistas) and related Policy LU 1.15 have no comparable Policies in the DRAFT General Plan Update.

Existing General Plan Policy NR 14.1 (Scenic Routes) and Policy NR 14.3 (CBD Views) relate to DRAFT General Plan Update Policy 4-55 (Scenic Routes), which has a similar intent.

Scenic Vistas/Resources

Under the DRAFT General Plan Update, most growth will be infill development, and implementation of several policies would be expected to reduce potential development-related impacts on scenic vistas to a level considered ***less than significant***. These include Policy 2-1.3, Policy 4-1.7, and Policy 4-1.8 (which would protect Fremont's open space "frame"). Effective implementation of these policies would enable future development to minimize effects of development and avoid impacts to natural resources of the open space frame.

Visual Character

In some portions of Fremont, development under the DRAFT General Plan Update would be of higher intensity than that currently present there, and higher density development would represent a change in the existing visual character of those areas. However, development anticipated under the DRAFT General Plan Update would not degrade the existing visual character of these areas as developed urban and suburban environments, and the resulting change in the existing visual character of the area would be considered a ***less than significant*** environmental effect.

Light and Glare

Development under the DRAFT General Plan Update would result in the construction of new structures on land that is currently vacant. Future structures, the lighting of future parking facilities, and the lights from vehicles that would be parked in those facilities would represent new sources of light and glare within the community. However, effective implementation of Policy 4-4.6 (which is intended to protect dark skies and reduce glare) would reduce potential lighting-related impacts associated with future development to a level considered ***less than significant***.

Cumulative Impacts

Development anticipated under the DRAFT General Plan Update would contribute to a cumulative change in the visual character of the region that may be associated with all future development in the San Francisco Bay Area. However, as indicated above, development in Fremont would not be expected to degrade the existing visual character of Fremont, and, by extension, would not degrade the existing visual character of the region. Implementation of the DRAFT General Plan Update would not result in any substantive adverse effects to scenic vistas or scenic resources, and would not contribute to any cumulative loss of scenic vistas or resources within the region. Although additional development under the DRAFT General Plan Update would have the potential to increase light and glare locally and cumulatively within the region (particularly as it might adversely affect the night sky), effective implementation of Policy 4-4.6 would reduce potential cumulative lighting-related impacts associated with future development in Fremont to a level considered ***less than significant***.

# C. POPULATION, EMPLOYMENT AND HOUSING

## SETTING

### Population

Fremont experienced tremendous population growth during the post-World War II era. Between the City of Fremont's incorporation in 1956 and 1970, the population quadrupled. Between 1970 and 1990, the population of Fremont (100,869 and 173,116, respectively) grew nearly ten times faster than did the population of Alameda County during that period, and nearly three times faster than the population in the San Francisco Bay area as a whole. The U.S. Census has indicated that the population of Fremont was 214,089 in 2010. This represents a 24 percent increase in the City's population between 1990 and 2010.

Fremont's share of Alameda County's population has increased from 9.4 percent in 1970, to 13.7 percent in 1990, to 13.8 percent in 2010. Relative to the Bay Area as a whole, Fremont's share of the population grew from 2.3 percent in 1970 to 2.9 percent in 1990, where it remained in 2010.

The Association of Bay Area Governments (ABAG) has projected that the population of Fremont will grow to 256,200 by 2035. The majority of this growth is expected to be related to births and increased life spans, rather than significant migration into the area.

The U.S. Census has indicated that there were 73,989 households in Fremont in 2010. ABAG has estimated that the number of local households would increase to 89,673 by 2035, an increase of approximately 21 percent within 25 years.

### Employment

The DRAFT General Plan Update indicates that there were a total of 93,880 jobs in Fremont in 2005 (page 6-11, Table 6-2). Of these, approximately 40 percent were in manufacturing, Wholesale and Transportation, approximately 10 percent were in retail, approximately 17 percent were in Financial and Professional Services, approximately 23 percent were in Health, Education and Recreational Services, and approximately 10 percent were classified as Other.

### Housing

In 1970, Fremont had 27,305 housing units, and this had increased to 62,152 in 1990. The California Department of Finance estimated that on January 1, 2010, the total number of housing units within the City was 72,659, with an average of 3.03 people per household. Household size in 1970 was 3.75 persons, and in 1990 it was 2.82 persons, on average.

In 2010, the California Department of Finance estimated that there were 42,813 detached single-family homes, 7,236 attached single-family homes, 3,061 multi-family housing units in groups of 2 to 4, 18,793 multi-family housing units in groups of 5 or more, and 756 mobile homes in

Fremont. The majority of the City's housing stock was built between 1950 and 1980, and is suburban in character. Single-family units accounted for roughly 70 percent of the new units added to the local housing stock between 1990 and 2007.

According to the 2006 American Community Survey (administered by the U.S. Census Bureau), approximately 60 percent of the City's housing stock is at least 30 years old.

### Regulatory Setting

*Regional Housing Needs Allocation*

The State of California requires every city to accommodate its fair share of regional growth through a process called the Regional Housing Needs Allocation (RHNA). The RHNA process is administered by ABAG, which allocates the total assignment for the none-county Bay Area to each of the nine counties and over one hundred cities. ABAG also identifies the number of units that must be accommodated in each of four income categories. Although cities and counties are not actually required to build the number of units in their RHNAs, they must show that the capacity exists in their community to build these units (i.e., that sufficient land is zoned to accommodate the new units that would need to be built in order to meet the RHNA "fair share" requirement within that community). The current RHNA for the City of Fremont covers the period 2007-2014. The City must demonstrate that it has the ability to accommodate the development of 1,348 housing units to serve very low-income households (approximately 700 of which would need to serve extremely low income households), 887 housing units to serve low-income households, 876 housing units to serve moderate income households, and 1,269 housing units to serve above moderate-income households.

Between January 1, 2007 and December 31, 2008, a total of 1,291 new housing units had either been built or approved, including 243 units for low income households and 302 units for moderate income households. In order to meet the RHNA targets, between January 1, 2009 and December 31, 2014, a total of 1,128 new housing units for very low income households, 644 new housing units for low income households, 574 new housing units for moderate income households and 525 new housing units for above-moderate income households would need to be built in Fremont.

The Housing Element identifies specific sites which could accommodate the development of all units for very low income households and low income households that would need to be built to meet the RHNA targets for these units between 2009 and 2014.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

### CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);

2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or

3) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

## HOUSING POLICIES

Implementation of the following DRAFT General Plan Update Policies, consistent with the Housing Element (certified 2010) Goals and Policies, are intended to reduce potentially adverse effects related to an imbalance between the number of local jobs and the number of local housing units, and to promote the development of high-density housing in the City Center:

- *Policy 6-1.6: Jobs-Housing Balance*
- *Policy 12-4.4: Downtown Housing*

## IMPACTS AND MITIGATION MEASURES

Population Growth

For the purposes of evaluating potential environmental impacts that may be associated with implementation of the DRAFT General Plan Update, the City of Fremont has estimated that the local population will grow to 259,000 in 2035. At that time, it is estimated that the total number of local households will reach 89,676, with approximately 13,000 of those households located in areas where the DRAFT General Plan Update is promoting transit-oriented development. These estimates of local population growth during the planning period exceed those developed by ABAG, but are considered by the City as the highest level of potential growth that could reasonably be expected to be accommodated under the DRAFT General Plan Update, and have been developed to ensure that potential population-related environmental effects that may be associated with implementation of the DRAFT General Plan Update are not under-estimated.

The DRAFT General Plan Update has been developed in part to enable the City of Fremont to accommodate the City's share of regional population growth between 2010 and 2035. Under the DRAFT General Plan Update, this will be accomplished by directing much of the future residential and mixed-use development within the City toward those areas best served by public transit, especially in the vicinity of the Fremont BART station and Central Business District, the Centerville Amtrak/ACE station, and the future Irvington BART station. Higher-density redevelopment in these areas would not require the extension of roads or other infrastructure, as these are already in place. Implementation of the DRAFT General Plan Update would not induce population growth, since new residential development under the DRAFT General Plan Update

would instead be intended to accommodate the City's portion of the region's anticipated population growth, and would not involve the extension of infrastructure or public services to undeveloped areas to support new residential development (***less than significant***).

Displacement of a Substantial Number of Existing Housing Units

Much of the development anticipated under the DRAFT General Plan Update would involve redeveloping parcels that already support urban uses (e.g., near the Fremont BART station, the Centerville Amtrak/ACE station and the Irvington BART station) into high-density residential or mixed-use projects. In other areas where land may currently be considered underutilized, existing uses may be displaced by new development. In some instances, future development under the DRAFT General Plan Update could involve the loss of some existing housing units. However, following anticipated development in these areas under the DRAFT General Plan Update there would be a net increase in the total number of housing units in these locations due to the increased residential densities, which would reduce the impact associated with the loss of some existing housing units to a level of ***less than significant***. There would be no need or requirement to construct replacement housing elsewhere.

Displacement of a Substantial Number of People

As indicated above, with development under the DRAFT General Plan Update, some existing housing units may be demolished in order to enable higher density residential or mixed-use development in those areas with easy access to public transit or where parcels are currently considered to be underutilized. The loss of these existing housing units could also mean the displacement of those currently living in those housing units, even though there would be a net increase in the total number of housing units in these areas. However, the total number of people that might ultimately be displaced from existing housing units as a result of development anticipated under the DRAFT General Plan Update is not considered by the City of Fremont to be substantial, with the potential displacement impacts associated with implementation of the DRAFT General Plan Update considered ***less than significant***. There would be no need or requirement to construct replacement housing elsewhere.

Cumulative Impacts

Under the DRAFT General Plan Update, higher density residential and mixed-use development would be directed toward those areas best served by public transit, in an effort to reduce reliance on private automobiles (with a corresponding reduction in traffic, air pollutants and greenhouse gases generated per person).

# D. TRANSPORTATION AND CIRCULATION

This section provides an evaluation of traffic and transportation issues related to the DRAFT General Plan Update. Detailed discussion of the methodologies used in conducting the analyses is included in **Appendix B** (General Plan EIR Traffic Impact Analysis (DKS Associates, April 18, 2011).

## SETTING

Citywide Transportation System

The City of Fremont roadway network is comprised of freeways, arterials, parkways, collector streets and local streets. **Figure 4.1**, below, illustrates the City of Fremont roadway network.

**Freeways** are high speed (50+ mph); high capacity facilities with grade separated intersections intended to meet the need for long distance trips.

**Arterials** are medium speed (30 - 40 mph) high capacity local facilities which meet the demand for longer, through trips within a community between major commercial centers, residential facilities and regional highways.

**Collector streets** are relatively low speed (25 - 30 mph) low capacity streets which provide both access and movement within residential, commercial and industrial areas. These roads serve relatively short trips and are intended to collect vehicles from local streets and distribute them to the arterial network.

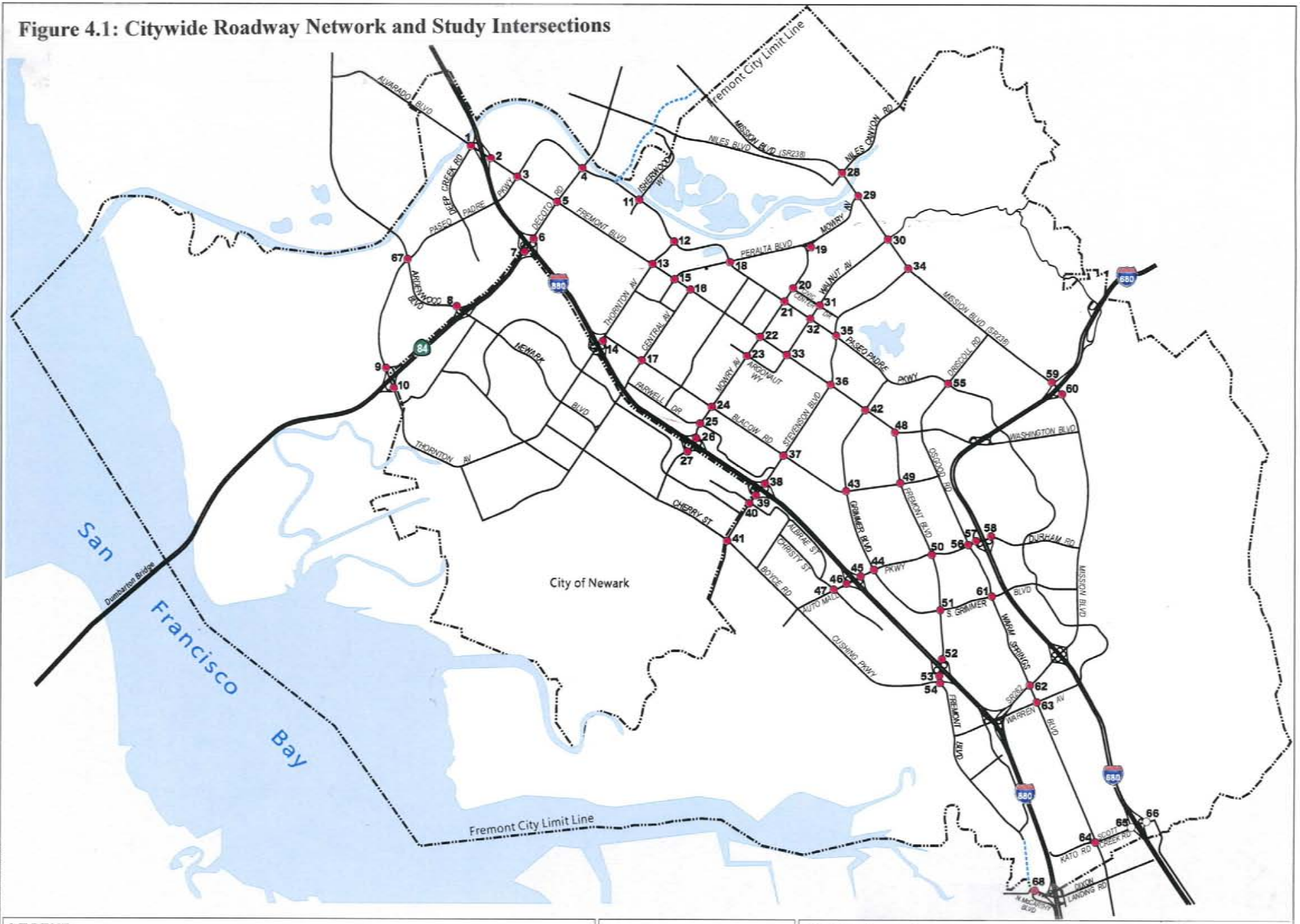
**Local streets** are low speed (15 - 25 mph), low volume streets whose primary function is land access. Movement on local streets is incidental and involves traveling to or from a collector street. Most local streets provide vehicle, pedestrian and utility access.

Regional and local access to the City of Fremont occurs via Interstate 880, Interstate 680, State Route 84/Decoto Road, Mission Boulevard (State Route 238/262), Mowry Avenue, Thornton Avenue, Paseo Padre Parkway, Warms Springs Road, Osgood Road, Driscoll Road, Stevenson Boulevard, Grimmer Boulevard, Auto Mall Parkway and Fremont Boulevard.

Alameda-Contra Costa Transit District (AC Transit)

Alameda-Contra Costa County (AC) Transit provides bus service within Alameda County and provides connection to the VTA transit facilities in the City of Milpitas. AC Transit operates approximately 78 local routes throughout the East Bay and 27 transbay routes, including several routes which have destinations at major transit hubs in neighboring Santa Clara, San Mateo, Contra Costa and San Francisco Counties. There are approximately 25 routes with stops in Fremont.

## Figure 4.1: Citywide Roadway Network and Study Intersections




**LEGEND**

00● - Signalized Study Intersection & Number
00○ - Unsignalized Study Intersection & Number
----- - Future Road

**Fremont General Plan**

CITY OF Fremont

DKS Associates
TRANSPORTATION SOLUTIONS

Valley Transportation Authority (VTA)

VTA operates four express bus routes (Route 120, 140, 180 and 181) that connect between the Fremont BART Station and destinations within Santa Clara County.

Commercial Bus Service

The City of Fremont is not served by commercial bus service. The nearest Greyhound station is located in Hayward.

Bay Area Rapid Transit (BART)

The BART System provides regional rail service and operates trains along five routes in the Bay Area: (1) Fremont - Richmond; (2) Fremont-Daly City; (3) Richmond – Millbrae/Daly City; (4) Dublin/Pleasanton – Millbrae/Daly City and (5) SFO - Pittsburg/Bay Point. The Richmond – Millbrae line runs between Daly City and Millbrae on weekdays only. The Fremont BART station is located near Mowry Avenue and Civic Center Drive.

Capitol Corridor and Altamont Commuter Express (ACE)

The Amtrak "Capitol Corridor" and the Altamont Commuter Express (ACE) serve the Fremont Centerville Train Station with passenger rail service. The Capitol Corridor provides daily service between San Jose and the Sacramento area, with intermediate stops in Hayward, Oakland, Richmond, Martinez, Suisun-Fairfield, and Davis. On weekdays and weekends, three trains provide service to Santa Clara and continuing to San Jose. In addition, three trains also provide service to Oakland and continue to Berkeley, Emeryville, Davis and Sacramento.

ACE provides weekday commute-hour service between Stockton and San Jose, with intermediate stops in Tracy, Livermore, Pleasanton, and Santa Clara. On weekdays, three morning and evening trains provide service to Santa Clara continuing to San Jose. Three additional trains provide service to Pleasanton, Livermore, Tracy, Lathrop and Stockton. ACE does not provide service on weekends.

Commercial Transportation

*Trucks and Truck Routes*

Industry and commerce in Fremont depends on trucks for the movement of goods, materials and products. Trucks pose special concerns due to their size, weight, emissions and noise. Trucks accelerate slowly, require a large amount of road space, have large turning radii and break down pavement due to their weight. Trucks are noisier than automobiles because of their larger engines, higher engine placement, higher exhaust stacks and use of air brakes. They also emit more exhaust than typical passenger vehicles.

Truck routes are designated for vehicles with maximum gross weights exceeding 10,000 pounds. A 10,000 pound truck is relatively light by comparison; a heavy truck could weigh as much as 80,000 pounds. All trucks exceeding 10,000 pounds must use truck routes except for local delivery and pick up. The truck routes include State Routes 238 and 84 which are under the authority of Caltrans.

*Freight Rail*

The City of Fremont's freight rail needs are served by Union Pacific Railroad. There are currently three active rail lines and a switching facility in Fremont. The rail lines are maintained and operated by Union Pacific Railroad (UPRR) and referred to as the Niles Subdivision, Oakland Subdivision, and Warm Springs Subdivision. Santa Clara Valley Transportation Authority operates the North Milpitas Industrial Lead switching facility. The rail lines operate on a varied schedule with no consistency from day to day although at least one train typically travels through Fremont each day. Various materials, including hazardous materials, are transported to and from Fremont on these lines.

Safety concerns regarding freight rail traffic include the transport of hazardous materials, noise/vibration impacts and pedestrian and vehicle activity near at-grade rail crossings. The transport of hazardous materials through the City is monitored by the Fire Department. Noise/vibration impacts must also be addressed when evaluating new development near existing rail lines. Site and building design measures can usually mitigate the impact of railroads on new development. Building setbacks, sound walls, building design and window sound ratings are common measures used in project design. However, this also creates safety issues by putting more pedestrians and children near at-grade crossings. To address noise impacts at crossings the City completed a feasibility study to establish Railroad Quiet Zones in certain areas of the City.

*Railroad Quiet Zones*

Railroad Quiet Zones are established in order to improve neighborhood quality of life for residents who live in the vicinity of railroad at-grade crossings. There are three active rail lines in the City of Fremont with 15 public at-grade crossings which have flashing lights and automatic gates. Of the 15 public at-grade crossings, six crossings are anticipated to be eliminated because of grade separation projects within the next six years. The City is considering the establishment of railroad quiet zones for the other locations. A quiet zone is a segment of rail line comprising one or more at-grade highway-rail crossing where trains are ordered not to routinely sound the horn. Current rules require trains to sound their horns before the approach to an at-grade crossing (but not more than ¼-mile away) until the locomotive occupies the crossing location.

A new Federal Rule established in 2006 preempts state and local laws governing the sounding of locomotive horns. The Rule describes specific steps and requirements for communities to create a "Quiet Zone". Nationwide studies indicate horn blowing is a safety device and that locations where horn blowing was banned resulted in an increase in collisions. In order to establish a Quiet Zone the City needs to assess the risk of banning horn blowing and consider installation of

supplemental safety measures at the grade crossings in order to mitigate the potential increase in collisions. Additional safety measures could include the installation of additional railroad gates and or median islands to prevent motorists from traveling around the gates.

*Aviation*

The City of Fremont does not have an airport. Various general aviation airports for small commercial and recreation aircraft are located nearby in Alameda and Santa Clara counties. There are three commercial international airports serving passengers in the Bay Area. These include Mineta San Jose International (SJC) about 20 miles to the south in San Jose, Oakland International (OAK) 25 miles to the north in Oakland and San Francisco International (SFO) 30 miles to the northwest located on the Peninsula just south of San Francisco. No portion of Fremont is located within any area identified in an Airport Land Use Compatibility Plan, as defined by an Airport Land Use Commission (ALUC).

Fremont is home to one of the Federal Aviation Administration (FAA) air route traffic control centers. The primary purpose of this center is to provide seamless air traffic control support to en route aircraft within the Bay Area and West Coast. The facility is located on Central Avenue.

Paratransit and Provisions for Special Needs Population

The purpose of paratransit is to provide transportation services to senior citizens and disabled individuals at a demand responsive level. In Fremont, paratransit services are provided by both the City's Human Services Department and by East Bay Paratransit, a consortium of BART and AC Transit providing ADA-mandated service.

The services provided by the City are based on consumer feedback from the city's Paratransit Advisory Committee. The Committee advises on policy and also and helps identify unmet paratransit needs. The program has three main service functions: 1) Door-to-door transportation for individuals; 2) group trips; and, 3) in-home meal delivery. Funds for the City's program are received primarily from Alameda County (Measure B).

Bicycle & Pedestrian Facilities

The City of Fremont most recently revised the Pedestrian Master Plan[1] in 2007. The City Bicycle Master Plan[2] was prepared in 2005 with an update in 2011 These Plans are reviewed and updated on a five-year cycle. These documents summarize the planned bicycle and pedestrian improvements which are designed to specifically improve the mobility and safety for bicyclists and pedestrians.

[1] City of Fremont – Pedestrian Master Plan. Adopted by City Council December 4th, 2007. Prepared by Alta Planning + Design. http://www.fremont.gov/index.aspx?NID=649

[2] City of Fremont Bicycle Master Plan. September 27, 2005.

*Bicycle Facilities*

The 2005 City of Fremont Bicycle Master Plan indicates existing bicycle facilities within the City. The existing system consists mainly of three classifications of bicycle facilities:

- Class I facilities (bike path) – are completely separated, with paved right-of-way (shared with pedestrians) which excludes general motor vehicle traffic. Examples of existing Class I facilities can be found at the Quarry Lakes Regional Recreation Area and Coyote Hills Regional Park.

- Class II facilities (bike lane) – provide a striped and stenciled lane for one-way bike travel on a street or highway. Examples of an existing Class II facility can be found along Paseo Padre Parkway, Ardenwood Boulevard, Thornton Avenue, Deep Creek Road, Mission Boulevard and Cushing Parkway.

- Class III facilities (bike route) – a shared use roadway with motor vehicle traffic and is only identified by signage. Examples of an existing Class II facility can be found along Stevenson Boulevard and E. Warren Avenue.

    - Class III Frontage – Examples of an existing Class III Frontage can be found along Blacow Road and Stevenson Boulevard (between Davis Street and Besco Drive).

In the City of Fremont bicycles are permitted on all roads with the exception of access-controlled freeways (i.e. I-880, I-680, etc.). **Appendix B (G)** illustrates the current bicycle facilities network.

The Bicycle Master Plan provides recommendations on safe and accessible routes and is intended to improve and enhance bicycle transportation in the City of Fremont. The Recommended Bikeway Network includes Class I Bike Path Projects, Arterial Bikeway Projects, Intersection/Interchange Improvement Projects, other bicycle network enhancement projects.

The City of Fremont follows California Green Building Code requirements for bicycle parking. Additionally, the Zoning Code allows for a reduction in vehicle parking when bicycle parking is provided. **Appendix B (H)** includes the proposed bicycle network.

*Recommended Improvements*

The Pedestrian Master Plan identifies capital projects that should be implemented on a citywide basis including:

- Infill of sidewalk gaps

- Curb Ramp Improvements: install curb ramps where missing, truncated domes, and perpendicular curb ramps

- Signalized intersection improvements: revise pedestrian signal timing, install audible pedestrian signals

- Uncontrolled crosswalk improvements: construct high-visibility crosswalk markings, and curb extensions

*Sidewalk & Trails*

The City's standard is to require sidewalks along all public streets. The specific design details are dependent on the adjacent land use. For example, sidewalks adjacent to residential land uses are typically five feet wide and separated from the street with landscaping, while sidewalks adjacent to commercial uses are as wide as ten feet and utilize tree wells. The City also has a network of off-street trails and pathways for pedestrians, bicyclists and equestrians. The City's trail system is made up of five main trails managed and maintained by separate entities. Each is described briefly below:

*San Francisco Bay Trail:* The San Francisco Bay Trail is a paved regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. It is managed by the San Francisco Bay Trail Association. About half of the 400 mile trail is complete. The Fremont segments include the Newark Slough Trail and Shoreline Trail located within the San Francisco Bay National Wildlife Refuge, Bayview Trail in Coyote Hills Park and trail segments along Alameda Creek, Dumbarton Bridge and south Fremont Boulevard. Some gaps in the trail exist in Fremont and will be constructed when adjacent land is developed and/or as funds become available. The overall network is designed to ensure eventual connectivity.

*Alameda Creek Trail:* The Alameda Creek trail runs along Alameda Creek in Fremont and Union City beginning in the Niles district and terminating at Coyote Hills Regional Park near the Bay. The trail is approximately twelve miles long and consists of a paved trail south of the Creek and a dirt/gravel trail north of the Creek. The trail is managed and maintained by East Bay Regional Park District.

*Quarry Lakes Park Trails:* Several trails exist within Quarry Lakes Regional Recreation Area including a bike path that encircles the lakes and provides access to picnic areas and other park amenities. These trails connect with the Alameda Creek Trail. Quarry Lakes Regional Recreation Area is managed and maintained by East Bay Regional Park District.

*Coyote Hills Park Trails:* Several paved and natural trails exist within Coyote Hills Regional Park. These trails connect to the Alameda Creek Trail and to the Bay Trail via a pedestrian bridge into San Francisco Bay National Wildlife Refuge. Coyote Hills Regional Park is managed and maintained by East Bay Regional Park District.

*City of Fremont Central Park:* The City maintains trails throughout Central Park. Most notable is the two mile trail that encircles Lake Elizabeth. Popular with walkers, joggers and bicyclists this trail is one of the most utilized in Fremont.

Transportation Demand Management

Transportation Demand Management or TDM refers to a series of transportation measures to maximize the efficient use of existing transportation infrastructure. These measures include carpooling, vanpooling, transit, walking, bicycling, telecommuting, compressed work weeks, etc. A number of these measures are available to Fremont residents and employees, including:

*Park and Ride Lots*

The City of Fremont has three park and ride lots available for commuters to meet carpools, vanpools and buses in Fremont:

- Ardenwood Boulevard/Route 84 has 230 vehicle parking spaces and four bicycle locker parking spaces.
- The I-680/Mission Boulevard lot has 127 vehicle parking spaces with plans to install four new bicycle locker parking spaces.
- The Mission Boulevard & Callery Court lot in Mission San Jose has 23 vehicle parking spaces with plans to also install four bicycle locker parking spaces.

*Commuter Check Program*

Commuter Checks are vouchers issued by employers and accepted by transit operators (such as BART, ACE and AC Transit) for the purchase of transit tickets. By designating up to $110 per month specifically for transit use, employees receive may have the designated amount deducted (pre-tax) and may be redeemed for transit tickets at the transit agency or at participating banks and stores. Since no taxes are applied to the designated amount, employees can save up to 35 percent on their transit expenses. Many large employers, including the City, participate in this program.

*511 Regional Rideshare Program*

The "5-1-1" Regional Rideshare Program provides up to the minute information on highway traffic, transit schedules, or finding a car or van pool.

*Guaranteed Ride Home Program*

The Alameda County Transportation Commission (ACTC) Guaranteed Ride Home Program guarantees a ride home from work in case of unexpected illness, family crisis, unscheduled overtime, or a missed rideshare trip for those who use alternate mode of transportation.

Physical Condition

The City implements a Pavement Management Program in order to plan annual street overlay, slurry seal and cape seal programs and predict future street maintenance needs. The program

consists of surveying and testing roadway conditions, determining what maintenance to implement and the cost to conduct the repair. The 2009 pavement survey indicated that the City's Pavement Condition Index (PCI) was 64, with 75 percent of its roadway network in good or fair condition.

With City general funds and outside funding sources such as Measure B (sales tax), State Gas Tax and new revenue initiatives such as Proposition 1B, the City spends approximately $4.8 million dollars annually for roadway maintenance. The City's existing road maintenance backlog of projects is $260 million. The City emphasizes the importance of regular preventive maintenance because pavement repair and replacement would cost significantly more if maintenance were neglected. Ongoing preventive maintenance projects include the following:

*Cape Seal:* This is a low cost preventive maintenance surface treatment performed on streets that are in reasonably good condition. The process involves filling the cracks in the pavement with a rubberized asphalt crack sealer, then paving oil and rock chips is rolled and embedded into the oil. Finally, a slurry seal of emulsified oil and sand is applied to seal the pavement surface. Cape seal treatment slows the deterioration of the street and extends the pavement life by five to seven years.

*Street Overlays:* This annual project resurfaces, repairs, and restores worn pavement to full serviceability. When necessary, street intersections are upgraded with new curb ramps that meet current ADA requirements and repairs are made to curbs that have been damaged by street trees.

*Slurry Seal:* This annual project consists of preventive maintenance treatment applied to the streets to improve the driving surface and to protect it from further deterioration. The treatment involves the placement of an asphalt emulsion oil and sand over the pavement. They can slow the deterioration of the street and extend the pavement life by up to five years when compared to a street left untreated.

*Citywide Bridge Repair:* Annual project to repair City-owned bridges on an "as-needed" basis. Work is in accordance with Caltrans biennial inspection recommendations for the various structures throughout the City.

*Citywide Concrete, Curb and Gutter Repairs:* Existing annual project for reconstruction of curbs, gutters, sidewalks and ramps in order to eliminate damaged concrete or unsafe conditions sometimes due to city maintained trees located in the sidewalk area.

Traffic Safety

Addressing transportation safety is a primary objective of the City. The City has developed a variety of programs in conjunction with the community to provide for safe traffic operations. The City had adopted a Residential Traffic Calming Program as one strategy, but due to funding limitations only nine residential streets and streets near elementary schools were completed. This Program's goal was to reduce vehicle speeds and discourage neighborhood by-pass traffic on two-lane residential streets as well as in the vicinity of schools.

The City of Fremont also offers traffic safety and education programs through the Transportation Engineering Division, including traffic safety workshops, school rodeo events, and community traffic safety rodeo events. Recently the City has hosted to four community bike rodeo events per year, 50 school workshops and 25 school rodeos. A bike rodeo is a public event combining group activities with education and entertainment aimed at educating parents and students about responsible riding and walking behaviors. Children use this realistic training environment to practice bicycle handling skills, pedestrian safety, and their ability to recognize and react to traffic hazards. Other traffic safety programs aimed directly at schools include Adult Crossing Guards, Junior Safety Patrol, and Student Valet.

Identifying collision locations throughout the City can help determine areas requiring special attention. This information may result in the installation of new traffic control devices such as pedestrian crossing treatments, bicycle lanes, more visible pavement markers, stop sign controlled intersections or traffic signals.

Existing Traffic Conditions

The City primarily monitors roadway operations by evaluating the operations at signalized intersections. A sample of 66 major signalized intersections of the total 208 signalized intersections in the city were studied in the DRAFT EIR. Turning movement counts were conducted at all study intersections during recent typical weekday A.M. and P.M. peak periods. The intersection turning movement count consisted of counting each vehicle at each study intersection location by turning movement, and included documenting intersection geometry diagrams and signal phasing. **Appendix B (A)** includes the detailed intersection count sheets for the A.M. and P.M. peak periods.

Note that since the time the intersection turning movement counts were collected, traffic signals have been installed at the intersections of Thornton Avenue/SR-84 Eastbound Ramps and Paseo Padre Parkway/SR-84 Westbound Ramps. The signal installation for these two intersections was in the design stage when the intersection counts were collected; thus, the existing condition does not reflect the signalized operation. Recent observations subsequent to the overall counts are included in **Table 4-12**.

Signal timing plans were obtained from the City of Fremont and Caltrans and supplemented with field observations. Existing roadway segment volumes were obtained from publicly available Caltrans traffic counts databases.

**Figure 4.2**, below, illustrates the intersection geometry and traffic control of existing and 2035 conditions. **Appendix B (B)** illustrates the Existing Conditions and 2035 General Plan traffic volumes at each study intersection.

Background Information on Intersection Level of Service (LOS) Analysis

The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway and intersection performance. Level of Service can range

from "A" representing free-flow conditions, to "F" representing extremely long delays. LOS B and LOS C signify stable conditions with acceptable delays. LOS D is typically considered acceptable for a peak hour in urban areas. LOS E is approaching capacity and LOS F represents conditions at or above capacity.

**Figure 4.1,** above, illustrates the location of each study intersection along with the roadway network which is comprised of arterials, parkways, collector streets and local streets. Regional access to Fremont is provided via Interstates 880 and 680 and State Routes 238 and 84.

**Table 4-3** lists the study intersections as well as the traffic control and date of which traffic counts were conducted. These intersections were chosen based mostly on their locations and the likelihood of future traffic impacts as well as from input by City of Fremont staff. The operation of these intersections was evaluated during the typical weekday A.M. (7:00 A.M. – 9:00 A.M.) and P.M. (4:00 P.M. – 6:00 P.M.) peak periods for the following scenarios:

**Scenario 1:** Existing Condition. LOS based on existing traffic volumes, lane geometry and traffic control.

**Scenario 2:** Year 2035 Project Condition. LOS based on the year 2035 General Plan Baseline Condition. Forecasted growth is derived from the City of Fremont 2035 Travel Demand model, based on growth attributable to the City. Lane geometries are revised based on planned roadway improvements. The BART extension to Santa Clara County is assumed, with stations at Irvington and Warm Springs. Other Capital Improvements such as intersection and roadway projects are also assumed to be completed by 2035.

## Figure 4.2: Intersection Geometry and Traffic Control Existing and Assumed 2035

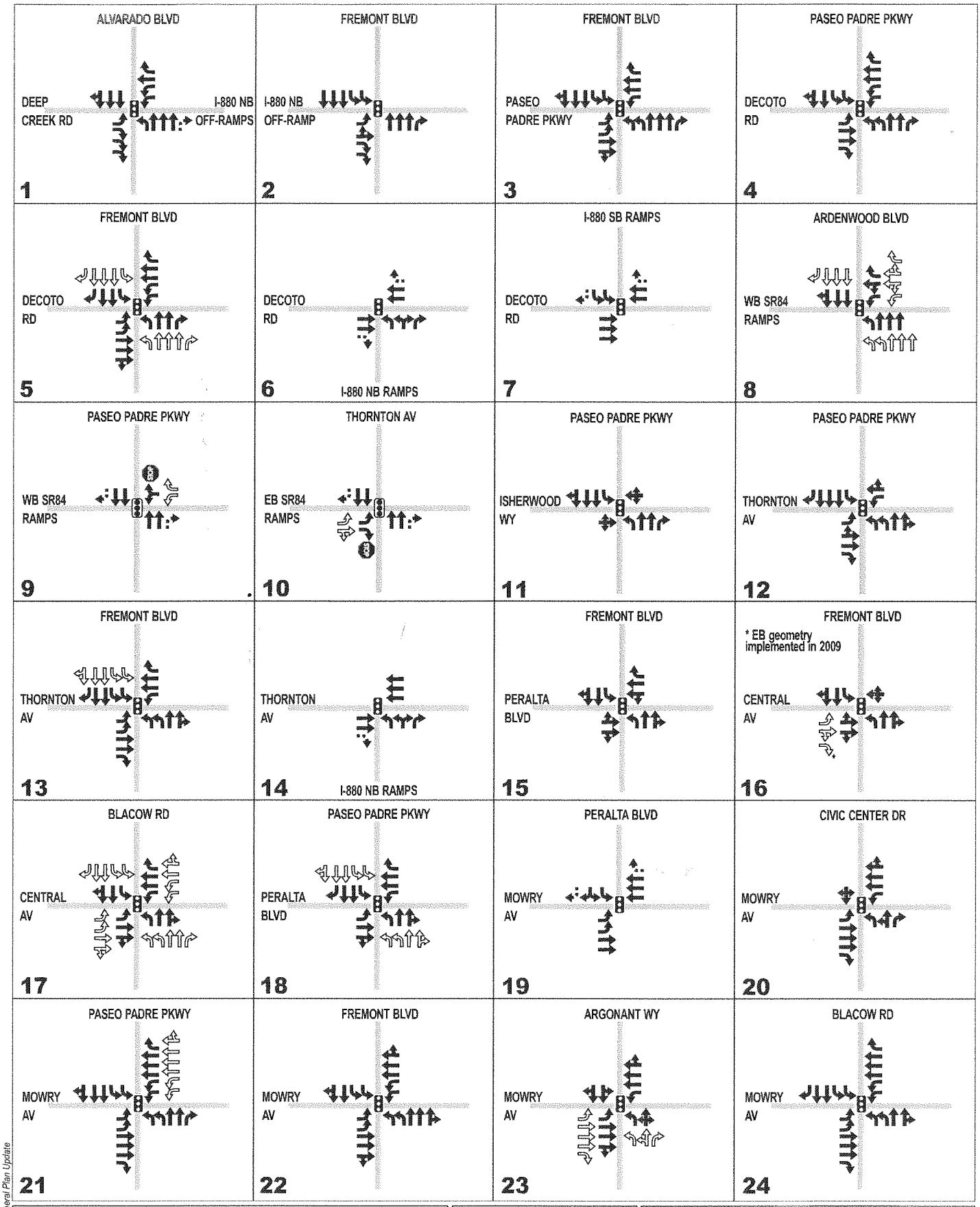
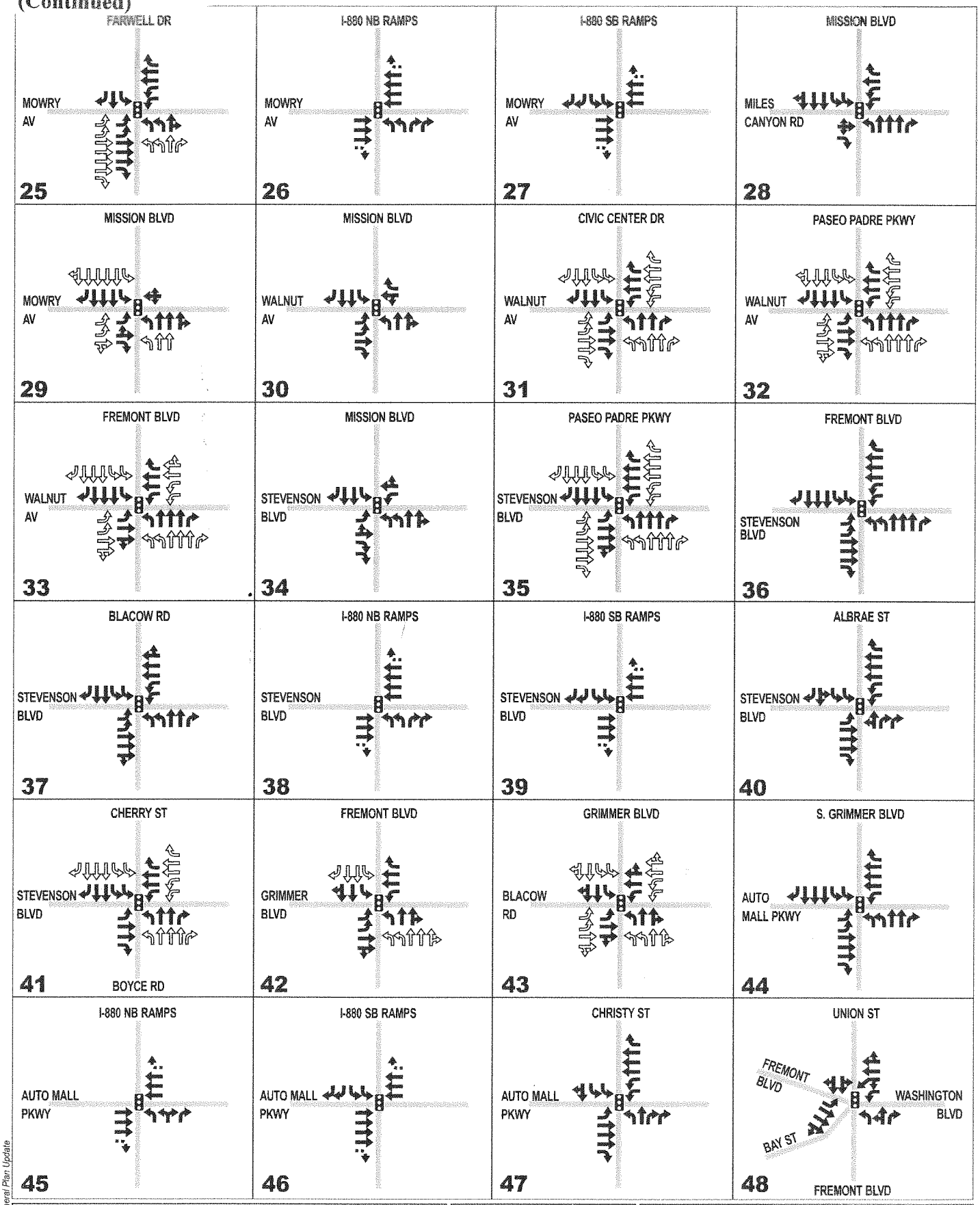


**Figure 4.2: Intersection Geometry and Traffic Control Existing and Assumed 2035 (Continued)**




**LEGEND**

**00** - Study Intersection Number
← - Existing Geometry
↱ - Free Right Turn
⇦ - Assumed 2035 Geometry
- Signalized Intersection
- Signalized in 2009
○ - Unsignalized Intersection
STOP - Stop Sign Controlled

**Fremont General Plan**

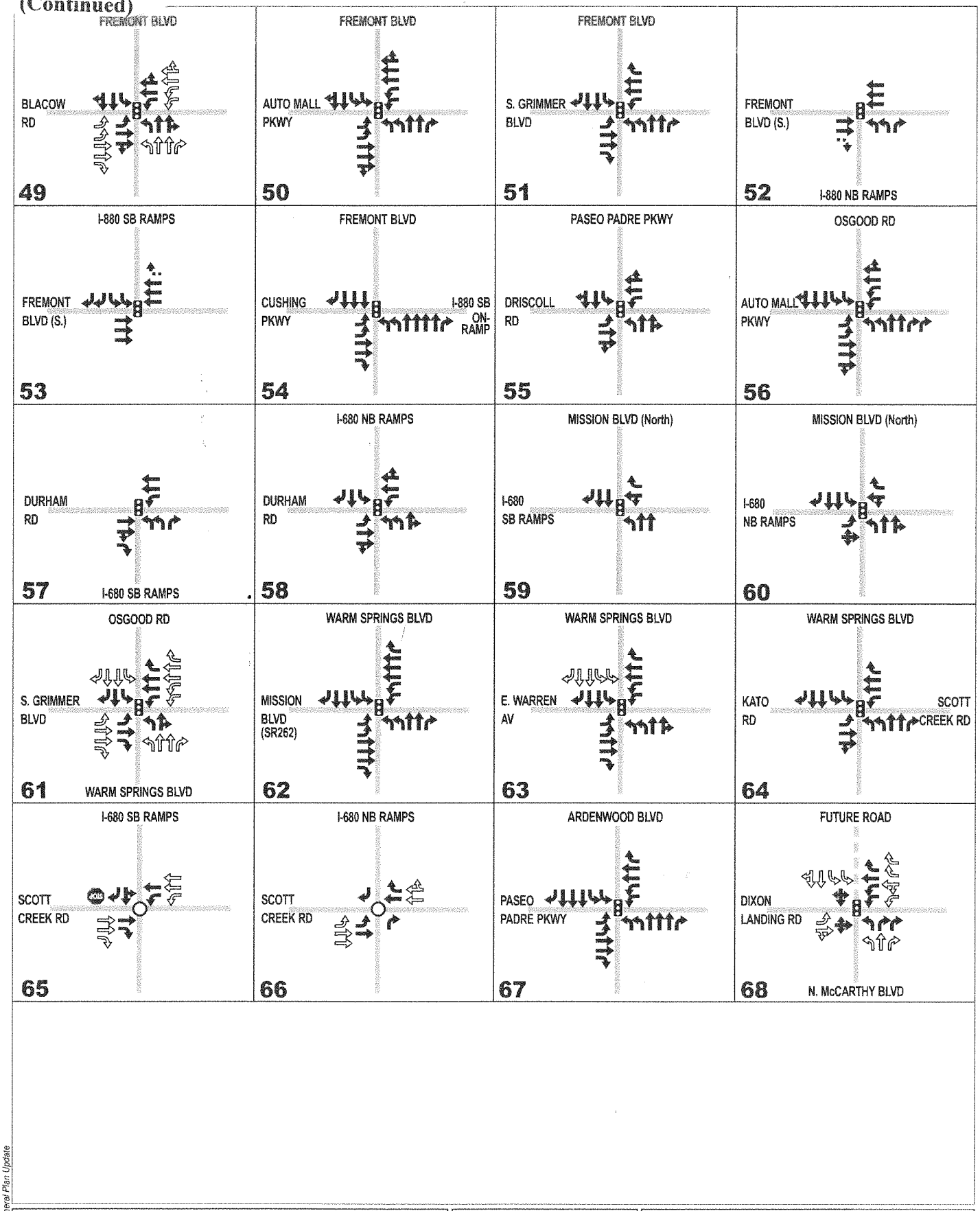
Fremont

*Schematic - Not to Scale*

*DKS Associates*

07034-000 - Fremont General Plan Update

**Figure 4.2: Intersection Geometry and Traffic Control Existing and Assumed 2035 (Continued)**




**LEGEND**

- **00** - Study Intersection Number
- ⇐ - Existing Geometry
- ⇦ - Assumed 2035 Geometry
- - Free Right Turn
- - Signalized Intersection
- - Signalized in 2009
- - Unsignalized Intersection
- STOP - Stop Sign Controlled
- - Future Road

**Fremont General Plan**

CITY OF Fremont

*Schematic - Not to Scale*

*DKS Associates*

07034-000 - Fremont General Plan Update

**TABLE 4-3: STUDY INTERSECTIONS**

| # | Intersection Description | Traffic Control | Count Month/Year |
|---|---|---|---|
| 1. | Alvarado Blvd / Deep Creek Rd | Signalized | 2/2008 |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | Signalized | 2/2008 |
| 3. | Fremont Blvd / Paseo Padre Pkwy | Signalized | 4/2007 |
| 4. | Paseo Padre Pkwy / Decoto Rd | Signalized | 2/2008 |
| 5. | Fremont Blvd / Decoto Rd | Signalized | 4/2007 |
| 6. | I-880 NB Ramps / Decoto Rd | Signalized | 4/2007 |
| 7. | I-880 SB Ramps / Decoto Rd | Signalized | 2/2008 |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | Signalized | 4/2007 |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps | Signalized | 4/2007 |
| 10. | Thornton Ave / SR-84 EB Ramps | Signalized | 4/2007 |
| 11. | Paseo Padre Pkwy / Isherwood Way | Signalized | 2/2008 |
| 12. | Paseo Padre Pkwy / Thornton Ave | Signalized | 5/2007 |
| 13. | Fremont Blvd / Thornton Ave | Signalized | 11/2007 |
| 14. | I-880 NB off-ramp/Thornton Ave | Signalized | 2/2008 |
| 15. | Fremont Blvd / Peralta Blvd | Signalized | 11/2007 |
| 16. | Fremont Blvd / Central Ave | Signalized | 4/2007 |
| 17. | Central Ave / Blacow Rd | Signalized | 5/2007 |
| 18. | Paseo Padre Pkwy / Peralta Blvd | Signalized | 5/2007 |
| 19. | Peralta Blvd / Mowry Ave | Signalized | 2/2008 |
| 20. | Civic Center Dr / Mowry Ave | Signalized | 2/2008 |
| 21. | Paseo Padre Pkwy / Mowry Ave | Signalized | 5/2007 |
| 22. | Fremont Blvd / Mowry Ave | Signalized | 2/2008 |
| 23. | Argonaut Way / Mowry Ave | Signalized | 2/2008 |
| 24. | Blacow Rd / Mowry Ave | Signalized | 2/2008 |
| 25. | Farwell Dr / Mowry Ave | Signalized | 2/2008 |
| 26. | I-880 NB off-ramp / Mowry Ave | Signalized | 2/2008 |
| 27. | I-880 SB off ramp / Mowry Ave | Signalized | 2/2008 |
| 28. | Mission Blvd / Niles Canyon Rd | Signalized | 11/2007 |
| 29. | Mission Blvd / Mowry Ave | Signalized | 2/2008 |
| 30. | Mission Blvd / Walnut Ave | Signalized | 2/2008 |
| 31. | Civic Center Dr / Walnut Ave | Signalized | 2/2008 |
| 32. | Paseo Padre Pkwy / Walnut Ave | Signalized | 6/2007 |
| 33. | Fremont Blvd / Walnut Ave | Signalized | 2/2008 |
| 34. | Mission Blvd / Stevenson Blvd | Signalized | 2/2008 |

**TABLE 4-3: STUDY INTERSECTIONS (CONTINUED)**

| # | Intersection Description | Traffic Control | Count Month/Year |
|---|---|---|---|
| 35. | Paseo Padre Pkwy / Stevenson Blvd | Signalized | 4/2007 |
| 36. | Fremont Blvd / Stevenson Blvd | Signalized | 2/2008 |
| 37. | Blacow Rd / Stevenson Blvd | Signalized | 2/2008 |
| 38. | I-880 NB Ramps / Stevenson Blvd | Signalized | 1/2008 |
| 39. | I-880 SB Ramps / Stevenson Blvd | Signalized | 1/2008 |
| 40. | Albrae St / Stevenson Blvd | Signalized | 1/2008 |
| 41. | Cherry St - Boyce Rd / Stevenson Blvd | Signalized | 10/2007 |
| 42. | Fremont Blvd / Grimmer Blvd | Signalized | 11/2007 |
| 43. | Blacow Rd / Grimmer Blvd | Signalized | 11/2007 |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | Signalized | 2/2008 |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | Signalized | 11/2007 |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | Signalized | 11/2007 |
| 47. | Christy St / Auto Mall Pkwy | Signalized | 11/2007 |
| 48. | Union St-Fremont Blvd / Washington Blvd | Signalized | 11/2007 |
| 49. | Fremont Blvd / Blacow Rd | Signalized | 11/2007 |
| 50. | Fremont Blvd / Auto Mall Pkwy | Signalized | 2/2008 |
| 51. | Fremont Blvd / S. Grimmer Blvd | Signalized | 11/2007 |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | Signalized | 12/2007 |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | Signalized | 12/2007 |
| 54. | Fremont Blvd / Cushing Pkwy | Signalized | 11/2007 |
| 55. | Paseo Padre Pkwy / Driscoll Rd | Signalized | 2/2008 |
| 56. | Osgood Rd / Auto Mall Pkwy | Signalized | 2/2008 |
| 57. | I-680 SB Ramps / Durham Rd | Signalized | 1/2008 |
| 58. | I-680 NB Ramps / Durham Rd | Signalized | 1/2008 |
| 59. | Mission Blvd (north) / I-680 SB Ramps | Signalized | 2/2008 |
| 60. | Mission Blvd (north) / I-680 NB Ramps | Signalized | 2/2008 |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | Signalized | 2/2008 |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | Signalized | 2/2008 |
| 63. | Warm Springs Blvd / E. Warren Ave | Signalized | 11/2007 |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | Signalized | 11/2007 |
| 65. | I-680 SB Ramps / Scott Creek Rd | Unsignalized | 11/2007 |
| 66. | I-680 NB Ramps / Scott Creek Rd | Unsignalized | 10/2007 |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | Signalized | 4/2007 |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | Signalized | 6/2007 |

*Roadway Segment Analysis*

Alameda County – Metropolitan Transportation System (MTS)

The ACTC requires the evaluation and assessment of regional roadways within the study area that are designated as Congestion Management Program (CMP) and Metropolitan Transportation System (MTS) facilities. CMP facilities are used to monitor conformance with the LOS Standards of the CMP while the MTS network is used for the land use analysis. Since development anticipated under the DRAFT General Plan Update would generate more than 100 "net-new" PM peak hours trips, the ACTC requires the use of the ACTC Countywide Travel Demand Model to assess the project impacts on regional roadways within the project study area during the A.M. and P.M. peak hours. **Table 4-4** shows the CMP roadway system facilities identified for analysis within the study area.

**TABLE 4-4: STUDY FREEWAY SEGMENTS (ALAMEDA COUNTY)**

| # | Freeway Segment | From | To |
|---|---|---|---|
| 1. | I-680 - NB | Scott Creek Rd | Mission Blvd (SR-262) |
| 2. | I-680 - NB | Mission Blvd (SR-262) | Durham Road |
| 3. | I-680 - NB | Durham Rd | Washington Blvd |
| 4. | I-680 - NB | Washington Blvd | Mission Blvd (SR-238) |
| 5. | I-680 - SB | Mission Blvd (SR-238) | Washington Blvd |
| 6. | I-680 - SB | Washington Blvd | Durham Rd |
| 7. | I-680 - SB | Durham Rd | Mission Blvd (SR-262) |
| 8. | I-680 - SB | Mission Blvd (SR-262) | Scott Creek Rd |
| 9. | I-880 - NB | Dixon Landing Rd | Mission Blvd (SR-262) |
| 10. | I-880 - NB | Mission Blvd (SR-262) | Auto Mall Pkwy |
| 11. | I-880 - NB | Auto Mall Pkwy | Stevenson Blvd |
| 12. | I-880 - NB | Stevenson Blvd | Decoto Rd |
| 13. | I-880 - NB | Decoto Rd | Alvarado Blvd |
| 14. | I-880 - SB | Alvarado Blvd | Decoto Rd |
| 15. | I-880 - NB | Alvarado Blvd | Alvarado-Niles Blvd |
| 16. | I-880 - SB | Decoto Rd | Stevenson Blvd |
| 17. | I-880 - SB | Stevenson Blvd | Auto Mall Parkway |
| 18. | I-880 - SB | Auto Mall Parkway | Mission Blvd (SR-262) |
| 19. | I-880 - SB | Mission Blvd (SR-262) | Dixon Landing Rd off-ramp |
| 20. | SR-84 - EB | Thornton Ave | Ardenwood Blvd |
| 21. | SR-84 - EB | Toll Plaza | Thornton Ave |
| 22. | SR-84 - WB | Thornton Ave | Toll Plaza |

Santa Clara County – Congestion Management Agency

Development anticipated under the DRAFT General Plan Update would also add traffic to facilities in Santa Clara County. The Congestion Management Agency in Santa Clara County is the Santa Clara Valley Transportation Authority's (VTA) Congestion Management Program (CMP). The VTA CMP defines methodologies and procedures for determining the impact of a potential project on their facilities. A freeway segment is required to be included in the transportation impact analysis if it meets any of the following requirements.

1. The proposed development project is adjacent to one of the freeway segment's access or egress points; or

2. Based on engineering judgment, lead agency staff determines that the freeway segment should be included in the analysis.

**Table 4-5** lists the VTA CMP facilities identified for analysis within the study area.

**TABLE 4-5: STUDY FREEWAY SEGMENTS (SANTA CLARA COUNTY)**

| # | Roadway Segment Description | From | To |
|---|---|---|---|
| 1. | I-680 - NB | Calaveras Blvd/SR-237 | Jacklin Rd |
| 2. | I-680 - SB | Jacklin Rd | Calaveras Blvd/SR-237 |
| 3. | I-680 - NB | Jacklin Rd | Scott Creek Rd |
| 4. | I-680 - SB | Scott Creek Rd | Jacklin Rd |
| 5. | SR-237 - WB | I-880 | McCarthy Blvd |
| 6. | SR-237 - EB | McCarthy Blvd | I-880 |
| 7. | SR-237 - WB | McCarthy Blvd | Zanker Rd |
| 8. | SR-237 - EB | Zanker Rd | McCarthy Blvd |
| 9. | SR-237 - WB | Zanker Rd | N. First St |
| 10. | SR-237 - EB | N. First St | Zanker Rd |
| 11. | I-880 - NB | SR-237 | Dixon Landing Rd |
| 12. | I-880 - SB | Dixon Landing Rd | SR-237 |

City of Fremont Arterial Roadway Segment Analysis

In addition, a roadway segment analysis was also conducted for several arterial segments in Fremont. **Table 4-6** shows the arterial roadway segments identified for analysis within the study area.

**TABLE 4-6: STUDY ARTERIAL SEGMENTS (CITY OF FREMONT)**

| # | Roadway Segment | From | To |
|---|---|---|---|
| 1. | Mowry Ave – EB | I-880 | Farwell Dr |
| 2. | Mowry Ave – EB | Farwell Dr | SR-84 |
| 3. | Mowry Ave – WB | SR-84 | Farwell Dr |
| 4. | Mowry Ave – WB | Farwell Dr | I-880 |
| 5. | SR-84 / Mowry Ave (Fre) - WB | SR-238 | Peralta Blvd |
| 6. | SR-84 / Peralta Blvd (Fre) - WB | Mowry Ave | Fremont Blvd |
| 7. | SR-84 / Fremont Blvd (Fre) – WB | Peralta Blvd | Thornton Ave |
| 8. | SR-84 / Thornton Ave – WB | Fremont Blvd | I-880 SB |
| 9. | SR-84 / Thornton Ave – EB | I-880 SB Ramps | Fremont Blvd |
| 10. | SR-84 / Fremont Blvd (Fre) - EB | Thornton Ave | Peralta Blvd |
| 11. | SR-84 / Peralta Blvd (Fre) - EB | Fremont Blvd | Mowry Ave |
| 12. | SR-84 / Mowry Ave (Fre) - EB | Peralta Blvd | SR-238 |
| 13. | SR-238 (Mission Blvd ) – SB | Nursery Ave | Stevenson Blvd |
| 14. | SR-238 (Mission Blvd ) – SB | Stevenson Blvd | I-680 NB Ramp |
| 15. | SR-262 (Mission Blvd ) - EB | I-880 NB Ramps | I-680 NB Ramps |
| 16. | SR-262 (Mission Blvd ) - WB | I-680 NB Ramps | I-880 SB Ramps |
| 17. | Decoto Rd – WB | Fremont City Limits | I-880 NB Ramps |
| 18. | Decoto Rd – EB | I-880 NB Ramps | Fremont City Limits |
| 19. | SR-238 (Mission Blvd) – NB | I-680 NB Ramps | Stevenson Blvd |
| 20. | SR-238 (Mission Blvd) – NB | Stevenson Blvd | Nursery Ave |

*Intersection Geometry and Traffic Control*

**Figure 4.2** shows the intersection geometry and traffic control used for analysis.

*Roadway/Arterial Segment Analysis*

Alameda County Roadway Segments - Level of Service

The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway performance. Level of service can range from "A" representing free-flow conditions, to "F" representing extremely low speeds. LOS B and C signify stable conditions with acceptable delays. LOS D is typically considered acceptable for peak hour in urban areas. LOS E is approaching capacity and LOS F represents conditions at or above capacity with very low speeds, long delays and average speeds of less than half of the uncongested or free-flow speed.

The correlation between average travel speed (mph), volume-to-capacity (v/c) ratio and level of service is contained in **Table 4-7** for freeway segments. The relationship between arterial class, average speed and level of service for arterials within Alameda County is contained in **Table 4-8**.

**TABLE 4-7: FREEWAY SEGMENT LOS THRESHOLDS (ALAMEDA COUNTY)**

| Level of Service | Average Travel Speed (mph) | Volume to Capacity (V/C) Ratio | Maximum Traffic Volume (vehicles/hour/lane) |
|---|---|---|---|
| A | ≥60 | 0.35 | 700 |
| B | ≥55 | 0.58 | 1,000 |
| C | ≥49 | 0.75 | 1,500 |
| D | ≥41 | 0.90 | 1,800 |
| E | ≥30 | 1.00 | 2,000 |
| F[1] | <30 | Variable | - |

Source: Alameda County Transportation Commission. 2007 Congestion Management Program. Table 5. Thresholds based on the Transportation Research Board, Highway Capacity Manual, 1985.

Notes: [1] Range for LOS F for Freeway Segments: F30-Average Travel Speed < 30 mph; F20-Average Travel Speed <20 mph; F10-Average Travel Speed < 10 mph.

**TABLE 4-8: ARTERIAL LEVEL OF SERVICE THRESHOLDS (ALAMEDA COUNTY)**

| Arterial Class | I | II | III |
|---|---|---|---|
| Range of Free Flow Speeds (mph) | 35 to 45 | 30 to 35 | 25 to 35 |
| Typical Free Flow Speed (mph) | 40 | 33 | 27 |
| **Level of Service** | **Average Travel Speed (mph)** | | |
| A | ≥ 35 | ≥ 30 | ≥ 25 |
| B | ≥ 28 | ≥ 24 | ≥ 19 |
| C | ≥ 22 | ≥ 18 | ≥ 13 |
| D | ≥ 17 | ≥ 14 | ≥ 9 |
| E | ≥ 13 | ≥ 10 | ≥ 7 |
| F[1] | < 13 | < 10 | < 7 |

Source: Alameda County Transportation Commission. 2007 Congestion Management Program. Table 5. Thresholds based on the Transportation Research Board, Highway Capacity Manual, 1985.

Santa Clara County Freeway Segments - Level of Service

Because some of the potentially impacted freeway segments are in Santa Clara County, this analysis applied the procedures of the Santa Clara County CMP for those segments. To evaluate the existing freeway traffic conditions, as well as provide a basis for comparison of conditions before and after project-generated traffic is added to the freeway system, the Level of Service (LOS) was evaluated at segments along nearby freeway facilities using the operational analysis procedures from the Transportation Research Board's 2000 Highway Capacity Manual, as required by the Santa Clara County Congestion Management Program.

**Table 4-9** identifies the ranges density used to define levels of service for freeway segments. LOS ranges from LOS A, or free-flow conditions, to LOS F, or highly congested conditions. The density values from the LOS A/B, B/C and C/D thresholds are based on values from HCM 2000. The LOS D/E and E/F thresholds are modified from the values in HCM 2000 to reflect Santa Clara County conditions.

**TABLE 4-9: FREEWAY SEGMENT LOS THRESHOLDS (SANTA CLARA COUNTY)**

| Level of Service | Density[1] | Speed (miles/hr) | Description of Traffic Condition |
|---|---|---|---|
| A | Density ≤ 11.0 | 67.0 ≤ speed | Free flow operations |
| B | 11.0 < density ≤ 18.0 | 66.5 ≤ speed < 67.0 | Reasonably free-flow, and free-flow speeds are maintained. |
| C | 18.0 < density ≤ 26.0 | 66.0 ≤ speed < 66.5 | Flow with speeds and or near the free-flow speed |
| D | 26.0 < density ≤ 46.0 | 46.0 ≤ speed < 46.0 | Level at which speed begin to decline with increasing flow |
| E | 46.0 < density ≤ 58.0 | 35.0 ≤ speed < 46.0 | Operation at capacity |
| F[1] | 58.0 < density | Speed < 35.0 | Breakdowns in vehicular flow |

Source: Santa Clara County Congestion Management Program – Traffic LOS Analysis Guideline, December 1, 2006.

[1]Density based on passenger cars per mile per lane (pcpml)

## Regulatory Setting

### *Intersections*

The City of Fremont identifies an acceptable intersection operating LOS as LOS D or better at signalized intersections during the peak hours. LOS D may not be obtained in the City Center, formerly CBD, or areas with heavy regional traffic. LOS E is a common condition for facilities with high volumes of regional traffic and regional facilities.

### *ACTC – MTS Facilities*

According to the ACTC, the performance standard of a CMP facility is LOS E. An exception is made for roadways that operated at LOS F under the 1991 "baseline" conditions. These roadways were "grandfathered" at LOS F.

For example, the roadway segment of I-880 from Dixon Landing Road to State Route 262/Mission Boulevard is a grandfathered segment[3] in the vicinity of the project. The SR-84 (Fremont Boulevard) westbound segment between Peralta Boulevard and Thornton Avenue that was found to operate at LOS F in 1991 is a grandfathered principal arterial and thus except from CMP requirements.

The Metropolitan Transportation System designated by MTC includes Interstate 880 and Interstate 680. **Appendix B (E)** shows the Metropolitan Transportation System Map. The designated CMP[4] system within the City of Fremont is listed in **Table 4-5** and **Table 4-7**, above.

[3] Alameda County Congestion Management Agency-2010 Congestion Management Program.

[4] Source: Alameda County Congestion Management Agency. 2010 Congestion Management Program.

*Santa Clara County CMP Facilities*

According to the Santa Clara Valley Transportation Authority (VTA), the performance standard for Congestion Management Program (CMP) facilities is LOS E.

Existing Intersection Level of Service

The intersections and their corresponding existing levels of service are presented in **Table 4-10** for signalized intersections and **Table 4-11** for unsignalized intersections. **Appendix B (C)** and **Appendix B (D)** includes the detailed calculation level of service analysis sheets for signalized intersections, including the weekday A.M. and P.M. peak hours.

**TABLE 4-10: EXISTING SIGNALIZED INTERSECTION LOS SUMMARY**

| # | Intersection | Peak | Existing | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 1. | Alvarado Blvd / Deep Creek Rd | A.M. | 25.3 | C |
| | | P.M. | 26.1 | B |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | A.M. | 17.5 | B |
| | | P.M. | 21.6 | C |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 40.3 | D |
| | | P.M. | 42.4 | D |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | 44.2 | D |
| | | P.M. | 45.3 | D |
| 5. | Fremont Blvd / Decoto Rd | A.M. | 43.8 | D |
| | | P.M. | 41.7 | D |
| 6. | I-880 NB Ramps / Decoto Rd | A.M. | 35.5 | D |
| | | P.M. | 19.8 | B |
| 7. | I-880 SB Ramps / Decoto Rd | A.M. | 25.5 | C |
| | | P.M. | 14.2 | B |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | A.M. | 23.1 | C |
| | | P.M. | 17.0 | B |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps[1] | A.M. | N/A | N/A |
| | | P.M. | N/A | N/A |
| 10. | Thornton Ave / SR-84 EB Ramps[1] | A.M. | N/A | N/A |
| | | P.M. | N/A | N/A |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | 31.9 | C |
| | | P.M. | 31.3 | C |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | 50.3 | D |
| | | P.M. | 38.8 | D |
| 13. | Fremont Blvd / Thornton Ave | A.M. | 34.3 | C |
| | | P.M. | 38.0 | D |
| 14. | I-880 NB off-ramp/Thornton Ave | A.M. | 7.2 | A |
| | | P.M. | 35.9 | D |
| 15. | Fremont Blvd / Peralta Blvd | A.M. | 26.6 | C |
| | | P.M. | 32.4 | C |
| 16. | Fremont Blvd / Central Ave | A.M. | 28.9 | C |
| | | P.M. | 35.0 | C |
| 17. | Central Ave / Blacow Rd | A.M. | 29.1 | C |
| | | P.M. | 31.8 | C |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | 40.3 | D |
| | | P.M. | 51.3 | D |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

1: Location newly signalized in 2009. Existing conditions study was performed prior to completion of traffic signal modification while intersection was still unsignalized.

**TABLE 4-10: EXISTING SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 19. | Peralta Blvd / Mowry Ave | A.M. | 15.1 | B |
| | | P.M. | 15.4 | B |
| 20. | Civic Center Dr / Mowry Ave | A.M. | 29.2 | C |
| | | P.M. | 30.0 | C |
| 21. | Paseo Padre Pkwy / Mowry Ave | A.M. | 40.3 | D |
| | | P.M. | 38.4 | D |
| 22. | Fremont Blvd / Mowry Ave | A.M. | 38.0 | D |
| | | P.M. | 48.3 | D |
| 23. | Argonaut Way / Mowry Ave | A.M. | 21.1 | C |
| | | P.M. | 32.7 | C |
| 24. | Blacow Rd / Mowry Ave | A.M. | 31.0 | C |
| | | P.M. | 33.7 | C |
| 25. | Farwell Dr / Mowry Ave | A.M. | 27.2 | C |
| | | P.M. | 35.3 | D |
| 26. | I-880 NB off-ramp / Mowry Ave | A.M. | 12.7 | B |
| | | P.M. | 15.7 | B |
| 27. | I-880 SB off ramp / Mowry Ave | A.M. | 12.5 | B |
| | | P.M. | 16.2 | B |
| 28. | Mission Blvd / Niles Canyon Rd | A.M. | 50.3 | D |
| | | P.M. | **58.3** | **E** |
| 29. | Mission Blvd / Mowry Ave | A.M. | **104.7** | **F** |
| | | P.M. | **89.5** | **F** |
| 30. | Mission Blvd / Walnut Ave | A.M. | 32.7 | C |
| | | P.M. | 27.6 | C |
| 31. | Civic Center Dr / Walnut Ave | A.M. | 30.2 | C |
| | | P.M. | 31.8 | C |
| 32. | Paseo Padre Pkwy / Walnut Ave | A.M. | 33.3 | C |
| | | P.M. | 42.0 | D |
| 33. | Fremont Blvd / Walnut Ave | A.M. | 39.2 | D |
| | | P.M. | 50.8 | D |
| 34. | Mission Blvd / Stevenson Blvd | A.M. | 30.3 | C |
| | | P.M. | 27.4 | C |
| 35. | Paseo Padre Pkwy / Stevenson Blvd | A.M. | 43.2 | D |
| | | P.M. | 43.7 | D |
| 36. | Fremont Blvd / Stevenson Blvd | A.M. | 37.6 | D |
| | | P.M. | 39.8 | D |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 4-10: EXISTING SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 37. | Blacow Rd / Stevenson Blvd | A.M. | **57.9** | **E** |
| | | P.M. | **119.9** | **F** |
| 38. | I-880 NB Ramps / Stevenson Blvd | A.M. | 13.0 | B |
| | | P.M. | 14.5 | B |
| 39. | I-880 SB Ramps / Stevenson Blvd | A.M. | 13.7 | B |
| | | P.M. | 14.8 | B |
| 40. | Albrae St / Stevenson Blvd | A.M. | 25.2 | C |
| | | P.M. | 36.0 | D |
| 41. | Cherry St – Boyce Rd / Stevenson Blvd | A.M. | 39.0 | D |
| | | P.M. | 26.9 | C |
| 42. | Fremont Blvd / Grimmer Blvd | A.M. | 38.3 | D |
| | | P.M. | 37.6 | D |
| 43. | Blacow Rd / Grimmer Blvd | A.M. | **96.2** | **F** |
| | | P.M. | 49.6 | D |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M. | 38.8 | D |
| | | P.M. | 43.1 | D |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | A.M. | 9.3 | A |
| | | P.M. | 8.6 | A |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | A.M. | 12.8 | B |
| | | P.M. | 12.3 | B |
| 47. | Christy St / Auto Mall Pkwy | A.M. | 25.5 | C |
| | | P.M. | 36.1 | D |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M. | 25.2 | C |
| | | P.M. | 30.8 | C |
| 49. | Fremont Blvd / Blacow Rd | A.M. | 41.4 | D |
| | | P.M. | 32.5 | C |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M. | 40.5 | D |
| | | P.M. | **55.8** | **E** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M. | 43.3 | D |
| | | P.M. | 38.2 | D |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | A.M. | 19.2 | B |
| | | P.M. | 8.7 | A |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | A.M. | 10.7 | B |
| | | P.M. | 6.6 | A |
| 54. | Fremont Blvd / Cushing Pkwy | A.M. | 21.6 | C |
| | | P.M. | 18.9 | B |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 4-10: EXISTING SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M. | 34.3 | C |
| | | P.M. | 30.6 | C |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M. | **67.2** | **E** |
| | | P.M. | **100.1** | **F** |
| 57. | I-680 SB Ramps / Durham Rd | A.M. | 31.7 | C |
| | | P.M. | 11.5 | B |
| 58. | I-680 NB Ramps / Durham Rd | A.M. | 17.3 | B |
| | | P.M. | 16.5 | B |
| 59. | Mission Blvd (north) / I-680 SB Ramps | A.M. | 12.5 | C |
| | | P.M. | 10.9 | B |
| 60. | Mission Blvd (north) / I-680 NB Ramps | A.M. | 21.5 | C |
| | | P.M. | 23.4 | C |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M. | **83.0** | **F** |
| | | P.M. | 34.3 | C |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | A.M. | **73.3** | **E** |
| | | P.M. | 41.3 | D |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M. | 26.8 | C |
| | | P.M. | 40.0 | D |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M. | 38.9 | D |
| | | P.M. | 51.5 | D |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | A.M. | 23.1 | C |
| | | P.M. | 25.9 | C |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | A.M. | 11.6 | B |
| | | P.M. | 15.4 | B |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

According to City of Fremont intersection level of service standards for signalized intersections, almost all of the 66 signalized study intersections currently operate at acceptable levels of service under the existing conditions, with the exception of the following intersections:

22. Fremont Blvd / Mowry Ave, LOS E (PM Peak Hr)

28. Mission Blvd / Niles Canyon Rd, LOS E (PM Peak Hr)

29. Mission Blvd / Mowry Ave, LOS F,F (AM,PM Peak Hr)

37. Blacow Rd / Stevenson Blvd, LOS E,F (AM,PM Peak Hr)

43. Blacow Rd / Grimmer Blvd, LOS F (AM Peak Hr)

50. Fremont Blvd / Auto Mall Pkwy, LOS E (PM Peak Hr)

56. Osgood Rd / Auto Mall Pkwy, LOS E,F (AM,PM Peak Hr)

61. Osgood Rd-Warm Springs Blvd / S. Grimmer Blvd, LOS F (AM Peak Hr)

62. Warm Springs Blvd / Mission Blvd (SR-262), LOS E (AM Peak Hr)

*Existing Roadway/Arterial Segment Level of Service*

The existing levels of service for study roadway segments in Alameda County and Santa Clara County are presented in **Table 4-11** and **Table 4-12**, respectively. The existing levels of service for arterial segments in Fremont are presented in **Table 4-13**.

**TABLE 4-11: EXISTING ALAMEDA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Peak Period | Existing | |
|---|---|---|---|---|---|---|
| | | | | | V/C | LOS |
| 1. | I-680 - NB | Scott Creek Rd | Mission Blvd (SR-262) | A.M. | 0.65 | C |
| | | | | P.M. | **1.10** | **F** |
| 2. | I-680 - NB | Mission Blvd (SR-262) | Durham Road | A.M. | 0.71 | C |
| | | | | P.M. | **1.03** | **F** |
| 3. | I-680 - NB | Durham Rd | Washington Blvd | A.M. | 0.62 | C |
| | | | | P.M. | **1.08** | **F** |
| 4. | I-680 - NB | Washington Blvd | Mission Blvd (SR-238) | A.M. | 0.65 | C |
| | | | | P.M. | **1.04** | **F** |
| 5. | I-680 - SB | Mission Blvd (SR-238) | Washington Blvd | A.M. | **1.06** | **F** |
| | | | | P.M. | 0.48 | B |
| 6. | I-680 - SB | Washington Blvd | Durham Rd | A.M. | **1.06** | **F** |
| | | | | P.M. | 0.48 | B |
| 7. | I-680 - SB | Durham Rd | Mission Blvd (SR-262) | A.M. | **1.06** | **F** |
| | | | | P.M. | 0.57 | B |
| 8. | I-680 - SB | Mission Blvd (SR-262) | Scott Creek Rd | A.M. | **1.06** | **F** |
| | | | | P.M. | 0.48 | B |
| 9. | I-880 - NB | Dixon Landing Rd | Mission Blvd (SR-262) | A.M. | 0.49 | B |
| | | | | P.M. | 0.79 | D |
| 10. | I-880 - NB | Mission Blvd (SR-262) | Auto Mall Pkwy | A.M. | 0.55 | B |
| | | | | P.M. | **1.02** | **F** |
| 11. | I-880 - NB | Auto Mall Pkwy | Stevenson Blvd | A.M. | 0.59 | C |
| | | | | P.M. | **1.05** | **F** |
| 12. | I-880 - NB | Stevenson Blvd | Decoto Rd | A.M. | 0.67 | C |
| | | | | P.M. | 0.98 | E |
| 13. | I-880 - NB | Decoto Rd | Alvarado Blvd | A.M. | 0.55 | B |
| | | | | P.M. | 0.92 | E |
| 14. | I-880 - SB | Alvarado Blvd | Decoto Rd | A.M. | **1.03** | **F** |
| | | | | P.M. | 0.70 | C |
| 15. | I-880 - NB | Alvarado Blvd | Alvarado-Niles Blvd | A.M. | 0.86 | D |
| | | | | P.M. | **1.14** | **F** |
| 16. | I-880 - SB | Decoto Rd | Stevenson Blvd | A.M. | 0.90 | D |
| | | | | P.M. | 0.69 | C |
| 17. | I-880 - SB | Stevenson Blvd | Auto Mall Parkway | A.M. | 0.98 | E |
| | | | | P.M. | 0.62 | C |
| 18. | I-880 - SB | Auto Mall Pkwy | Mission Blvd (SR-262) | A.M. | 0.96 | E |
| | | | | P.M. | 0.51 | B |
| 19. | I-880 - SB | Mission Blvd (SR-262) | Dixon Landing Rd off-ramp | A.M. | 0.76 | D |
| | | | | P.M. | 0.49 | B |
| 20. | SR-84 - EB | Thornton Ave | Ardenwood Blvd | A.M. | 0.18 | A |
| | | | | P.M. | 0.86 | D |
| 21. | SR-84 - EB | Toll Plaza | Thornton Ave | A.M. | 0.24 | A |
| | | | | P.M. | **1.09** | **F** |
| 22. | SR-84 - WB | Thornton Ave | Toll Plaza | A.M. | 0.82 | D |
| | | | | P.M. | 0.27 | A |

Notes: V/C: Volume:Capacity Ratio LOS: Level of Service Segments operating at capacity are in bold. V/C based Link Volumes directly from Travel Demand Models.

**TABLE 4-12: EXISTING SANTA CLARA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Lane Type | Peak Period | Existing | |
|---|---|---|---|---|---|---|---|
| | | | | | | Density | LOS |
| 1. | I-680 - NB | Calaveras Blvd/SR-237 | Jacklin Rd | Mixed | A.M. | 23.0 | C |
| | | | | | P.M. | 26.0 | D |
| 2. | I-680 - SB | Jacklin Rd | Calaveras Blvd/SR-237 | Mixed | A.M. | 24.0 | C |
| | | | | | P.M. | 32.0 | D |
| | | | | HOV | A.M. | 20.0 | C |
| | | | | | P.M. | 11.0 | A |
| 3. | I-680 - NB | Jacklin Rd | Scott Creek Rd | Mixed | A.M. | 27.8 | D |
| | | | | | P.M. | 25.0 | C |
| 4. | I-680 - SB | Scott Creek Rd | Jacklin Rd | Mixed | A.M. | 26.0 | D |
| | | | | | P.M. | 24.0 | C |
| | | | | HOV | A.M. | 18.1 | C |
| | | | | | P.M. | 8.0 | A |
| 5. | SR-237 - WB | I-880 | McCarthy Blvd | Mixed | A.M. | **126.3** | **F** |
| | | | | | P.M. | 27.8 | D |
| 6. | SR-237 - EB | McCarthy Blvd | I-880 | Mixed | A.M. | 20.9 | C |
| | | | | | P.M. | **225.0** | **F** |
| | | | | HOV | A.M. | N/A | N/A |
| | | | | | P.M. | N/A | N/A |
| 7. | SR-237 - WB | McCarthy Blvd | Zanker Rd | Mixed | A.M. | **114.0** | **F** |
| | | | | | P.M. | 31.2 | D |
| | | | | HOV | A.M. | 25.0 | C |
| | | | | | P.M. | 8.0 | A |
| 8. | SR-237 - EB | Zanker Rd | McCarthy Blvd | Mixed | A.M. | 23.0 | C |
| | | | | | P.M. | **73.0** | **F** |
| | | | | HOV | A.M. | 9.1 | A |
| | | | | | P.M. | 30.0 | D |
| 9. | SR-237 - WB | Zanker Rd | N. First St | Mixed | A.M. | **55.0** | **E** |
| | | | | | P.M. | **49.1** | **E** |
| | | | | HOV | A.M. | 39.1 | D |
| | | | | | P.M. | 16.0 | B |
| 10. | SR-237 - EB | N. First St | Zanker Rd | Mixed | A.M. | 32.0 | D |
| | | | | | P.M. | **75.0** | **F** |
| | | | | HOV | A.M. | 20.0 | C |
| | | | | | P.M. | 35.0 | D |
| 11. | I-880 - NB | SR-237 | Dixon Landing Rd | Mixed | A.M. | 16.2 | B |
| | | | | | P.M. | 39.1 | D |
| | | | | HOV | A.M. | 12.1 | B |
| | | | | | P.M. | 18.0 | B |
| 12. | I-880 - SB | Dixon Landing Rd | SR-237 | Mixed | A.M. | 42.5 | D |
| | | | | | P.M. | 18.7 | C |
| | | | | HOV | A.M. | 44.0 | D |
| | | | | | P.M. | 11.0 | A |

Notes: LOS: Level of Service E/F Segments operating below acceptable LOS D levels are in bold. Existing LOS based on 2009 VTA CMP Published results

**TABLE 4-13: EXISTING CITY OF FREMONT STUDY ARTERIAL SEGMENTS LOS SUMMARY**

| # | Roadway Segment | From | To | Peak Period | Existing | |
|---|---|---|---|---|---|---|
| | | | | | Speed | LOS |
| 1. | Mowry Ave - EB | I-880 | Farwell Dr | A.M. | 35 | A |
| | | | | P.M. | 31 | A |
| 2. | Mowry Ave - EB | Farwell Dr | SR-84 | A.M. | 35 | A |
| | | | | P.M. | 32 | A |
| 3. | Mowry Ave - WB | SR-84 | Farwell Dr | A.M. | 35 | A |
| | | | | P.M. | 34 | A |
| 4. | Mowry Ave - WB | Farwell Dr | I-880 | A.M. | 35 | A |
| | | | | P.M. | 35 | A |
| 5. | SR-84 / Mowry Ave (Fre) - WB | SR-238 | Peralta Blvd | A.M. | 39 | A |
| | | | | P.M. | 40 | A |
| 6. | SR-84 / Peralta Blvd (Fre) - WB | Mowry Ave | Fremont Blvd | A.M. | 33 | B |
| | | | | P.M. | 37 | A |
| 7. | SR-84 / Fremont Blvd (Fre) - WB | Peralta Blvd | Thornton Ave | A.M. | 34 | A |
| | | | | P.M. | 12 | E |
| 8. | SR-84 / Thornton Ave - WB | Fremont Blvd | I-880 SB | A.M. | 34 | A |
| | | | | P.M. | 35 | A |
| 9. | SR-84 / Thornton Ave - EB | I-880 SB Ramps | Fremont Blvd | A.M. | 35 | A |
| | | | | P.M. | 33 | A |
| 10. | SR-84 / Fremont Blvd (Fre) - EB | Thornton Ave | Peralta Blvd | A.M. | 35 | A |
| | | | | P.M. | 24 | C |
| 11. | SR-84 / Peralta Blvd (Fre) - EB | Fremont Blvd | Mowry Ave | A.M. | 40 | A |
| | | | | P.M. | 40 | A |
| 12. | SR-84 / Mowry Ave (Fre) - EB | Peralta Blvd | SR-238 | A.M. | 40 | A |
| | | | | P.M. | 39 | A |
| 13. | SR-238 (Mission Blvd ) - SB | Nursery Ave | Stevenson Blvd | A.M. | 31 | B |
| | | | | P.M. | 39 | A |
| 14. | SR-238 (Mission Blvd ) - SB | Stevenson Blvd | I-680 NB Ramp | A.M. | 23 | C |
| | | | | P.M. | 39 | A |
| 15. | SR-262 (Mission Blvd ) - EB | I-880 NB Ramps | I-680 NB Ramps | A.M. | 32 | B |
| | | | | P.M. | 26 | C |
| 16. | SR-262 (Mission Blvd ) - WB | I-680 NB Ramps | I-880 SB Ramps | A.M. | **10** | **F** |
| | | | | P.M. | 32 | B |
| 17. | Decoto Rd – WB | Fremont City Limits | I-880 NB Ramps | A.M. | 38 | A |
| | | | | P.M. | 39 | A |
| 18. | Decoto Rd – EB | I-880 NB Ramps | Fremont City Limits | A.M. | 40 | A |
| | | | | P.M. | 21 | D |
| 19. | SR-238 (Mission Blvd) – NB | I-680 NB Ramps | Stevenson Blvd | A.M. | 42 | A |
| | | | | P.M. | 44 | A |
| 20. | SR-238 (Mission Blvd) – NB | Stevenson Blvd | Nursery Ave | A.M. | 44 | A |
| | | | | P.M. | 35 | A |

Notes: Speed: MPH LOS: Level of Service Segments operating at capacity are in bold. V/C based Link Volumes directly from Travel Demand Models.

According to roadway/arterial LOS standards, all study roadway segments currently operate at acceptable levels of service under the existing conditions, with the exception of the following segments:

Alameda County:

1. I-680 NB from Scott Creek Rd to Mission Blvd (SR-262), LOS F (PM Peak Hr)
2. I-680 NB from Mission Blvd (SR-262) to Durham Rd, LOS F (PM Peak Hr)
3. I-680 NB from Durham Rd to Washington Blvd, LOS F (PM Peak Hr)
4. I-680 NB from Washington Blvd to Mission Blvd (SR-238), LOS F (PM Peak Hr)
5. I-680 SB from Mission Blvd (SR-238) to Washington Blvd, LOS F (AM Peak Hr)
6. I-680 SB from Washington Blvd to Durham Rd, LOS F (AM Peak Hr)
7. I-680 SB from Durham Rd to Mission Blvd (SR-262), LOS F (AM Peak Hr)
8. I-680 SB from Mission Blvd (SR-262) to Scott Creek Rd, LOS F (AM Peak Hr)
3. I-880 NB from Mission Blvd (SR-262) to Auto Mall Pkwy, LOS F (PM Peak Hr)
4. I-880 NB from Auto Mall Pkwy to Stevenson Blvd, LOS F (PM Peak Hr)
10. I-880 SB from Alvarado Blvd to Decoto Rd, LOS F (AM Peak Hr)
11. I-880 NB from Alvarado Blvd to Alvarado-Niles Blvd, LOS F (PM Peak Hr)

15. SR-84 EB from Toll Plaza to Thornton Ave, LOS F (PM Peak Hr)

Santa Clara County:

18. SR-237 WB from I-880 to McCarthy Blvd, LOS F (AM Peak Hr)
19. SR-237 EB from McCarthy Blvd to I-880, LOS F (PM Peak Hr)
20. SR-237 WB from McCarthy Blvd to Zanker Rd, LOS F (AM Peak Hr)
21. SR-237 EB from Zanker Rd to McCarthy Blvd, LOS F (PM Peak Hr)
22. SR-237 WB from Zanker Rd to N. First ST, LOS E,E (AM, PM Peak Hr)
23. SR-237 EB from N. First St to Zanker Rd, LOS F (PM Peak Hr)

City of Fremont:

SR-262 (Mission Blvd) WB from I-680 NB Ramps to I-880 SB Ramps, LOS F (AM Peak Hr), Year 2035 General Plan Condition

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

2) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

3) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;

4) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

5) Result in inadequate emergency access; or

6) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

City of Fremont Significance Criteria

For the purposes of evaluating the traffic-related effects in 2035 associated with implementation of the DRAFT General Plan Update, significant traffic impacts at signalized intersections are defined based on the current 1991 General Plan and City practices to occur when the addition of project traffic causes:

- Intersection operations to deteriorate to LOS E or F under Project Conditions; or
- A substantial increase in average delay at an intersection operating at LOS E or F.
- For intersections operating at unacceptable levels (LOS E or F), an average delay increase of more than four seconds due to the addition of project related traffic is typically a significant impact. For this analysis, two separate significance criteria were considered, one for City of Fremont locations, and one for Caltrans locations.

a. For the City of Fremont locations, an average delay increase of more than four seconds to intersections operating at LOS E or F intersections was considered a significant impact.

b. For Caltrans locations with an unacceptable LOS (LOS E or F), that LOS must be maintained. Any location with an LOS E or F that was not maintained was considered a significant impact.

The City of Fremont monitors roadway operations at unsignalized intersections and does not apply a significance threshold for acceptable and unacceptable intersection LOS operations for unsignalized intersections. No unsignalized intersections are part of the DRAFT General Plan Update Condition analysis as they are considered for signal warrants on an as needed basis consistent with the California Manual for uniform Traffic Control Devices (MUTCD) and location criteria of the City..

CMP/Roadway Segment Analysis Significance Criteria

The performance standard of a CMP facility is LOS E. An exception is made for roadways that operated at LOS F under the 1991 "baseline" conditions. These roadways were "grandfathered" at LOS F.

ACTC conducts periodic monitoring of the freeways and major roadways in Alameda County. Its latest report was released in July 2009. The monitoring assesses existing operating conditions on freeway segments through "floating car" travel time surveys during the PM peak hours, rather than analyzing volume capacity, which is how future operation conditions are assessed. The travel time surveys are also conducted on selected freeway segments during the AM peak hours. Based on the results of these surveys, ACTC assigns a LOS grade from LOS A to LOS F, according to the methodologies set forth in the 1985 Highway Capacity Manual (HCM). The relationships between speed, volume-to-capacity (v/c) and LOS are shown in **Table 4-7**, above.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update Policies are intended to efficiently manage the City's transportation network, promote the vision of a strategically urban land use pattern, and reduce potentially adverse effects related to transportation and traffic.

- *Policy 3-1.1: Complete Streets.*
- *Policy 3-1.2: Contextual Street Design.*
- *Policy 3-1.3: Transit-Friendly Street Design.*
- *Policy 3-1.5: Improving Pedestrian and Bicycle Circulation.*
- *Policy 3-1.7: Sidewalks.*

- *Policy 3-2.1: Coordinating Land Use and Transportation.*
- *Policy 3-2.2: Reducing Vehicle Trips through Land Use Choices.*
- *Policy 3-2.3: Pedestrian Networks.*
- *Policy 3-3.4: Improving Bicycle Circulation.*
- *Policy 3-2.5: Pedestrian and Bicycle Master Plans.*
- *Policy 3-2.6: Bus Service.*
- *Policy 3-2.7: Transit Provisions in New Development.*
- *Policy 3-2.8: Transfers Between Transit Modes.*
- *Policy 3-2.9: Reducing Single Occupancy Vehicle Commuting.*
- *Policy 3-2.10: Employer-Based Trip Reduction Programs.*
- *Policy 3-2.11: Car-Sharing.*
- *Policy 3-2.12: Shuttle Buses and Circulators.*
- *Policy 3-3.2: Street Connectivity.*
- *Policy 3-3.3: Grade Separations.*
- *Policy 3-3.4: Transportation Systems Management.*
- *Policy 3-3.5: Transportation Infrastructure Maintenance.*
- *Policy 3-3.6: Road Hazards.*
- *Policy 3-3.7: Traffic Safety Monitoring.*
- *Policy 3-3.8: Access Limitations along Parkways and Arterials.*
- *Policy 3-3.9: Planning for Technological Innovation.*
- *Policy 3-3.10: Transportation for Persons with Special Needs.*
- *Policy 3-4.1: Relating Vehicle Speed to Land Use and Community Character.*
- *Policy 3-4.2: Variable Level of Service Standards.*

- *Policy 3-4.3: Allowing Decreased Levels of Vehicle Speed and Convenience.*
- *Policy 3-4.4: Mitigating Development Impacts.*
- *Policy 3-4.5: Traffic Calming.*
- *Policy 3-4.6: Off-Site Impacts of Traffic Calming.*
- *Policy 3-4.7: Transportation and the Environment.*
- *Policy 3-6.2: Truck Routes.*
- *Policy 3-6.3: Trucking and Interstate Highways.*
- *Policy 3-6.4: Industrial Road Upgrades.*
- *Policy 3-6.5: Trucking and Land Use Compatibility.*
- *Policy 9-10.1: Addressing Circulation, Traffic and Parking Issues at Schools.*
- *Policy 11-3.8: Centerville Parking.*
- *Policy 11-4.2: City Center Transportation.*
- *Policy 11-4.11: Making City Center a Pedestrian-Oriented Area.*
- *Policy 11-4.12: BART Access.*
- *Policy 11-4.20: BART Overflow Parking.*
- *Policy 11-5.24: Hill Area Road Standards.*
- *Policy 11-5.25: Hill Area Subdivision Access.*
- *Policy 11-6.5: Irvington's Transportation System.*
- *Policy 11-6.6: Irvington Parking.*
- *Policy 11-6.8: Irvington Station Access.*
- *Policy 11-7.7: Parking.*
- *Policy 11-8.9: Creating a Multi-Modal Transportation Network in Niles.*
- *Policy 11-8.10: Improving Pedestrian and Bicycle Access.*

- *Policy 11-8.11: Parking in Niles.*
- *Policy 11-9.6: Making North Fremont Less Auto-Dependent.*
- *Policy 11-10.7: Connecting South Fremont.*
- *Policy 11-11.3: Improving Connectivity.*
- *Policy 11-11.5: Connecting Warm Springs to Central Fremont.*

## IMPACTS AND MITIGATION MEASURES

Existing General Plan Policy T 1.2.1 (LOS D and v/c 0.85) would be modified by DRAFT General Plan Update Policy 3-4.2 (Variable Level of Service Standards) and Policy 3-4.3 (Allowing Decreased Levels of Vehicle Speed and Convenience), as the proposed DRAFT General Plan Update Policies favor neighborhood quality over speed and convenience.

There are no DRAFT General Plan Update policies similar to existing General Plan Policy T 1.2.8 (Off-Street Parking). DRAFT General Plan Update Policy 3-7.1 takes a different approach to managing on-street parking, and Implementation 2-7.1.B seeks to reduce the prominence of parking in new development.

Year 2035 General Plan Update Condition

*Cumulative Year 2035 General Plan Update Methodology*

Future estimated turning movement volumes under 2035 General Plan Update Conditions were developed using travel demand forecasting tools. Travel forecasts can be developed in several ways. They can be assumed to be added to existing volumes, added to assumptions about background future volumes, or determined by looking at different land use forecasts between scenarios. Each technique has an appropriateness tailored to the questions and scale of the content.

Several different pre-developed tools are available to provide these forecasts. These tools, called travel demand models (more simply “models”), are available on a variety of scales, levels of detail and accuracy, and different types of logic. For Alameda County studies, the Alameda Countywide Travel Demand Forecasting Model provides an important resource of information about countywide travel. This study modified this model to create a new model (Simply called “the Fremont Model”) which increased focus on planned improvements within the City of Fremont. This study used key data from this model, and estimated traffic needs based on the background regional traffic from the model, as well as trip distribution patterns and mode choice percentages forecasted for the City of Fremont as derived from the Fremont Model.

DKS reviewed recent travel forecast model output projections for roadway segments specifically focused within the City of Fremont. From this review, DKS obtained growth projections

(roadway segment link demands) between two years, 2005 and 2035. These growth projections were then used to estimate the reasonable change in traffic volumes between the Existing and 2035 General Plan Conditions.

In order to evaluate year 2035 traffic conditions, as well as provide a basis for comparison of alternative scenario conditions, the 2035 cumulative projections had to be modified by applying the "Furness" method to convert model link demands into individual turning movements at study intersections.

"Furness" Method

Once the cumulative growth was estimated along each of the study roadway locations, the cumulative baseline growth projections were then used to develop 2035 baseline intersection turning movement volumes through the "Furness" method. The "Furness" method involves the conversion of model link volumes to intersection turning movement volumes. DKS applied the "Furness" method with approximately 100 iterations to achieve balancing of link volumes within the roadway network and to generate 2035 cumulative intersection turning movement volumes.

In general, outputs from the travel demand model were not used directly in the traffic analysis. Instead, changes in forecast demand volumes between the base year and the cumulative year as produced by the travel demand model will be added to existing traffic demand volumes. In general, this approach is illustrated in the following equation:

> *Cumulative Year demand = Existing (Observed) demand + (Cumulative Year model forecast – "Current Year" model forecast)*

This process may also be summarized as follows:

1. Generate 2005 and 2035 City of Fremont Model forecasts for each intersection approach and departure link;

2. Compute the model growth for each link (2035 model output minus 2005 model output);

3. Apply Furness methodology to compute individual turning movement demand forecasts using existing turn movement counts and forecast approach and departure link growth from Step 2);

4. Perform reasonableness check and manually adjust volumes where needed.

Because the ACTC 2035 Countywide model, on which the City of Fremont model is based, did not include the extension of BART to Downtown San Jose and the expected changes in the feeder bus network, and the station modes of access not fully defined in the Countywide model, DKS used more refined forecasts of traffic volumes in the south part of Fremont. The BART Warm Springs Extension SEIR looked at these modes of access in depth; and included forecasted

traffic volumes to 2025. Using these forecasts, DKS applied a 1.5 percent per annum growth rate to calculate 2035 traffic volumes. The 1.5 percent growth rate is consistent with prior traffic studies and forecasted growth in Fremont.

The result of this analytical method is a forecasted operational state of the transportation system that accounts for not only effects of new development contemplated by the proposed DRAFT General Plan Update, but also other influences that are beyond the scope or control of the DRAFT General Plan Update itself. These other influences include issues such as regional traffic influences from changes in demographics. Therefore, the comparison of existing condition and project condition is a conservative worst case forecast, and discloses the full difference in operational levels between existing and future conditions. This formulates a comprehensive baseline and impact horizon condition for the purposes of disclosing the impacts of the proposed DRAFT General Plan Update.

**Figure 4.2**, above, illustrates the intersection geometry and traffic control assumed for 2035. **Appendix B (B)** illustrates the Existing Conditions and 2035 General Plan traffic volumes at each study intersection.

**Appendix B(C)** includes the detailed calculation LOS analysis sheets for signalized intersections, including the weekday A.M. and P.M. peak hours. **Appendix B (D)** includes the detailed calculation LOS analysis sheets for unsignalized intersections, including the weekday A.M. and P.M. peak hours.

According to City of Fremont current General Plan signalized intersection LOS standards of D, about two-thirds of the signalized study intersections would operate below acceptable levels of service under the General Plan Update conditions. The General Plan Update Condition intersections levels of service are presented in **Table 4-14** for signalized intersections. The proposed DRAFT General Plan Update Mobility policies modify the expected performance level of some intersections based on their surrounding land use context and types of trips that influence those intersections operations. See additional discussion under *Traffic Congestion* on application of proposed Mobility Goals and Polices

**TABLE 4-14: 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED INTERSECTION LOS SUMMARY**

| # | Intersection | Peak | General Plan Update | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 1. | Alvarado Blvd / Deep Creek Rd | A.M. | **76.9** | **E** |
| | | P.M. | 46.3 | D |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | A.M. | 21.0 | C |
| | | P.M. | 19.0 | B |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 35.4 | D |
| | | P.M. | **80.3** | **F** |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | **156.9** | **F** |
| | | P.M. | **123.5** | **F** |
| 5. | Fremont Blvd / Decoto Rd | A.M. | **105.4** | **F** |
| | | P.M. | **107.1** | **F** |
| 6. | I-880 NB Ramps / Decoto Rd | A.M. | **167.1** | **F** |
| | | P.M. | **67.4** | **E** |
| 7. | I-880 SB Ramps / Decoto Rd | A.M. | **94.9** | **F** |
| | | P.M. | 14.7 | B |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | A.M. | 20.1 | C |
| | | P.M. | 18.1 | B |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps | A.M. | 16.2 | B |
| | | P.M. | 8.8 | A |
| 10. | Thornton Ave / SR-84 EB Ramps | A.M. | 38.8 | D |
| | | P.M. | 28.6 | C |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | **143.5** | **F** |
| | | P.M. | **152.5** | **F** |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | **217.5** | **F** |
| | | P.M. | **146.0** | **F** |
| 13. | Fremont Blvd / Thornton Ave | A.M. | 28.2 | C |
| | | P.M. | 32.3 | C |
| 14. | I-880 NB off-ramp/Thornton Ave | A.M. | 7.9 | A |
| | | P.M. | 37.1 | D |
| 15. | Fremont Blvd / Peralta Blvd | A.M. | 23.5 | C |
| | | P.M. | **72.7** | **E** |
| 16. | Fremont Blvd / Central Ave | A.M. | **121.5** | **F** |
| | | P.M. | **109.9** | **F** |
| 17. | Central Ave / Blacow Rd | A.M. | 36.1 | D |
| | | P.M. | 32.7 | C |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | **68.8** | **E** |
| | | P.M. | **164.7** | **F** |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 4-14: 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | General Plan Update | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 19. | Peralta Blvd / Mowry Ave | A.M. | 11.0 | B |
| | | P.M. | 13.1 | B |
| 20. | Civic Center Dr / Mowry Ave | A.M. | 21.4 | C |
| | | P.M. | 26.4 | C |
| 21. | Paseo Padre Pkwy / Mowry Ave | A.M. | **107.0** | **F** |
| | | P.M. | **94.1** | **F** |
| 22. | Fremont Blvd / Mowry Ave | A.M. | **71.2** | **E** |
| | | P.M. | **123.1** | **F** |
| 23. | Argonaut Way / Mowry Ave | A.M. | 19.3 | B |
| | | P.M. | 36.5 | D |
| 24. | Blacow Rd / Mowry Ave | A.M. | **81.7** | **F** |
| | | P.M. | **93.4** | **F** |
| 25. | Farwell Dr / Mowry Ave | A.M. | **59.5** | **E** |
| | | P.M. | 49.1 | D |
| 26. | I-880 NB off-ramp / Mowry Ave | A.M. | 9.9 | A |
| | | P.M. | 26.5 | C |
| 27. | I-880 SB off ramp / Mowry Ave | A.M. | 39.3 | D |
| | | P.M. | 25.0 | C |
| 28. | Mission Blvd / Niles Canyon Rd | A.M. | **307.7** | **F** |
| | | P.M. | **215.2** | **F** |
| 29. | Mission Blvd / Mowry Ave | A.M. | **250.0** | **F** |
| | | P.M. | **242.3** | **F** |
| 30. | Mission Blvd / Walnut Ave | A.M. | **107.2** | **F** |
| | | P.M. | **91.1** | **F** |
| 31. | Civic Center Dr / Walnut Ave | A.M. | 21.7 | C |
| | | P.M. | 31.7 | C |
| 32. | Paseo Padre Pkwy / Walnut Ave | A.M. | 29.3 | C |
| | | P.M. | 41.8 | D |
| 33. | Fremont Blvd / Walnut Ave | A.M. | 21.8 | C |
| | | P.M. | 33.4 | C |
| 34. | Mission Blvd / Stevenson Blvd | A.M. | **106.0** | **F** |
| | | P.M. | **130.5** | **F** |
| 35. | Paseo Padre Pkwy / Stevenson Blvd | A.M. | 35.0 | C |
| | | P.M. | 34.5 | C |
| 36. | Fremont Blvd / Stevenson Blvd | A.M. | 32.9 | C |
| | | P.M. | 29.2 | C |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 4-14: 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | General Plan Update | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 37. | Blacow Rd / Stevenson Blvd | A.M. | **83.7** | **F** |
| | | P.M. | **131.5** | **F** |
| 38. | I-880 NB Ramps / Stevenson Blvd | A.M. | 7.7 | A |
| | | P.M. | 12.6 | B |
| 39. | I-880 SB Ramps / Stevenson Blvd | A.M. | 8.5 | A |
| | | P.M. | 9.5 | A |
| 40. | Albrae St / Stevenson Blvd | A.M. | 27.9 | C |
| | | P.M. | 42.3 | D |
| 41. | Cherry St - Boyce Rd / Stevenson Blvd | A.M. | 28.4 | C |
| | | P.M. | 20.9 | C |
| 42. | Fremont Blvd / Grimmer Blvd | A.M. | 47.0 | D |
| | | P.M. | **56.7** | **E** |
| 43. | Blacow Rd / Grimmer Blvd | A.M. | **157.1** | **F** |
| | | P.M. | **80.1** | **F** |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M. | 47.7 | D |
| | | P.M. | **103.4** | **F** |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | A.M. | 4.9 | A |
| | | P.M. | 10.9 | B |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | A.M. | 9.4 | A |
| | | P.M. | 11.8 | B |
| 47. | Christy St / Auto Mall Pkwy | A.M. | 25.4 | C |
| | | P.M. | 40.3 | D |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M. | **143.7** | **F** |
| | | P.M. | **204.6** | **F** |
| 49. | Fremont Blvd / Blacow Rd | A.M. | 10.8 | B |
| | | P.M. | 17.5 | B |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M. | **90.3** | **F** |
| | | P.M. | **175.1** | **F** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M. | **186.8** | **F** |
| | | P.M. | 32.4 | C |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | A.M. | 29.9 | C |
| | | P.M. | 4.7 | A |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | A.M. | **94.2** | **F** |
| | | P.M. | 7.3 | A |
| 54. | Fremont Blvd / Cushing Pkwy | A.M. | 27.8 | C |
| | | P.M. | 13.6 | B |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 4-14: 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | General Plan Update | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M. | **65.1** | **E** |
| | | P.M. | **61.2** | **E** |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M. | **182.6** | **F** |
| | | P.M. | **252.9** | **F** |
| 57. | I-680 SB Ramps / Durham Rd | A.M. | 37.1 | D |
| | | P.M. | **129.2** | **F** |
| 58. | I-680 NB Ramps / Durham Rd | A.M. | 20.7 | C |
| | | P.M. | 16.7 | B |
| 59. | Mission Blvd (north) / I-680 SB Ramps | A.M. | 1.3 | A |
| | | P.M. | 35.6 | D |
| 60. | Mission Blvd (north) / I-680 NB Ramps | A.M. | 34.2 | C |
| | | P.M. | 38.6 | D |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M. | **352.3** | **F** |
| | | P.M. | **410.5** | **F** |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | A.M. | **405.9** | **F** |
| | | P.M. | **395.0** | **F** |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M. | **69.0** | **E** |
| | | P.M. | 45.8 | D |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M. | **167.6** | **F** |
| | | P.M. | **195.8** | **F** |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | A.M. | 23.2 | C |
| | | P.M. | 20.5 | C |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | A.M. | **62.5** | **E** |
| | | P.M. | **68.3** | **E** |

Notes: Delay: in seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

## CMP/Roadway Segment Analysis

For the purposes of the CMA analysis, operations of the freeway segments were evaluated using a volume-to-capacity (v/c) ratio methodology. For freeway segments, a per-lane capacity of 2,000 vehicles per hour (vph) was assumed. For other roadway segments, a per-lane capacity of 800 vehicles per hour was assumed. Roadway segments with a v/c ratio greater than 1.00 signify an LOS of F.

Arterial segments in the City of Fremont were evaluated based on the estimated speed relationships shown in **Table 4-8**, above. **Appendix B (F)** includes the existing, Year 2035 General Plan Update roadway segments operational analysis. Freeway segments in Santa Clara County were evaluated based on the density relationships shown in **Table 4-10**, above.

**Table 4-15** summarizes the freeway segment LOS in Alameda County. **Table 4-16** summarizes the freeway segment LOS in Santa Clara County. **Table 4-20** summarizes the arterial LOS results for roadways within Fremont.

**TABLE 4-15: 2035 GENERAL PLAN UPDATE ALAMEDA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Peak Period | General Plan Update | |
|---|---|---|---|---|---|---|
| | | | | | V/C | LOS |
| 1. | I-680 – NB | Scott Creek Rd | Mission Blvd (SR-262) | A.M. | 0.70 | C |
| | | | | P.M. | **1.24** | **F** |
| 2. | I-680 – NB | Mission Blvd (SR-262) | Durham Road | A.M. | 0.69 | C |
| | | | | P.M. | **1.24** | **F** |
| 3. | I-680 – NB | Durham Rd | Washington Blvd | A.M. | 0.60 | C |
| | | | | P.M. | **1.23** | **F** |
| 4. | I-680 – NB | Washington Blvd | Mission Blvd (SR-238) | A.M. | 0.60 | C |
| | | | | P.M. | **1.21** | **F** |
| 5. | I-680 – SB | Mission Blvd (SR-238) | Washington Blvd | A.M. | **1.50** | **F** |
| | | | | P.M. | 0.76 | D |
| 6. | I-680 – SB | Washington Blvd | Durham Rd | A.M. | **1.23** | **F** |
| | | | | P.M. | 0.63 | C |
| 7. | I-680 – SB | Durham Rd | Mission Blvd (SR-262) | A.M. | **1.25** | **F** |
| | | | | P.M. | 0.72 | C |
| 8. | I-680 – SB | Mission Blvd (SR-262) | Scott Creek Rd | A.M. | **1.34** | **F** |
| | | | | P.M. | 0.73 | C |
| 9. | I-880 – NB | Dixon Landing Rd | Mission Blvd (SR-262) | A.M. | 0.70 | C |
| | | | | P.M. | **1.13** | **F** |
| 10. | I-880 – NB | Mission Blvd (SR-262) | Auto Mall Pkwy | A.M. | 0.77 | D |
| | | | | P.M. | **1.45** | **F** |
| 11. | I-880 – NB | Auto Mall Pkwy | Stevenson Blvd | A.M. | 0.87 | D |
| | | | | P.M. | **1.50** | **F** |
| 12. | I-880 – NB | Stevenson Blvd | Decoto Rd | A.M. | 0.83 | D |
| | | | | P.M. | **1.02** | **F** |
| 13. | I-880 – NB | Decoto Rd | Alvarado Blvd | A.M. | 0.84 | D |
| | | | | P.M. | **1.12** | **F** |
| 14. | I-880 – SB | Alvarado Blvd | Decoto Rd | A.M. | **1.36** | **F** |
| | | | | P.M. | 0.90 | D |
| 15. | I-880 – NB | Alvarado Blvd | Alvarado-Niles Blvd | A.M. | 0.94 | E |
| | | | | P.M. | **1.12** | **F** |
| 16. | I-880 – SB | Decoto Rd | Stevenson Blvd | A.M. | **1.08** | **F** |
| | | | | P.M. | 0.88 | D |
| 17. | I-880 – SB | Stevenson Blvd | Auto Mall Parkway | A.M. | **1.36** | **F** |
| | | | | P.M. | 0.72 | C |
| 18. | I-880 – SB | Auto Mall Pkwy | Mission Blvd (SR-262) | A.M. | **1.32** | **F** |
| | | | | P.M. | 0.56 | B |
| 19. | I-880 – SB | Mission Blvd (SR-262) | Dixon Landing Rd off-ramp | A.M. | 0.87 | D |
| | | | | P.M. | 0.45 | B |
| 20. | SR 84 – EB | Thornton Ave | Ardenwood Blvd | A.M. | 0.40 | B |
| | | | | P.M. | **1.11** | **F** |
| 21. | SR 84 – EB | Toll Plaza | Thornton Ave | A.M. | 0.50 | B |
| | | | | P.M. | **1.35** | **F** |
| 22. | SR 84 – WB | Thornton Ave | Toll Plaza | A.M. | **1.17** | **F** |
| | | | | P.M. | 0.49 | B |

Notes: V/C: Volume:Capacity Ratio LOS: Level of Service Segments operating at capacity at LOS F are in bold. V/C based Link Volumes directly from Travel Demand Models.

**TABLE 4-16: 2035 GENERAL PLAN UPDATE SANTA CLARA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Lane Type | Peak Period | General Plan Update | |
|---|---|---|---|---|---|---|---|
| | | | | | | Density | LOS |
| 1. | I-680 - NB | Calaveras Blvd/SR-237 | Jacklin Rd | Mixed | A.M. | 30.0 | D |
| | | | | | P.M. | 31.7 | D |
| 2. | I-680 - SB | Jacklin Rd | Calaveras Blvd/SR-237 | Mixed | A.M. | **76.2** | **F** |
| | | | | | P.M. | 27.4 | D |
| | | | | HOV | A.M. | 43.5 | D |
| | | | | | P.M. | 2.4 | A |
| 3. | I-680 - NB | Jacklin Rd | Scott Creek Rd | Mixed | A.M. | 23.8 | C |
| | | | | | P.M. | 35.6 | D |
| 4. | I-680 - SB | Scott Creek Rd | Jacklin Rd | Mixed | A.M. | **46.3** | **E** |
| | | | | | P.M. | 27.5 | D |
| | | | | HOV | A.M. | 43.2 | D |
| | | | | | P.M. | 2.1 | A |
| 5. | SR-237 – WB | I-880 | McCarthy Blvd | Mixed | A.M. | 24.7 | C |
| | | | | | P.M. | 11.1 | B |
| 6. | SR-237 - EB | McCarthy Blvd | I-880 | Mixed | A.M. | 17.6 | B |
| | | | | | P.M. | 31.7 | D |
| | | | | HOV | A.M. | N/A | N/A |
| | | | | | P.M. | N/A | N/A |
| 7. | SR-237 – WB | McCarthy Blvd | Zanker Rd | Mixed | A.M. | 35.4 | D |
| | | | | | P.M. | 18.6 | C |
| | | | | HOV | A.M. | 31.3 | D |
| | | | | | P.M. | 9.0 | A |
| 8. | SR-237 - EB | Zanker Rd | McCarthy Blvd | Mixed | A.M. | 29.1 | D |
| | | | | | P.M. | **72.7** | **F** |
| | | | | HOV | A.M. | 8.6 | A |
| | | | | | P.M. | **46.1** | **E** |
| 9. | SR-237 – WB | Zanker Rd | N. First St | Mixed | A.M. | 39.9 | D |
| | | | | | P.M. | 21.4 | C |
| | | | | HOV | A.M. | 37.0 | D |
| | | | | | P.M. | 8.8 | A |
| 10. | SR-237 - EB | N. First St | Zanker Rd | Mixed | A.M. | 14.7 | B |
| | | | | | P.M. | 31.3 | D |
| | | | | HOV | A.M. | 8.8 | A |
| | | | | | P.M. | 32.4 | D |
| 11. | I-880 - NB | SR-237 | Dixon Landing Rd | Mixed | A.M. | 19.4 | C |
| | | | | | P.M. | **46.6** | **E** |
| | | | | HOV | A.M. | 20.5 | C |
| | | | | | P.M. | 31.4 | D |
| 12. | I-880 - SB | Dixon Landing Rd | SR-237 | Mixed | A.M. | 38.6 | D |
| | | | | | P.M. | 11.8 | B |
| | | | | HOV | A.M. | 33.5 | D |
| | | | | | P.M. | 15.0 | B |

Notes: LOS: Level of Service  Segments operating below acceptable LOS D are in bold. Existing LOS based on 2009 VTA CMP Published results

**TABLE 4-17: 2035 GENERAL PLAN UPDATE CITY OF FREMONT STUDY ARTERIAL SEGMENTS LOS SUMMARY**

| # | Roadway Segment | From | To | Peak Period | General Plan Update | |
|---|---|---|---|---|---|---|
| | | | | | Speed | LOS |
| 1. | Mowry Ave - EB | I-880 | Farwell Dr | A.M. | 35 | A |
| | | | | P.M. | 12 | E |
| 2. | Mowry Ave - EB | Farwell Dr | SR-84 | A.M. | 34 | A |
| | | | | P.M. | **5** | **F** |
| 3. | Mowry Ave - WB | SR-84 | Farwell Dr | A.M. | 23 | C |
| | | | | P.M. | 33 | A |
| 4. | Mowry Ave - WB | Farwell Dr | I-880 | A.M. | 11 | E |
| | | | | P.M. | 33 | A |
| 5. | SR 84 / Mowry Ave (Fre) - WB | SR-238 | Peralta Blvd | A.M. | 25 | C |
| | | | | P.M. | 28 | C |
| 6. | SR 84 / Peralta Blvd (Fre) - WB | Mowry Ave | Fremont Blvd | A.M. | 40 | A |
| | | | | P.M. | 39 | A |
| 7. | SR 84 / Fremont Blvd (Fre) - WB | Peralta Blvd | Thornton Ave | A.M. | 35 | A |
| | | | | P.M. | 34 | A |
| 8. | SR 84 / Thornton Ave - WB | Fremont Blvd | I-880 SB | A.M. | 35 | A |
| | | | | P.M. | 31 | A |
| 9. | SR 84 / Thornton Ave - EB | I-880 SB Ramps | Fremont Blvd | A.M. | 34 | A |
| | | | | P.M. | 34 | A |
| 10. | SR 84 / Fremont Blvd (Fre) - EB | Thornton Ave | Peralta Blvd | A.M. | 34 | A |
| | | | | P.M. | 35 | A |
| 11. | SR 84 / Peralta Blvd (Fre) - EB | Fremont Blvd | Mowry Ave | A.M. | 40 | A |
| | | | | P.M. | 39 | A |
| 12. | SR 84 / Mowry Ave (Fre) - EB | Peralta Blvd | SR-238 | A.M. | 37 | A |
| | | | | P.M. | 18 | D |
| 13. | SR 238 (Mission Blvd ) - SB | Nursery Ave | Stevenson Blvd | A.M. | 18 | D |
| | | | | P.M. | **12** | **F** |
| 14. | SR 238 (Mission Blvd ) - SB | Stevenson Blvd | I-680 NB Ramp | A.M. | **6** | **F** |
| | | | | P.M. | 13 | E |
| 15. | SR 262 (Mission Blvd ) - EB | I-880 NB Ramps | I-680 NB Ramps | A.M. | 23 | C |
| | | | | P.M. | **8** | **F** |
| 16. | SR 262 (Mission Blvd ) - WB | I-680 NB Ramps | I-880 SB Ramps | A.M. | 22 | D |
| | | | | P.M. | 39 | A |
| 17. | Decoto Rd – WB | Fremont City Limits | I-880 NB Ramps | A.M. | 34 | B |
| | | | | P.M. | 39 | A |
| 18. | Decoto Rd – EB | I-880 NB Ramps | Fremont City Limits | A.M. | 38 | A |
| | | | | P.M. | 19 | D |
| 19. | SR 238 (Mission Blvd) – NB | I-680 NB Ramps | Stevenson Blvd | A.M. | **2** | **F** |
| | | | | P.M. | **9** | **F** |
| 20. | SR 238 (Mission Blvd) – NB | Stevenson Blvd | Nursery Ave | A.M. | **1** | **F** |
| | | | | P.M. | **8** | **F** |

Notes: Speed: MPH LOS: Level of Service Segments operating below acceptable LOS E are in bold. V/C based Link Volumes directly from Travel Demand Models.

Travel Demand Model Performance Measures

Three performance measures are used in this analysis to compare the Travel Demand Model results across various scenarios. The performance measures are intended to weigh approximate change in citywide and countywide distance traversed, delay and average speeds. These measures are Vehicles Miles Traveled (VMT), Vehicle Hours Traveled (VHT), and Average Vehicle Speed.

**Table 4-18** shows a summary of Vehicles Miles Traveled (VMT), Vehicle Hours Traveled (VHT) and Average Speed for the 2005 base year and for 2035 under the General Plan Update.

**TABLE 4-18: VMT – VHT – AVERAGE SPEED COMPARISON FOR CITY OF FREMONT TDM**

| # | Description | Period | 2005 Base Year | | | 2035 General Plan Update | | |
|---|---|---|---|---|---|---|---|---|
| | | | VMT (veh-miles) | VHT (veh-hrs) | Avg. Speed (MPH) | VMT (veh-miles) | VHT (veh-hrs) | Avg. Speed (MPH) |
| 1. | Alameda Countywide | Daily | 35,942,039 | 870,427 | 41.29 | 57,783,238 | 2,123,515 | 27.21 |
| | | A.M. Pk Hr | 2,485,450 | 75,332 | 32.99 | 4,175,467 | 327,498 | 12.75 |
| | | P.M. Pk Hr | 2,657,547 | 81,968 | 32.42 | 4,194,895 | 259,969 | 16.14 |
| 2. | Within City of Fremont Limits | Daily | 6,703,741 | 159,660 | 41.99 | 10,758,080 | 418,304 | 25.72 |
| | | A.M. Pk Hr | 447,423 | 13,724 | 32.60 | 722,315 | 60,620 | 11.92 |
| | | P.M. Pk Hr | 480,982 | 15,990 | 30.08 | 750,739 | 53,732 | 13.97 |

Traffic Congestion

**Table 4-19** provides an LOS comparison for A.M., and P.M. peak hours, respectively, to determine significance criteria and DRAFT General Plan Update impacts, if any. This Table also compares Significance based on the current General Plan LOS D Threshold criteria. The proposed DRAFT General Plan Update includes Mobility Goals and Policies that rely less on vehicle LOS as a performance measure for the transportation system[5]. To further these policies, the signalized intersections within future Priority Development Areas (PDA) and on regional roadways would have a threshold of LOS E under the DRAFT General Plan Update. All of the other signalized intersections would have a threshold of LOS D. Mitigation measures were

[5] The combination of Goals and Policies of the Mobility Element is to promote alternative forms of transportation, promote enhanced multi-modal services, support land use and community character objectives, and efficiently manage the City's transportation network. The emphasis on balance in the Mobility Element is highlighted by Policy 3-1.1 for Complete Streets, and Policy 3-4.2 and Policy 3-4.3 which articulate variable LOS standards and that vehicles operations and LOS are not sole consideration for evaluating projects.

designed to mitigate impacts consistent with the proposed DRAFT General Plan policies for transportation management.

**Table 4-20** provides a summary of the mitigated levels of service and level of significance after mitigation. **Figure 4.3** show the proposed mitigated geometry at study intersections where modifications are recommended. **Appendix B (I)** shows the detailed intersection Level of Service calculations for the mitigated conditions.

**Impact TRA-1: Unacceptable Level of Service at Alvarado Boulevard/Deep Creek Road Intersection (#1).** During the A.M. peak hour, the addition of Draft General Plan Update-related traffic would result in a significant impact at the intersection of Alvarado Boulevard/Deep Creek Road. The intersection of Alvarado Boulevard/Deep Creek Road is LOS C under the Existing Condition, and would deteriorate to LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**.

**Mitigation TRA-1: Modification of Alvarado Boulevard/Deep Creek Road Intersection (#1).** By modifying the intersection as shown in **Figure 4.3**, the intersection average delay for the A.M. peak hour would improve from 76.9 seconds to 66.4 seconds. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the LOS would remain at LOS E. Further modifications to the intersection cannot be recommended due to the fact that improvements would be made by another agency, and due to the proximity of private homes or the adjacent I-880 overpass structure. Therefore, this would remain a ***significant and unavoidable*** impact following implementation of **Mitigation TRA-1**.

**Impact TRA-2: Unacceptable Level of Service at Fremont Boulevard/Paseo Padre Parkway Intersection (#3).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Paseo Padre Parkway. The intersection of Fremont Boulevard/Paseo Padre Parkway is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**TABLE 4-19: YEAR 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED LOS COMPARISON**

| # | Intersection | Peak | Existing | | General Plan Update | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 1. | Alvarado Blvd / Deep Creek Rd | A.M. | 25.3 | C | **76.9** | **E** | 51.6 | **YES** | **YES** |
| | | P.M. | 26.1 | B | 46.3 | D | 20.2 | NO | NO |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | A.M. | 17.5 | B | 21.0 | C | 3.5 | NO | NO |
| | | P.M. | 21.6 | C | 19.0 | B | -2.6 | NO | NO |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 40.3 | D | 35.4 | D | -4.9 | NO | NO |
| | | P.M. | 42.4 | D | **80.3** | **F** | 37.9 | **YES** | **YES** |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | 44.2 | D | **156.9** | **F** | 112.7 | **YES** | **YES** |
| | | P.M. | 45.3 | D | **123.5** | **F** | 78.2 | **YES** | **YES** |
| 5. | Fremont Blvd / Decoto Rd | A.M. | 43.8 | D | **105.4** | **F** | 61.6 | **YES** | **YES** |
| | | P.M. | 41.7 | D | **107.1** | **F** | 65.4 | **YES** | **YES** |
| 6. | I-880 NB Ramps / Decoto Rd | A.M. | 35.5 | D | **167.1** | **F** | 131.6 | **YES** | **YES** |
| | | P.M. | 19.8 | B | **67.4** | **E** | 47.6 | **YES** | **YES** |
| 7. | I-880 SB Ramps / Decoto Rd | A.M. | 25.5 | C | **94.9** | **F** | 69.4 | **YES** | **YES** |
| | | P.M. | 14.2 | B | 14.7 | B | 0.5 | NO | NO |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | A.M. | 23.1 | C | 20.1 | C | -3.0 | NO | NO |
| | | P.M. | 17.0 | B | 18.1 | B | 1.1 | NO | NO |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps | A.M. | N/A | N/A | 16.2 | B | 16.2 | NO | NO |
| | | P.M. | N/A | N/A | 8.8 | A | 8.8 | NO | NO |
| 10. | Thornton Ave / SR-84 EB Ramps | A.M. | N/A | N/A | 38.8 | D | 38.8 | NO | NO |
| | | P.M. | N/A | N/A | 28.6 | C | 28.6 | NO | NO |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | 31.9 | C | **143.5** | **F** | 111.6 | **YES** | **YES** |
| | | P.M. | 31.3 | C | **152.5** | **F** | 121.2 | **YES** | **YES** |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | 50.3 | D | **217.5** | **F** | 167.2 | **YES** | **YES** |
| | | P.M. | 38.8 | D | **146.0** | **F** | 107.2 | **YES** | **YES** |
| 13. | Fremont Blvd / Thornton Ave | A.M. | 34.3 | C | 28.2 | C | -6.1 | NO | NO |
| | | P.M. | 38.0 | D | 32.3 | C | -5.7 | NO | NO |
| 14. | I-880 NB off-ramp/Thornton Ave | A.M. | 7.2 | A | 7.9 | A | 0.7 | NO | NO |
| | | P.M. | 35.9 | D | 37.1 | D | 1.2 | NO | NO |
| 15. | Fremont Blvd / Peralta Blvd | A.M. | 26.6 | C | 23.5 | C | -3.1 | NO | NO |
| | | P.M. | 32.4 | C | **72.7** | **E** | 40.3 | **YES** | NO |
| 16. | Fremont Blvd / Central Ave | A.M. | 28.9 | C | **121.5** | **F** | 92.6 | **YES** | **YES** |
| | | P.M. | 35.0 | C | **109.9** | **F** | 74.9 | **YES** | **YES** |
| 17. | Central Ave / Blacow Rd | A.M. | 29.1 | C | 36.1 | D | 7.0 | NO | NO |
| | | P.M. | 31.8 | C | 32.7 | C | 0.9 | NO | NO |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | 40.3 | D | **68.8** | **E** | 28.5 | **YES** | NO |
| | | P.M. | 51.3 | D | **164.7** | **F** | 113.4 | **YES** | **YES** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable
1991 GP LOS D are in bold na: not applicable -

**TABLE 4-19: YEAR 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED LOS COMPARISON (CONTINUED)**

| # | Intersection | Peak | Existing | | General Plan Update | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 19. | Peralta Blvd / Mowry Ave | A.M | 15.1 | B | 11.0 | B | -4.1 | NO | NO |
| | | P.M | 15.4 | B | 13.1 | B | -2.3 | NO | NO |
| 20. | Civic Center Dr / Mowry Ave | A.M | 29.2 | C | 21.4 | C | -7.8 | NO | NO |
| | | P.M | 30.0 | C | 26.4 | C | -3.6 | NO | NO |
| 21. | Paseo Padre Pkwy / Mowry Ave | A.M | 40.3 | D | **107.0** | **F** | 66.7 | **YES** | **YES** |
| | | P.M | 38.4 | D | **94.1** | **F** | 55.7 | **YES** | **YES** |
| 22. | Fremont Blvd / Mowry Ave | A.M | 38.0 | D | **71.2** | **E** | 33.2 | **YES** | NO |
| | | P.M | 48.3 | D | **123.1** | **F** | 74.8 | **YES** | **YES** |
| 23. | Argonaut Way / Mowry Ave | A.M | 21.1 | C | 19.3 | B | -1.8 | NO | NO |
| | | P.M | 32.7 | C | 36.5 | D | 3.8 | NO | NO |
| 24. | Blacow Rd / Mowry Ave | A.M | 31.0 | C | **81.7** | **F** | 50.7 | **YES** | **YES** |
| | | P.M | 33.7 | C | **93.4** | **F** | 59.7 | **YES** | **YES** |
| 25. | Farwell Dr / Mowry Ave | A.M | 27.2 | C | **59.5** | **E** | 32.3 | **YES** | NO |
| | | P.M | 35.3 | D | 49.1 | D | 13.8 | NO | NO |
| 26. | I-880 NB off-ramp / Mowry Ave | A.M | 12.7 | B | 9.9 | A | -2.8 | NO | NO |
| | | P.M | 15.7 | B | 26.5 | C | 10.8 | NO | NO |
| 27. | I-880 SB off ramp / Mowry Ave | A.M | 12.5 | B | 39.3 | D | 26.8 | NO | NO |
| | | P.M | 16.2 | B | 25.0 | C | 8.8 | NO | NO |
| 28. | Mission Blvd / Niles Canyon Rd | A.M | 50.3 | D | **307.7** | **F** | 257.4 | **YES** | **YES** |
| | | P.M | **58.3** | **E** | **215.2** | **F** | 156.9 | **YES** | **YES** |
| 29. | Mission Blvd / Mowry Ave | A.M | **104.7** | **F** | **250.0** | **F** | 145.3 | **YES** | **YES** |
| | | P.M | **89.5** | **F** | **242.3** | **F** | 152.8 | **YES** | **YES** |
| 30. | Mission Blvd / Walnut Ave | A.M | 32.7 | C | **107.2** | **F** | 74.5 | **YES** | **YES** |
| | | P.M | 27.6 | C | **91.1** | **F** | 63.5 | **YES** | **YES** |
| 31. | Civic Center Dr / Walnut Ave | A.M | 30.2 | C | 21.7 | C | -8.5 | NO | NO |
| | | P.M | 31.8 | C | 31.7 | C | -0.1 | NO | NO |
| 32. | Paseo Padre Pkwy / Walnut Ave | A.M | 33.3 | C | 29.3 | C | -4.0 | NO | NO |
| | | P.M | 42.0 | D | 41.8 | D | -0.2 | NO | NO |
| 33. | Fremont Blvd / Walnut Ave | A.M | 39.2 | D | 21.8 | C | -17.4 | NO | NO |
| | | P.M | 50.8 | D | 33.4 | C | -17.4 | NO | NO |
| 34. | Mission Blvd / Stevenson Blvd | A.M | 30.3 | C | **106.0** | **F** | 75.7 | **YES** | **YES** |
| | | P.M | 27.4 | C | **130.5** | **F** | 103.1 | **YES** | **YES** |
| 35. | Paseo Padre Pkwy / Stevenson Blvd | A.M | 43.2 | D | 35.0 | C | -8.2 | NO | NO |
| | | P.M | 43.7 | D | 34.5 | C | -9.2 | NO | NO |
| 36. | Fremont Blvd / Stevenson Blvd | A.M | 37.6 | D | 32.9 | C | -4.7 | NO | NO |
| | | P.M | 39.8 | D | 29.2 | C | -10.6 | NO | NO |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable 1991 GP LOS D are in bold na: not applicable -

**TABLE 4-19: YEAR 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED LOS COMPARISON (CONTINUED)**

| # | Intersection | Peak | Existing | | General Plan Update | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 37. | Blacow Rd / Stevenson Blvd | A.M | **57.9** | **E** | **83.7** | **F** | 25.8 | **YES** | **YES** |
| | | P.M | **119.9** | **F** | **131.5** | **F** | 11.6 | **YES** | **YES** |
| 38. | I-880 NB Ramps / Stevenson Blvd | A.M | 13.0 | B | 7.7 | A | -5.3 | NO | NO |
| | | P.M | 14.5 | B | 12.6 | B | -1.9 | NO | NO |
| 39. | I-880 SB Ramps / Stevenson Blvd | A.M | 13.7 | B | 8.5 | A | -5.2 | NO | NO |
| | | P.M | 14.8 | B | 9.5 | A | -5.3 | NO | NO |
| 40. | Albrae St / Stevenson Blvd | A.M | 25.2 | C | 27.9 | C | 2.7 | NO | NO |
| | | P.M | 36.0 | D | 42.3 | D | 6.3 | NO | NO |
| 41. | Cherry St - Boyce Rd / Stevenson Blvd | A.M | 39.0 | D | 28.4 | C | -10.6 | NO | NO |
| | | P.M | 26.9 | C | 20.9 | C | -6.0 | NO | NO |
| 42. | Fremont Blvd / Grimmer Blvd | A.M | 38.3 | D | 47.0 | D | 8.7 | NO | NO |
| | | P.M | 37.6 | D | **56.7** | **E** | 19.1 | **YES** | **YES** |
| 43. | Blacow Rd / Grimmer Blvd | A.M | **96.2** | **F** | **157.1** | **F** | 60.9 | **YES** | **YES** |
| | | P.M | 49.6 | D | **80.1** | **F** | 30.5 | **YES** | **YES** |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M | 38.8 | D | 47.7 | D | 8.9 | NO | NO |
| | | P.M | 43.1 | D | **103.4** | **F** | 60.3 | **YES** | **YES** |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | A.M | 9.3 | A | 4.9 | A | -4.4 | NO | NO |
| | | P.M | 8.6 | A | 10.9 | B | 2.3 | NO | NO |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | A.M | 12.8 | B | 9.4 | A | -3.4 | NO | NO |
| | | P.M | 12.3 | B | 11.8 | B | -0.5 | NO | NO |
| 47. | Christy St / Auto Mall Pkwy | A.M | 25.5 | C | 25.4 | C | -0.1 | NO | NO |
| | | P.M | 36.1 | D | 40.3 | D | 4.2 | NO | NO |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M | 25.2 | C | **143.7** | **F** | 118.5 | **YES** | **YES** |
| | | P.M | 30.8 | C | **204.6** | **F** | 173.8 | **YES** | **YES** |
| 49. | Fremont Blvd / Blacow Rd | A.M | 41.4 | D | 10.8 | B | -30.6 | NO | NO |
| | | P.M | 32.5 | C | 17.5 | B | -15.0 | NO | NO |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M | 40.5 | D | **90.3** | **F** | 49.8 | **YES** | **YES** |
| | | P.M | **55.8** | **E** | **175.1** | **F** | 119.3 | **YES** | **YES** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M | 43.3 | D | **186.8** | **F** | 143.5 | **YES** | **YES** |
| | | P.M | 38.2 | D | 32.4 | C | -5.8 | NO | NO |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | A.M | 19.2 | B | 29.9 | C | 10.7 | NO | NO |
| | | P.M | 8.7 | A | 4.7 | A | -4.0 | NO | NO |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | A.M | 10.7 | B | **94.2** | **F** | 83.5 | **YES** | **YES** |
| | | P.M | 6.6 | A | 7.3 | A | 0.7 | NO | NO |
| 54. | Fremont Blvd / Cushing Pkwy | A.M | 21.6 | C | 27.8 | C | 6.2 | NO | NO |
| | | P.M | 18.9 | B | 13.6 | B | -5.3 | NO | NO |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable 1991 GP LOS D are in bold na: not applicable -

**TABLE 4-19: YEAR 2035 GENERAL PLAN UPDATE CONDITION SIGNALIZED LOS COMPARISON (CONTINUED)**

| # | Intersection | Peak | Existing | | General Plan Update | | ☐ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M | 34.3 | C | **65.1** | **E** | 30.8 | **YES** | **YES** |
| | | P.M | 30.6 | C | **61.2** | **E** | 30.6 | **YES** | **YES** |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M | **67.2** | **E** | **182.6** | **F** | 115.4 | **YES** | **YES** |
| | | P.M | **100.1** | **F** | **252.9** | **F** | 152.8 | **YES** | **YES** |
| 57. | I-680 SB Ramps / Durham Rd | A.M | 31.7 | C | 37.1 | D | 5.4 | NO | NO |
| | | P.M | 11.5 | B | **129.2** | **F** | 117.7 | **YES** | **YES** |
| 58. | I-680 NB Ramps / Durham Rd | A.M | 17.3 | B | 20.7 | C | 3.4 | NO | NO |
| | | P.M | 16.5 | B | 16.7 | B | 0.2 | NO | NO |
| 59. | Mission Blvd (north) / I-680 SB Ramps | A.M | 12.5 | C | 1.3 | A | -11.2 | NO | NO |
| | | P.M | 10.9 | B | 35.6 | D | 24.7 | NO | NO |
| 60. | Mission Blvd (north) / I-680 NB Ramps | A.M | 21.5 | C | 34.2 | C | 12.7 | NO | NO |
| | | P.M | 23.4 | C | 38.6 | D | 15.2 | NO | NO |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M | **83.0** | **F** | **352.3** | **F** | 269.3 | **YES** | **YES** |
| | | P.M | 34.3 | C | **410.5** | **F** | 376.2 | **YES** | **YES** |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | A.M | **73.3** | **E** | **405.9** | **F** | 332.6 | **YES** | **YES** |
| | | P.M | 41.3 | D | **395.0** | **F** | 353.7 | **YES** | **YES** |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M | 26.8 | C | **69.0** | **E** | 42.2 | **YES** | **YES** |
| | | P.M | 40.0 | D | 45.8 | D | 5.8 | NO | NO |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M | 38.9 | D | **167.6** | **F** | 128.7 | **YES** | **YES** |
| | | P.M | 51.5 | D | **195.8** | **F** | 144.3 | **YES** | **YES** |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | A.M | 23.1 | C | 23.2 | C | 0.1 | NO | NO |
| | | P.M | 25.9 | C | 20.5 | C | -5.4 | NO | NO |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | A.M | 11.6 | B | **62.5** | **E** | 50.9 | **YES** | **YES** |
| | | P.M | 15.4 | B | **68.3** | **E** | 52.9 | **YES** | **YES** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable
1991 GP LOS D are in bold na: not applicable -

**TABLE 4-20: 2035 GENERAL PLAN UPDATE MITIGATED CONDITION SUMMARY**

| # | Intersection | Peak | Existing | | 2035 General Plan | | 2035 General Plan Mitigated Conditions | | ▲ Avg Delay | Significant Impact After Mitigation (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS | (seconds) | |
| 1) | Alvarado Blvd / Deep Creek Rd* | A.M. | 25.3 | C | **76.9** | **E** | **66.4** | **E** | 41.1 | **Y** |
| | | P.M. | 26.1 | B | 46.3 | D | MNN | MNN | | N/A |
| 3) | Fremont Blvd / Paseo Padre Pkwy | A.M. | 40.3 | D | 35.4 | D | MNN | MNN | | N/A |
| | | P.M. | 42.4 | D | **80.3** | **F** | 53.0 | D | 10.6 | N |
| 4) | Paseo Padre Pkwy / Decoto Rd | A.M. | 44.2 | D | **156.9** | **F** | **82.9** | **F** | 38.7 | **Y** |
| | | P.M. | 45.3 | D | **123.5** | **F** | **82.1** | **F** | 36.8 | **Y** |
| 5) | Fremont Blvd / Decoto Rd | A.M. | 43.8 | D | **105.4** | **F** | 70.7 | E | 26.9 | N |
| | | P.M. | 41.7 | D | **107.1** | **F** | 74.0 | E | 32.3 | N |
| 6) | I-880 NB Ramps / Decoto Rd* | A.M. | 35.5 | D | **167.1** | **F** | **73.4** | **E** | 37.9 | **Y** |
| | | P.M. | 19.8 | B | **67.4** | **E** | 27.2 | C | 7.4 | N |
| 7) | I-880 SB Ramps / Decoto Rd* | A.M. | 25.5 | C | **94.9** | **F** | 31.5 | C | 6.0 | N |
| | | P.M. | 14.2 | B | 14.7 | B | MNN | MNN | | N/A |
| 11) | Paseo Padre Pkwy / Isherwood Way | A.M. | 31.9 | C | **143.5** | **F** | **118.6** | **F** | 86.7 | **Y** |
| | | P.M. | 31.3 | C | **152.5** | **F** | **113.9** | **F** | 82.6 | **Y** |
| 12) | Paseo Padre Pkwy / Thornton Ave | A.M. | 50.3 | D | **217.5** | **F** | 39.8 | D | -10.5 | N |
| | | P.M. | 38.8 | D | **146.0** | **F** | **87.1** | **F** | 48.3 | **Y** |
| 16) | Fremont Blvd / Central Ave | A.M. | 28.9 | C | **121.5** | **F** | 51.7 | D | 22.8 | N |
| | | P.M. | 35.0 | C | **109.9** | **F** | 75.8 | E | 40.8 | N |
| 18) | Paseo Padre Pkwy / Peralta Blvd | A.M. | 40.3 | D | 68.8 | E | MNN | MNN | | N/A |
| | | P.M. | 51.3 | D | **164.7** | **F** | **133.7** | **F** | 82.4 | **Y** |
| 21) | Paseo Padre Pkwy / Mowry Ave | A.M. | 40.3 | D | **107.0** | **F** | **94.8** | **F** | 54.5 | **Y** |
| | | P.M. | 38.4 | D | **94.1** | **F** | 63.6 | E | 25.2 | N |
| 22) | Fremont Blvd / Mowry Ave | A.M. | 38.0 | D | **71.2** | **E** | MNN | MNN | | N/A |
| | | P.M. | 48.3 | D | **123.1** | **F** | **87.4** | **F** | 39.1 | **Y** |
| 24) | Blacow Rd / Mowry Ave | A.M. | 31.0 | C | **81.7** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 33.7 | C | **93.4** | **F** | MNF | MNF | | **Y** |
| 28) | Mission Blvd / Niles Canyon Rd | A.M. | 50.3 | D | **307.7** | **F** | **195.6** | **F** | 145.3 | **Y** |
| | | P.M. | **58.3** | **E** | **215.2** | **F** | **183.6** | **F** | 125.3 | **Y** |
| 29) | Mission Blvd / Mowry Ave | A.M. | **104.7** | **F** | **250.0** | **F** | **120.9** | **F** | 16.2 | **Y** |
| | | P.M. | **89.5** | **F** | **242.3** | **F** | **108.3** | **F** | 18.8 | **Y** |
| 30) | Mission Blvd / Walnut Ave | A.M. | 32.7 | C | **107.2** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 27.6 | C | **91.1** | **F** | MNF | MNF | | **Y** |
| 34) | Mission Blvd / Stevenson Blvd | A.M. | 30.3 | C | **106.0** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 27.4 | C | **130.5** | **F** | MNF | MNF | | **Y** |
| 37) | Blacow Rd / Stevenson Blvd | A.M. | **57.9** | **E** | **83.7** | **F** | **78.1** | **E** | 20.2 | **Y** |
| | | P.M. | **119.9** | **F** | **131.5** | **F** | **89.2** | **F** | -30.7 | **Y** |
| 42) | Fremont Blvd / Grimmer Blvd | A.M. | 38.3 | D | 47.0 | D | MNN | MNN | | N/A |
| | | P.M. | 37.6 | D | **56.7** | **E** | 38.5 | D | 0.9 | N |

Notes: Delay: in average seconds per vehicle Bold=Below Standard LOS: Level of service MNN: Mitigation Not Needed MNF=Mitigation Not Feasible

* = Caltrans Jurisdiction

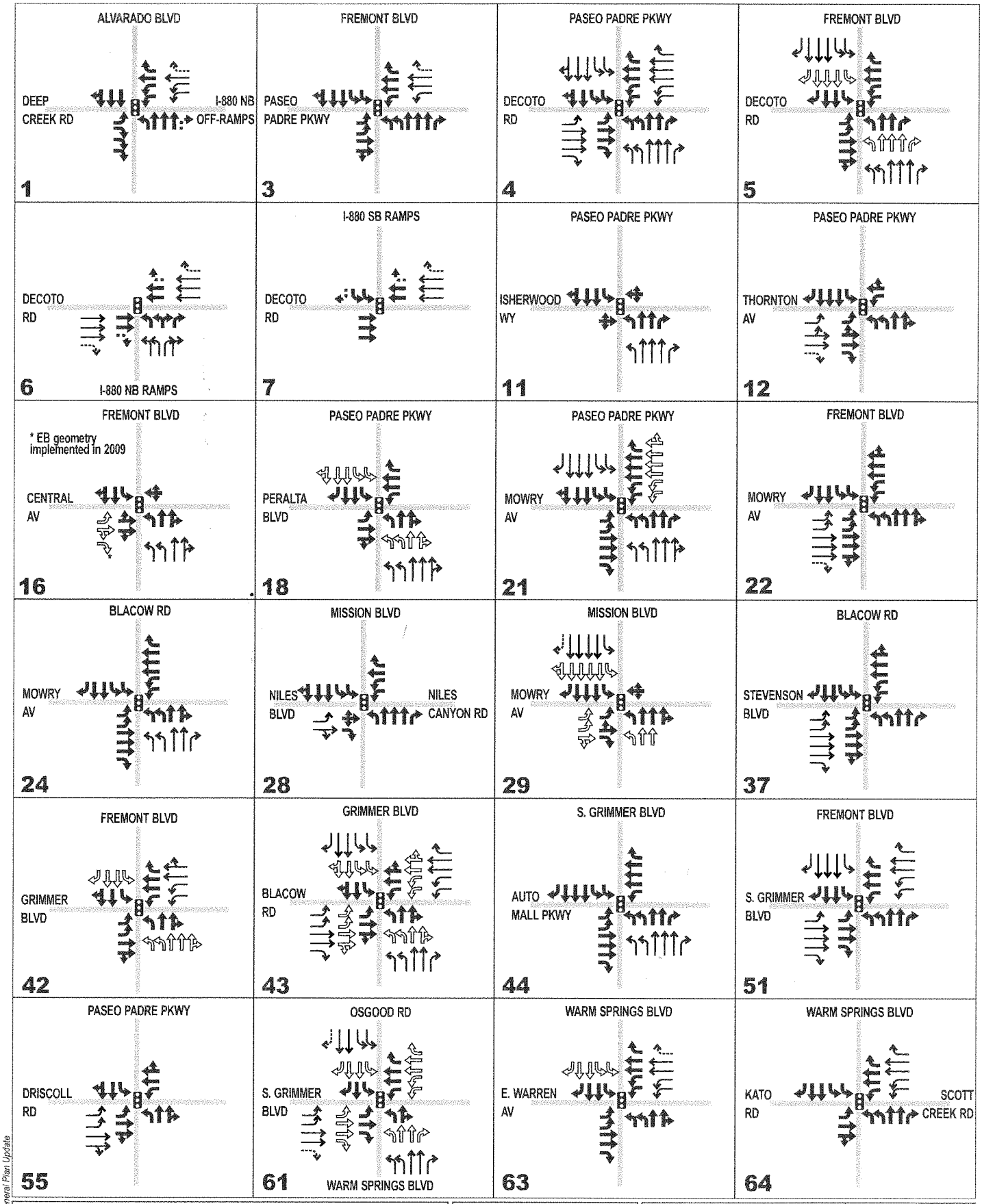
**TABLE 4-20: 2035 GENERAL PLAN UPDATE MITIGATED CONDITION SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 General Plan | | 2035 General Plan Mitigated Conditions | | ▲ Avg Delay | Significant Impact After Mitigation (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS | (seconds) | |
| 43) | Grimmer Blvd / Blacow Rd | A.M | **96.2** | **F** | **157.1** | **F** | **70.6** | **E** | -25.6 | **Y** |
| | | P.M. | 49.6 | D | **80.1** | **F** | 51.5 | D | 1.9 | N |
| 44) | S. Grimmer Blvd / Auto Mall Pkwy | A.M | 38.8 | D | 47.7 | D | MNN | MNN | | N/A |
| | | P.M. | 43.1 | D | **103.4** | **F** | 77.7 | E | 34.6 | N |
| 48) | Union St-Fremont Blvd / Washington Blvd | A.M | 25.2 | C | **143.7** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 30.8 | C | **204.6** | **F** | MNF | MNF | | **Y** |
| 50) | Fremont Blvd / Auto Mall Pkwy | A.M | 40.5 | D | **90.3** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 55.8 | E | **175.1** | **F** | MNF | MNF | | **Y** |
| 51) | Fremont Blvd / S. Grimmer Blvd | A.M | 43.3 | D | **186.8** | **F** | **82.2** | **F** | 38.9 | **Y** |
| | | P.M. | 38.2 | D | 32.4 | C | MNN | MNN | | N/A |
| 53) | I-880 SB Ramps / Fremont Blvd (S)* | A.M | 10.7 | B | **94.2** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 6.6 | A | 7.3 | A | MNN | MNN | | N/A |
| 55) | Paseo Padre Pkwy / Driscoll Rd | A.M | 34.3 | C | **65.1** | **E** | 49.5 | D | 15.2 | N |
| | | P.M. | 30.6 | C | **61.2** | **E** | 38.4 | D | 7.8 | N |
| 56) | Osgood Rd / Auto Mall Pkwy | A.M | 67.2 | E | **182.6** | **F** | MNF | MNF | | **Y** |
| | | P.M. | **100.1** | **F** | **252.9** | **F** | MNF | MNF | | **Y** |
| 57) | I-680 SB Ramps / Durham Rd* | A.M | 31.7 | C | 37.1 | D | MNN | MNN | | N/A |
| | | P.M. | 11.5 | B | **129.2** | **F** | MNF | MNF | | **Y** |
| 61) | Osgood Rd-Warm Springs Blvd/S. Grimmer Blvd | A.M | **83.0** | **F** | **352.3** | **F** | 55.3 | E | -27.7 | N |
| | | P.M. | 34.3 | C | **410.5** | **F** | 62.9 | E | 28.6 | N |
| 62) | Warm Springs Blvd / Mission Blvd (SR-262)* | A.M | 73.3 | E | **405.9** | **F** | **154.6** | **F** | 81.3 | **Y** |
| | | P.M. | 41.3 | D | **395.0** | **F** | MNF | MNF | | **Y** |
| 63) | Warm Springs Blvd / E. Warren Ave | A.M | 26.8 | C | **69.0** | **E** | 37.5 | D | 10.7 | N |
| | | P.M. | 40.0 | D | 45.8 | D | MNN | MNN | | N/A |
| 64) | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M | 38.9 | D | **167.6** | **F** | **138.8** | **F** | 99.9 | **Y** |
| | | P.M. | 51.5 | D | **195.8** | **F** | **147.2** | **F** | 95.7 | **Y** |
| 68) | Fremont Blvd / Dixon Landing Rd | A.M | 11.6 | B | **62.5** | **E** | MNF | MNF | | **Y** |
| | | P.M. | 15.4 | B | **68.3** | **E** | MNF | MNF | | **Y** |

Notes: Delay: in average seconds per vehicle Bold=Below Standard LOS: Level of service MNN: Mitigation Not Needed MNF=Mitigation Not Feasible

* = Caltrans Jurisdiction

## Figure 4.3: Mitigated Condition Geometry




**LEGEND**

**00** - Study Intersection Number

- Signalized Intersection

- Existing Geometry
- Free Right Turn
- Assumed 2035 Geometry
- Mitigated Geometry
- Mitigated Free Right Turn

**Fremont General Plan**

Fremont

*Schematic - Not to Scale*

*DKS Associates*

07034-000 - Fremont General Plan Update

**Mitigation TRA-2: Modification of Fremont Boulevard/Paseo Padre Parkway Intersection (#3).** By modifying the intersection as shown in **Figure 4.3**, the intersection average delay for the P.M. peak hour would improve from 80.3 seconds to 53.0 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the northeast corner.

With this mitigation in place, the intersection average delay would improve to LOS D. Therefore, the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-3: Unacceptable Level of Service at Paseo Padre Parkway/Decoto Road Intersection (#4).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Decoto Road. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Decoto Road is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**.

**Mitigation TRA-3: Modification of Paseo Padre Parkway/Decoto Road Intersection (#4).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 156.9 seconds to 82.9 seconds. Similarly, the P.M. peak would improve from 123.5 to 82.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along each of the quadrants of the intersection.

With this mitigation in place, the intersection average delay would improve. However, the LOS would remain at LOS F for both the A.M. and P.M. peak hours. Therefore, this mitigation would be ***significant and unavoidable***.

**Impact TRA-4: Unacceptable Level of Service at Fremont Boulevard/Decoto Road Intersection (#5).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Decoto Road. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Decoto Road is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a

***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-4:** **Modification of Fremont Boulevard/Decoto Road Intersection (#5).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 105.4 seconds to 70.7 seconds. Similarly, the P.M. peak would improve from 107.1 to 74.0 seconds. This mitigation would require significant lane re-striping along Fremont Boulevard, as well acquisition of additional right-of-way and utility relocations along the northbound and southbound approaches to Fremont Boulevard.

With this mitigation in place, the intersection LOS would improve to LOS E for both the A.M. and P.M. peak hours. Therefore, the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-5:** **Unacceptable Level of Service at I-880 NB Ramps/Decoto Road Intersection (#6).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 NB Ramps/Decoto Road. For the A.M. and P.M. peak hours, the intersection of I-880 NB Ramps/Decoto Road is LOS D and B, respectively, under the Existing Condition, and would deteriorate to LOS F and E, respectively, in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-5:** **Modification of I-880 NB Ramps/Decoto Road Intersection (#6).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 167.1 seconds to 73.4 seconds. Similarly, the P.M. peak would improve from 67.4 to 27.2 seconds. This mitigation may require acquisition of additional right-of-way, reconstruction of the overpass at I-880 and utility relocations. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and LOS C in the P.M. Because of the LOS E condition, the potential reconstruction of the overpass at I-880, and the fact that improvements would be made by another agency, this would be a ***significant and unavoidable*** impact.

**Impact TRA-6:** **Unacceptable Level of Service at I-880 SB Ramps/Decoto Road Intersection (#7).** During the A.M. peak hour, the addition of DRAFT

General Plan Update-related traffic would result in a significant impact at the intersection of I-880 SB Ramps/Decoto Road. For the A.M. peak hour, the intersection of I-880 SB Ramps/Decoto Road is LOS C under the Existing Condition and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-6:** **Modification of I-880 SB Ramps/Decoto Road Intersection (#7).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 94.9 seconds to 31.5 seconds. This mitigation may require acquisition of additional right-of-way, reconstruction of the overpass at I-880 and utility relocations. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the intersection LOS would improve to LOS C. Therefore, the impact would be reduced to a level considered ***less than significant*** with implementation of this mitigation measure.

**Impact TRA-7:** **Unacceptable Level of Service at Paseo Padre Parkway/Isherwood Way Intersection (#11).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Isherwood Way. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Isherwood Way is LOS C under the Existing Condition, but would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-7:** **Modification of Paseo Padre Parkway/Isherwood Way Intersection (#11).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 143.5 seconds to 118.6 seconds. Similarly, the P.M. peak would improve from 152.5 to 113.9 seconds. This mitigation would require modification of existing traffic signal hardware, travel lane re-striping and the modification of raised concrete medians on northbound approaches to Paseo Padre Parkway.

With this mitigation in place, the intersection average delay would improve. However, the level of service for the A.M. and P.M. peak hours would remain at LOS F. Therefore, this impact would be ***significant and unavoidable***.

**Impact TRA-8: Unacceptable Level of Service at Paseo Padre Parkway/Thornton Avenue Intersection (#12).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Thornton Avenue. For the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Thornton Avenue is LOS D under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-8: Modification of Paseo Padre Parkway/Thornton Avenue Intersection (#12).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 217.5 seconds to 39.8 seconds. Similarly, the P.M. peak would improve from 146.0 to 87.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner of the intersection.

With this mitigation in place, the intersection LOS would improve to LOS C in the A.M., but remain LOS F in the P.M. The A.M. impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure. The P.M. impact, however, would be ***significant and unavoidable***.

**Impact TRA-9: Unacceptable Level of Service at Fremont Boulevard/Central Avenue Intersection (#16).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Central Avenue. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Central Avenue is LOS C under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-9: Modification of Fremont Boulevard/Central Avenue Intersection (#16).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 121.5 seconds to 51.7 seconds. Similarly, the P.M. peak would improve from 109.9 to 75.8 seconds. This mitigation would require modification of raised concrete medians, and travel lane re-striping on the northbound approach to Fremont Boulevard.

With this mitigation in place, the intersection LOS would improve to LOS D in the A.M. and LOS E in the P.M. Impacts in both of the A.M. and P.M. conditions would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-10: Unacceptable Level of Service at Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Peralta Boulevard. For the P.M. peak hour, the intersection of Paseo Padre Parkway/Peralta Boulevard is LOS D, under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located along select Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-10: Modification of Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 164.7 seconds to 133.7 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southeast corner.

With this mitigation in place, the P.M. peak hour would remain at an LOS worse than LOS E and, therefore, this would be a ***significant and unavoidable*** impact.

**Impact TRA-11: Unacceptable Level of Service at Paseo Padre Parkway/Mowry Avenue Intersection (#21).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-11: Modification of Paseo Padre Parkway/Mowry Avenue Intersection (#21).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 107.0 seconds to 94.8 seconds. Similarly, the P.M. peak would improve from 94.1 to 63.6 seconds. This mitigation may

require acquisition of additional right-of-way and utility relocations along both Paseo Padre Parkway approaches.

With this mitigation in place, the intersection LOS would remain LOS F in the A.M. and improve to LOS E in the P.M. The A.M. operation would remain at an LOS F worse than LOS E and, therefore, would be a ***significant and unavoidable*** impact. The P.M. impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-12: Unacceptable Level of Service at Fremont Boulevard/Mowry Avenue Intersection (#22).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Mowry Avenue. For the P.M. peak hour, the intersection of Fremont Boulevard/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-12: Modification of Fremont Boulevard/Mowry Avenue Intersection (#22).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 123.1 seconds to 87.4 seconds. This mitigation would entail minor restriping along the eastbound Mowry Avenue approach, but would not require acquisition of additional right-of-way or utility relocations along the southwest corner.

With this mitigation in place, the intersection LOS would remain LOS F in the P.M. peak hour. The P.M. impact would remain at an LOS worse than LOS E and therefore would be a ***significant and unavoidable*** impact.

**Impact TRA-13: Unacceptable Level of Service at Blacow Road/Mowry Avenue Intersection (#24).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Blacow Road/Mowry Avenue is LOS C under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

The improvements necessary to mitigate this intersection would require the narrowing or closing of the frontage road along Blacow Road. However, current Fire Code regulations will not permit the magnitude of modifications that are required. Therefore, this intersection is considered "built-out" and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to existing structures. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

If the intersection were modified to include an additional northbound right turn lane, then the average delay would then improve to 77.8 seconds (LOS E) in the A.M. peak hour and 68.0 seconds (LOS E) in the P.M. peak hour.

**Impact TRA-14: Unacceptable Level of Service at Mission Boulevard/Niles Canyon Road Intersection (#28).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Niles Canyon Road. For the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Niles Canyon Road is LOS D and E, respectively under the Existing Condition, and would both deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-14: Modification of Mission Boulevard/Niles Canyon Road Intersection (#28).** By modifying the intersection as shown in **Figure 4.3**, changing the traffic signal to protected phasing operation and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 307.7 seconds to 195.6 seconds. Similarly, the P.M. peak hour would improve from 215.2 seconds to 183.6 seconds. This mitigation would entail minor restriping along eastbound Niles Canyon Road, but would not require acquisition of additional right-of-way or utility relocations.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS F worse than LOS E and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-15: Unacceptable Level of Service at Mission Boulevard/Mowry Avenue Intersection (#29).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Mowry Avenue is LOS F under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035

conditions would cause an increase in average delay of 74.5 seconds during the A.M. peak hours and 63.5 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-15: Modification of Mission Boulevard/Mowry Avenue Intersection (#29).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection (which is under Caltrans jurisdiction), average delay for the A.M. peak hour would improve from 250.0 seconds to 120.9 seconds. Similarly, the P.M. peak hour would improve from 242.3 seconds to 108.3 seconds. This mitigation would entail minor restriping along the southbound Mission Boulevard approach and would not require acquisition of additional right-of-way or utility relocations.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS E allowed for regionally influenced intersections and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-16: Unacceptable Level of Service at Mission Boulevard/Walnut Avenue Intersection (#30).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Walnut Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Walnut Avenue is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on the close proximity to single family homes and railroad tracks. Acquisition of additional right-of-way and utility relocation may not be feasible at this intersection. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-17: Unacceptable Level of Service at Mission Boulevard/Stevenson Boulevard Intersection (#34).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Stevenson Boulevard. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Stevenson Boulevard is LOS C under the Existing Condition and

would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on a review of adjacent right-of-way and existing structures. Significant modifications to the tunnel underneath the railroad toward the south would be required to widen Mission Boulevard and improve this location. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-18:** **Unacceptable Level of Service at Blacow Road/Stevenson Boulevard Intersection (#37).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Stevenson Boulevard. For the A.M. and P.M. peak hours, the intersection of Blacow Road/Stevenson Boulevard is LOS E and F, respectively under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 25.8 seconds during the A.M. peak hour and 11.6 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-18:** **Modification of Blacow Road/Stevenson Boulevard Intersection (#37).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 83.7 seconds to 78.1 seconds. Similarly, the P.M. peak would improve from 131.5 to 89.2 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner adjacent to the ARCO fuel station.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and remain LOS F in the P.M. The A.M. would still have an increase in intersection average delay greater than 4.0 seconds and, therefore, this would be a ***significant and unavoidable*** impact. The P.M. would have an increase in intersection average delay less than 4.0 seconds and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-19: Unacceptable Level of Service at Fremont Boulevard/Grimmer Boulevard Intersection (#42).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Grimmer Boulevard. For the P.M. peak hour, the intersection of Fremont Boulevard/Grimmer Boulevard is LOS D under the Existing Condition, and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-19: Modification of Fremont Boulevard/Grimmer Boulevard Intersection (#42).** By modifying the intersection as shown in **Figure 4.3**, changing to a protected phase operation and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 56.7 seconds to 38.5 seconds. This mitigation will not require acquisition of additional right-of-way and utility relocations along the north-east corner adjacent to the creek.

With this mitigation in place, the intersection LOS would improve to LOS D in the P.M. peak hour, and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-20: Unacceptable Level of Service at Grimmer Boulevard/Blacow Road Intersection (#43).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Grimmer Boulevard/Blacow Road. For both the A.M. and P.M. peak hours, the intersection of Grimmer Boulevard/Blacow Road is LOS F and D, respectively under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-20: Modification of Grimmer Boulevard/Blacow Road Intersection (#43).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 157.1 seconds to 70.6 seconds. Similarly, the P.M. peak would improve from 80.1 to 51.5 seconds. This mitigation may require acquisition of significant additional right-of-way and utility relocations at every corner.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and LOS D in the P.M. The A.M. would still have an LOS worse than LOS D and, therefore, this would be a ***significant and unavoidable*** impact. The P.M. would have an LOS D, and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-21: Unacceptable Level of Service at Grimmer Boulevard/Auto Mall Parkway Intersection (#44).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Grimmer Boulevard/Auto Mall Parkway. For the P.M. peak hour, the intersection of Grimmer Boulevard/Auto Mall Parkway is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-21: Modification of Grimmer Boulevard/Auto Mall Parkway Intersection (#44).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 103.4 seconds to 77.7 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the south-west corner adjacent to the Chevron Station.

With this mitigation in place, the intersection LOS would improve to LOS E in the P.M. and, therefore, this impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-22: Unacceptable Level of Service at Union Street-Fremont Boulevard/Washington Boulevard Intersection (#48).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Union Street - Fremont Boulevard/Washington Boulevard. For both the A.M. and P.M. peak hours, the intersection of Union Street - Fremont Boulevard/Washington Boulevard is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This five-legged intersection at five corners in Irvington is "built-out", and additional modifications beyond those already planned are not feasible based on a review of available right-

of-way or the close proximity to existing buildings and historic resources. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-23: Unacceptable Level of Service at Fremont Boulevard/Auto Mall Parkway Intersection (#50).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Auto Mall Parkway is LOS D and E, respectively under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection is "built-out", and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to the existing overhead power structures, adjacent drainage canal and railroad overpass. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-24: Unacceptable Level of Service at Fremont Boulevard/South Grimmer Boulevard Intersection (#51).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/South Grimmer Boulevard. For the A.M. peak hour, the intersection of Fremont Boulevard/South Grimmer Boulevard is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-24: Modification of Fremont Boulevard/South Grimmer Boulevard Intersection (#51).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 186.8 seconds to 82.2 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southbound and eastbound approaches.

With this mitigation in place, the intersection LOS would improve to LOS D in the A.M., and the impact would be reduced to a level considered ***less than significant***.

**Impact TRA-25: Unacceptable Level of Service at I-880 SB Ramps/Fremont Boulevard Intersection (#53).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 SB Ramps/Fremont Boulevard. For the A.M. peak hour, the intersection of I-880 SB Ramps/Fremont Boulevard is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out" and additional modifications beyond those already planned are not feasible based on a review of adjacent topography and the close proximity to the overpass at I-880. Roadway reconstruction and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-26: Unacceptable Level of Service at Paseo Padre Parkway/Driscoll Road Intersection (#55).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Driscoll Road. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Driscoll Road is LOS C under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-26: Modification of Paseo Padre Parkway/Driscoll Road Intersection (#55).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 65.1 seconds to 49.5 seconds. Similarly, the P.M. peak would improve from 61.2 to 38.4 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the south-west corner.

With this mitigation in place, the intersection LOS would improve to LOS D in the A.M. and LOS D in the P.M., and the impact would be reduced to a level considered ***less than significant***.

**Impact TRA-27: Unacceptable Level of Service at Osgood Road/Auto Mall Parkway Intersection (#56).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Osgood Road/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Osgood Road/Auto Mall Parkway is LOS E and F, respectively, under the Existing Condition and would be LOS

F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection is "built-out" and additional modifications beyond those already planned beyond the planned widening of Auto Mall Parkway to six lanes are not likely feasible. Expansion of the roadway on its northern edge toward Fry's, and relocation of the overhead utility structure would create additional capacity to improve the intersection. This intersection is bounded by bridge structures directly to the east and the west, and overhead power lines to the north. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-28: Unacceptable Level of Service at I-680 SB Ramps/Durham Road Intersection (#57).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-680 SB Ramps/Durham Road. For the P.M. peak hour, the intersection of I-680 SB Ramps/Durham Road is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on a review of adjacent topography and close proximity to the overpass at I-680. Significant roadway modifications may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-29: Unacceptable Level of Service at Osgood Road – Warm Springs Boulevard/South Grimmer Boulevard Intersection (#61).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Osgood Road - Warm Springs Boulevard/South Grimmer Boulevard. For the A.M. and P.M. peak hours, the intersection of Osgood Road - Warm Springs Boulevard/South Grimmer Boulevard is LOS F and C, respectively, under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-29: Modification of Osgood Road – Warm Springs Boulevard/South Grimmer Boulevard Intersection (#61).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 352.3 seconds to 55.3 seconds. Similarly, for the P.M. peak hour, would improve from 410.5 seconds to 62.9 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations.

With this mitigation in place, the intersection LOS would be LOS E in both the A.M. and P.M. peak hours. The A.M. and P.M. impacts would both be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-30: Unacceptable Level of Service at Warm Springs Boulevard/ Mission Boulevard (SR–262) Intersection (#62).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262). For the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262) is LOS E and D, respectively, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-30: Modification of Warm Springs Boulevard/Mission Boulevard (SR-262) Intersection (#62).** By modifying the intersection to include a southbound right-turn free movement and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 405.9 seconds to 154.6 seconds. Similarly, the P.M. peak would improve from 395.0 to 174.4 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations at the northwest corner of the intersection. Alternatively the City, in cooperation with Caltrans, will consider grade separation options for the intersection to improve the cross connection ability of the highway between I-680 and I-880. In the event that this becomes a reality, then this location will need to be re-evaluated with revised geometric considerations. Construction of an "urban interchange" would improve operations, but have considerable right-of-way acquisition issues on existing businesses.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS E and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-31: Unacceptable Level of Service at Warm Springs Boulevard/East Warren Avenue Intersection (#63).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/East Warren Avenue. For the A.M. peak hour, the intersection of Warm Springs Boulevard/East Warren Avenue is LOS C under the Existing Condition, and would deteriorate to LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-31: Modification of Warm Springs Boulevard/East Warren Avenue Intersection (#63).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 69.0 seconds to 37.5 seconds. This mitigation may require construction of a "pork chop island" to channelize traffic from westbound Warren Avenue to northbound Warm Springs Boulevard, acquisition of additional right-of-way and utility relocations.

With this mitigation in place, the intersection LOS would improve to LOS D in the A.M. peak hour, and the impact would be reduced to a level considered ***less than significant***.

**Impact TRA-32: Unacceptable Level of Service at Warm Springs Boulevard/Kato Road – Scott Creek Road Intersection (#64).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road. For both the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road is LOS D, under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-32: Modification of Warm Springs Boulevard/East Warren Avenue Intersection (#64).** By modifying the intersection as shown in **Figure 4.3,** converting the westbound right turn to overlap operation and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 167.6 seconds to 138.8 seconds. Similarly, the P.M. peak hour would improve from 195.8 seconds to 137.3 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the north-east corner of the intersection.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS D and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-33: Unacceptable Level of Service at Fremont Boulevard/Dixon Landing Road Intersection (#68).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Dixon Landing Road. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Dixon Landing Road is LOS B, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

Additional modifications at this intersection are not feasible beyond those already assumed as part of the approved Creekside Landing Development Project, based on a review of available right-of-way or the close proximity to existing bridge over Coyote Creek and overhead power utilities. Significant roadway modifications may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

*Mitigation Summary*

While a number of intersections as described above have identified physical improvements that may improve the vehicle LOS of the intersections, they may not be determined to be feasible in the future based on the City's intended balancing of transportation modes. Additionally, a number of the mitigation measures may have significant impacts themselves, due to the need for right-of-way acquisition. Most improvements will occur within an urban developed area, and will potentially have additional impacts related to land use compatibility, air quality and noise (as described contextually in the Air Quality and Noise sections of this DRAFT EIR). Transportation improvements may also have effects of increasing impervious surface and redirecting or concentrating stormwater flows into natural creeks and water bodies, although most modifications of facilities will be subject to NPDES C.3. treatment requirements discussed in the Hydrology section that will likely reduce these impacts to less than significant. In some instances, road improvements will result in the loss of existing vegetation and trees. In developed areas this would be a less than significant impact because it would be unlikely to affect a special status species. In areas where improvements are in less developed areas of the City (e.g. Mission Boulevard/Niles Canyon, Fremont Boulevard Extension, East West Connector extension[6]) there could be potential biological impacts due to disturbance of special status species and loss of

[6] Note that the Fremont Boulevard Extension was evaluated in 2009 EIR for Creekside Landing certified by the City of Fremont and the East West Connector was evaluated in an EIR certified in 2009 by ACTA (formerly ACTIA).

habitat that would potentially be significant. The secondary effects and costs of the improvements for most mitigations will likely render them infeasible to implement. The ultimate determination of feasibility and responsibility for mitigations will be determined at the time of project approval.

Changes in Air Traffic Patterns

Implementation of the DRAFT General Plan Update would not be expected to affect current air traffic patterns in any way (***no impact***).

Potential Hazards Associated with Design Features

Implementation of DRAFT General Plan Update Policy 3-3.6 would minimize road hazards associated with overgrown vegetation, structures blocking sight lines, and other visual obstructions, and requires that new development is reviewed to ensure that ingress and egress locations, driveways, crosswalks, and other circulation features, are sited to minimize accident hazards, reducing potential design hazards to a level considered ***less than significant***.

Emergency Access

All development proposed following adoption of the DRAFT General Plan Update would be subject to review by the City of Fremont (including the Fremont Fire Department and the Fremont Police Department) prior to approval to ensure that individual development projects do not impede emergency access, reducing potential impacts to a level considered ***less than significant***. As indicated in DRAFT General Plan Update Policy 3-3.3, it is the City's intent to consider grade-separated crossings where major streets bisect railroads or where such crossings are necessary to meet a regional transportation need, which may also improve emergency vehicle response times.

Conflicts with Policies Supporting Alternative Transportation

Implementation of the DRAFT General Plan Update would promote the use of alternative modes of transportation, and would not conflict with any existing policies which support the use of alternative transportation (***no impact***). For example, the effective implementation of DRAFT General Plan Update Policy 3-1.1 (Complete Streets), Policy 3-1.2 (Contextual Street Design), Policy 3-1.3 (Transit-Friendly Street Design), Policy 3-1.5 (Improving Pedestrian and Bicycle Circulation), and Policy 3-1.7 (Sidewalks) would each promote transportation modes other than single occupancy vehicles.

Cumulative Impacts

As indicated in the discussion of Impacts, above, development anticipated under the DRAFT General Plan Update would be expected to contribute a portion of the cumulative traffic anticipated on local roadways in 2035 (see **Appendix B [C]**), and would, therefore, make a cumulative considerable contribution to traffic congestion at numerous intersections. In some

instances, these impacts could be reduced to a level of less than significant through effective implementation of the Mitigations identified above, but in most instances, these measures will be unlikely to be feasible due to constraints, and not all intersections have identified mitigation measures. As a result, traffic congestion at impacted intersections would represent a ***significant and unavoidable*** cumulative impact associated with implementation of the DRAFT General Plan Update.

# E. AIR QUALITY

This section summarizes information on the air quality environment in Fremont and provides an evaluation of the air quality-related effects of the DRAFT General Plan Update. The analysis considers existing and projected air quality sources in the area. Mitigation measures are recommended that address DRAFT General Plan Update policies and implementing actions. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD)[7].

## SETTING

Fremont is located in the southern portion of the San Francisco Bay Area Air Basin. The basin includes the counties of San Francisco, Santa Clara, San Mateo, Marin, Napa, Contra Costa, and Alameda, along with the southeast portion of Sonoma County and the southwest portion of Solano County. The local air quality regulatory agency responsible for this basin is the Bay Area Air Quality Management District (BAAQMD).

The climate of Fremont is characterized by warm dry summers and cool moist winters. The proximity of the San Francisco Bay and Pacific Ocean has a moderating influence on the climate. Fremont is located in the climate sub region of the Bay Area known as Southwestern Alameda County.

The major large-scale weather feature controlling the area's climate is a large high pressure system located in the eastern Pacific Ocean, known as the Pacific High. The strength and position of the Pacific High varies seasonally. It is strongest during summer and located off the west coast of the United States. Large-scale atmospheric subsidence associated with the Pacific High produces an elevated temperature inversion along the West Coast. The base of this inversion is usually located from 1,000 to 3,000 feet above mean sea level, depending on the intensity of subsidence and the prevailing weather condition. Vertical mixing is often limited to the base of the inversion, trapping air pollutants in the lower atmosphere. Marine air trapped below the base of the inversion is often condensed into fog or stratus clouds by the cool Pacific Ocean. This condition is typical of the warmer months of the year from roughly May through October. Stratus clouds usually form offshore and move into the Bay Area during the evening hours. As the land warms the following morning, the clouds often dissipate, except along the immediate coast. The stratus then redevelops and moves inland late in the day along with an increase in winds. Otherwise, clear skies and dry conditions prevail during summer.

As winter approaches, the Pacific High becomes weaker and shifts south, allowing weather systems associated with the polar jet stream to affect the region. Low pressure systems produce periods of cloudiness, strong shifting winds, and precipitation. The number of days with precipitation can vary greatly from year to year, resulting in a wide range of annual precipitation

totals. Precipitation is generally lowest along the Bay, with much higher amounts occurring along south and west facing slopes. On average, Fremont, which lies near the Bay, receives about 20 inches of precipitation annually. About 90 percent of rainfall occurs from November through April. High-pressure systems are also common in winter, and can produce cool stagnant conditions. Radiation fog and haze are common during extended winter periods where high-pressure systems influence the weather.

The proximity of the eastern Pacific High and relatively lower pressure inland produces a prevailing westerly sea breeze along the central and northern California coast for most of the year. As this wind is channeled through the Golden Gate and other topographical gaps, it branches off to the northeast and southeast, following the general orientation of the San Francisco Bay system. Fremont is mostly flat, with the southern extent of the Bay to the west and mountains to the east. Marine air penetrates from the Bay; however, it is moderated by bayside conditions as it reaches Fremont. The prevailing wind is primarily from the northwest, especially during spring and summer. In winter, winds become variable with more of a southeasterly orientation. Nocturnal winds and land breezes during the colder months of the year prevail with variable drainage out of the mountainous areas. Wind speeds are highest during the spring and early summer, and lightest in fall. Winter storms bring relatively short episodes of strong southerly winds.

Temperatures in Fremont tend to be less extreme compared to inland locations due to the moderating effect of the Pacific Ocean and the Bay. In summer, high temperatures are generally in the high 70’s, and in the 50's during winter. Low temperatures range from the 50's in summer to the 30's in winter.

During the fall and winter months, the Pacific High can combine with high pressure over the interior regions of the western United States (known as the Great Basin High) to produce extended periods of light winds and low-level temperature inversions. Fair weather and very warm temperatures are common to the Bay Area with this weather pattern. This condition frequently produces poor atmospheric mixing which results in degraded regional air quality. Ozone standards traditionally are exceeded when this condition occurs during the warmer months of the year.

Regulatory Setting

Fremont is located within the nine county San Francisco Bay Area Air Basin. The Bay Area Air Quality Management District (BAAQMD) monitors air quality in the basin through a regional network of air pollution monitoring stations to determine if the national and State standards for criteria air pollutants and emission limits of toxic air contaminants are being achieved.

The Federal and California Clean Air Acts have established ambient air quality standards for different pollutants. The national ambient air quality standards (NAAQS) were established by the Federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These

[7] BAAQMD CEQA Guidelines for Assessing Air Quality Impacts from Projects and Plans, 1996, revised 1999.

criteria pollutants now include carbon monoxide (CO), ozone ($O_3$), nitrogen dioxide ($NO_2$), particulate matter with a diameter less than 10 microns ($PM_{10}$), sulfur dioxide ($SO_2$), and lead (Pb). In 1997, EPA added fine particulate matter or $PM_{2.5}$ as a criteria pollutant. The air pollutants that standards have been established for are considered the most prevalent air pollutants that are known to be hazardous to human health.

*Federal Regulations*

At the federal level, the United States Environmental Protection Agency (U.S. EPA) administers and enforces air quality regulations. Federal air quality regulations were developed primarily from implementation of the Federal Clean Air Act. If an area does not meet NAAQS over a set period (three years), EPA designates it as a "nonattainment" area for that particular pollutant. EPA requires states that have areas that do not comply with the national standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the State Implementation Plan (SIP). Under severe cases, EPA may impose a federal plan to make progress in meeting the federal standards.

EPA also has programs for identifying and regulating hazardous air pollutants. The Clean Air Act requires EPA to set standards for these pollutants and sharply reduce emissions of controlled chemicals. Industries were classified as major sources if they emitted certain amounts of hazardous air pollutants.

The San Francisco Bay Area Air Basin is subject to air quality planning programs required by the federal Clean Air Act (CAA) (1977, last amended in 1990, 42 United States Code [USC] 7401 et seq.) to address ozone air pollution. The CAA requires that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards within the deadlines specified in the Clean Air Act.

*State Regulations*

The California Clean Air Act of 1988, amended in 1992, outlines a program for areas in the State to attain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The California Air Resources Board (CARB) is the state air pollution control agency and is a part of the California Environmental Protection Agency. The California Clean Air Act set more stringent air quality standards for all of the pollutants covered under national standards, and additionally regulates levels of vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates. If an area does not meet CAAQS, CARB designates the area as a nonattainment area. The San Francisco Bay Area Air Basin currently does not meet the CAAQS for ozone, $PM_{10}$ and $PM_{2.5}$. CARB requires regions that do not meet CAAQS for ozone to submit Clean Air Plans that describe measures to attain the standard or show progress toward attainment.

CARB regulates the amount of air pollutants that can be emitted by new motor vehicles sold in California. Motor vehicle emissions standards in California have always been more stringent than federal standards since they were first imposed in 1961. CARB has also developed Inspection and Maintenance (I/M) and "Smog Check" programs with the California Bureau of Automotive Repair. Inspection programs for trucks and buses have also been implemented. CARB also has authority to set standards for fuel sold in California.

*Bay Area Air Quality Management District*

The Bay Area Air Quality Management District (BAAQMD) is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. BAAQMD has jurisdiction over much of the nine-county Bay Area counties.

Criteria Air Pollutants

Ambient air quality standards have been established by state and federal environmental agencies for specific air pollutants most pervasive in urban environments. These pollutants are referred to as criteria air pollutants because the standards established for them were developed to meet specific health and welfare criteria set forth in the enabling legislation. The criteria air pollutants emitted by development, traffic and other activities anticipated under the proposed development include ozone ($O_3$), ozone precursors oxides of nitrogen and reactive organic gases (NOx and ROG), carbon monoxide (CO), nitrogen dioxide ($NO_2$), and suspended particulate matter ($PM_{10}$ and $PM_{2.5}$). Other criteria pollutants, such as lead (Pb) and sulfur dioxide ($SO_2$), would not be substantially emitted by the proposed development or traffic, and air quality standards for them are being met throughout the Bay Area.

*Ozone ($O_3$)*

While $O_3$ serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation potentially harmful to humans, when it reaches elevated concentrations in the lower atmosphere it can be harmful to the human respiratory system and to sensitive species of plants. $O_3$ concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures. Short-term $O_3$ exposure can reduce lung function in children, make persons susceptible to respiratory infection, and produce symptoms that cause people to seek medical treatment for respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Sensitivity to $O_3$ varies among individuals, but about 20 percent of the population is sensitive to $O_3$, with exercising children being particularly vulnerable. $O_3$ is formed in the atmosphere by a complex series of photochemical reactions that involve “ozone precursors” that are two families of pollutants:

oxides of nitrogen (NOx) and reactive organic gases (ROG). NOx and ROG are emitted from a variety of stationary and mobile sources. While $NO_2$, an oxide of nitrogen, is another criteria pollutant itself, ROGs are not in that category, but are included in this discussion as $O_3$ precursors.

*Carbon Monoxide (CO)*

Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause dizziness and fatigue, impair central nervous system function, and induce angina in persons with serious heart disease. Primary sources of CO in ambient air are passenger cars, light-duty trucks, and residential wood burning. Emission controls placed on automobiles and the reformulation of vehicle fuels have resulted in a sharp decline in CO levels, especially since 1991.

*Nitrogen Dioxide ($NO_2$)*

The major health effect from exposure to high levels of $NO_2$ is the risk of acute and chronic respiratory disease. $NO_2$ is a combustion by-product, but it can also form in the atmosphere by chemical reaction. $NO_2$ is a reddish-brown colored gas often observed during the same conditions that produce high levels of $O_3$ and can affect regional visibility. $NO_2$ is one compound in a group of compounds consisting of oxides of nitrogen (NOx). As described above, NOx is an $O_3$ precursor compound.

*Particulate Matter (PM)*

Respirable particulate matter, $PM_{10}$, and fine particulate matter, $PM_{2.5}$, consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. $PM_{10}$ and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled and cause adverse health effects. $PM_{10}$ and $PM_{2.5}$ are a health concern, particularly at levels above the Federal and State ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health because minute particles are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Children are more susceptible to the health risks of $PM_{2.5}$ because their immune and respiratory systems are still developing. Very small particles of certain substances (e.g., sulfates and nitrates) can also directly cause lung damage or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health.

Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as mining, demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. In addition to health effects, particulates also can damage materials and reduce visibility. Dust comprised of large particles (diameter greater than 10 microns) settles out rapidly and is

more easily filtered by human breathing passages. This type of dust is considered more of a soiling nuisance rather than a health hazard.

In 1983, CARB replaced the standard for "suspended particulate matter" with a standard for suspended $PM_{10}$ or "respirable particulate matter." This standard was set at 50 µg/m3 for a 24-hour average and 30 µg/m3 for an annual average. CARB revised the annual $PM_{10}$ standard in 2002, pursuant to the Children's Environmental Health Protection Act. The revised $PM_{10}$ standard is 20 µg/m3 for an annual average. $PM_{2.5}$ standards were first promulgated by the EPA in 1997, and were recently revised to lower the 24-hour $PM_{2.5}$ standard to 35 µg/m3 for 24-hour exposures and revoked the annual $PM_{10}$ standard due to lack of scientific evidence correlating long-term exposures of ambient $PM_{10}$ with health effects. CARB has adopted an annual average $PM_{2.5}$ standard, which is set at 12 µg/m3, which is more stringent than the Federal standard of 15 µg/m3.

Toxic Air Contaminants

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act and Toxic Air Contaminants (TACs) under the California Clean Air Act. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

TACs are a broad class of compounds known to cause morbidity or mortality (cancer risk), and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., benzene near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Diesel exhaust is the predominant TAC in urban air, and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by ARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB reports that recent air pollution studies have shown that diesel exhaust and other cancer-causing TACs emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Particulate matter emitted from diesel-fueled engines (diesel particulate matter [DPM]) was found to comprise much of that risk. In August, 1998, CARB formally identified DPM as a TAC. DPM is of particular concern, since it can be distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel engines are

coated with chemicals, many of which have been identified by EPA as hazardous air pollutants, and by CARB as TACs. Diesel engines emit particulate matter at a rate about 20 times greater than comparable gasoline engines. The vast majority of diesel exhaust particles (over 90 percent) consist of $PM_{2.5}$, which are the particles that can be inhaled deep into the lung. Like other particles of this size, a portion will eventually become trapped within the lung, possibly leading to adverse health effects. While the gaseous portion of diesel exhaust also contains TACs, CARB's 1998 action was specific to DPM, which accounts for much of the cancer-causing potential from diesel exhaust. California has adopted a comprehensive diesel risk reduction program to reduce DPM emissions 85 percent by 2020. The U.S. EPA and CARB adopted low sulfur diesel fuel standards in 2006 that reduce diesel particulate matter substantially.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind, the pollution can persist for many hours, especially in sheltered valleys during winter. Wood smoke also contains a significant amount of $PM_{10}$ and $PM_{2.5}$. Wood smoke is an irritant, and is implicated in worsening asthma and other chronic lung problems.

Asbestos has also been identified as a TAC by CARB, and all types of asbestos are hazardous, since they can cause lung disease and cancer. Although asbestos is present in some man-made products (e.g., heat-resistant insulators, cement, furnace or pipe coverings, etc.), it is also naturally-occurring in ultramafic rock (including serpentine) and near fault zones. Asbestos is released from ultramafic rock when it is broken or crushed, and once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. In August, 2000, the California Department of Conservation, Division of Mines and Geology, published "A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos". This map indicates that the City of Fremont is not located in an area more likely to contain naturally occurring asbestos, and earth-moving activity within Fremont would not be expected to release asbestos into the air.

Odors

Objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries and chemical plants. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to anger and concern over possible health effects among the public.[8]

National and State Ambient Air Quality Standards

The CAA and CCAA promulgate, respectively, national and state ambient air quality standards for carbon monoxide (CO), ozone ($O_3$), nitrogen dioxide ($NO_2$), particulate matter 10 microns or

[8] BAAQMD, BAAQMD CEQA Guidelines, May 2011.

less in diameter ($PM_{10}$), and particulate matter 2.5 microns or less in diameter ($PM_{2.5}$).[9] Ambient standards specify the concentration of pollutants to which the public may be exposed without adverse health effects. Individuals vary widely in their sensitivity to air pollutants, and standards are set to protect more pollution-sensitive populations (e.g., children and the elderly). National and state standards are reviewed and updated periodically based on new health studies. California ambient standards tend to be at least as protective as national ambient standards, and are often more stringent. National and California ambient air quality standards are shown in **Table 4-21**, below.

For planning purposes, regions like the San Francisco Bay Area Air Basin are given an air quality status designation by the federal and state regulatory agencies. Areas with monitored pollutant concentrations that are lower than ambient air quality standards are designated "attainment" on a pollutant-by-pollutant basis. When monitored concentrations exceed ambient standards within an air basin, it is designated "nonattainment" for that pollutant. U.S. EPA designates areas as "unclassified" when insufficient data are available to determine the attainment status; however, these areas are typically considered to be in attainment of the standard.

**TABLE 4-21: HEALTH-BASED AMBIENT AIR QUALITY STANDARDS**

| Pollutant | Averaging Time | California Standard | National Standard |
|---|---|---|---|
| Ozone | 1 Hour | 0.09 ppm | --- |
| | 8 Hour | 0.070 ppm | 0.075 ppm |
| Carbon Monoxide | 1 Hour | 20 ppm | 35 ppm |
| | 8 Hour | 9.0 ppm | 9 ppm |
| Nitrogen Dioxide | 1 Hour | 0.18 ppm | 0.100 ppm |
| | Annual | 0.030 ppm | 0.053 ppm |
| Sulfur Dioxide | 1 Hour | 0.25 ppm | 0.075 ppm |
| | 24 Hour | 0.04 ppm | 0.14 ppm |
| | Annual | --- | 0.030 ppm |
| Particulates | 24 Hour | 50 ug/m3 | 150 ug/m3 |
| < 10 microns | Annual | 20 ug/m3 | --- |
| Particulates | 24 Hour | --- | 35 ug/m3 |
| < 2.5 microns | Annual | 12 ug/m3 | 15 ug/m3 |

Concentrations: ppm = parts per million ug/$m^3$ = micrograms per cubic meter

Source: California Air Resources Board – 2010.

## Existing Air Quality

Air quality in the region is controlled by the rate of pollutant emissions and meteorological conditions. Meteorological conditions such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere's ability to mix and disperse pollutants. Long-term

[9] Other pollutants (*e.g.*, lead, sulfur dioxide) also have ambient standards, but they are not discussed in this document because emissions of these pollutants from the Project are expected to be negligible.

variations in air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions. The San Francisco Bay Area is considered to be one of the cleanest metropolitan areas in the country with respect to air quality. BAAQMD monitors air quality conditions at about 30 locations throughout the Bay Area, including a station in Fremont. **Table 4-22** summarizes exceedances of the state and federal standards at the Fremont monitoring site and throughout the Bay Area.

In Fremont, the monitoring data from 2007 through 2009 monitoring data indicate that the air pollutant levels met all state ambient air quality standards except those for particulate matter. There were two days that 24-hour $PM_{10}$ state standards were exceeded and 6 days that the $PM_{2.5}$ standards were exceeded.

**TABLE 4-22: SUMMARY OF CRITERIA AIR POLLUTION MONITORING DATA**

| Pollutant | Standard | Monitoring Site | Days Standard Exceeded | | |
|---|---|---|---|---|---|
| | | | 2007 | 2008 | 2009 |
| Ozone | State 1-Hour | Fremont | 0 | 1 | 4 |
| | | SF Bay Area | 4 | 9 | 11 |
| Ozone | Federal 8-Hour | Fremont | 0 | 1 | 0 |
| | | SF Bay Area | 1 | 12 | 8 |
| Ozone | State 8-Hour | Fremont | 0 | 3 | 2 |
| | | SF Bay Area | 9 | 20 | 13 |
| $PM_{10}$ | Federal 24-Hour | Fremont | 0 | * | * |
| | | SF Bay Area | 0 | 0 | 0 |
| $PM_{10}$ | State 24-Hour | Fremont | 1 | * | * |
| | | SF Bay Area | 4 | 5 | 1 |
| $PM_{2.5}$ | Federal 24-Hour | Fremont | 2 | 0 | 1 |
| | | SF Bay Area | 14 | 12 | 11 |
| Carbon Monoxide | State/Federal 8-Hour | Fremont | 0 | 0 | 0 |
| | | SF Bay Area | 0 | 0 | 0 |
| Nitrogen Dioxide | State 1-Hour | Fremont | 0 | 0 | 0 |
| | | SF Bay Area | 0 | 0 | 0 |

Notes:
$PM_{10}$ and $PM_{2.5}$ are measured every sixth day in Fremont and other Bay Area sites, so the number of days exceeding the standard is estimated.
$PM_{10}$ monitoring was discontinued at Fremont on June 30, 2008
In 2006, the $PM_{2.5}$ standard was changed from 65 $\mu g/m^3$ to 35 $\mu g/m^3$
Source: Bay Area Air Quality Management District Air Pollution Summaries (http://www.baaqmd.gov/pio/aq_summaries/index.htm)

**Table 4-22** shows that air quality as a result of exceedances of $O_3$ and $PM_{2.5}$ and $PM_{10}$ standards are problematic in the San Francisco Bay Area. In recent years, the State $O_3$ standards have been exceeded at least somewhere in the Bay Area on 4 to 20 days per year. The $O_3$ standards have been exceeded on 0 to 4 days in Fremont during the last 3 years. Some other stations in the Bay

Area have experienced more frequent exceedances, since they lie downwind of air pollution sources and have lighter winds. For example, a station like Concord that lies downwind has exceeded standards on 2 to 14 days per year. Ozone levels in the Bay Area exceeded the federal standard on one day in 2007, and 12 days in 2006 and 2008. $PM_{10}$ is just as problematic in the Bay Area, where exceedances of state standards are estimated at over 15 days per year. However, the federal $PM_{10}$ standard has not been exceeded. In 2006, U.S. EPA reduced the 24-hour $PM_{2.5}$ standard to 35 micrograms per cubic meter. Statistics on the number of days exceeding this standard have only been kept since 2006. The Bay Area has exceeded this standard on 10 to 14 sampling days per year. Monitoring of $PM_{2.5}$ in Fremont shows there were 3 days in 2007 through 2009 where the concentrations were above the standards. Standards for CO and $NO_2$, or any other criteria air pollutant, are not exceeded anywhere in the Bay Area.

Existing TAC Exposure

According to the BAAQMD, the Bay Area as whole had a median inhalation cancer risk from ambient TAC concentrations of 500 in one million[10]. A map of the 2005 Cancer Risk from the major TACs emitted in the Bay Area indicate cancer risk ranges from 300 to 400 excess cancer cases per million people west of I-880 to 500 to 600 excess cases per million in the industrial portions of Fremont between I-880 and I-680. While CARB conducts air monitoring of TACs, much of the risk is made up of diesel particulate matter, or DPM. Because there are no reliable methods to measure DPM, the estimates of cancer inhalation risk are based on modeling studies periodically conducted by CARB or BAAQMD. According to the findings of BAAQMD's Community Air Risk Evaluation (CARE) program in 2004, DPM accounted for over 80 percent of the inhalation cancer risk from TACs in the Bay Area.

Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. The attainment status for the area is summarized in **Table 4-23**, below. The Bay Area as a whole does not meet state or federal ambient air quality standards for ground level ozone and State standards for $PM_{10}$ and $PM_{2.5}$.

Under the Federal CAA, the U.S. EPA has classified the region as marginally nonattainment for the 1997 8-hour ozone standard. U.S. EPA required the region to attain the standard by 2007. The U.S. EPA determined that the Bay Area has met this standard, but a formal redesignation request and maintenance plan would have to be submitted before formal redesignation could be made. In May 2008, U.S. EPA lowered the 8-hour ozone standard from 0.08 to 0.075 ppm. The U.S. EPA was poised to promulgate nonattainment designations under the 2008 ozone NAAQS in December 2009, which would have included the Bay Area. These nonattainment designations would have become effective by March 12, 2010. However, in January, 2010, the U.S. EPA

[10] BAAQMD. 2010. BAAQMD CEQA Guidelines Update Thresholds of Significance. June.

announced delay of the final designations for the 2008 NAAQS until March 12, 2011, to allow adequate time for reconsideration and possible revision of the 2008 NAAQS. The range of standards under consideration would be a significant change, which would undoubtedly result in a nonattainment designation for the Bay Area and much of California. Designations of nonattainment areas are expected to become effective later in 2011. The Bay Area has met the CO standards for over a decade, and is classified attainment maintenance by the U.S. EPA. The U.S. EPA grades the region unclassified for all other air pollutants, which include $PM_{10}$. In 2009, U.S. EPA formally designated the entire Bay Area as nonattainment for the federal 24-hour $PM_{2.5}$ standard. $PM_{2.5}$ monitoring data showed violations at the Vallejo and San Jose monitoring stations. The Bay Area will have until 2015 to attain the standards, although U.S. EPA could grant extensions to 2020.

At the State level, the region is considered serious non-attainment for ground level $O_3$ and non-attainment for $PM_{10}$ and $PM_{2.5}$. California ambient air quality standards are more stringent than the national ambient air quality standards. The region is required to adopt plans on a triennial basis that show progress towards meeting the State $O_3$ standard. The Bay Area is also considered nonattainment for $PM_{10}$ and $PM_{2.5}$ standards. The area is considered attainment or unclassified for all other pollutants.

**TABLE 4-23: REGIONAL ATTAINMENT STATUS**

| Pollutant | Federal Status | State Status |
|---|---|---|
| Ozone ($O_3$) – 1-Hour Standard | No Designation | Serious Nonattainment |
| Ozone ($O_3$) – 8-Hour Standard | Marginal Nonattainment | Nonattainment |
| Respirable Particulate Matter ($PM_{10}$) | Unclassified | Nonattainment |
| Fine Particulate Matter ($PM_{2.5}$) | Nonattainment | Nonattainment |
| Carbon Monoxide (CO) | Attainment/Unclassified | Attainment |
| Nitrogen Dioxide ($NO_2$ | Unclassified | Attainment |
| Sulfur Dioxide ($SO_2$) | Attainment | Attainment |
| Sulfates | No Designation | Attainment |
| Lead | No Designation | Attainment |
| Hydrogen Sulfide | No Designation | Unclassified |
| Visibility Reducing Particles | No Designation | Unclassified |

Source: Bay Area Air Quality Management District.
California Air Resource Board

Regional Air Quality Plans

The BAAQMD and other agencies prepare clean air plans in response to the State and federal Clean Air Acts. In addition, the BAAQMD has developed CEQA Guidelines to assist local agencies in evaluating and mitigating air quality impacts. [11]

*2001 Ozone Attainment Plan Addressing the National Standards*

The BAAQMD, the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG) prepared the Bay Area 2001 Ozone Attainment Plan. This Plan is a proposed revision to the Bay Area's part of the State Implementation Plan (SIP) to achieve the NAAQS for the 1-hour ozone standard. The Plan was prepared in response to U.S. EPA's partial approval and partial disapproval of the Bay Area's 1999 Ozone Attainment Plan. Although U.S. EPA revoked the 1-hour NAAQS, commitments made in that plan along with emissions budgets remain valid until the region develops an attainment demonstration/maintenance plan for the 8-hour NAAQS for ozone. The U.S. EPA has already determined that the region met the 1997 8-hour ozone standard. However, the region will be required to submit a maintenance plan and demonstration of attainment with a request for redesignation to U.S. EPA prior to be formally redesignated. BAAQMD will likely not act on this submittal for a few years. In addition, the U.S. EPA's new, slightly more stringent, 8-hour standard was recently established. The U.S. EPA will be making new attainment designations based on that standard in about 3 years and eventually revoking the older standard.

*1991 Clean Air Plan and Subsequent Updates Addressing the State Standards*

Air quality plans addressing the California Clean Air Act with respect to $O_3$ were developed in 1991 and updated about every three years to demonstrate progress toward meeting the more stringent 1- and 8-hour $O_3$ CAAQS, for which the Bay Area is designated nonattainment. In addition, emissions of ozone precursors (NOx and ROG) contribute to higher ozone levels in neighboring air basins. State law requires ozone nonattainment areas to include all feasible measures to reduce $O_3$ precursors and reduce transport of $O_3$ and it's precursors to neighboring air basins.

In September 2010, BAAQMD adopted the Bay Area 2010 Clean Air Plan (CAP). This CAP updates the most recent ozone plan, the 2005 Ozone Strategy. Unlike previous Bay Area CAPs, the 2010 CAP is a multi-pollutant air quality plan addressing four categories of air pollutants:

- Ground-level ozone and the key ozone precursor pollutants (reactive organic gases and NOx), as required by State law;
- Particulate matter, primarily $PM_{2.5}$, as well as the precursors to secondary $PM_{2.5}$;

[11] Bay Area Air Quality Management District *California Environmental Quality Act Air Quality Guidelines, May 2011*.

- Toxic air contaminants; and
- Greenhouse gases.

While the CAP addresses State requirements, it will also provide the basis for developing future control plans to meet federal requirements (NAAQS) for ozone and $PM_{2.5}$. The region is required to prepare (by December 2012) a federally-enforceable plan to meet the NAAQS for $PM_{2.5}$. In addition, U.S. EPA is likely to adopt a more stringent NAAQS for ozone. These new standards will likely trigger new planning requirements for the Bay Area and more stringent federally enforceable control measures.

While previous CAPs have relied upon a combination of stationary and transportation control measures, the 2010 CAP adds two new types of control measures: (1) Land Use and Local Impact Measures and (2) Energy and Climate measures. These types of measures would indirectly reduce air pollutant and greenhouse gas emissions through reductions in vehicle use and energy usage. In addition, the plan includes Further Study Measures, which will be evaluated as potential control measures.

*$PM_{10}$ and $PM_{2.5}$ Plans*

BAAQMD has found that the primary constituents of elevated $PM_{2.5}$ and $PM_{10}$ are secondary ammonium nitrate and wood smoke. Secondary ammonium nitrate forms in the atmosphere as a result primarily of fossil fuel combustion (e.g., motor vehicles). The clean air planning efforts for ozone will also reduce $PM_{10}$ and $PM_{2.5}$, since a substantial amount of this air pollutant comes from combustion emissions such as vehicle exhaust. BAAQMD adopts and enforces rules to reduce particulate matter emissions and develops public outreach programs to educate the public to reduce $PM_{10}$ and $PM_{2.5}$ emissions (e.g., Spare the Air Program). SB 656 requires further action by CARB and air districts to reduce public exposure to $PM_{10}$ and $PM_{2.5}$. Efforts identified by BAAQMD in response to SB 656 are primarily targeting reductions in wood smoke emissions and adoption of new rules to further reduce NOx and particulate matter from internal combustion engines and reduce particulate matter from commercial charbroiling activities. BAAQMD recently adopted a rule addressing residential wood burning. The rule restricts operation of any indoor or outdoor fireplace, fire pit, wood or pellet stove, masonry heater or fireplace insert on specific days during the winter when air quality conditions are forecasted to exceed the NAAQS for $PM_{2.5}$. The proposed rule also limits excess visible emissions from wood burning devices and requires clean burning technology for wood burning devices sold (or resold) or installed in the Bay Area. Controls on ozone precursor emissions that include NOx and ROG would reduce particulate matter concentrations in winter. NOx emissions contribute to ammonium nitrate formation that resides in the atmosphere as particulate matter. The Bay Area experiences the highest $PM_{10}$ and $PM_{2.5}$ in winter, when wood smoke and ammonium nitrate contributions to particulate matter are highest.

Because U.S. EPA designated the Bay Area nonattainment for the 24-hour $PM_{2.5}$ standard, CARB and BAAQMD will have to develop a plan for meeting the standard by December 2014.

The plan must be submitted to U.S. EPA by December 2012. Statewide, CARB has taken recent actions at reducing $PM_{2.5}$ from diesel trucks and construction equipment.

*BAAQMD CEQA Guidelines*

On June 2, 2010, the BAAQMD adopted updated thresholds and the BAAQMD CEQA Guidelines in support of the new Clean Air Plan. The BAAQMD CEQA Guidelines update revised significance thresholds, assessment methodologies, and mitigation strategies for criteria pollutants, air toxics, odors, and greenhouse gas emissions. The most recent update of the BAAQMD CEQA Guidelines is the May 2011 edition. These guidelines are regulatory for BAAQMD-issued permits, and advisory to other Lead Agencies.

Sensitive Receptors

"Sensitive receptors" are defined as facilities where sensitive population groups, such as children, the elderly, the acutely ill and the chronically ill, are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals and medical clinics.

Buffers from Sources of Air Pollution

The BAAQMD and CARB recommend that communities include buffers between sensitive receptors and sources of air toxic contaminant emissions and odors. In April, 2005, CARB released the final version of the Air Quality and Land Use Handbook, which is intended to encourage local land use agencies to consider the risks from air pollution prior to making decisions that approve the siting of new sensitive receptors near sources of air pollution. Unlike industrial or stationary sources of air pollution, siting of new sensitive receptors does not require air quality permits, but could create human health problems. The primary purpose of the CARB document is to highlight the potential health impacts associated with proximity to common air pollution sources, so that those issues are considered in the planning process. CARB makes recommendations regarding the siting of new sensitive land uses near freeways, truck distribution centers, dry cleaners, gasoline dispensing stations, and other air pollution sources (see **Table 4-24**, below). These “advisory” recommendations are based primarily on modeling information for studies conducted throughout the state, and may not be entirely reflective of conditions in Fremont.

The new BAAQMD CEQA Guidelines further identified significance thresholds for sources of TACs or $PM_{2.5}$. These guidelines recommend that all sources of TACs within 1,000 feet of sensitive receptors be evaluated for potentially significant exposures. These guidelines also recommend that the exposure to sources of TACs and $PM_{2.5}$ be evaluated when new sensitive receptors are proposed within 1,000 feet. Significance thresholds that evaluate single-source and cumulative exposures (for all sources within 1,000 feet of sensitive receptors) have been identified. BAAQMD provides screening tools to assist lead agencies in screening these impacts. These include a database of permitted stationary sources that include screening level estimates of

excess cancer risk, non-cancer risk and $PM_{2.5}$ concentrations. In addition, BAAQMD has prepared screening tables for State highways within each county that allow lead agencies to identify a screening level exposure. If exposures are found to be potentially significant, then BAAQMD recommends a project-level analysis that requires emissions and dispersion modeling as well as application of the District's health risk guidelines to evaluate the project impacts.

Buffers from Sources of Odors

Significant sources of offending odors are typically identified based on complaint histories received and compiled by BAAQMD. It is difficult to identify sources of odors without requesting information by specific facility from BAAQMD. Typical large sources of odors that result in complaints are wastewater treatment facilities, landfills (including composting operations), food processing facilities and chemical plants. Other sources, such as restaurants, paint or body shops, coffee roasters typically result in localized sources of odors. The City's largest odor concern results from solid waste processing activities at the former landfill and transfer station in west Fremont. Just outside of Fremont's jurisdiction at the very southwest edge of the City is the Newby island Resource recovery facility in San Jose. However, there are no sensitive receptors near these areas, as they are in General Industrial areas or are physically isolated on the edge of the City. **Table 4-25** identifies screening buffers included in the BAAQMD CEQA Air Quality Guidelines that could apply to Fremont.

**TABLE 4-24: SOURCES OF TACS/PM2.5 IN FREMONT AND CARB RECOMMENDED SETBACK DISTANCE FOR SENSITIVE USES**

| Source Type | CARB Recommended Buffer Distance | Source in Fremont |
|---|---|---|
| Freeways and busy arterial roadways[1] | 500 feet | Interstate 880, Interstate 680, Route 84, and Mission Boulevard. Note that BAAQMD recommends the consideration of high-volume arterials (i.e., roadways with greater than 10,000 ADT) |
| Distribution centers with 100 or more daily truck trips or 40 daily truck trips that use refrigeration units | 1,000 feet | Major truck distribution centers in industrial zoned areas. Smaller buffers could apply for smaller facilities. |
| Dry cleaners (onsite dry cleaning) | 300 feet for any dry cleaning operation. At least 500 feet for operations with 2 or more machines | Located in urban areas. |
| Large gasoline stations (i.e. over 3.6 million gallons pumped per year) | 50 feet for typical gas stations. Up to 300 feet for the largest gas stations | Located in urban areas, along transportation corridors. |
| Rail yards with switching | Avoid siting sensitive land uses within 1,000 feet and consider possible siting limitations and mitigation measures within one mile. | Union Pacific Rail yard adjacent to Tesla Factory |

Source: CARB (2005) and Illingworth & Rodkin, Inc. 2011

**TABLE 4-25: ODOR SCREENING DISTANCES FOR FREMONT**

| LAND USE/TYPE OF OPERATION | PROJECT SCREENING DISTANCE |
|---|---|
| Wastewater Treatment Plant | 2 miles |
| Wastewater Pumping Facilities | 1 mile |
| Sanitary Landfill | 2 miles |
| Transfer Station | 1 mile |
| Composting Facility | 1 mile |
| Asphalt Batch Plant | 2 miles |
| Chemical Manufacturing | 2 miles |
| Fiberglass Manufacturing | 1 mile |
| Painting/Coating Operations | 1 mile |
| Coffee Roaster | 1 mile |
| Food Processing Facility | 1 mile |
| Green Waste and Recycling Operations | 1 mile |

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines (Environmental Checklist) contains a list of air quality effects that may be considered significant. Implementation of the DRAFT General Plan Update would have a significant effect on the environment if it were to:

1) Conflict with or obstruct implementation of the applicable air quality plan;

2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

4) Expose sensitive receptors to substantial pollutant concentrations; or

5) Create objectionable odors affecting a substantial number of people.

The CEQA Guidelines state that, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. BAAQMD has updated their thresholds and Guidelines on June 2, 2010. Significance determinations are from the BAAQMD Guidelines for evaluating air quality impacts from plans. The standards established by these guidelines address the California Environmental Quality Act (CEQA) thresholds identified in Appendix G of the state CEQA Guidelines.

Significance determinations in this DRAFT EIR are from the BAAQMD guidelines for evaluating air quality impacts from plans. The significance thresholds are as follows:

Plan Consistency with Clean Air Plan

The most recently adopted Clean Air Plan (CAP) is the 1991 Clean Air Plan, as updated by the Bay Area 2010 Clean Air Plan; standards provided by these documents are used in this DRAFT EIR to evaluate the potential air quality impacts associated with implementation of the DRAFT General Plan Update. In assessing impacts of plans on regional air quality, proposed plans (e.g., general plan updates) would have a significant impact if:

- The increase in projected vehicle miles traveled (VMT) or vehicle trips (either measure may be used) would be greater than the plan's projected population increase and
- They would be inconsistent with current air quality plan (i.e., Bay Area 2010 Clean Air Plan) control measures.

Local Carbon Monoxide Concentrations

A plan would have a significant impact if it would cause a violation of any air quality standard or contribute substantially to an existing or projected air quality violation. For general plans, a significant impact on local air quality is defined as increased carbon monoxide concentrations at the closest sensitive receptors that would cause a violation of the most stringent ambient state standard for carbon monoxide (20 parts per million [ppm] for the one-hour averaging period, or 9.0 ppm for the eight-hour averaging period).

Community Health and Exposure Risk

The DRAFT General Plan Update could cause significant community risk and hazard impacts if it does not:

- Create overlay zones around sources of TACs, PM, and hazards including special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways; and
- Identify goals, policies, and objectives to minimize potential impacts from these sources (including adopted risk reduction plan areas).

For the quantitative analysis for the proposed DRAFT General Plan Update project, the City relates project level thresholds of increased cancer risk of 10 cases per 1 million for new sources and cumulative thresholds of 100 cases per 1 million to new sources and receptor exposure and new receptor exposure in developed areas.

Odors

Significant odor impacts would occur if odor sources could result in complaints and if the DRAFT General Plan Update does not identify goals, policies, and objectives to minimize potentially adverse impacts or new odors sources.

## DRAFT GENERAL PLAN UPDATE POLICIES

The City of Fremont's DRAFT General Plan Update includes a goal of improving air quality over current conditions that meets or exceeds State and regional standards. Air Quality Policies, contained in the Conservation Element of the DRAFT General Plan Update include:

- *Policy 7-7.1: Cooperation to Improve Regional Air Quality*.
- *Policy 7-7.2: Reduce Air Contaminant Levels.*
- *Policy 7-7.3: Land Use Planning to Minimize Health Impacts from Air Contaminants*.
- *Policy 7-7.4: Air Quality Impact of Industry*.

These are the DRAFT General Plan Update Policies that are directly aimed at improving air quality in Fremont and the region. The DRAFT General Plan Update includes other elements, including policies and implementation measures that would directly or indirectly improve air quality. The Mobility Element has additional policies related to reducing emissions from transportation through enhanced public transit, enhanced pedestrian and bicycling amenities, and transportation demand programs. The Public Facilities Element includes policies related to reducing emissions from the City's vehicle fleet and coordinating with the School District to reduce vehicle trips related to school transportation. The Land Use, Mobility and Housing Elements include policies related to Transit Oriented Development aimed at reducing vehicle trips.

## IMPACTS AND MITIGATION MEASURES

2010 Clean Air Plan (CAP) Population and VMT Consistency

**Impact AIR-1:** **Conflict with CAP Assumptions.** Development anticipated following adoption of the DRAFT General Plan Update would increase population and employment in the City, leading to additional air pollutant emissions. City-wide vehicle miles traveled (VMT) is projected to increase at a faster rate than the city's population, which conflicts with Clean Air Plan (CAP) assumptions. This is a ***significant*** impact.

A key element in air quality planning is to make reasonably accurate projections of future human activities that are related to air pollutant emissions. When the 1991 CAP was updated (Bay Area 2010 Clean Air Plan), it utilized the most recent projections developed by ABAG and vehicle activity projected by the MTC. These projections were based on the most recent projections at the time using land use designators developed by cities and counties through the General Plan process. Planning assumptions are constantly being updated, so the 2010 BAAQMD CEQA Air Quality Guidelines recommend that growth be planned such that vehicle travel does not increase at a rate greater than population growth. This alleviates the need to evaluate impacts against a moving target (i.e., ABAG projections that are constantly updated).

According to the California Department of Finance, Fremont's estimated population was 218,128 on January 1, 2010. The Association of Bay Area Governments (ABAG) projects that Fremont population will grow to 256,200 persons by 2035, a growth rate of about 0.6 percent per year. Because of the City's vision for "strategically urban" development (described in more detail in Chapter 3, Project Description), the City is estimating for purposes of evaluating DRAFT General Plan Update potential environmental impacts that Fremont's population will grow to 263,585 in 2035. This is considered by the City as the highest level of potential growth that could be reasonably accommodated under the DRAFT General Plan Update.

Traffic modeling conducted in support of the DRAFT General Plan Update forecasts vehicle miles traveled in Fremont (as well as the entire Alameda County) for existing conditions and future conditions with the DRAFT General Plan Update. With development anticipated under the DRAFT General Plan Update, vehicles miles traveled (VMT) in both Fremont and Alameda County would increase by 61 percent over existing or baseline conditions. This would equate to a 2.0 percent per year increase in VMT, which would far exceed the projected rate of population growth. It should be noted that the VMT forecasting is based on traffic models that are prone to over-predicting vehicle activity due to the inability of the models to properly internalize trips or double-counting of trips. Since the rate of projected VMT growth would exceed the rate of projected population growth, this would be considered a significant impact.

Beyond the implementation of the DRAFT General Plan Update programs and policies, there are no feasible measures that would reduce this impact to a level considered less than significant. While policies and other BAAQMD regulations or programs would reduce impacts to air quality, the growth in VMT could disrupt or hinder the effectiveness of the CAP that relies on reductions in traffic-related emissions resulting from land use decisions. This would be considered a ***significant and unavoidable*** impact.

Consistency with 2010 CAP Control Measures

The DRAFT General Plan Update includes numerous policies and implementing measures that would support the applicable 2010 CAP Control Measures. The 2010 CAP includes about 55 control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. The control measures are divided in to five categories that include:

- 18 measures to reduce stationary and area sources;
- 10 mobile source measures;
- 17 transportation control measures;
- Six land use and local impact measures; and
- Four energy and climate measures

In developing the control strategy, BAAQMD identified the full range of tools and resources available, both regulatory and non-regulatory, to develop each measure. Implementation of each control measure will rely on some combination of the following:

- Adoption and enforcement of rules to reduce emissions from stationary sources, area sources, and indirect sources;
- Revisions to the BAAQMD's permitting requirements for stationary sources;
- Enforcement of CARB rules to reduce emissions from heavy - duty diesel engines;
- Allocation of grants and other funding by the Air District and/or partner agencies;
- Promotion of best policies and practices that can be implemented by local agencies through guidance documents, model ordinances, etc.;
- Partnerships with local governments, other public agencies, the business community, non - profits, etc.;
- Public outreach and education;
- Enhanced air quality monitoring;
- Development of land use guidance and CEQA guidelines, and Air District review and comment on Bay Area projects pursuant to CEQA; and
- Leadership and advocacy.

This approach relies upon lead agencies to assist in implementing some of the control measures. A key tool for local agency implementation is the development of General Plan policies and implementing measures that address new development or redevelopment in local communities. The consistency of the DRAFT General Plan Update is evaluated with respect to each set of control measures.

*Transportation Control Measures*

The CAP includes 17 transportation control measures (TCM) that are strategies meant to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. While most of the 17 TCMs are implemented at the regional level (e.g., by MTC), there are measures that the CAP relies upon local communities to assist with implementation. Many of the DRAFT General Plan Update policies supporting TCMs are found in the Mobility Element. Overall, the City supports measures to manage parking and reduce parking. Applicable TCMs that rely on local General Plans to implement are identified in **Table 4-26**, along with the relevant DRAFT General Plan Update policies and implementation measures.

**TABLE 4-26: APPLICABLE CONTROL MEASURES AND RELEVANT DRAFT GENERAL PLAN UPDATE POLICIES AND IMPLEMENTING ACTIONS**

| Control Measures | Relevant DRAFT General Plan Update Policies and Implementing Actions |
|---|---|
| **TCM B-4 – Goods Movement** | This is primarily a regional measure; however, Goal 3-6 addresses Goods Movement through Fremont. Policy 3-6.2 would protect residential neighborhoods from truck traffic maintaining and periodically evaluating designated truck routes. Policy 3-6.3 encourages trucks to use the highway system. Policy 3-6.5 would discourage truck producing business in residential areas and consider truck movements in mixed-use developments. Policy 3-6.6 would maintain a system of freight rail lines that serve the industrial areas and reduce truck traffic. |
| **TCM C-1 – Support Voluntary Employer Based Trip Reduction Program** | Goal 3-2 is to reduce vehicle miles traveled. Policy 3-2.10 encourages employers to provide transit subsidies, bicycle facilities, alternative work schedules, flextime, telecommuting and other measures to reduce vehicle travel. This goal includes policies that indirectly support this TCM and other TCMs through coordination of land use and transportation (Policy 3-2.1 and 3-2.2), integration of pedestrian networks (Policy 3-2.3), improve bicycling (Policy 3-2.4), and providing appropriate bus and transit service (Policy 3-2.6, 3-2.7, 3-2.8). Policy 3-2.9 encourages efforts to reduce single-occupant vehicle travel. Policy 3-2.11supports the concept of car sharing. |
| **TCM C-2 – Safe Routes to School and Safe Routes to Transit** | This measure is intended to implement safe pedestrian and bicycle access to schools and transit. This TCM is supported through various goals of the Mobility Element. Goal 3-11: *Complete Streets*, supported by Policy 3-1.1, 3-1.3, 3-1.4, 3-1.5, 3-1.6, and 3-1.7 would ensure streets are designed to balance the needs all uses. Policy 3-1.6 specifically addresses bicycle and pedestrian safety with implementing measures specifically focused on safe routes to school. Under Goal 3-4: Balancing Mobility and Neighborhood Quality includes numerous policies (Policy 3-4.1, 3-4..2, 3-4.3and 3-4.5 intended to calm traffic speeds that would indirectly support this TCM. |
| **TCM C-3 Promote Rideshare Services and Incentives** | As discussed under TCM C-1, the DRAFT General Plan Update includes numerous policies that support the goal of reducing VMT. These policies also directly and indirectly support this TCM. Specifically, Policy 3-2.9 would support regional ride sharing and trip reduction programs and support expansion of park and ride lots. Similarly, Land Use Element Policy 2-5.12 would develop and maintain ridesharing, carpooling, flextime, shuttle bus, and other programs in major employment areas to reduce VMT. |
| **TCM C-4 Conduct Public Outreach** | While this is mostly a regionally implemented TCM, the DRAFT General Plan Update Mobility Element goals and polices to support this TCM. |
| **TCM C-5 Promote Smart Driving/Speed Moderation** | While this measure is aimed at educating the public about the air quality benefits of high speed driving, the DRAFT General Plan supports this measure through implementation of traffic calming measures. Policy 3-4.1, 3-4.2, 3-4.3and 3-4.5 are intended to calm traffic speeds, which reduce the high emissions caused by |

| | |
|---|---|
| | heavy accelerations. |
| **TCM D-1 Improve Bicycle Access and Facilities** | Policy 3-1.1, 3-1.4, 3-1.5, and 3-1.6 would continue to improve bicycle access and facilities. Policies supporting Goal 3-2 : *Reducing Vehicles Miles Traveled* would indirectly support this TCM. Policy 3-7.5 requires the provisions of secured bicycle parking at or near new or substantially modified developments. This policy would also include the encouragement of locker and shower facilities at large employment centers. |
| **TCM D-2 Improve Pedestrian Access and Facilities** | Policy 3-1.1, 3-1.2, 3-1.3, 3-1.4, 3-1.5, and 3-1.6 would continue to improve pedestrian access and facilities. Policies supporting Goal 3-2: *Reducing Vehicles Miles Traveled* would indirectly support this TCM. |
| **TCM D-3 Support Local Land Use Strategies** | Goals and policies in the DRAFT General Plan Update support this TCM.<br>Land Use Element Policy 2.17 would plan for Fremont's transition to a community that includes a mix of established lower-density neighborhoods and new higher-density mixed use neighborhoods with access to high-quality transit. The DRAFT General Plan Update focuses the application of TOD development principles on the Fremont, Irvington, and Warm Springs BART Stations, the Centerville train station, and City Center, but also considers other opportunities, particularly along the Fremont Boulevard corridor. Policy 2-1.8 encourages mixed use developments that combine residential and commercial uses in TOD areas. Policy 2-1.11 emphasizes infill development and discourages the conversion of open space or undeveloped land on the urban fringes. Policy 2-3.8 would generally locate high-density housing in areas where there is good access to transit and a mix of uses.<br>The Mobility Element includes numerous policies and implementation measures that support this TCM. Specifically, Policy 3-2.1 and 3-2.2 supports land use choices and transportation improvements that would motor vehicle use. |
| **TCM E-2 Parking Pricing and Management Strategies** | Goal 3-7: *Parking* includes policies that address parking strategies. Policy 3-7.2 addresses parking requirements that would support reduced parking requirements in areas adequately served by transit. Policy 3-7.3 strongly encourages the concept of shared parking where peak parking demands can be met. The DRAFT General Plan Update does not have policies or implementing measures that specifically address market-rate pricing of parking. |
| **LUM 1 Goods Movement** | As discussed under TCM B-4 – *Goods Movement*, the DRAFT General Plan Update addresses the conflicts between goods movement and sensitive receptors. In addition, the Conservation Element Policy 7-7.3 and 7-7.4 would limit the exposure of new sensitive receptors to emissions from goods movements (truck and train emissions). |
| **LUM 3 Enhanced CEQA Program** | While this TCM addresses BAAQMD actions, Conservation Element Policy 7-7.1 and 7-7.3 would ensure that the City requires appropriate air quality evaluation of projects during CEQA review. |
| **LUM 5 Reduce Risk in** | While this TCM mostly applies to BAAQMD actions, Fremont is not a CARE |

| | |
|---|---|
| **Impacted Communities** | Community and does not contain "Hot Spots" subject to this rule. However, Conservation Element Policies 7-7.3 and 7-7.4 would limit the siting of new sensitive receptors near substantial TAC emission sources unless significant impacts could be mitigated. |
| **ECM 1 Energy Efficiency** | Consistency with this measure is addressed in Section P, **Global Climate Change**, below. |
| **ECM 2 Renewable Energy** | Consistency with this measure is addressed in Section P, **Global Climate Change**, below. |
| **ECM 3 Urban Heat Island Mitigation** | The Conservation Element has numerous implementation measures to support Urban Heat Island mitigation. Most notably, Policy 7-1.8 would maintain and promote tree plantings. |
| **ECM 4 Tree-Planting** | Policy 7-1.8 of the Conservation Element would protect and promote the City's urban forest. Specifically, Implementation 7-1.8.6 encourages the planting of new native tree species in new developments or redevelopments and particularly encourages tree planting to shade buildings. |

*Stationary and Area Source Control Measures*

The CAP includes 18 control measures (SSMs) that BAAQMD adopts as rules or regulations through their authority to control emissions from stationary and area sources. The BAAQMD is the implementing agency, since these control measures are applicable to sources of air pollution that must obtain District permits. The DRAFT General Plan Update supports the CAP SSMs through Policy 7-7.1 (Implementation 7-7.1.B Permits for Projects that may Impact Air Quality and Implementation 7-7.1.G Air Emission Standards), which ensures that projects proposed in Fremont obtains proper permitting by BAAQMD.

*Mobile Source Measures*

The CAP includes 10 mobile source measures (MSMs) that would reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment through programs such as the BAAQMD's *Vehicle Buy-Back* and *Smoking Vehicle Programs*, and promoting advanced technology vehicles that reduce emissions. The implementation of the 10 MSMs relies heavily upon incentive programs, such as the *Carl Moyer Program* and the *Transportation Fund for Clean Air*, to achieve voluntary emission reductions in advance of, or in addition to, CARB requirements. As previously discussed, CARB has new regulations that require the replacement or retrofit of on-road trucks, construction equipment and other specific equipment that is diesel powered. Policy 7-7.4 of the DRAFT General Plan Update (Implementation 7-7.4.A Alternative-Fuel Vehicles) supports these MSMs by encouraging other agencies and private industry to use alternative-fuel vehicles. Policy 7-7.1 (Implementation 7-7.1.A Monitor and Control Air

Pollutants) would support BAAQMD efforts in controlling air pollution, which would include assisting in incentive programs through public awareness campaigns.

*Transportation Control Measures*

The CAP includes 17 transportation control measures (TCMs) that are strategies meant to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. While most of the 17 TCMs are implemented at the regional level (e.g., by MTC), there are measures that the CAP relies upon local communities to assist with implementation. Many of the DRAFT General Plan Update policies supporting TCMs are found in the Mobility Element. Applicable TCMs that rely on local General Plans to implement are identified in **Table 4-26**, above, along with the relevant DRAFT General Plan Update policies and implementation measures.

Exposure of Sensitive Receptors to Toxic Air Contaminants (TACs)

**Impact AIR-2: Possible Exposure of Sensitive Receptors to Unhealthy Levels of TACs and $PM_{2.5}$.** Development anticipated under the DRAFT General Plan Update may expose sensitive receptors to TACs and $PM_{2.5}$ through development of new sensitive receptors and non-residential development that may be sources of TACs and $PM_{2.5}$. Such exposure would represent a ***potentially significant*** impact.

As discussed above, people in the Bay Area and Fremont are exposed to TACs that result in increased cancer risk, due mostly to emission of DPM. BAAQMD cancer risk maps for 2005 emissions, based on the most commons and potent TACs, indicates cancer risk across Fremont to range from over 300 excess cases per million people in the northwest to almost 600 excess cases in the industrial areas. The Bay Area, as a whole, has a median excess cancer risk of about 500 cases per million. These cancer risks are based on regional modeling conducted by BAAQMD. This modeling did not incorporate age sensitivity factors, which take into account the increased sensitivity of infants and children to TAC exposure. On the other hand, the modeling does not account for reduced emissions from regulations and standards put in place by U.S. EPA, CARB and BAAQMD that will greatly reduce exposures in the future. Many of these reduction have already taken place.

According to the BAAQMD CEQA Air Quality Guidelines, for a plan to have a less-than-significant impact with respect to TACs, special overlay zones around existing and planned sources of TACs must be established, and the plan must identify goals, policies, and objectives to minimize potential impacts. For projects, the BAAQMD CEQA Air Quality Guidelines consider exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. For cancer risk, which is a concern with diesel particulate matter and other mobile-source TACs, BAAQMD considers an increased risk of contracting cancer that is 10 in one million chances or greater to be significant. Cumulative risk thresholds are an increased risk of contracting cancer that is 100 in one million chances. Cancer risk is computed

per BAAQMD methodologies over a 70-year lifetime of almost continuous exposure. The BAAQMD CEQA Guidelines also consider exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 micrograms per cubic meter (µg/m3) to be significant.

In Fremont, there are basically three types of sources that would potentially expose sensitive receptors to TACs. Roadways are the most common, where diesel trucks would be the greatest source of TACs. Fremont includes rail lines that are also sources of DPM emissions associated with train movements. Fremont also includes numerous stationary sources that are permitted through BAAQMD that have mostly localized emissions. **Appendix C** includes a description of the impacts each type of these sources presents in Fremont. Results are summarized in the following subsections.

*Roadway Community Risk Impacts*

Several major roadway segments in Fremont were evaluated for community risk impacts. The analysis is meant to show screening level community risk in Fremont along major highways and arterial roads. Both traffic and roadway orientation has a considerable effect on the level of community risk along these roadways. Traffic levels, especially diesel truck traffic, substantially affect emissions. Roadway orientation is important when considering the dispersion characteristics in Fremont. The following roadway segments were evaluated:

- Interstate 880 (between Thornton Avenue and Decoto Road)
- Interstate 880 (between Auto Mall Parkway and Stevenson Boulevard)
- Interstate 680 (between Auto Mall Parkway and Washington Boulevard)
- Interstate 680 (between Washington Boulevard and Mission Boulevard)
- Mission Boulevard (between Driscoll Road and Stevenson Boulevard)
- Mowry Avenue (between Blacow Road and Fremont Boulevard)
- Fremont Boulevard (between Stevenson Boulevard and Mowry Avenue)

Modeling of vehicle emissions and dispersion were conducted to predict screening level risks for a 70-year lifetime exposure. Emissions of DPM particulate matter and total organic gases were modeled using CARB's EMFAC2007 model. Speciation factors for TACs that are part of total organic gas exhaust and evaporative emissions were applied. Since vehicle emissions will decrease in the future due to the turnover of the on-road vehicle fleet with newer lower emitting vehicles, a current and future year was modeled (i.e., 2010 and 2020) and weighted to calculate one result. Dispersion modeling of DPM and organic TAC emissions from traffic was conducted using the CAL3QHCR model, which is recommended by the BAAQMD for this type of analysis. Inputs to the model included road geometry, hourly traffic volumes, TAC emission rates (i.e., DPM and ROG speciated factors) and $PM_{2.5}$ emission factors. The model also used historical

meteorological data for Fremont. Traffic volumes reflect the growth in traffic expected by the City's travel forecast model for the proposed project in the year 2035.

The predicted cancer risk and annual PM2.5 concentrations are included in **Appendix C**. Cancer risk predictions are conservative when compared with BAAQMD modeling procedures for the following two reasons:

1. Emissions are presented as a weighted combination of only two years of vehicle fleet information, 2010 and 2020. Emissions are predicted to decrease substantially between 2010 and 2020, especially after 2015. The vast majority of new development undertaken as part of the DRAFT General Plan Update would likely occur after 2015, when lower emission rates and resulting cancer risks would occur. The cancer risk posed by traffic is expected to decrease by 30 to 40 percent for occupancies beginning after 2015, as opposed to 2010.

2. The roadway segments used are based on 2,000-foot-long links. BAAQMD guidance recommends that only the portion of sources within 1,000 be assessed. As receptors are located further from the roadways, the portion of the source within 1,000 feet decreases. For example, very little roadway is located within 1,000 feet of receptors located beyond 500 feet.

This analysis indicates that the major freeways in Fremont have potential TAC and community risk impacts that are highly influenced by meteorology. DPM that leads to elevated cancer risk would be the greatest impact and influence the size of the overlays along the roadways. Based on this analysis, the following overlays should be considered when planning to locate new sensitive receptors along roadways in Fremont:

- ***I-880.*** Incremental lifetime cancer risk of 10 or greater chances per million people could extend out up to 1,000 feet to the east and 800 feet west for portions of I-880. Incremental lifetime cancer risk would extend to approximately 100 feet for a lifetime cancer risk of 100 or greater chances per million. Annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ could extend out to 200 feet on either side of I-880.

- ***I-680.*** Incremental cancer risks of 10 or greater chances per million people from I-680 traffic extend 1,000 feet or further from I-680 in Fremont. Incremental lifetime cancer risk would extend to approximately 150 feet for a lifetime cancer risk of 100 or greater chances per million. Annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ could extend out to almost 300 feet on either side of I-680.

- ***SR-84 (West of I-880).*** Traffic modeling of TACs was not conducted for SR-84. The roadway has a similar orientation as the segment of I-680 between Washington Boulevard and Mission Boulevard. However, traffic volume is about one-half of the I-680 volume. Furthermore, SR-84 has about one-fifth of the heavy truck volume experienced on I-680. Therefore, cancer risk and annual

$PM_{2.5}$ concentrations would be about 30 percent of the I-680 levels. As a result, incremental cancer risk of 10 or greater chances per million people extend about 500 feet to the south and about 300 feet to the north. Incremental lifetime cancer risk would extend to approximately 100 feet for a lifetime cancer risk of 100 or greater chances per million. Annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ could extend out to 50 to 100 feet on either side of SR-84.

- ***SR 238 (Mission Boulevard).*** Incremental cancer risk of 10 or greater chances per million people extend about 60 feet from Mission Boulevard. Annual $PM_{2.5}$ concentrations of less than 0.3 $\mu g/m^3$ would occur beyond 50 feet from the roadway. This analysis only looked at the portion of Mission Boulevard south of Niles Canyon Road. The orientation of Mission Boulevard varies north of Niles Canyon Road where impacts from traffic could vary to be greater or less. Therefore, an overlay of 100 feet should be considered for Mission Boulevard north of Niles Canyon Road.

- ***SR-262 (Mission Boulevard).*** This roadway segment was not modeled. The orientation is similar as the segment of I-680 between Washington Boulevard and Mission Boulevard and SR-84 west of I-880. However, traffic volume is about one-half of the I-680 volume, and the heavy truck volume is less than one half. There are slower speeds on this segment. Risks and $PM_{2.5}$ concentrations could be estimated to be about one-half those on the similar segment of I-680. As a result, incremental cancer risk of 10 or greater chances per million people extend about 800 feet to the south and about 500 feet to the north. Annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ could extend out to 100 feet on either side of SR-262.

- ***Mowry Avenue (Southwest-Northeast Surface Streets).*** Many of the surface streets in Fremont run southwest to northeast or southeast to northwest in Fremont. To model the effects of these roadways, two busy roadways were selected that represent each of the roadway directions. Incremental cancer risk greater than 10 in one million people or annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ do not extend out to 50 feet from Mowry Avenue. The relatively low cancer risk and $PM_{2.5}$ concentrations reflect a low-level of diesel vehicles that use these roadways (i.e., about 2 percent or less).

- ***Fremont Boulevard (Southeast-Northwest Surface Street).*** Incremental cancer risk greater than 10 in one million people or annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ do not extend out to 50 feet from Fremont Boulevard. As with Mowry Avenue, the relatively low cancer risk and $PM_{2.5}$ concentrations reflect a low-level of diesel vehicles that use these roadways (i.e., about 2 percent or less).

- ***SR 84 (Thornton Avenue).*** Although this roadway was not modeled, it has similar characteristics as Mowry Avenue in terms of traffic volume, vehicle mix, and traffic speed, with a somewhat greater mix of larger vehicles as a state

highway through route. Therefore, incremental cancer risk greater than 10 in one million people or annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ would be similar to Mowry Avenue and extend somewhat beyond 50 feet from the roadway.

*Community Risk Impacts from Railroad Traffic*

Potential community risk impacts from railroad traffic in Fremont were evaluated by modeling impacts along the Centerville rail line. This rail line is the busiest in Fremont, as it is used by trains for passenger and freight service. Along this rail line, there are up to 14 Capitol Corridor (CC) trains daily, 8 Altamont Commuter Express (ACE) trains per weekday, and about 8 daily freight trains[12].

As with the modeling of roadways, the analysis is meant to show screening level community risk in Fremont along this rail line. The volume of train activity, operating characteristics, and rail line orientation has a considerable effect on the level of community risk. Three portions of the rail line were evaluated to reflect the different orientation of the rail line and the changes in train speed.

- East of I-880 (Segment 1) is a portion of the rail line that is southwest of the Centerville Station and northeast of I-880. Trains along this segment were assumed to operate at speeds of about 45 mph.

- West of Centerville Station (Segment 2) is the portion of the rail line just south of the Centerville Station where trains are assumed to operate at slower speeds (about 25 mph) due to at grade crossings. As a result, emissions and resulting concentrations are higher.

- East of Centerville Station (Segment 3) is a portion of the rail line north of Centerville Station where trains are assumed to operate at about 45 mph.

DPM and $PM_{2.5}$ emissions from trains on the Centerville rail line were calculated using EPA emission factors for locomotives[13] and CARB adjustment factors to account for fuels used in California[14]. Dispersion modeling of locomotive emissions was conducted using EPA's ISCST3 dispersion model and hourly meteorological data collected in Fremont.

The portion of the Centerville rail line just west of the Centerville Station would have the highest impacts. This is due to the slow speed of the trains as they travel through at-grade surface crossings. Incremental cancer risks of 10 in one million people or greater would extend out 350 feet to the east and 280 feet to the west of the rail line. The portion of the rail line further west, where trains travel faster, would have lower impacts. Incremental cancer risks of 10 in one

[12] *Bay Area Regional Rail Plan, Technical Memorandum 4a, Conditions, Configuration & Traffic on Existing System*, Metropolitan Transportation Commission, November 15, 2006.

[13] *Emission Factors for Locomotives*, USEPA 2009 (EPA-420-F-09-025)

[14] *Offroad Modeling, Change Technical Memo*, Changes to the Locomotive Inventory, CARB July 2006.

million people or greater would extend out 150 feet to the east and 100 feet to the west of the rail line. The portion of the line east of the Centerville Station, where trains travel at faster speeds, would have incremental cancer risks of 10 in one million people or greater would extend out 200 feet to the east and only 50 feet to the west of the rail line. Annual $PM_{2.5}$ concentrations of 0.3 $\mu g/m^3$ or greater would not occur along the rail line.

Trains travel through other parts of Fremont, but at a much lower volume. However, train volume, speed and track orientation are important factors in assessing the potential cancer risks that these source pose. Although other tracks in Fremont have lower volumes of train activity, cancer risks of 10 in one million could extend out up to 300 feet. Annual $PM_{2.5}$ concentrations of greater than 0.3 $\mu g/m^3$ would not occur along the rail lines.

Like roadway emissions of TACs, locomotive emissions are anticipated to decrease substantially in the future. The U.S. EPA establishes locomotive engine standards throughout the Untied States, including California. CARB has established fuel standards in California, which unlike most other parts of the country, require ultra-low sulfur diesel for locomotives as well as other off-road vehicles. In 1998, EPA adopted Tier 0 (engine model years 1973-2001), Tier 1 (engine model years 2002-2004), and Tier 2 (engine model years 2005+) emissions standards applicable to newly manufactured and remanufactured railroad locomotives and locomotive engines. These standards required compliance with progressively more stringent standards for emissions of air pollutants, including DPM. In 2008, EPA adopted additional standards for locomotive diesel engines that will further reduce emissions of DPM and NOx from locomotives. These 2008 standards set more stringent emission standards for remanufactured Tier 0 – Tier 2 locomotives than the original 1998 regulations. In addition, it added Tier 3 standards for new and remanufactured engines starting in 2009, and Tier 4 standards for new and remanufactured engines beginning in 2015. The EPA estimates a 90 percent reduction in DPM emissions from Tier 4 engines compared to engines meeting the current Tier 2 standards. The emissions from trains in years beyond 2020 will be substantially lower (although those improvements were not accounted for in the modeling results).

*Stationary Source Community Risk Impacts*

New stationary sources of TACs would be subject to BAAQMD rules and regulations. BAAQMD Regulation 2, Rule 5 requires that new stationary sources meet emission standards and the BAAQMD would be required to ensure that health risks associated with TAC emissions would be acceptable.[15] Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have an individual significant air quality impact. Stationary sources that are exempt from BAAQMD permit requirements due to low emission thresholds would not be considered to have a significant air quality impact. There are potential sources that are not regulated by BAAQMD that could be considered TAC sources.

[15] BAAQMD risk policy requires that these sources have a cancer risk of less than 10 in one million, which is the same as BAAQMD's recommended CEQA threshold.

Such sources are identified in **Table 4-24**, above. The development of such sources under the City's control is not likely. However, the Conservation Element of the DRAFT General Plan Update includes policies that pertain to these sources. Policy 7-7.1 would require the City to review proposed projects for their potential to affect air quality conditions during the environmental impact process.

The City of Fremont has numerous permitted stationary sources. These sources are located throughout the City, but mostly in industrial and commercial areas. The impact of these sources can only be addressed on a project-by-project basis, since impacts are generally localized. To assist lead agencies, BAAQMD has provided a database of permitted sources for each County.

When siting new sensitive receptors, the BAAQMD CEQA Guidelines advise that lead agencies examine existing or future proposed sources of TAC and/or $PM_{2.5}$ emissions that would adversely affect individuals within the planned project. As in the past, the DRAFT General Plan Update land use maps indicate residential development near freeways, large arterial roadways, train lines, and stationary facilities. In addition, new residences could be located near stationary sources of TACs located throughout the City, such as gasoline dispensing stations and dry cleaners. Without proper setbacks or mitigation measures, these sources could result in TAC levels that would be significant for new sensitive receptors.

- ***Gasoline Stations.*** CARB found the cancer risks associated with relatively high volume stations to be about 10 in one million at a distance of 50 feet. Except for the largest gasoline stations, health risks near gasoline stations should be less than 10 in one million at distances beyond 50 feet.

- ***Dry Cleaning Facilities.*** Perchlorethylene (Perc) is the solvent used commonly in past dry cleaning operations. Perc is a TAC, because it has the potential to cause cancer. In 2005, CARB recommended setbacks of 300 feet between dry cleaning facilities that emit Perc and sensitive land uses. Since then, CARB has enacted and new rules to substantially reduce Perc emissions and phase out the use of dry cleaning operations that produce these emissions. The Perc exposures would be reduced by 80 percent or more as a result of the new Air Toxic Control Measure amendments. As a result, siting of new sensitive receptors could be allowed within 100 feet of these operations.

- ***Emergency Back-Up Generators.*** Electricity generators that are powered by diesel engines are common. They are typically located at facilities where uninterrupted electricity is necessary. Common facilities include fire and police stations, hospitals or medical treatment facilities, pump stations, schools, offices and data centers. Diesel engines powering these generators are regulated by BAAQMD and CARB. CARB has established strict emissions limits and operating restrictions for engines larger than 50 horsepower. BAAQMD has developed criteria (Regulation 2 Rule 5) for approval of projects with new or modified emission sources of TACs. As a result, all new engines have very localized impacts, and would not be permitted if they would cause significant

cancer risks or hazards. Existing engines are only permitted to operate for 50 hours per years for maintenance or routine testing.

*Community Risk Impact Summary*

For General Plans, the BAAQMD CEQA Air Quality Guidelines recommend that special overlay zones be identified around existing and planned sources of TACs, including special overlay zones along freeways and high-volume roadways. The analysis presented in this DRAFT EIR presents overlays of the most common TAC sources in Fremont. The major freeways, I-880 and I-680, are the largest sources of TAC exposure, followed by the Centerville rail line. Arterial roadways and most stationary sources of TAC emissions pose localized impacts.

The BAAQMD CEQA Air Quality Guidelines recommend that General Plans identify goals, policies and objectives to minimize potential exposures. The Conservation Element of the DRAFT General Plan Update includes policies and implementation measures to reduce these exposures. Policy 7-7.3: Land Use Planning to Minimize Health Impacts from Air Contaminants would coordinate land use planning with air quality data and local transportation planning to reduce the potential for TACs to affect the community. For TACs, the City has established acceptable thresholds for new sources of increased risk of 10 chances in a million as defined by BAAQMD for their individual TAC emissions. For receptors within developed areas of the City the City will use the cumulative exposure threshold of 100 chances in a million.

While the DRAFT General Plan Update includes policies and implementing measures to reduce exposures, it also allows for development of land in a manner that could potentially exceed an increase of 10 or 100 chances of cancer risk in a million. Additionally, the DRAFT General Plan Update does not include measures to reduce exposures for development within overlays that surround TAC sources. Since this DRAFT EIR analysis indicates substantial overlays near some sources of TACs in Fremont, measures to minimize those exposures should be included in the General Plan Update. As a result, the impact is considered ***significant***.

**Mitigation AIR-2: Modify Implementation Measures of the DRAFT General Plan Update to Minimize Potential Exposures of Sensitive Receptors to TACs.** Implementation 7-7.3A: Prohibit Sensitive Receptors in Poor Air Quality Areas shall be modified as follows:

> "Minimize exposures of new sensitive receptors/land uses near sources of TACs such as freeways, rail lines, stationary air pollutant sources, and industrial areas where existing or projected air quality problems exist. The following measures should be considered to reduce TAC exposures:
>
> - Site-specific studies to identify significance of TAC exposure to identify whether or not additional mitigation measures are

necessary, if so, implement the following examples of site-specific mitigation measures:

- Site design to reduce TAC exposure;
- Phased developments that delay occupancy of areas with highest TAC exposure to allow for the effects of lower future TAC emissions from CARB and BAAQMD regulations or standards that are currently in effect (these regulations or standards require time to become more effective);
- Landscape planning that includes trees or other vegetation to reduce TAC exposure;
- Install and maintain filtration systems of fresh air intakes to buildings that sensitive receptors would occupy. Such a measure shall only be undertaken after site-specific studies have identified the magnitude of exposures and level of reductions necessary to minimize exposures to acceptable levels; and
- Reduce emissions at sources through a number of measures that may include physical treatments to stationary sources, restrictions on the use of those sources, parking/idling restrictions, and truck routing requirements."

Implementation of **Mitigation AIR-2** would minimize potential TAC impacts to reduce the impact to a level considered ***less than significant***.

Objectionable Odors

The potential significance of odors is assessed based on the potential of development under the DRAFT General Plan Update to result in a substantial number of odor complaints. Such complaints could result from either proposed development projects creating new objectionable odors or by placing people near sources of objectionable odors. The BAAQMD CEQA Guidelines provide project screening buffers for potential odor sources. According to the BAAQMD CEQA Guidelines, an odor source with five or more confirmed complaints per year averaged over three years is considered to have a significant impact. Responses to odors are subjective, and vary by individual and type of use.

Sensitive land uses that include outdoor activities (e.g., residences, schools and child care facilities) are likely to be affected most by existing sources of odor. Under the DRAFT General Plan Update, these sensitive uses would not be located near commercial or industrial uses which might be considered potential odor sources. In light of the current locations of sensitive land uses

in relation to current and future commercial and industrial operations, and with no known future major odor sources anticipated with development under the DRAFT General Plan Update (such uses would be required to comply with BAAQMD buffer requirements to reduce the risk of future odor complaints), the potential impact associated with odors adversely affecting a substantial number of people would be considered ***less than significant.***

Traffic Related Impacts

*Regional Air Quality Impacts*

DRAFT General Plan Update impacts to regional air quality are addressed above under **Impact AIR-1: 2010 CAP Population and VMT Consistency**. DRAFT General Plan Update growth that is inconsistent with the CAP would be considered to adversely affect regional air quality.

*Carbon Monoxide*

DRAFT General Plan Update-related traffic could increase concentrations of carbon monoxide along roadways in Fremont. Carbon monoxide is a localized air pollutant, where the highest concentrations are found very near sources. The major source of carbon monoxide is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volume and congestion.

Monitoring data from Fremont and all other ambient air quality monitoring stations in the Bay Area indicate that existing carbon monoxide levels are currently below National and California Ambient Air Quality Standards and have decreased substantially since around 1990. This is the result of decreases in emission rates due to newer automobiles with much improved exhaust emission control replacing older vehicles. The decline in carbon monoxide emissions rates began two decades ago. Historic air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. The highest measured levels at the CARB/BAAQMD monitoring station in Fremont during the last 3 years are 2.5 ppm for 1-hour averaging periods and 1.6 ppm during 8-hour averaging periods.

Carbon monoxide emissions from traffic generated by development anticipated under the DRAFT General Plan Update would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. The new BAAQMD CEQA Guidelines include criteria to determine if analysis of CO impacts is necessary. Under the screening criteria, dispersion modeling of CO emissions is only necessary in this situation if the total hourly volume of an intersection affected by the proposed project exceeds 44,000 vehicles per hour. BAAQMD modeling in support of CO maintenance planning in the region indicates that intersections with lower volumes would not cause hot-spot (or localized) exceedances of the CO standards. Existing and future peak hour traffic for development assumed under the DRAFT General Pan Update show that traffic volumes would be well below the BAAQMD screening

criteria. Therefore, it can be concluded, without performing dispersion modeling, that implementation of the DRAFT General Plan Update would not cause or contribute to a violation of the ambient air quality standard for carbon monoxide, and the impact is considered ***less than significant***.

Construction-Related Impacts

**Impact AIR-3: Construction Period Dust, Emissions and Odors.** Construction of development projects under the DRAFT General Plan Update would result in temporary emissions of dust, diesel exhaust and odors that may result in both nuisance and health impacts. Without appropriate measures to control these emissions, these impacts would be considered ***significant***.

Construction of development projects under the DRAFT General Plan Update would involve demolition, site preparation and grading, building erection, paving and use of paints or solvents. Two primary types of emissions would occur: dust from ground disturbances and exhaust emissions.

*Dust Emissions*

Dust would be generated during demolition, grading and construction activities. Most of the dust would result during demolition activities and site preparation. The amount of dust generated would be highly variable, and is dependent on the size of the area disturbed, amount of activity, soil conditions and meteorological conditions. Typical winds during late spring through summer are from the northwest. Afternoon winds in late spring and summer can be gusty when conditions are dry. Sensitive land uses will be near some of the construction projects. Dust emissions from construction could contribute to regional $PM_{10}$ emissions.

Although construction activities would be temporary and local, they would have the potential to cause both nuisance and health-related air quality impacts. $PM_{10}$ is the pollutant of greatest concern associated with dust. If uncontrolled, $PM_{10}$ levels downwind of actively disturbed areas could possibly exceed State standards. In addition, dust fall on adjacent properties could be a nuisance. If uncontrolled, dust generated by grading and construction activities represents a significant impact associated with DRAFT General Plan Update-related development. Policy 7-7.2: Reduce Air Contaminant Levels and Implementation 7-7.2.A: Construction Practices, would require construction practices that reduce dust and other particulate emissions and require watering of exposed areas at construction sites. The BAAQMD CEQA Air Quality Guidelines have identified "Best Management Practices" to reduce dust and $PM_{10}$ emissions during construction. Implementation of these measures would reduce dust and $PM_{10}$ emissions to a level considered less than significant. Without implementation of these measures for construction projects that involve grading or large site disturbances, significant emissions of $PM_{10}$ are possible.

*Construction Exhaust Emissions*

Construction impacts would be a source of exhaust emissions from construction vehicles. Exhaust from construction equipment and associated heavy-duty truck traffic emits diesel particulate matter, which is a known Toxic Air Contaminant. In the current CEQA Guidelines, the BAAQMD has developed procedures or guidelines for identifying impacts from temporary construction activities where emissions are transient. These thresholds, however, do not apply to Plan-level impacts.

Diesel exhaust in the form of diesel particulate matter or DPM is a TAC. Use of heavy-duty equipment in close proximity to sensitive receptors may cause significant exposures of persons to TACs or $PM_{2.5}$. In general, exposures are expected to be less than significant given the relatively short duration of construction activities. Currently, the BAAQMD recommends that exposure to TACs from construction activity should be based on cancer risks, chronic non-cancer risks and $PM_{2.5}$ exposures. BAAQMD commissioned a screening level construction heath risk assessment that found projects that involve more than 6 months of heavy construction with sensitive receptors located within 330 feet (100 meters) may have significant exposures[16]. Use of newer construction equipment along with mitigation measures can greatly reduce exposures to sensitive receptors near construction sites. However, the construction exhaust emissions would be considered significant if measures to reduce NOx and DPM emission are not included during construction for larger projects.

*Hazardous Emissions from Construction*

Given the age of some buildings in Fremont that could be demolished or renovated as part of construction under the DRAFT General Plan Update, asbestos-containing materials may be present. Investigations would be required to identify these materials prior to any construction activities. Demolition activities would require permits from the BAAQMD if removal or disturbance of hazardous materials were to occur. For instance, the handling of asbestos containing materials is subject to BAAQMD Regulation 11 – Hazardous Pollutants, Rule 2 – Asbestos Demolition, Renovation and Manufacturing. Asbestos is a TAC that has been known to cause a number of disabling and fatal diseases such as asbestosis, lung cancer, and mesothelioma. There is no identified safe level of exposure to asbestos; therefore, all exposure to asbestos should be avoided. Project applicants would be required to consult with the BAAQMD's Enforcement Division prior to handling materials that may contain asbestos. Adherence to this requirement on a project-by-project basis ensures that asbestos-related impacts would be less than significant. The regulation is designed to employ the best available dust mitigation measures in order to reduce and control dust emissions for both onsite workers and the public.

[16] BAAQMD. 2010. Screening Tables for Air Toxics Evaluation During Construction, Version 1.0. May.

The BAAQMD CEQA Air Quality Guidelines do not identify Plan-level thresholds that apply to construction. Although construction activities at individual project sites are expected to occur during a relatively short time periods, the combination of temporary dust from activities and diesel exhaust from construction equipment poses both a health and nuisance impact to nearby receptors. In addition, NOx emissions during grading and soil import/export for large projects may exceed the BAAQMD NOx emission thresholds. Without application of appropriate control measures to reduce construction dust and exhaust, construction period impacts would be considered a ***potentially significant impact***.

**Mitigation AIR-3: Implement BAAQMD-Recommended Measures to Control Particulate Matter Emissions during Construction.** Measures to reduce diesel particulate matter and PM10 from construction are recommended to ensure that short-term health impacts to nearby sensitive receptors are avoided.

Dust ($PM_{10}$) Control Measures:

- Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.
- Cover all hauling trucks or maintain at least two feet of freeboard.
- Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.
- Limit traffic speeds on any unpaved roads to 15 mph.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend construction activities that cause visible dust plumes to extend beyond the construction site.
- Post a publicly-visible sign(s) with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Additional Measures to Reduce Diesel Particulate Matter and $PM_{2.5}$ and other construction emissions:

- The developer or contractor shall provide a plan for approval by the City or BAAQMD demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the year 2011
- Clear signage at all construction sites will be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site.
- The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).
- Properly tune and maintain equipment for low emissions.

Implementation of **Mitigation AIR-3** would be sufficient to reduce exhaust emissions from most construction projects to a level considered ***less than significant***, but larger projects, due to their size and construction schedule, might have exhaust emissions that exceed the BAAQMD significance thresholds for construction exhaust emissions. Therefore, it is possible that in some circumstances, the impact would remain ***significant and unavoidable***.

Cumulative Impacts

According to the BAAQMD CEQA Air Quality Guidelines, additional analysis to determine cumulative impacts of a plan is not necessary. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels at which a project or plan's individual emissions would be cumulatively considerable. Impacts to local air quality, which were found to be less than significant, have already included cumulative traffic conditions. However, implementation of the DRAFT General Plan Update was considered to conflict with the regional Clean Air Plan, because it could increase VMT to a greater rate than population growth. This was identified above as a ***significant and unavoidable*** impact.

As indicated above, while the DRAFT General Plan Update includes a policies and implementing measures to reduce TAC exposures, it also allows for development of land in a manner that could potentially exceed an increase of 10 or 100 chances of cancer risk in a million. Implementation of **Mitigation AIR-2** would minimize potential TAC impacts to reduce the impact to a level considered ***less than significant***.

Implementation of **Mitigation AIR-3** would be sufficient to reduce exhaust emissions from most construction projects to a level considered ***less than significant***, but larger projects, due to their size and construction schedule, might have exhaust emissions that exceed the BAAQMD significance thresholds for construction exhaust emissions. Therefore, it is possible that in some circumstances, the impact would remain ***significant and unavoidable***.

# F. NOISE AND VIBRATION

## SETTING

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Perceptible increases in noise levels generally are a change of 3 dBA-5 dBA or more, as this level has been found to be barely perceptible to clearly perceptible to the human ear in outdoor environments. Technical terms are defined in **Table 4-27**.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in **Table 4-28**. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called $L_{eq}$. The most common averaging period is hourly, but $L_{eq}$ can describe any series of noise events of defined duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

**TABLE 4-27: DEFINITIONS OF ACOUSTICAL TERMS**

| Term | Definitions |
|---|---|
| Decibel, dB | A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20. |
| Sound Pressure Level | Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter. |
| Frequency, Hz | The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz. |
| A-Weighted Sound Level, dBA | The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. |
| Equivalent Noise Level, $L_{eq}$ | The average A-weighted noise level during the measurement period. |
| $L_{max}$, $L_{min}$ | The maximum and minimum A-weighted noise level during the measurement period. |
| $L_{01}$, $L_{10}$, $L_{50}$, $L_{90}$ | The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period. |
| Day/Night Noise Level, $L_{dn}$ or DNL | The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am. |
| Community Noise Equivalent Level, CNEL (Not used in Fremont) | The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am. |
| Ambient Noise Level | The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location. |
| Intrusive | That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level. |

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998

**TABLE 4-28: TYPICAL NOISE LEVELS IN THE ENVIRONMENT**

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|---|---|---|
| | 110 dBA | Rock band |
| Jet fly-over at 1,000 feet | | |
| | 100 dBA | |
| Gas lawn mower at 3 feet | | |
| | 90 dBA | |
| Diesel truck at 50 feet at 50 mph | | Food blender at 3 feet |
| | 80 dBA | Garbage disposal at 3 feet |
| Noisy urban area, daytime | | |
| Gas lawn mower, 100 feet | 70 dBA | Vacuum cleaner at 10 feet |
| Commercial area | | Normal speech at 3 feet |
| Heavy traffic at 300 feet | 60 dBA | |
| | | Large business office |
| Quiet urban daytime | 50 dBA | Dishwasher in next room |
| Quiet urban nighttime | 40 dBA | Theater, large conference room |
| Quiet suburban nighttime | | |
| | 30 dBA | Library |
| Quiet rural nighttime | | Bedroom at night, concert hall |
| | 20 dBA | |
| | | Broadcast/recording studio |
| | 10 dBA | |
| | 0 dBA | |

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

Since the sensitivity to noise increases during the evening and at night because excessive noise interferes with the ability to sleep, 24-hour descriptors were developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (i.e., 7:00 PM - 10**:**00 PM) noise levels and a 10 dB addition to nocturnal (10:00 PM - 7:00 AM) noise levels. The *Day / Night Average Sound Level, $L_{dn}$,* is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Effects of Noise

*Hearing Loss and other Health Effects*

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

The World Health Organization (WHO) has identified several areas where community noise can contribute to disease. These include cardiovascular disease, cognitive impairment, sleep disturbance, tinnitus ("ringing in the ear"), and annoyance. WHO did not find adequate data to evaluate hearing impairment from community noise. Regarding annoyance, WHO acknowledged that while not a "health effect", annoyance can affect "a state of complete physical, mental and social well-being".

*Sleep and Speech Interference*

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA DNL. Typically, the highest steady traffic noise level during the daytime is about equal to the DNL and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is, therefore, possible when exterior noise levels are about 57-62 dBA DNL with open windows and 65-70 dBA DNL if the

windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed; those facing major roadways and freeways typically need special glass windows with Sound Transmission Class ratings greater than 30 STC.

*Annoyance*

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The DNL as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA DNL. At a DNL of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the DNL increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. Therefore, there is an increase in annoyance due to ground vehicle noise of about 1 percent per dBA between a DNL of 60-70 dBA. Between a DNL of 70-80 dBA, each decibel increase increases the percentage of the population highly annoyed by about 2 percent. People appear to respond more adversely to aircraft noise. When the DNL due to aircraft noise is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase in aircraft noise results in about a 3 percent increase in the percentage of the population highly annoyed.

Background Information on Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify the amplitude of vibration including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal. PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows. Ground vibration levels in buildings

can be reduced due to coupling losses between the ground and the foundation, and amplified by resonances in the floor.

In urban environments, such as Fremont, sources of ground-borne vibration include construction activities, rail transit, and heavy trucks and buses.

Construction Vibration

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile-driving and vibratory compaction equipment typically generates the highest construction-related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the peak particle velocity descriptor (PPV) has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration (the potential to damage a structure and the potential to interfere with the enjoyment of life) are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.2 to 0.3 mm/sec (0.008 to 0.012 inches/sec), PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to a building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity (e.g., impact pile driving) occurs immediately adjacent to the structure.

**Table 4-29** displays continuous vibration impacts on human annoyance and on buildings. As discussed above, annoyance is a subjective measure and vibrations may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying over long periods of time.

**TABLE 4-29: REACTION OF PEOPLE AND DAMAGE TO BUILDINGS FOR CONTINUOUS VIBRATION LEVELS[17]**

| Velocity Level, PPV (in/sec) | Human Reaction | Effect on Buildings |
|---|---|---|
| 0.006 to 0.019 | Threshold of perception: Possibility of intrusion | Vibration unlikely to cause damage of any type |
| 0.08 | Vibrations readily perceptible | Recommended upper level of the vibration to which ruins and ancient monuments should be subjected |
| 0.10 | Level at which continuous vibrations begin to annoy people | Virtually no risk of "architectural" damage to normal buildings |
| 0.20 | Vibrations annoying to people in buildings | Threshold at which there is a risk of "architectural" damage to normal dwellings such as plastered walls or ceilings. |
| 0.4 to 0.6 | Vibrations considered unpleasant by people subjected to continuous vibrations | Vibration at this level would cause "architectural" damage and possibly minor structural damage. |

Light-Rail/ Heavy-Rail Vibration

Rail operations are potential sources of substantial ground-borne vibration depending on distance, the type and the speed of trains, and the type of railroad track. People's response to ground-borne vibration has been correlated best with the velocity of the ground. The velocity of the ground is expressed on the decibel scale. The reference velocity is 1 x 10-6 in. /sec. RMS, which equals 0 VdB, and 1 in./sec. equals 120 VdB. Although not a universally accepted notation, the abbreviation "VdB" is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceivable vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams, and foot traffic. Construction activities (in particular, pile-driving for taller buildings in certain soil conditions), train operations, and street traffic are some of the most common external sources of perceptible vibration inside residences. **Table 4-30** identifies some common sources of vibration, corresponding VdB levels, and associated human perception and potential for structural damage.

[17] Transportation Related Earthborne Vibrations. Caltrans, Technical Advisory, TAV-02-01-R9601, February 2002.

**TABLE 4-30: TYPICAL LEVELS OF GROUNDBORNE VIBRATION**

| Human/Structural Response | Velocity Level, VdB | Typical Events (at 50 feet) |
|---|---|---|
| Threshold, minor cosmetic damage | 100 | Blasting, pile driving, vibratory compaction equipment, heavy tracked vehicles (bulldozers, cranes, drill rigs) |
| Difficulty with tasks such as reading a video or computer screen | 90 | Commuter rail, upper range |
| Residential annoyance, infrequent | 80 | Rapid transit, upper range |
| Residential annoyance, occasional | | Commuter rail, typical bus or truck over bump or on rough roads |
| Residential annoyance, frequent | | Rapid transit, typical |
| | 70 | |
| Approximate human threshold of perception to vibration | | Buses, trucks and heavy street traffic |
| | 60 | Background vibration in residential settings in the absence of activity |
| Lower limit for equipment ultra-sensitive to vibration | 50 | |

Source: Transit Noise and Vibration Impact Assessment, US Department of Transportation Federal Transit Administration, May 2006.

One of the problems with developing suitable criteria for ground-borne vibration is the limited research into human response to vibration and more importantly human annoyance inside buildings. The U.S. Department of Transportation, Federal Transit Administration has developed rational vibration limits that can be used to evaluate human annoyance to ground-borne vibration. These criteria are primarily based on experience with passenger train operations, such as rapid transit and commuter rail systems. The main difference between passenger and freight operations is the time duration of individual events; a passenger train lasts a few seconds whereas a long freight train may last several minutes, depending on speed and length.

Heavy Trucks and Buses

Ground-borne vibration levels from heavy trucks and buses are not normally perceptible, especially if roadway surfaces are smooth. Buses and trucks typically generate ground-borne vibration levels of about 63 VdB at a distance of 25 feet when traveling at a speed of 30 mph. Higher vibration levels can occur when buses or trucks travel at higher rates of speed or when the pavement is in poor condition. Vibration levels below 65 VdB are below the threshold for human perception.

Regulatory Setting

This section describes the relevant guidelines, policies, and standards established by Federal and State Agencies and the City of Fremont.

*Federal*

Department of Housing and Urban Development (HUD)

HUD environmental criteria and standards are presented in 24 CFR Part 51. New residential construction qualifying for HUD financing proposed in high noise areas (exceeding 65 dBA DNL) must incorporate noise attenuation features to maintain acceptable interior noise levels. A goal of 45 dBA DNL is set forth for interior noise levels and attenuation requirements are geared toward achieving that goal. It is assumed that with standard construction any building will provide sufficient attenuation to achieve an interior level of 45 dBA DNL or less if the exterior level is 65 dBA DNL or less. Approvals in a "normally unacceptable noise zone" (exceeding 65 decibels but not exceeding 75 decibels) require a minimum of 5 decibels additional noise attenuation for buildings if the day-night average is greater than 65 decibels but does not exceed 70 decibels, or minimum of 10 decibels of additional noise attenuation if the day-night average is greater than 70 decibels but does not exceed 75 decibels.

Federal Highway Administration

Proposed federal or federal-aid highway construction projects at a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes requires an assessment of noise and consideration of noise abatement per Title 23 of the Code of Federal Regulations, Part 772 (23 CFR Part 772), “Procedures for Abatement of Highway Traffic Noise and Construction Noise.” FHWA has adopted noise abatement criteria (NAC) for sensitive receivers such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals when “worst-hour” noise levels approach or exceed 67 dBA Leq. Caltrans has further defined approaching the NAC to be 1 dBA below the NAC for noise

sensitive receivers identified as Category B activity areas (e.g., 66 dBA Leq is considered approaching the NAC).[18]

Federal Transit Administration

The Federal Transit Administration (FTA) has identified vibration impact criteria for sensitive buildings, residences, and institutional land uses near rail transit and railroads. The thresholds for residences and buildings where people normally sleep (e.g., nearby residences) are 72 VdB for frequent events (more than 70 events of the same source per day), 75 VdB for occasional events (30 to 70 vibration events of the same source per day), and 80 VdB for infrequent events (less than 30 vibration events of the same source per day). These criteria are summarized in **Table 4-31**.

**TABLE 4-31: GROUNDBORNE VIBRATION IMPACT CRITERIA**

| Land Use Category | Groundborne Vibration Impact Levels (VdB re 1 µinch/sec, RMS) | | |
|---|---|---|---|
| | Frequent Events[1] | Occasional Events[2] | Infrequent Events[3] |
| **CATEGORY 1** Buildings where vibration would interfere with interior operations. | 65 VdB[4] | 65 VdB[4] | 65 VdB[4] |
| **CATEGORY 2** Residences and buildings where people normally sleep. | 72 VdB | 75 VdB | 80 VdB |
| **CATEGORY 3** Institutional land uses with primarily daytime use. | 75 VdB | 78 VdB | 83 VdB |

Notes:

1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of HVAC systems and stiffened floors.

Source: U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

[18] Traffic Noise Analysis Protocol, Caltrans Division of Environmental Analysis, August 2006.

*State of California*

California Administrative Code Section 65302(f)

California Government Code Section 65302(f) requires that all General Plans include a Noise Element to address noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services, and shall analyze and quantify (to the extent practicable, as determined by the legislative body), current and projected noise levels for all of the following sources:

- Highways and freeways.
- Primary arterials and major local streets.
- Passenger and freight on-line railroad operations and ground rapid transit systems.
- Commercial, general aviation, heliport, and military airport operations, aircraft flyovers, jet engine tests stands and all other ground facilities and maintenance functions related to airport operation.
- Local industrial plants, including, but not limited to, railroad classification yards.
- Other stationary ground noise sources identified by local agencies as contributing to the community noise environment.

Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (DNL or $L_{dn}$). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified above.

The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise. The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

California Noise Insulation Standards

The State of California establishes exterior sound transmission control standards for new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings as set forth in the 2010 California Building Code (Chapter 12, Section 1207.11). Interior noise levels attributable to exterior environmental noise sources shall not exceed 45 dBA DNL in any habitable room. When exterior noise levels (the higher of existing or future) where residential structures are to be located exceed 60 dBA DNL, a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit. A General Plan facilitates the implementation of the

Building Code noise insulation standards by establishing existing and future noise exposure contours.

Division of Aeronautic Noise Standards

Title 21 of the California Code of Regulations19 sets forth the State's airport noise standards. In the findings described in Section 5006, the standard states the following: "A level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dB for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep, and community reaction." Based on this finding, the airport noise standard as defined in Section 5012 is set at a CNEL of 65 dB. Fremont is not located within the influence area of any Bay Area airports.

*City of Fremont*

City of Fremont General Plan

Goal HS 8 of the Health and Safety (HS) chapter of the City's General Plan is an acceptable noise level throughout the community. Objectives, policies and implementation measures in support of Goal HS 8 are as follows:

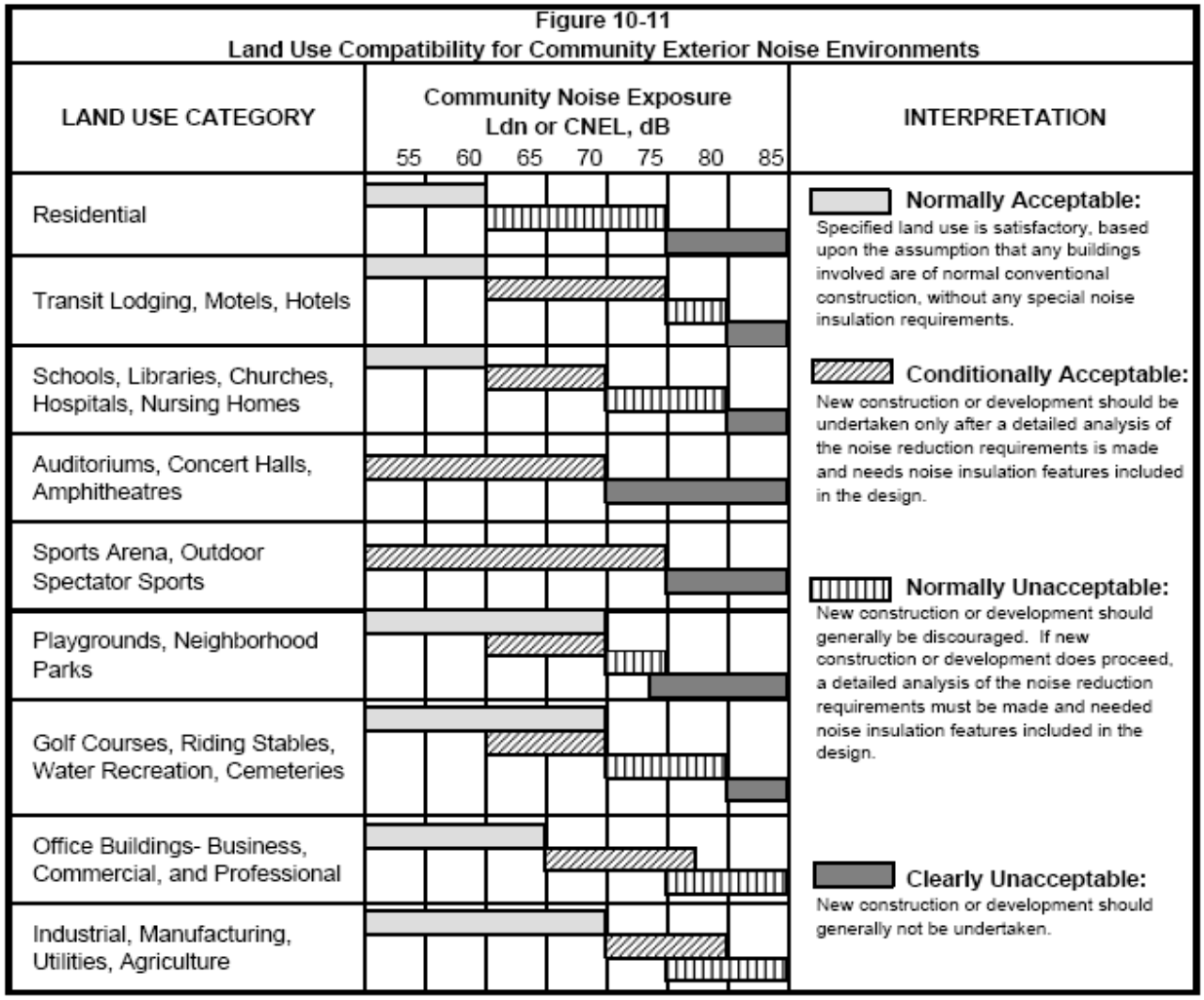
OBJECTIVE HS 8.1: A noise environment which meets standards

Policy HS 8.1.1: New residential development projects shall meet acceptable exterior noise level standards. The "normally acceptable" noise standards for new land uses established in Land Use Compatibility For Community Exterior Noise Environments shown in Figure 10-11 (**Table 4-32**) shall be used as modified by the following:

- The maximum acceptable noise levels in residential areas is an $L_{dn}$ of 60 dB. This level shall guide the design and location of future development, and is a goal for the reduction of noise in existing development. A 60 $L_{dn}$ goal will be applied where outdoor use is a major consideration (e.g., backyards in single family housing developments and recreation areas in multifamily housing projects). The outdoor standard will not normally be applied to small decks associated with apartments and condominiums, but these will be evaluated on a case-by-case basis. When the City determines that providing an outdoor $L_{dn}$ of 60 dB or lower cannot be achieved after the application of feasible mitigations, an $L_{dn}$ of 65 may be permitted at the discretion of the City Council.

[19] California Code of Regulations Airport Noise Standards, Title 21, Public Works Division 2.5, Division of Aeronautics (Department of Transportation), Chapter 6 Noise Standards, Article 1.General.

**TABLE 4-32: NOISE AND LAND USE COMPATIBILITY GUIDELINES FOR TRANSPORTATION SOURCES**




- Indoor noise level shall not exceed an $L_{dn}$ of 45 dB in new housing units.

- If the noise source is a railroad, then the outdoor noise exposure criterion can be 70 $L_{dn}$ for future development, recognizing that train noise is characterized by relatively few loud events.

- Noise levels in new residential development exposed to an exterior $L_{dn}$ of 60 $L_{dn}$ or greater should be limited to a maximum instantaneous noise level in bedrooms of 50 dB(A). Maximum instantaneous noise levels in other rooms should not exceed 55 dB(A).

- Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space and shall be evaluated on a case-by-case basis. Interior noise levels in offices generally should be maintained at 45 $L_{eq}$ (hourly average) or less.

These guidelines are not intended to be applied reciprocally. In other words, if an area currently is below the desired noise standards, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of potential for adverse community response based on a significant increase in existing noise levels, regardless of the compatibility guidelines.

Implementation 1: Continue to use noise guidelines and contours to determine if additional noise studies are needed for a proposed new development. Prepare a format and guidelines for noise studies.

Implementation 2: New residential development shall not be allowed where the ambient noise level due to commercial or industrial noise sources will exceed the noise level standards as set forth in Figure 10-12 **(Table 4-33)**, modified by the following as necessary:

- Each of the noise level standards specified in Figure 10-12 **(Table 4-33)**, Noise and Land Use Compatibility Standards for Industrial and Commercial Noise, shall be reduced by 5 dB(A) for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

**TABLE 4-33: NOISE LEVEL STANDARDS FOR INDUSTRIAL AND COMMERCIAL NOISE SOURCES**

| Noise and Land Use Compatibility Standards for New Industrial and Commercial Noise Sources | | |
|---|---|---|
| Maximum Cumulative Duration of Noise Event | Exterior Noise Level Standards, dB(A) | |
| in Any One-Hour Period | Daytime - 7 AM – 10 PM | Nighttime - 10 PM – 7 AM |
| 30 Minutes | 50 | 45 |
| 15 Minutes | 55 | 50 |
| 5 Minutes | 60 | 55 |
| 1 Minute | 65 | 60 |
| 0 Minutes | 70 | 65 |

Policy HS 8.1.2: Protect the noise environment in existing residential areas. In general, the City will require the evaluation of mitigation measures for projects under the following circumstances:

- The project would cause the $L_{dn}$ to increase by 3 dB(A) or more,
- An increase would result in an $L_{dn}$ greater than 60 dB(A)

- The $L_{dn}$ already exceeds 60 dB(A).
- The project has the potential to generate significant adverse community response.

Policy HS 8.1.3: Noise created by commercial or industrial sources associated with new projects or developments shall be controlled so as not to exceed the noise level standards set forth in Table 10-12 (**Table 4-33**) as measured at any affected residential land use.

Policy HS 8.1.4: Control noise at its source to maintain existing noise levels, and in no case to exceed the acceptable noise levels as established in the Land Use Compatibility for Community Exterior Noise Environments (Figure 10-11).

> Implementation 1: Consider adopting a noise ordinance to control noise-generating activities such as horns, unmuffled engines, loudspeakers, etc.

Policy HS 8.1.5: Protect schools, hospitals, libraries, churches, convalescent homes, and other noise sensitive uses from noise levels exceeding those allowed in residential areas.

> Implementation 1: Locate noise sensitive uses away from noise sources unless mitigation measures are included in development plans.

Policy HS 8.1.6: Design city streets to reduce noise levels in adjacent areas.

> Implementation 1: Continue to require sound walls, earth berms, set backs and other noise reduction techniques as conditions of development approval.

Policy HS 8.1.7: Encourage other agencies to reduce noise levels generated by roadways, railways, airports, and other facilities.

> Implementation 1: Continue to work with the county Airport Land Use Commission (ALUC), State Office of Noise Control (ONC), and other agencies to reduce noise generated from sources outside of the City's jurisdiction.
>
> Implementation 2: Work closely with Caltrans and other appropriate agencies to adequately quantify and mitigate the noise impacts associated with any extension of Route 84, the construction of an I-680 to I-880 connector, and the possible development of a railway commuter system or inter-city train service.

Municipal Code

The City's Municipal Code contains a Zoning Ordinance that addresses noise and vibration caused by stationary sources in industrial areas:

> (1) Noise: At all property lines, as measured consistent with Section 8-21503(c), the maximum noise level generated by any user shall not exceed an $L_{dn}$ level of 70 db when adjacent users are industrial or wholesale users. When adjacent to offices, retail, or sensitive industries, the noise level at all property lines shall be limited to an $L_{dn}$ level of 65 db. When users are adjacent or contiguous to residential, park, or institutional uses, the maximum noise level shall not exceed an $L_{dn}$ level of 60

db. Excluded from these standards are occasional sounds generated by the movement of railroad equipment, temporary construction activities or warning devices. Each of the noise level standards specified in this Section shall be reduced by 5 db(A) for single tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises when the site is adjacent to residential areas.

(2) Vibrations: No vibration shall be permitted which is discernible without instruments at any property line, as measured consistent with Section 8-21503(c).

Existing Noise Environment

A comprehensive noise monitoring survey was made for this DRAFT EIR during the months of February and March 2008. The sites for measurements were selected to provide information on the 24-hour distribution of noise levels along the streets and highways, to determine the level of baseline ambient noise levels in the quiet residential areas of the City away from identifiable noise sources, to measure noise levels generated by railroads and BART, and to measure noise generated by stationary sources. Standard measuring practices were followed; sound level meters were calibrated before and after each survey, microphones were fitted with windscreens, and data were gathered during good weather when it is not raining or too windy.

Based on familiarity gained through numerous project-specific noise studies prepared in Fremont, a review of aerial photos, and discussions with staff, 17 long-term noise measurement sites (minimum 24 hour) and 20 short-term noise measurement sites (10- to 15-minute duration) were identified. **Appendix D** presents the daily trend in hourly average noise levels ($L_{eq}$) for the long-term noise measurements. Illingworth & Rodkin, Inc. files were reviewed for recent projects, which resulted in the identification of six locations where noise and vibration data, collected since 2005, were appropriate for inclusion into the DRAFT EIR Monitoring Program. **Table 4-34** summarizes the long-term noise measurement results. **Table 4-35** summarizes the short-term noise measurement results.

*Noise Conditions in Fremont*

The 1991 General Plan Update states the following regarding noise conditions in Fremont: "Various sources throughout Fremont contribute to the overall noise environment. The most significant sources are transportation noise from vehicular traffic and railroads." This continues to be true today. Furthermore, other sources such as industry, mechanical equipment on buildings, recreational activities, and other sources also previously identified continue to contribute, although to a lesser degree, at particular locations throughout the City.

Local traffic is the most significant source of community noise in the City because it occurs virtually everywhere and the sources are in close proximity to the sensitive receptors. Because of the high volumes of traffic and high speeds, freeways can affect larger geographical areas. Railroad trains are the source of the highest regularly occurring instantaneous maximum noise levels in the community.

**TABLE 4-34: LONG-TERM NOISE MEASUREMENT RESULTS**

| Site | Location | Noise Levels ($L_{dn}$, dBA) | Adjacent Source |
|---|---|---|---|
| LT-1 | 70 feet from BART line at the end of Fernwood Court | 59-61 | BART |
| LT-2 | Approximately 150 feet from the sound wall along I-880 on Lake Mead Court | 57 | I-880 |
| LT-3 | Landing Parkway, approximately 160 feet to the center of I-880 | 75 | I-880 |
| LT-4 | Avalon Heights Terrace approximately 600 feet from I-680 | 67-68 | Distant I-680 |
| LT-5 | Research Park Avenue approximately 130 feet to the edge of I-680 | 71-74 | I-680 |
| LT-6 | Vineyard Avenue near parking lot for Mission Peak Park | 54 | Stanford Avenue |
| LT-7 | Mission San Jose Community Park, approximately 110 feet from the center of Mission Boulevard | 70-72 | Mission Boulevard/SR 238 |
| LT-8 | 75 feet from the centerline of Fremont Boulevard | 69 | Fremont Boulevard |
| LT-9 | Between two UPRR lines off of Blacow Road, 32 feet from center of western rail line | 68-72 | Osgood Road |
| LT-10 | Approximately 55 feet from the centerline of Blacow Road | 64-65 | Blacow Road |
| LT-11 | 70 feet from the centerline of Warm Springs Road | 70 | Scott Creek Road |
| LT-12 | 130 feet from the centerline of Paseo Padre Parkway | 66 | Paseo Padre Parkway |
| LT-13 | Approximately 80 feet from the centerline of Mowry Avenue | 71-72 | Mowry Avenue |
| LT-14 | Approximately 100 feet from the centerline of Auto Mall Parkway | 71-73 | Fremont Boulevard |
| LT-15 | Approximately 90 feet from the centerline of Driscoll Road | 64-67 | Paseo Padre Parkway |
| LT-16 | 80 feet to the centerline of Stevenson Boulevard | 68-69 | Stevenson Boulevard |
| LT-17 | Approximately 48 feet to the center of nearest UPRR line | 61-66 | UPRR |

**TABLE 4-35: SHORT-TERM NOISE MEASUREMENT RESULTS**

| Noise Measurement Location (Date/Time) | $L_{max}$ | $L_{(1)}$ | $L_{(10)}$ | $L_{(50)}$ | $L_{(90)}$ | $L_{eq}$ |
|---|---|---|---|---|---|---|
| ST-1: 80 feet from edge of I-880 (3/3/2008, 13:50-14:00) | 84 | 78 | 73 | 70 | 68 | 71 |
| ST-2: 25 feet from sound wall along I-880 (2/25/2008, 13:40-13:50) | 67 | 66 | 64 | 62 | 60 | 62 |
| ST-3: 70 feet from the centerline of Mission Boulevard (3/3/2008, 12:10-12:20) | 84 | 82 | 79 | 72 | 62 | 74 |
| ST-4: Approximately 70 feet from the centerline of Mission Boulevard (2/14/2008, 11:10-11:20) | 76 | 75 | 71 | 62 | 51 | 66 |
| ST-5: 100 feet from the centerline of SR 84 (3/3/2008, 12:40-12:50) | 87 | 78 | 73 | 65 | 55 | 70 |
| ST-6: 50 feet from the centerline of Peralta Boulevard (2/28/2008, 13:40-13:50) | 71 | 67 | 63 | 55 | 43 | 59 |
| ST-7: 63 feet from the centerline of Paseo Padre Parkway (3/6/2008, 15:10-15:20) | 77 | 76 | 73 | 67 | 59 | 69 |
| ST-8: 70 feet from the centerline of Grimmer Blvd (2/25/2008, 14:40-14:50) | 82 | 76 | 72 | 67 | 60 | 69 |
| ST-9: 54 feet from the centerline of Durham Road (2/14/2008, 11:30-11:40) | 87 | 78 | 70 | 59 | 46 | 67 |
| ST-10: Approximately 80 feet to the center of Paseo Padre Parkway (3/6/2008, 15:40-15:50) | 79 | 75 | 69 | 61 | 54 | 65 |
| ST-11: 78 feet from the centerline of Thornton Avenue (2/28/2008, 14:00-14:10) | 70 | 69 | 66 | 62 | 57 | 63 |
| ST-12: 70 feet from the centerline of Warm Springs Boulevard (2/14/2008, 12:00-12:10) | 75 | 73 | 69 | 65 | 60 | 66 |
| ST-13: 70 feet from the centerline of Grimmer Boulevard (2/14/2008, 12:30-12:40) | 83 | 77 | 73 | 66 | 61 | 69 |
| ST-14: 70 feet from the centerline of Boyce Road (2/25/2008, 14:10-14:20) | 78 | 76 | 72 | 68 | 62 | 69 |
| ST-15: 72 feet from the centerline of Mowry Avenue (3/6/2008, 13:30-13:40) | 78 | 77 | 74 | 69 | 60 | 71 |
| ST-16: 72 feet from the centerline of Paseo Padre Parkway (3/6/2008, 13:00-13:10) | 78 | 74 | 70 | 64 | 59 | 66 |
| ST-17: 54 feet from the centerline of Walnut Avenue (3/3/2008, 13:10-13:20) | 81 | 76 | 71 | 61 | 50 | 67 |

| Noise Measurement Location (Date/Time) | $L_{max}$ | $L_{(1)}$ | $L_{(10)}$ | $L_{(50)}$ | $L_{(90)}$ | $L_{eq}$ |
|---|---|---|---|---|---|---|
| ST-18: 60 feet from the centerline of Decoto Road (3/6/2008, 14:00-14:10) | 77 | 76 | 73 | 67 | 50 | 69 |
| ST-19: 63 feet from the centerline of Fremont Boulevard (3/6/2008, 14:30-14:40) | 77 | 74 | 71 | 66 | 57 | 68 |
| ST-20: 78 feet from the centerline of Fremont Blvd (2/25/2008, 15:00-15:10) | 77 | 74 | 69 | 63 | 55 | 66 |

*Traffic*

Major vehicular transportation routes include Interstate-880 (I-880), Interstate-680 (I-680), and State Route 84. Major roads include Mission Boulevard (SR-238), Decoto Road, Paseo Padre Parkway, Thornton Avenue, Peralta Boulevard, Central Avenue, Blacow Road, Mowry Avenue, Walnut Avenue, Fremont Boulevard, Stevenson Boulevard, Grimmer Boulevard, Warm Springs Boulevard and Durham Road.

State Highways

I-880 is the major north-south transportation corridor transecting the City and is the predominant source of noise throughout most of the community. I-680 provides access to the Pleasanton/Livermore area and is located within the eastern portion of the City. SR 84 provides access to Livermore to the east and the Dumbarton Bridge to the west.

Noise measurements were made adjacent to I-880 at sites LT-2 and LT-3. Existing noise levels adjacent to the highway are approximately 75 dBA $L_{dn}$ and approximately 57 dBA $L_{dn}$ in shielded residential neighborhoods. Highway traffic noise levels vary dramatically depending on the proximity of the receiver to the highway and presence or lack of shielding. Existing noise levels adjacent to I-680 are approximately 71-74 dBA $L_{dn}$.

Local Arterial Roadways

The primary north-south arterial roadways include Blacow Road, Fremont Boulevard, Paseo Padre Parkway and Mission Boulevard. Primary east-west roadways include Thornton Avenue, Central Avenue, Mowry Avenue and Stevenson Boulevard. Existing noise levels in residential areas near these major arterial roadways typically range from about 64-73 dBA $L_{dn}$.

*Rail and BART*

Railroad lines are another significant source of transportation-related noise and vibration in Fremont. In the summer of 2007, the City conducted a “Railroad Quiet Zone Feasibility Study”. The purpose for this study was to evaluate the feasibility of creating quiet zones around at-grade railroad crossings so it would not be necessary for railroad trains to sound their warning horns.

The study identified four rail lines in Fremont, three operated by the Union Pacific Railroad (UPRR) and one operated by the Santa Clara Valley Transportation Authority (SCVTA). The operating conditions on these railroads are summarized in **Table 4-36**. Typical measured noise levels along the railroad lines indicate daily average noise levels at a distance of 50 feet from the tracks of about 65 dBA $L_{dn}$ through Centerville and 70 dBA $L_{dn}$ through Warm Springs. Noise levels through Warm Springs are elevated by nighttime freight trains. The measurements provided the daily average noise levels and the instantaneous maximum noise levels resulting from train passbys, near grade crossings where railroad train horns are normally sounded, and away from grade crossings.

BART has started construction of an extension through Fremont. Noise levels along the BART extension have been calculated and presented in environmental studies prepared for the extension. These data will be used to forecast noise along the BART corridor. Existing noise levels in residential areas near BART lines range from approximately 59-61 dBA $L_{dn}$. Ground-borne noise is a phenomenon that typically only occurs with subterranean developments adjacent to subways. Fremont will have a short segment of subway for the BART extension through Central Park. Ground-borne vibration typically occurs adjacent to fixed rail lines, such as heavy gauge railroads and BART. Since 1998, numerous vibration studies have been conducted in Fremont for residential development proposed near existing railroad lines and BART. Ground vibration was also studied in the environmental impact statements prepared for the BART extension. There are currently projects ongoing to eliminate some at-grade crossings in Fremont and this could facilitate a substantial increase in the speeds that railroad trains operate through the community. Higher speed trains generate higher ground vibration levels. Ground vibration along railroad corridors is proportional to the speed of the trains.

**TABLE 4-36: EXISTING OPERATING CONDITIONS, RAIL LINES**

| Name | Max Speed (mph) | Freight (trains/day) | Passenger (trains/day) |
|---|---|---|---|
| Niles Subdivision (UPRR) | 45 | 8/1 | 14 (CC) 8 (ACE) |
| Oakland Subdivision (UPRR) | 40 | 1/7 | 8 (ACE) |
| Warm Springs Subdivision (UPRR) | 10 and 25 | 6/1 + switching | -- |
| North Milpitas Industrial Lead (SCVTA) | 10 | Switch yard activity only | -- |

Source: MTC Bay Area Regional Rail Plan, Technical Memorandum 4a – Conditions, Configuration & Traffic on Existing System, November 15, 2006.

*Other Noise Sources*

Noise sources that affect sensitive receptors within the community are normally associated with and/or ancillary to residential development. These include gas stations, car washes, fire stations, air conditioning units, swimming pool pumps, childcare centers, school playgrounds, and public parks. Another source of noise in Fremont relates to intermittent construction activities. Construction noise can be significant for short periods of time at any particular location as a result of public improvement projects, private development projects, remodeling, etc. The implementation of standard controls, through the environmental review and permitting process, is used to regulate construction noise.

The City has no commercial, military, or general aviation airports. There are, therefore, no concentrated jet or general aviation operations or ancillary airport-related noise sources that affect the noise environment in Fremont. Aircraft and helicopter overflights are heard intermittently with occasional helicopter landings in he City Center.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

Implementation of the DRAFT General Plan Update would have a significant noise or vibration impact if:

1) New land uses developed under the DRAFT General Plan Update would be exposed to noise levels above acceptable levels defined in the General Plan or the Zoning Ordinance

2) New land uses developed under the DRAFT General Plan Update would be exposed to excessive ground-borne vibration levels, as defined by the Federal Transit Agency, from passenger or freight trains, or BART trains

3) Permanent noise level increases above existing levels, resulting from transportation sources such as increased traffic associated with development under the DRAFT general Plan Update, would exceed 3 dBA $L_{dn}$ in residential or other noise sensitive areas

4) Permanent noise level increases above existing levels, resulting from new stationary noise sources associated with development under the DRAFT General Plan Update, that would exceed 3 dBA $L_{dn}$ in residential or other noise sensitive areas, or exceed daytime or nighttime noise thresholds appropriate for stationary sources

5) Construction or demolition activities associated with development anticipated under the DRAFT General Plan Update cause a substantial temporary increase in noise in residential or other noise sensitive areas

6) Groundborne vibration generated by construction activities exceeds 0.5 inches/sec, ppv, for buildings structurally sound and designed to modern engineering standards, 0.2 inches/sec, ppv, for buildings that are found to be structurally sound but structural

damage is a major concern, or 0.08 inches/sec, ppv, for historic buildings or buildings that are documented to be structurally weakened.

There are no public or private airports currently or planned in the vicinity of the City of Fremont, and, therefore, no noise-related thresholds of significance associated with airport operations are applicable.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update Policies are intended to reduce potentially adverse effects related to noise and vibration that may be associated with future development:

- *Policy 3-1.8: Sound Walls.*
- *Policy 3-6.7: Mitigating Rail Impacts.*
- *Policy 10-8.1: Acceptable Noise Environment.*
- *Policy 10-8.2: Noise and Land Use Compatibility.*
- *Policy 10-8.4: Commercial and Industrial Noise Sources.*
- *Policy 10-8.5: Noise Levels.*
- *Policy 10-8.6: Sensitive Uses.*
- *Policy 10-8.7: Street Design.*
- *Policy 10-8.9: Unnecessary Noise Sources.*
- *Policy 10-8.10: Vibration Environment.*
- *Policy 11-11.8: Interstate 680.*

## IMPACTS AND MITIGATION MEASURES

Future Traffic-and Rail-Related Noise

A computer model was used to calculate traffic noise levels throughout Fremont. The model, SoundPlan Version V7.0, is a three-dimensional ray-tracing program, which takes into account the source characteristics of the noise, the relative locations of the sources and receivers, and the topography of the area. The geometric data used to create the model were based on GIS information provided by the City. The predicted noise levels were compared to measured noise levels for calibration purposes and adjustments were made as necessary to ensure accurate results. The future (General Plan Year) data are used to assess the compatibility of development

anticipated under the DRAFT General Plan Update. Noise level projections for development anticipated under the DRAFT General Plan Update are shown in **Figure 4.4**. Reference existing and future traffic noise levels are shown in **Table 4-37**. Noise contour distances for active rail lines and BART are shown in **Table 4-38**.

The noise exposure map depicts traffic noise levels that do not include the effects of existing sound walls, noise barriers, and the attenuation provided by buildings. The contours, therefore, reflect a credible worst case noise exposure for any areas within the City where development would occur following adoption of the DRAFT General Plan Update.

The noise contours along the rail lines are based on noise measurements made in Fremont. Sufficient information is not available to anticipate what any changes to the rail system would affect noise levels along the heavy rail lines. Grade separations are planned at Warren Avenue and Kato Road in the Warm Springs area. Grade separations eliminate the requirement for sounding railroad train horns in these locations. This reduces localized noise levels that occur at grade level crossings. There is, however, also the possibility that train speeds will increase as a result of the grade separations. Increases in train speeds result in increased noise levels. The City of Fremont has also identified railroad "quiet zones" as a method to improve neighborhood quality of life for residents who live in the vicinity of railroad at-grade crossings. The City is considering the establishment of railroad quiet zones for the nine at-grade crossings that will remain after implementation of grade separations anticipated in the next few yeas. If quiet zones can be established, it will reduce the requirements for sounding railroad train horns at at-grade crossings and result in a substantial benefit to residents who live in the vicinity.

**Figure 4.4: Fremont Traffic Noise Contours – DRAFT General Plan Update**

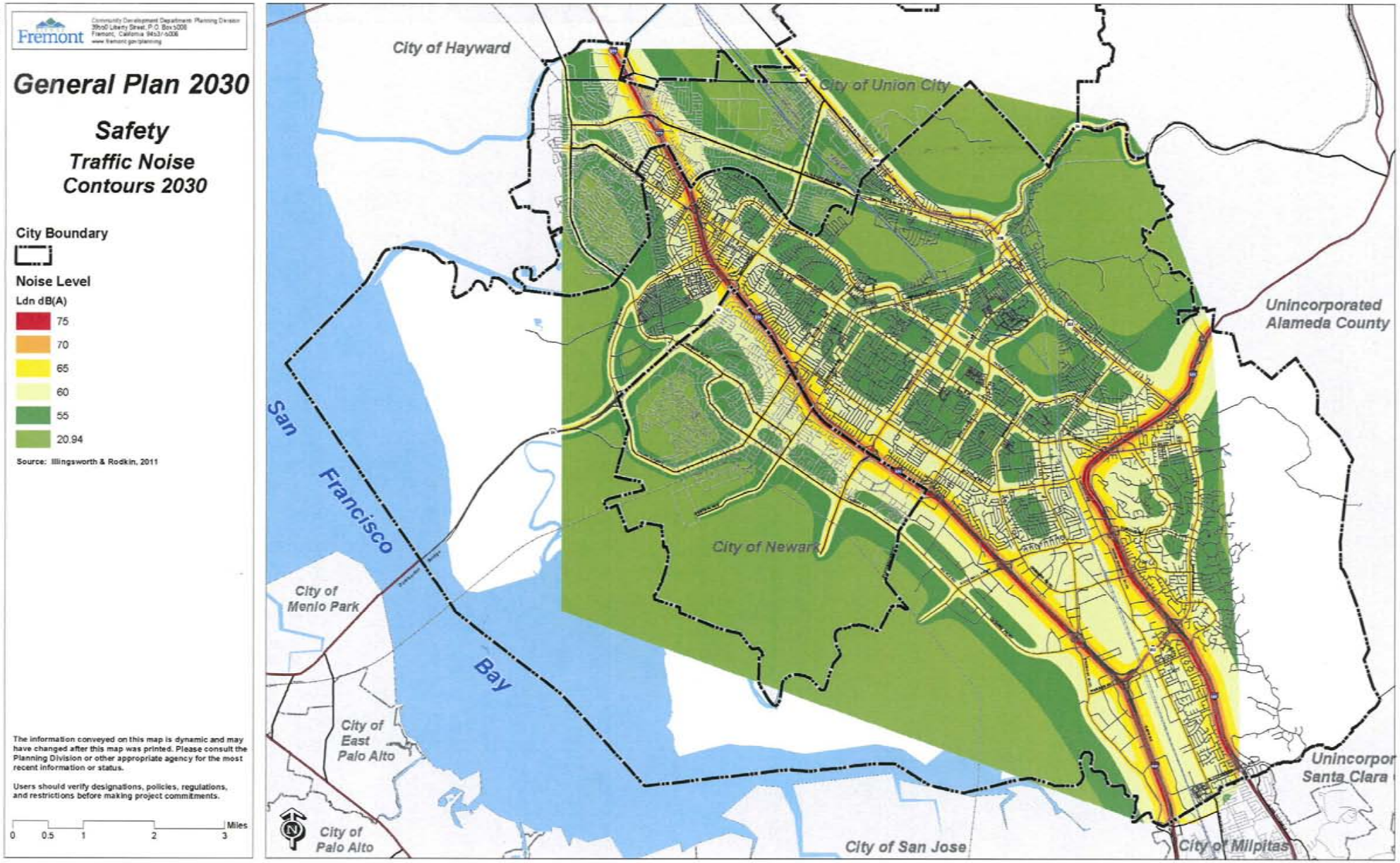


**TABLE 4-37: EXISTING AND FUTURE TRAFFIC NOISE LEVELS IN FREMONT**

| Roadway Segment | $L_{dn}$ 75 ft. from centerline | | $L_{dn}$ Increase over Existing |
|---|---|---|---|
| | Existing | 2035 | |
| I-680 – South Grimmer Blvd to Mission Blvd | 81 | 82 | 1 |
| I-680 – Washington Blvd to Auto Mall Pkwy | 80 | 82 | 2 |
| I-880 – Alvarado Niles Rd to Deep Creek Rd | 81 | 82 | 1 |
| I-880 – Decoto Rd to Thornton Ave | 80 | 82 | 2 |
| I-880 – Warren Ave to Dixon Landing Rd | 81 | 82 | 1 |
| I-880 – Stevenson Blvd to Auto Mall Pkwy | 80 | 82 | 2 |
| I-880 – Central Ave to Mowry Ave | 81 | 83 | 2 |
| I-880 – Mowry Ave to Stevenson Blvd | 81 | 83 | 2 |
| Alvarado Blvd – Dyer St to Lowry Rd | 69 | 71 | 2 |
| Alvarado Niles Rd – Dyer St to I-880 | 68 | 69 | 1 |
| Argonaut Way – Mowry Ave to Walnut Ave | 64 | 64 | 0 |
| Auto Mall Pkwy – Fremont Blvd to Osgood Rd | 67 | 70 | **3** |
| Auto Mall Pkwy – Grimmer Blvd to Fremont Blvd | 68 | 70 | 2 |
| Blacow Rd – Fremont Blvd to Osgood Rd | 67 | 68 | 1 |
| Blacow Rd – Central Ave to Mowry Ave | 65 | 67 | 2 |
| Blacow Rd – Mowry Ave to Stevenson Blvd | 68 | 69 | 1 |
| Blacow Rd – Stevenson Blvd to Grimmer Blvd | 66 | 68 | 2 |
| Boyce Rd – Stevenson Blvd to Auto Mall Pkwy | 67 | 68 | 1 |
| Central Ave – I-880 to Blacow Rd | 65 | 67 | 2 |
| Central Ave – Blacow Rd to Dusterberry Way | 63 | 66 | **3** |
| Central Ave – Cherry St to Sycamore St | 64 | 67 | **3** |

| Roadway Segment | $L_{dn}$ 75 ft. from centerline | | $L_{dn}$ Increase over Existing |
|---|---|---|---|
| | Existing | 2035 | |
| Central Ave – I-880 to Newark Blvd | 65 | 68 | **3** |
| Cherry St – Central Ave to Mowry Ave | 66 | 68 | 2 |
| Cherry St – Mowry Ave to Stevenson Blvd | 66 | 68 | 2 |
| Cherry St – Thornton Ave to Central Ave | 66 | 68 | 2 |
| Cushing Rd – Auto Mall Pkwy to Fremont Blvd | 67 | 67 | 0 |
| Decoto Rd – I-880 to Ardenwood Blvd | 69 | 71 | 2 |
| Decoto Rd – I-880 to Fremont Blvd | 69 | 70 | 1 |
| Decoto Rd – Alvarado Niles Rd to Mission Blvd | 69 | 69 | 0 |
| Decoto Rd – Fremont Blvd to Paseo Padre Pkwy | 68 | 70 | 2 |
| Decoto Rd – Thornton Ave to Ardenwood Blvd | 71 | 71 | 0 |
| Deep Creek Rd – Paseo Padre Pkwy to Alvarado Blvd | 63 | 65 | 2 |
| Driscol Rd – Fremont Blvd to Paseo Padre Pkwy | 63 | 65 | 2 |
| Durham Rd – Paseo Padre Pkwy to Mission Blvd | 62 | 62 | 0 |
| E. Warren Ave – Warren Springs Blvd to I-680 | 65 | 67 | 2 |
| E. Warren Ave – I-880 to Warren Springs Blvd | 65 | 67 | 2 |
| Fremont Blvd – Auto Mall Pkwy to S. Grimmer Ave | 67 | 70 | **3** |
| Fremont Blvd – S. Grimmer Ave to I-880 | 67 | 70 | **3** |
| Fremont Blvd – W. Warren Ave to Gateway Blvd | 68 | 70 | 2 |
| Fremont Blvd – Washington Blvd to Blacow Rd | 67 | 70 | **3** |
| Fremont Blvd – Central Ave to Mowry Ave | 67 | 68 | 1 |
| Fremont Blvd – Decoto Rd to Paseo Padre Pkwy | 67 | 70 | **3** |
| Fremont Blvd – Grimmer Rd to Driscoll Rd | 69 | 70 | 1 |

| Roadway Segment | $L_{dn}$ 75 ft. from centerline | | $L_{dn}$ Increase over Existing |
|---|---|---|---|
| | Existing | 2035 | |
| Fremont Blvd – Stevenson Blvd to Grimmer Blvd | 68 | 69 | 1 |
| Fremont Blvd – Thornton Ave to Peralta Blvd | 68 | 68 | 0 |
| Fremont Blvd – Thornton Ave to Decoto Rd | 68 | 71 | **3** |
| Fremont Blvd – Walnut Ave to Stevenson Blvd | 68 | 69 | 1 |
| Grimmer Blvd – Blacow Rd to Fremont Blvd | 65 | 67 | 2 |
| Grimmer Blvd – Fremont Blvd to Paseo Padre Pkwy | 65 | 66 | 1 |
| Mission Blvd – Decoto Rd to Alvarado Niles Rd | 71 | 74 | **3** |
| Mission Blvd – Driscoll Rd to I-680 | 70 | 72 | 2 |
| Mission Blvd – Durham Rd to S. Grimmer Blvd | 68 | 69 | 1 |
| Mission Blvd – Stevenson Blvd to Driscoll Rd | 71 | 73 | 2 |
| Mowry Ave – I-880 to Blacow Rd | 70 | 71 | 1 |
| Mowry Ave – I-880 to Cherry St | 69 | 71 | 2 |
| Mowry Ave – Blacow Rd to Fremont Blvd | 69 | 71 | 2 |
| Mowry Ave – Civic Center Dr to Peralta Blvd | 67 | 69 | 2 |
| Mowry Ave – Fremont Blvd to Paseo Padre Pkwy | 69 | 71 | 2 |
| Newark Blvd – Decoto Rd (84) to Cedar Blvd | 69 | 68 | -1 |
| Newark Blvd – Thornton Ave to Central Ave | 69 | 68 | -1 |
| Niles Blvd – I-880 to Decoto Rd | 68 | 70 | 2 |
| Niles Blvd – Decoto Rd to Niles Canyon Rd | 68 | 70 | 2 |
| Niles Canyon Rd – east of Mission Blvd | 69 | 71 | 2 |
| Osgood Rd – Blacow Rd to Auto Mall Pkwy | 69 | 70 | 1 |
| Paseo Padre Pkwy – Mowry Ave to Walnut Ave | 67 | 70 | **3** |

| Roadway Segment | $L_{dn}$ 75 ft. from centerline | | $L_{dn}$ Increase over Existing |
|---|---|---|---|
| | Existing | 2035 | |
| Paseo Padre Pkwy – Thornton Ave to Peralta Blvd | 68 | 71 | **3** |
| Paseo Padre Pkwy – Walnut Ave to Stevenson Blvd | 66 | 69 | **3** |
| Paseo Padre Pkwy – Union City Blvd to Deep Creek Rd | 65 | 67 | 2 |
| Paseo Padre Pkwy – Driscoll Rd to I-680 | 65 | 67 | 2 |
| Paseo Padre Pkwy – Stevenson Blvd to Grimmer Blvd | 67 | 69 | 2 |
| Paseo Padre Pkwy – Thornton Ave to Decoto Rd | 67 | 70 | **3** |
| Paseo Padre Pkwy – Washington Blvd to Durham Rd | 65 | 66 | 1 |
| Peralta Blvd – Fremont Blvd to Paseo Padre Pkwy | 66 | 69 | **3** |
| Peralta Blvd – Paseo Padre Pkwy to Mowry Ave | 67 | 69 | 2 |
| S. Grimmer Blvd – Paseo Padre Pkwy to Mission Blvd | 62 | 65 | **3** |
| S. Grimmer Blvd – Fremont Blvd to Osgood Rd | 67 | 67 | 0 |
| S. Grimmer Blvd – Auto Mall Pkwy to Fremont Blvd | 67 | 67 | 0 |
| S. Grimmer Blvd – Blacow Rd to Auto Mall Pkwy | 67 | 69 | 2 |
| Stevenson Blvd – I-880 to Blacow Rd | 69 | 69 | 0 |
| Stevenson Blvd – Blacow Rd to Fremont Blvd | 69 | 68 | -1 |
| Stevenson Blvd – Cherry St to I-880 | 63 | 65 | 2 |
| Stevenson Blvd – Paseo Padre Pkwy to Mission Blvd | 64 | 66 | 2 |
| Thornton Ave – I-880 to Fremont Blvd | 70 | 70 | 0 |
| Thornton Ave – Marshlands Rd to Hickory St | 65 | 70 | ***5*** |
| Thornton Ave – Newark Blvd to I-880 | 66 | 69 | **3** |
| Union City Blvd – Lowry Rd to Dyer St | 68 | 67 | -1 |
| Walnut Ave – Argonaut Way to Fremont Blvd | 66 | 66 | 0 |

| Roadway Segment | $L_{dn}$ 75 ft. from centerline | | $L_{dn}$ Increase over Existing |
|---|---|---|---|
| | Existing | 2035 | |
| Walnut Ave – Civic Center Dr to Mission Blvd | 66 | 67 | 1 |
| Walnut Ave – Fremont Blvd to Paseo Padre Pkwy | 65 | 66 | 1 |
| Warm Springs Blvd – Warren Ave to Scott Creek Rd | 67 | 70 | **3** |
| Washington Blvd – Fremont Blvd to Osgood Rd | 67 | 70 | **3** |
| Washington Blvd – I-680 to Paseo Padre Pkwy | 68 | 71 | **3** |
| Washington Blvd – Paseo Padre Pkwy to Mission Blvd | 67 | 70 | **3** |

**TABLE 4-38: GENERAL PLAN UPDATE NOISE LEVELS FROM RAILROAD LINES AND BART**

| Train Line | Distance (ft) from Track Centerline to Noise Contour | | |
|---|---|---|---|
| | 70 $L_{dn}$ | 65 $L_{dn}$ | 60 $L_{dn}$ |
| UPRR – Niles Through Centerville | -- | 50 | 110 |
| UPRR – Through Warm Springs | 100 | 320 | 1,000 |
| BART | | | |
| North of Walnut Ave.[1] | -- | 35 | 70 |
| Walnut Ave.-Stevenson Blvd.[2] | 30 | 95 | 280 |
| South of Stevenson Blvd.[2] | 55 | 170 | 550 |

[1] – Derived from measurement of existing level North of Walnut Avenue.

[2] – Derived from Noise and Vibration Assessment for the BART Warm Springs Extension (February 2003), Figure 11, p. 30.

Exposure of New Land Uses to Excessive Noise Levels

**Impact NOI-1:** **Exposure of New Land Uses to Excessive Noise Levels.** Those living and working at sites which may be developed in the future (particularly residential uses adjacent to principal streets and railroad lines), could be exposed to excessive noise levels following development anticipated under the DRAFT General Plan Update. This would be considered a ***potentially significant*** impact.

The Land Use Element in the DRAFT General Plan Update includes goals and policies that will guide development in the City. Policy 2-1.7 states, "Transit-oriented development (TOD) – or the placement of higher density uses around transit facilities – should be recognized as the key strategy for accommodating Fremont's growth in the next 20 years." The higher density uses include residential development. Transit facilities, major arterials, BART, and inner-city passenger rail, are the dominant noise sources in the City of Fremont. Noise levels in the vicinity of these transportation sources exceed noise levels considered acceptable for residential development. Noise levels in proximity to major transportation corridors would also exceed acceptable levels for less sensitive developments, such as professional offices. Residential outdoor common use areas and other outdoor spaces where quiet would be a benefit which would be located in noise environments exceeding 60 dBA $L_{dn}$ would require noise mitigation, such as proper site planning, utilizing building massing, or sound barriers, to achieve a compatible noise environment.

Where noise resulting from traffic would exceed 60 dBA $L_{dn}$, interior noise levels would normally exceed the interior 45 dBA $L_{dn}$ standard established in the City's Noise Element. Typical California construction provides approximately 15 dBA of noise reduction from exterior noise sources with windows partially open and approximately 25 dBA of noise reduction with windows kept closed. Where exterior noise levels do not exceed 70 dBA $L_{dn}$, interior noise can normally be mitigated with standard wall and window construction and the inclusion of mechanical forced-air ventilation, acceptable to the City of Fremont, to allow occupants the option of maintaining windows closed to control noise. Where exterior noise levels exceed 70 dBA $L_{dn}$, such as along Mission Boulevard (SR 238), residential units would not be able to meet the 45-dBA $L_{dn}$ interior standard simply through typical construction methods. This would be a ***potentially significant*** impact.

Future development would be exposed to outdoor noise levels exceeding "Acceptable" levels as defined in the current General Plan and California Building Code. Noise levels inside residential structures proposed in such noise environments would exceed 45 dBA $L_{dn}$, the City's and state's established land use compatibility threshold. In areas where residential development would be exposed to an $L_{dn}$ of greater than 60 dBA, current General Plan Policy HS 8.1.1 establishes that site-specific noise studies should be conducted to determine the area of impact and to present appropriate mitigation measures. Revisions and clarifications to the existing policies and action items are proposed as additional mitigation measures.

**Mitigation NOI-1A: Project-Specific Planning for Noise Reduction.** Utilize site planning to minimize noise in residential outdoor activity areas (backyards of single family homes and shared outdoor space in multi-family developments) by locating the areas behind noise barriers, the buildings, in courtyards, or orienting the terraces to alleyways rather than streets, whenever possible. The goal is a maximum noise level of 60 dBA $L_{dn}$ from roadway traffic and BART with conditionally acceptable levels in urban development areas of 65 dBA $L_{dn}$, and 70 dBA $L_{dn}$ from railroad trains.

The California Building Code and the City of Fremont require project-specific acoustical analyses to achieve interior noise levels of 45 dBA $L_{dn}$ or lower in residential units exposed to exterior noise levels greater than 60 dBA $L_{dn}$. Noise levels in new residential development exposed to an exterior level of 60 dBA $L_{dn}$ or greater should be limited to typical maximum instantaneous noise levels in bedrooms of 50 dB(A) during the nighttime (10 PM to 7 AM). Typical maximum instantaneous noise levels in other rooms, and bedrooms during the daytime, should not exceed 55 dB(A). The typical maximum noise level is the maximum level that is exceeded during 30 percent of the measured passbys, based on the measurement of at least 10 events during the daytime and the nighttime. Building sound insulation requirements would need to include the provision of forced-air mechanical ventilation in noise environments exceeding 60 dBA $L_{dn}$ so that windows could be kept closed at the occupant's discretion to control noise. Special building construction techniques (e.g., sound-rated windows and building facade treatments) may be required where exterior noise levels exceed 65 dBA $L_{dn}$. These treatments include, but are not limited to sound rated windows and doors, sound rated exterior wall assemblies, acoustical caulking, etc.

Where the noise source is railroad trains or BART special building construction techniques (e.g., sound-rated windows and building facade treatments, minimize façade openings, locate bedrooms away from noise sources) may be required to achieve the interior single event noise level limits. The specific determination of what treatments are necessary and consistent with life safety standards of the fire code will be conducted on a unit-by-unit basis during project design. Results of the analysis, including the description of the necessary noise control treatments, will be submitted to the City along with the building plans and approved prior to issuance of a building permit. Feasible construction techniques such as these would adequately reduce interior noise levels to 45 dBA $L_{dn}$ or lower, and will normally mitigate the single event noise from railroad trains and BART where exterior nighttime levels are 90 dBA $L_{max}$ or lower at bedrooms and 95 dBA $L_{max}$ or lower at other rooms. If exterior single event noise levels would exceed these levels, it would probably not be feasible to mitigate the noise level below the recommended thresholds.

**Mitigation NOI-1B: Revision of DRAFT General Plan Update Noise/Land Use Compatibility Policies.** Revise and clarify the following General Plan policies related to Noise and Land Use Compatibility to facilitate the project review and CEQA process as they relate to community noise:

*Policy 10-8.1: Site Development Acceptable Noise Environment.* A noise environment which meets acceptable standards as defined by the State of California Building Code and local policies contained herein.

- Implementation 10-8.1.A: New development projects shall meet acceptable exterior noise level standards. The "normally acceptable" noise standards for new land uses established in Land Use Compatibility for Community Exterior Noise Environments shown in Figure 10-11 shall be used as modified by the following:

  The goal for maximum acceptable noise levels in residential areas is an Ldn of 60 dB(A). This level shall guide the design of future development, and is a goal for the reduction of noise in existing development. A 60 Ldn goal will be applied where outdoor use is a major consideration (e.g., backyards in single family housing developments and recreation areas in multi-family housing projects). The outdoor standard will not normally be applied to small decks associated with apartments and condominiums, but these will be evaluated on a case-by-case basis. When the City determines that providing an outdoor Ldn of 60 dB(A) or lower cannot be achieved after the application of appropriate mitigations an Ldn of 65 dB(A) may be permitted at the discretion of the City Council.

  Indoor noise level shall not exceed an Ldn of 45 dB(A) in new housing units. A noise insulation study, conforming to the methodology of the State Building Code, shall be prepared for all new housing, hotels, and motels exposed to an exterior Ldn of 60 dB(A) or greater and submitted to the building department prior to issuance of a permit.

  Railroad noise sources may create instances when the outdoor noise exposure criterion can exceed 65 Ldn up to 70 Ldn for future development, recognizing that train noise is characterized by relatively few loud events. Railroad noise influence shall be evaluated independent of other noise sources. Indoor noise level shall not exceed an Ldn of 45 dB(A) in new housing units. Typical maximum instantaneous

noise level in bedrooms at night should not exceed 50 dB(A). Typical maximum instantaneous noise levels in other rooms and bedrooms during the daytime should not exceed 55 dB(A). The typical maximum noise level is the maximum level that is exceeded during 30 percent of the measured passbys, based on the measurement of at least 10 events during the daytime and the nighttime.

Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space and shall be evaluated on a case-by-case basis. Interior noise levels in offices generally should be maintained at 45 Leq (hourly average) or less.

Implementation 10-8.1.B: Continue to use noise guidelines and contours to determine if additional noise studies are needed for a proposed new development. Prepare a format and guidelines for noise studies.

Implementation 10-8.1.C: Limit new residential development, excepting vertically integrated mixed use development, where the ambient noise level due to commercial or industrial noise sources will exceed the noise level standards as set forth in Table 10-12, Noise and Land Use Compatibility Standards for Industrial and Commercial Noise, modified by the following as necessary unless effective mitigation measures are incorporated into the design of the project:

The noise level standards specified in Table 10-12, shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Where the ambient noise level exceeds the noise level standards, the standards shall be adjusted upwards to the ambient levels.

*Policy 10-8.2: Acceptable Noise Environment.* Guidelines articulated by Figure 10-11 are not intended to be applied reciprocally. In other words, if an area currently is below the desired noise standards, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of potential for adverse community response based on a substantial increase in existing noise levels, regardless of the compatibility guidelines.

***Table 10-11: Noise and Land Use Compatibility Guidelines for Transportation Sources***

| Land Use Category | Exterior Noise Exposure (Ldn) 55 60 65 70 75 80 |
|---|---|
| Single-Family Residential | |
| Multi-Family Residential, Hotels, and Motels | (a) |
| Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds | |
| Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches | |
| Office Buildings, Business Commercial, and Professional | |
| Auditoriums, Concert Halls, Amphitheaters | |

(a) Action 8.1.1

NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements

CONDITIONALLY ACCEPTABLE: Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

UNACCEPTABLE: New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies

**Table 10-12:**

**Noise and Land Use Compatibility Standards for Industrial and Commercial Noise Sources**

| | Exterior Noise Level Standards, dB(A)[1] | |
|---|---|---|
| | Daytime - 7 AM – 10 PM | Nighttime - 10 PM – 7 AM |
| Hourly Leq | 50 | 45 |
| Hourly Lmax[2] | 70 | 65 |

[1] These standards apply on residential and other noise sensitive properties at locations where a lowered noise level would be beneficial.

[2] Typical recurring maximum noise level expected during the hour as a result of fluctuating noise sources.

Implementation of these mitigation measures would reduce the impact to a level considered ***less than significant***.

Exposure of New Land Uses to Excessive Groundborne Vibration

Those living and working in new developments, particularly residential uses adjacent to railroad lines and BART, could be exposed to excessive groundborne vibration levels. The impacts of ground vibration from railroad lines and BART are assessed with respect to the Federal Transit Agency Ground Vibration Impact Criteria shown in **Table 4-31**, above. Along the UPRR rail lines in Fremont, there are fewer than 30 events per day, so the criteria for infrequent events are generally applied establishing a threshold of 80 VdB for residences and buildings where people normally sleep. Along the BART line, there are more than 70 vibration events per day, so the frequent event threshold of 72 VdB would generally apply. Ground vibration levels are site-specific, and are routinely measured as a part of project applications in Fremont when residential developments or other vibration sensitive developments are proposed near these sources of ground vibration. Ground vibration data were also gathered as a part of the environmental review process for the BART Warm Springs extension. These data indicate that perceptible ground vibration levels are expected to occur at distances ranging from within about 50 to 150 feet from the tracks. This is a region of influence where there is a possibility that ground vibration levels would approach or exceed the federal guidelines. Because vibration sensitive development is likely to

continue to occur in the vicinity of these vibration sources, this is considered a ***potentially significant*** impact. The DRAFT General Plan Update includes *Policy 10-8.10: Vibration Environment.* "A vibration environment which meets acceptable guidelines as provided by the Federal Transit Administration (FTA)." Associated Implementation Measures include:

> *Implementation 10-8.10A: New Development to Meet Guidelines.* New development projects shall meet acceptable vibration guidelines. These guidelines are those established by the U.S. Department of Transportation, Federal Transit Administration, as shown in Table 10-1 **(Table 4-31)**.
>
> Where new vibration sensitive development is proposed adjacent to an existing source of vibration (e.g., heavy rail or BART), the vibration guidelines shall be applied at the distance from the vibration source where the buildings are proposed. Normally, for development such as residences, the vibration velocity level measured in the vertical direction is sufficient for comparison to the guidelines. More detailed analyses may be required for highly vibration sensitive uses, such as microelectronics manufacturing.
>
> *Implementation 10-8.10.B: Vibration Studies.* Residential projects proposed within about 150 feet of BART or heavy rail tracks require a site-specific vibration study.
>
> *Implementation 10-8.10.C: FTA Guidelines Rail Service.* The FTA Guidelines shall be used to evaluate vibration impacts from rail projects (such as BART extensions, changes to BART service, or changes to UPRR rail facilities that could affect vibration levels due to a change in the horizontal or vertical alignment of the tracks or the train speeds).
>
> *Implementation 10-8.10.D: Vibration Mitigation.* Incorporate vibration mitigation measures when vibration levels would exceed the guidelines, including site planning (by increasing the distance between the vibration source and the vibration sensitive building), and/or isolating building construction techniques, or incorporating vibration isolation into new or modified BART or rail transportation systems.

Effective implementation of these measures would reduce potential vibration impacts to new development to a level considered ***less than significant***.

Permanent Noise Increases Above Existing Levels

**Impact NOI-2: Traffic-Related Increase in Existing Noise Levels.** Development anticipated under the DRAFT General Plan Update would result in increased traffic, with increased traffic-related noise levels. Along roadways where this increase in noise levels above existing levels would exceed 3 dBA $L_{dn}$, this would represent a ***significant*** impact.

Development facilitated by the DRAFT General Plan Update would increase traffic within the City. Projected changes to traffic noise levels from existing levels were calculated by comparing SoundPlan model runs utilizing existing and future traffic scenarios. A substantial noise level increase is considered to be 3 dBA $L_{dn,}$ since noise levels were modeled along major roadways where existing levels approach or exceed "Acceptable" levels. Along most roadways, noise level changes would be 3 dBA $L_{dn}$ or less. The changes in noise levels along all modeled roadway sections are shown in **Table 4-37**, above. Roadways experiencing a substantial increase in noise include portions of Auto Mall Parkway, Central Avenue, Fremont Boulevard, Mission Boulevard, Paseo Padre Parkway, Peralta Boulevard, Thornton Avenue, Warm Springs Boulevard, and Washington Boulevard. Most of these roadway segments include land uses which are noise sensitive such as residences. This is considered a ***significant*** impact.

Methods available to mitigate project-generated noise level increases would need to be studied on a case-by-case basis. Noise reduction methods could include the following:

- New or larger noise barriers or other noise reduction techniques could be constructed to protect sensitive outdoor use areas and existing residential land uses where reasonable and feasible. Final design of such barriers should be completed during project level review.

- Alternative noise reduction techniques could be implemented, such as re-paving streets with "quieter" pavement types such as Open-Grade or Rubberized Asphalt Concrete. The use of "quiet" pavement can reduce noise levels by 2 to 5 dBA depending on the existing pavement type, traffic speed, traffic volumes, and other factors.

- Installing traffic calming measures to slow traffic.

- Affected residences could be provided building sound insulation such as sound rated windows and doors on a case-by-case basis as a method of reducing noise levels in interior spaces.

Given the scope of the DRAFT General Plan Update and expected noise level increases resulting from project traffic, it may not be reasonable or feasible to reduce project-generated traffic noise for all affected receivers. The increase in development density would increase noise levels noticeably. Measures available to reduce the project noise level increases would

not likely be reasonable or feasible in all areas, therefore, the impact would be considered ***significant and unavoidable***.

Noise Impacts Associated with Land Use Incompatibility

**Impact NOI-3:** **Noise Impacts Associated with Incompatible Land Uses.** The proposed high density mixed-use and transit-oriented development would introduce commercial uses adjacent to residential land uses. Commercial uses have not been identified, but such uses would probably include retail stores, restaurants, or cafes. New commercial development proposed along with, or next to, residential development could result in noise levels exceeding City standards. Typical noise levels generated by loading and unloading would be similar to noise levels generated by truck movements on local roadways. Mechanical equipment would also have the potential to generate noise, and would represent be a ***potentially significant*** noise impact.

New commercial, office, or other non-residential development could produce noise (HVAC, loading docks, etc.) that could affect existing residences or other noise-sensitive land uses. New projects developed under the DRAFT General Plan Update would be subject to the City's noise limits for stationary sources established in the Safety Element of the General Plan and the zoning ordinance, which set limits for permissible noise levels during the day and night according to the land use zoning of the area. This would be the City's tool to ensure that existing residences and other noise-sensitive land uses would not be exposed to excessive noise from these types of noise sources.

**Mitigation NOI-3:** **Project-Specific Noise Analysis.** Noise levels at residential property lines from commercial development should be maintained not in excess of the noise limits in revised Table 10-12 (Action 8.1.3) – see Mitigation 1. The approvals of the commercial development should require a noise study demonstrating how the business, including loading docks, refuse areas, and ventilation systems, would meet these standards and would be consistent with the City's noise standards.

The implementation of the above measure would reduce the impact to a level considered ***less than significant*** in most circumstances. However, the temporary transitional nature of some commercial areas transitioning into mixed use neighborhoods will result in conflicts with existing development and new development. Due to the desired transition, there will be potential conflicts between land uses that cannot be effectively mitigated in the short term. This would be a ***significant and unavoidable*** impact under those circumstances.

Construction Noise and Vibration

**Impact NOI-4:** **Construction Noise.** Businesses and residences would be intermittently exposed to high levels of noise throughout the DRAFT General Plan Update planning horizon. Construction would temporarily elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more, which would represent a ***potentially significant*** impact.

Residences and businesses would be affected by construction noise. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction lasts over extended periods of time. Major noise generating construction activities include removal of existing pavement and structures, site grading and excavation, building erections, paving and landscaping. Urban development forms include a wider variety of construction equipment types and phases than typical low-scale suburban development. In some cases, residences would be directly adjacent or in close proximity to construction activities of both residential and commercial development sites.

The highest construction noise levels would be generated during grading and excavation, with lower noise levels occurring during building construction. Large pieces of earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 to 85 dBA measured at a distance of 50 feet from the site during busy construction periods. In addition, pile-driving may occur at some of the project sites. This type of construction activity can produce very high noise levels of approximately 105 dBA at 50 feet, which are difficult to control. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. Intervening structures or terrain would result in lower noise levels.

Although construction noise would be localized to the individual site location, businesses and residences would be intermittently exposed to high levels of noise throughout the planning horizon. Construction would elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or higher. Such a large increase in the noise level, although short-term in duration, would be a ***potentially significant*** impact.

**Mitigation NOI-4:** **Modification, Placement and Operation of Construction Equipment.** Construction equipment should be well maintained and used judiciously to be as quiet as practical. The following measures, when applicable, are recommended best practices to reduce noise from construction activities near sensitive uses:

Standard Development

- Ensure that construction activities (including the loading and unloading of materials and truck movements) are limited to the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.

- Ensure that excavating, grading and filling activities (including warming of equipment motors) are limited to between the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.

- Contractors equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.

- Contractors utilize "quiet" models of air compressors and other stationary noise sources where technology exists.

- Site plan for large sites loading, staging areas, stationary noise-generating equipment, etc. as far as feasible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.

- Comply with Air Resource Board idling prohibitions of uneasy idling of internal combustion engines.

Additional measures that may be applicable to significant or prolonged construction projects:

Extended Projects with High-Intensity Construction Equipment (this would apply to projects with extended periods of concentrated construction with heavy equipment such as pile drivers):

- Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.

- Construct solid plywood fences around construction sites adjacent to operational business, residences or noise-sensitive land uses.

- A temporary noise control blanket barrier could be erected, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling.

- Route construction related traffic along major roadways and as far as feasible from sensitive receptors.

- Businesses, residences or noise-sensitive land uses adjacent to construction sites should be notified of the construction schedule in writing. Designate a "construction liaison" that would be responsible for responding to any local complaints about construction noise. The liaison would determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the liaison at the construction site.

The City applies a construction hours ordinance to new development to limit exposure to noise in the most noise sensitive of time periods, nighttime and weekends. Applying construction hours mitigates most noise impacts of new development in Fremont. Application of the above best practice techniques to manage noise, as applicable to the site specific situation, would further reduce noise exposure and result in a ***less than significant*** impact to temporary noise exposure from construction of individual new development. Although the above measures would reduce noise generated by the construction of individual development projects, the impact would remain ***significant and unavoidable*** where planned development is concentrated and includes phased construction with residential development, such as the Downtown Area of the City Center and urban development in PDAs, as a result of the extended period of time that adjacent occupants would be exposed to construction noise.

**Impact NOI-5:** **Construction Vibration.** Residences, businesses, and historic structures could be exposed to construction-related vibration resulting in cosmetic cracking (non-structural) during the excavation and foundation work of buildings associated with development anticipated under the DRAFT General Plan Update, a ***potentially significant*** impact.

There are no applicable state plans, policies, regulations or laws related to ground-borne vibration from construction activities, but guidance developed by the California Department of Transportation (Caltrans) has been used in past construction vibration impact assessments. Caltrans uses a vibration limit of 12.7 mm/sec (0.5 inches/sec), PPV for buildings structurally sound and designed to modern engineering standards. A conservative vibration limit of 5 mm/sec (0.2 inches/sec), PPV has been used for buildings that are found to be structurally sound but structural damage is a major concern. For historic buildings or buildings that are documented to be structurally weakened, a conservative limit of 2 mm/sec (0.08 inches/sec), PPV is often used to provide the highest level of protection. All of these limits have been used successfully, and compliance to these limits has not been known to result in appreciable structural damage. All vibration limits referred to herein apply on the ground level and take

into account the response of structural elements (i.e. walls and floors) to ground-borne vibration.

Construction of projects within Fremont may, in some cases, be located directly adjacent to existing structures, including historic structures. Construction activities may include demolition of existing structures, site preparation work, excavation of below grade levels, foundation work, pile driving, and new building erection. Demolition for an individual site may last several weeks, and at times may produce substantial vibration. Excavation for underground levels would also occur on some project sites, and vibratory pile-driving could be used to stabilize the walls of the excavated area. Piles or drilled caissons may also be used to support building foundations.

Pile-driving has the potential of generating the highest ground vibration levels and is of primary concern to architectural damage, particularly when it occurs within 100 to 200 feet of sensitive structures. Vibration levels generated by pile-driving activities would vary depending on project conditions such as soil conditions, construction methods, and equipment used but could exceed the recommended PPV thresholds to avoid architectural damage. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may also potentially generate substantial vibration in the immediate vicinity.

Depending on the proximity of existing structures to each construction site, the structural soundness of the existing buildings, and the methods of construction used, vibration levels may be high enough to damage existing structures. Given the scope of the DRAFT General Plan Update and the proximity of many existing structures, groundborne vibration impacts would be considered ***potentially significant***.

As with any type of construction, vibration levels may at times be perceptible. However, construction phases that have the highest potential of producing vibration (pile-driving and use of jackhammers and other high power tools) would be intermittent and would only occur for short periods of time for any individual project site. By use of administrative controls such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with least potential to affect nearby businesses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception.

**Mitigation NOI-5: Limitations on Construction Activities Generating Excessive Vibration.** The following best practice measures when applicable are recommended to reduce vibration from construction activities:

- Comply with construction hours ordinance to limit hours of exposure.

- Avoid impact pile-driving where possible. Drilled piles causes lower vibration levels where geological conditions permit their use.

- Minimize or avoid using vibratory rollers and tampers near sensitive areas.

- When vibration sensitive structures are adjacent to a subject site, survey condition of existing structures and when necessary perform site specific vibration studies to direct construction activities. Contractors shall continue to monitor effects of construction activities on surveyed sensitive structures and offer repair or compensation for damage.

- Construction management plans for substantial construction projects shall include predefined vibration reduction measures, notification requirements for properties within 200 feet of construction schedule, and contact information for on-site coordination and complaints.

It may not be possible to avoid using pile-drivers, vibratory rollers and tampers entirely during construction associated with high density development anticipated under the DRAFT General Plan Update. Due to the density of development anticipated in Fremont, notably in the Downtown of City Center and PDAs, some of these activities may take place near sensitive areas. In these cases, the mitigation measures listed above may not be sufficient to reduce groundborne vibrations below to a level considered less than significant. Therefore, this impact would be ***significant and unavoidable***.

Cumulative Impacts

As indicated in the discussion of traffic-related noise effects in **Impact NOI-2**, above, development anticipated under the DRAFT General Plan Update would result in traffic increases that could be expected to result in an increase in noise levels in excess of existing noise levels along some local roadways, which would represent a ***significant and unavoidable*** cumulative noise impact from its incremental increase in already degraded areas. There are several major construction projects that may take place during the planning period under the auspices of other agencies which could be expected to result in noise and vibration impacts similar to those identified in **Impact NOI-4** and **Impact NOI-5**, above. These include work on the BART extension to San Jose, and possible grade separation projects, which, when taken together with development anticipated under the DRAFT General Plan Update, could be considered contributors to a ***significant and unavoidable*** cumulative increase in construction noise and vibration within adjacent portions of Fremont during the planning period.

# G. HYDROLOGY AND WATER QUALITY

This section presents a discussion of existing hydrologic features, including surface waters, groundwater resources, current flooding conditions, and impacts that pertain to implementation of the City of Fremont's General Plan Update. Included are discussions of the current applicable federal, state, and local regulations and analysis of the hydrological, water quality, and flooding conditions as they affect land-use decision making. The topics discussed in this section overlap those discussed in other sections of this EIR, including the erosion and ground water quality discussion in the section on **Geology, Soils and Seicmicity**, below.

Development and land use activities contemplated by the DRAFT General Plan Update would likely result in specific impacts on water resources. Construction activities and post-construction conditions associated with implementation of the DRAFT General Plan Update could result in stormwater drainage, water quality, and flooding impacts, including dewatering or lowering of groundwater, increased nonpoint stormwater pollutant discharges, and alterations to drainage and runoff patterns by increasing impervious surface areas, development, site grading, and alteration of drainage courses. These impacts are considered less than significant given the regulatory requirements and standards with which existing and future development must comply. Additionally, DRAFT General Plan Update Polices have been proposed to ensure potential effects remain less than significant.

## SETTING

### Topography and Climate

The topography of Fremont is generally flat in its westerly bay lands and central floodplains, then rises to moderately steep areas of Mount Allison and Mission Peak to the east and southeast.

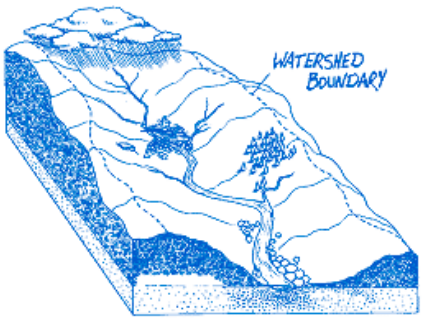
Precipitation averages about 14.5 inches per year in the lowlands, with higher rainfall of up to 22 inches occurring in the hills and upper creek drainages[20]. The highest recorded daily rainfall was 4.0 inches on January 10, 1995, and the wettest year on record was 31.5 inches in 1983. Rainfall in the driest year (1959) totaled 6.9 inches.

[20] Western Regional Climate Center, Station 046144, Newark, California. 1948-2007.

City of Fremont Water Resources

*Watersheds*

Water resource landscapes are commonly described and characterized in terms of watersheds. The term "watershed" refers to an area of land, usually occurring between ridges or highpoints that contribute to a particular stream or river system. The words "watershed" and "drainage basin" are often used interchangeably. "Watershed" also refers to the topographic divide between water basins. These terms all refer to surface water, the component of a natural water system that originates in precipitation, gathers to form run-off, and infiltrates into the soil or flows into creeks and rivers. For water resource management, the activities and landscapes within a watershed greatly affect water quality and aquatic habitats within the watershed boundaries and any receiving waters, such as Alameda Creek, Lake Elizabeth, and the San Francisco Bay.




Source: ACCWP. 2000.

The watersheds of Fremont flow generally from east to west, from the hills through the floodplains to the freshwater wetlands and tidal marshes and sloughs of San Francisco Bay.

Prior to urban development, streams with rich riparian vegetation meandered their way over the floodplains to the Bay. Today, natural channels persist mostly in the eastern foothills. Few of the twenty creek drainages are perennial; however, shallow groundwater below the channel bottom can act as a source of water to maintain riparian vegetation habitat. Most of the creeks west of the foothills in Fremont have been realigned, straightened, and in some cases leveed or lined with concrete or rip-rap. For purposes of flood management, the Alameda County Flood Control and Water Conservation District (ACFC/WCD) refers to creeks as "Lines" (e.g. Line K, Line G, etc.). Many of the natural channels flow to these channelized, concrete-lined, or culverted underground segments of the creeks in the urbanized floodplains. Management problems, such as siltation, bank erosion, and loss of stream-side aquatic habitat are, in part, caused by urban channel modification. Sources of pollutants for surface and subsurface water in the creek drainages can include pesticides from landscape irrigation, leaking wastewater lines, sediment from bank erosion, petroleum byproducts, and other non-point source pollutants carried in rainfall stormwater runoff.

Alameda Creek, which flows through northern Fremont, has the largest contributing watershed (633 square miles) in Alameda County, and represents a source of water supply and an opportunity for fisheries habitat restoration.

The ACFC/WCD oversees environmental health and flood maintenance for Fremont's creeks and channels. Although ACFC/WCD has a separate funding source, it functions as an arm of the Alameda County Public Works Department. The ACFC/WCD is divided into ten zones which correspond to the major watersheds of Alameda County. The ACFC/WCD has divided the watersheds in the Fremont Area into two management zones, Zone 5 in the north and Zone 6 in the south.

Zone 5, covering 45,440 acres, is one of the District's largest zones. Its watersheds stretch from the Fremont and Hayward hills to the shoreline of San Francisco Bay, and include Newark and the northern portions of Fremont. Over 36 miles of natural waterways are found in this zone including Alameda Creek, Crandall Creek, Dry Creek and Plummer Creek and Newark and Mowry Sloughs. In addition, engineered drainage channels, ditches, and over 50 miles of closed conduits and pipelines carry runoff through this area. Stormwater flows out to three pump stations, which discharge to San Francisco Bay.[21]

Zone 6, covering 27,400 acres in southern Alameda County, includes the Irvington, Mission San Jose, and Warm Springs areas of Fremont. Zone 6 is home to a number of natural creeks including Laguna, Mission, Canada Del Aliso, Agua Caliente, Agua Fria, Toroges, and Scott. These waterways originate in the foothills of Mission Peak, Mt. Alison, and Monument Peak and flow through Fremont toward the Bay. Within the urbanized area, stormwater reaches San Francisco Bay by flowing through a series of pipelines and earthen and concrete channels to either Mowry Slough or Coyote Creek. Coyote Creek forms the border between Alameda and Santa Clara Counties. Stormwater flows through these waterways to San Francisco Bay for discharge.[22]

Lakes and ponds within Fremont's watersheds serve a range of water resource management, biological, and community functions. Lake Elizabeth, which is fed by Mission Creek and Morrison Creek, serves as a wetland habitat and a recreational facility, while providing important flood storage and sediment management. The lakes and ponds adjacent to Alameda Creek provide additional recreation areas, wetland habitat, and groundwater recharge.

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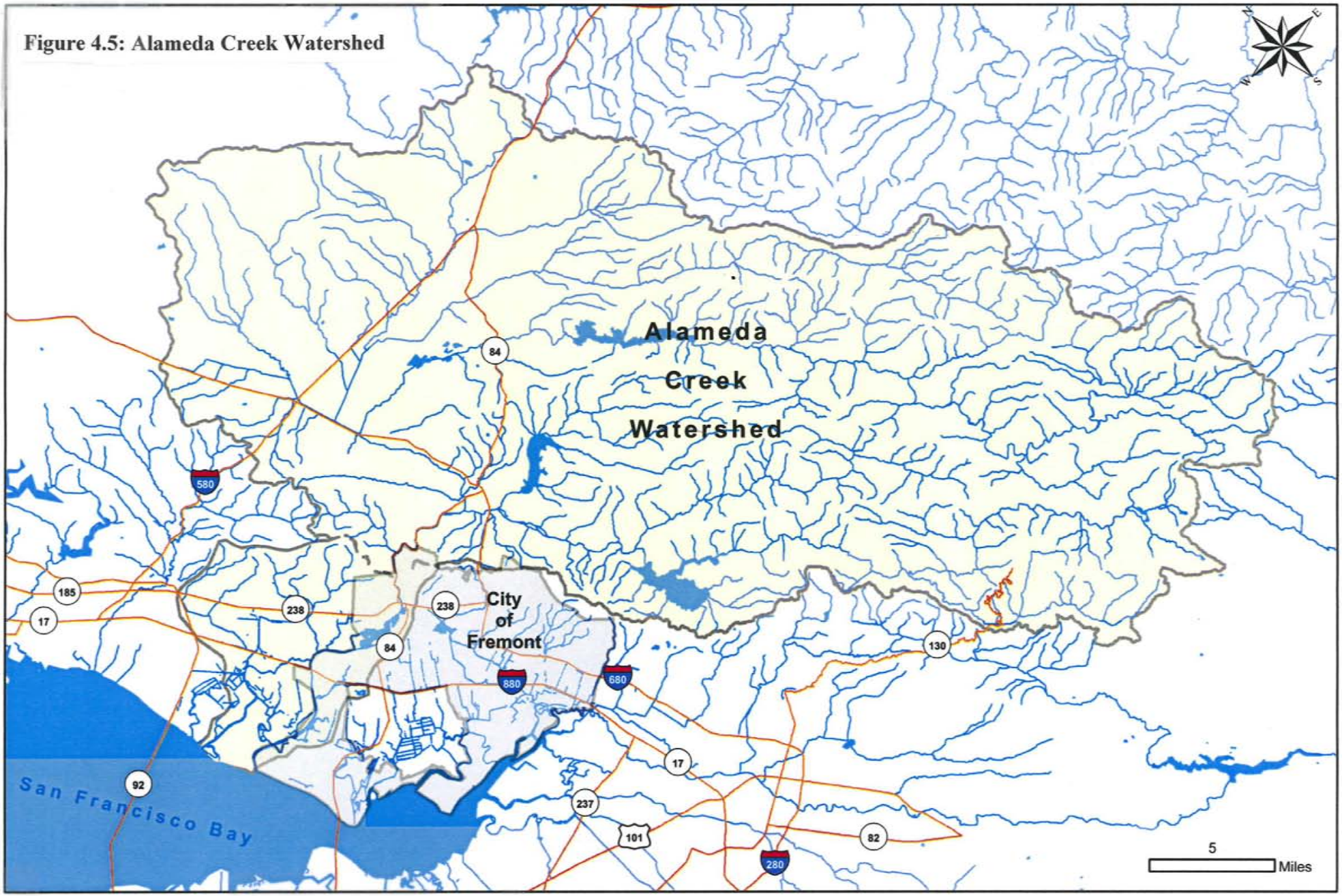
[21] Alameda County Flood Control & Water Conservation District: Fiscal Year 2005, <www.acgov.org/pwa/acfcdweb/web/acfcd.annual06.pdf>.

[22] Alameda County Flood Control & Water Conservation District: Fiscal Year 2005, pg. 19, <www.acgov.org/pwa/acfcdweb/web/acfcd.annual06.pdf>.

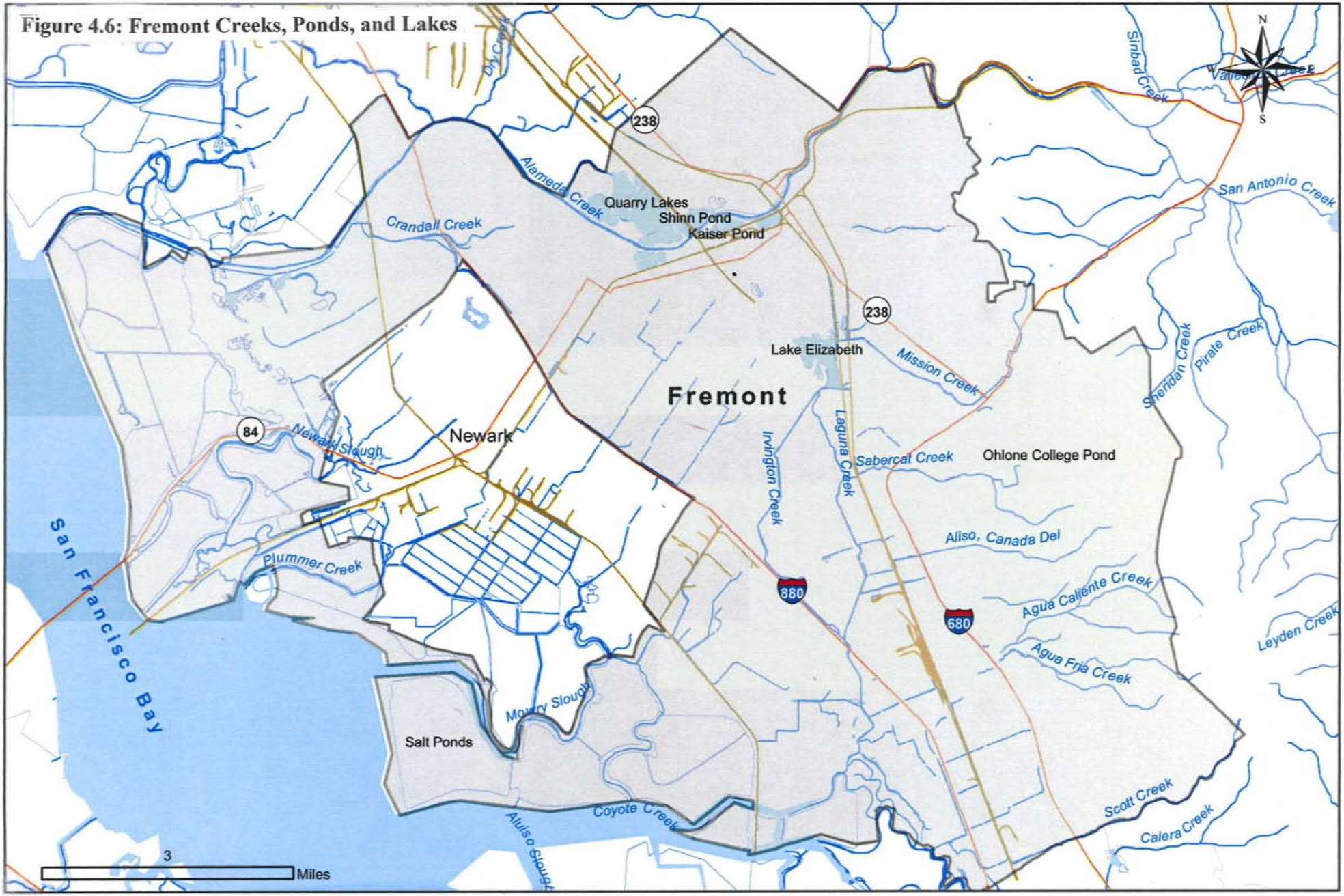
**Figure 4.5: Alameda Creek Watershed**






CITY OF Fremont

**Figure 4.6: Fremont Creeks, Ponds, and Lakes**




CITY OF Fremont

Through the collaboration of numerous public and non-profit entities, efforts have been made to improve water quality as well as stream-side aquatic habitat along Fremont's surface waters. For example, the Mission Creek restoration project was completed in 2003. Numerous educational programs continue to inform the public and students regarding water ecology and the importance of preserving the quality and function of aquatic habitats.

*Ponds and Lakes*

Lake Elizabeth is an artificial lake created from Stivers Lagoon, and serves as a recreation resource and as an element of the flood control system. Waters from Mission Creek, Morrison Creek and other small drainages empty into the lake; Laguna Creek continues from its outlet. Water quality concerns include stormwater runoff from upstream urban areas and pollution from animal waste, especially from the resident and migratory bird population.

Most large ponds in Fremont are also artificial. The Alameda Creek Quarry ponds are managed to maximize their use for recharging the groundwater basin (see "Groundwater," below). Water quality in some of these ponds is dependent on the inflowing water quality from Alameda Creek.

Ponds near the Fremont BART Station were originally a wetland area known as Tysons Lagoon. The Lagoon was at one time part of the natural wetlands area extending from Stivers Lagoon along the Hayward Fault. This area has been significantly altered, and is now managed for flood control purposes. These ponds provide a significant amount of wildlife habitat (see the Biology discussion in this section, below). Water quality has not been tested regularly in these ponds, but due to the proximity of the wetlands and ponds to roads and parking lots, they could be affected by standard run-off pollutants from urban areas.[23]

Water Quality

Water quality can be affected by land use as well as water use, both of which are governed by General Plan policies. Adverse water quality conditions can, in turn, affect both land use and water use. Poor water quality can also adversely impact natural resources, including streams, aquatic, coastal, terrestrial and marine ecosystems, and the plants and animals that depend on them.

Pollutant sources discharging into the Fremont's creeks, lakes, and the Bay include both point and non-point discharges. A point source is any discernible, confined, and discrete conveyance (e.g., a pipe discharge) of pollutants to a water body from such sources as industrial facilities or wastewater treatment plants.

[23] Fremont General Plan. 1991

Point sources in Fremont include discharges through pipelines and other discharges that drain into creeks and waterbodies. These are permitted discharges that are subject to prohibitions by regulatory agencies, water quality requirements, periodic monitoring, annual reporting, and other requirements designed to protect the overall water quality of the creeks and eventually the Bay.

Non-point pollutant sources are sources that do not have a single, identifiable discharge point but are, rather, a combination of many sources. A non-point source can be stormwater runoff from land that contains, for example, petroleum from parking lots, pesticides from farming operations, or sediment from soil erosion. Although more difficult to measure, non-point sources of pollution can greatly effect water quality, habitat, and natural resources.

The Clean Water Act Sections 303 and 304 by the U.S. Environmental Protection Agency (EPA) provide for water quality standards, criteria and guidelines. Section 303(d) requires, from time to time, a list of waters for which effluent limitations are not sufficient to meet water quality standards[24]. Alameda Creek is listed under the Clean Water Act 303(d)-list as an impaired water body adjacent to a Wildlife Refuge (Eden Landing Ecological Reserve). It is impaired by the pollutant diazinon from urban runoff and hydromodification (RWQCB, 2006). This indicates the flow of pollutants such as pesticides and sediment into the creek through runoff and leaking sewer lines.[25] See the "Regulatory Framework" discussion, below, for more on the Clean Water Act.

Groundwater

Groundwater is rainfall and surface water that has infiltrated the ground. It flows beneath the surface through small pores and cracks in the rock and soil and is stored in large underground basins. Groundwater serves as a natural storage, distribution, and treatment system for water supplies. It may also discharge to surface streams, wetlands, and San Francisco Bay.

Fremont is underlain by the Niles Cone groundwater basin, a sub-basin of the Santa Clara Valley groundwater basin. The Niles Cone basin extends from its recharge area on the slopes of Mission Peak to the Bay. It is a relatively large and important basin that also underlies Newark, along with portions of Union City and Hayward. The Hayward Fault, which runs along the base of the East Bay Hills, intersects the easterly edge of the Niles Cone basin, interrupting westward-flowing groundwater. This separates the basin into two zones, above the Hayward Fault (AHF) and below the Hayward Fault (BHF). The AHF basin has significantly higher ground water levels than that of the BHF.[26] Alameda Creek water, which

[24] USEPA, 2007. http://www.epa.gov/owow/tmdl/tmdl0103/text.html#intro

[25] Hydromodification is the alteration of the natural flow of water through a landscape, and often takes the form of channel modification or channelization, often resulting in streambank and shoreline erosion.

[26] California Environmental Protection Agency, Regional Water Quality Control Board San Francisco Bay

is diverted and stored in the former quarry ponds on the floodplain west of the Hayward Fault, accounts for about 15 percent of Fremont's total water supply, and is used to recharge the aquifers of the Niles Cone Basin.[27]

Groundwater is susceptible to contamination due to pollution from leaking underground storage tanks and contaminated soil and surface waters. Additionally, saltwater intrusion into groundwater may occur as a result of over drafting (well pumping and groundwater withdrawal in excess of infiltration and replenishment) of water from a groundwater basin next to the sea or an estuary such as the San Francisco Bay.

For Fremont, the area above (east of) Interstate 880 is a high priority groundwater protection area, where there is a high degree of hydrogeologic susceptibility to contamination. Several existing and proposed municipal drinking water wells are located in that area. The westerly portion has been impaired by brackish water intrusion. Since 2003, the Alameda County Water District (ACWD) has been running a brackish water desalination facility to remove salts and other minerals from brackish groundwater. A series of wells remove the brackish water from the groundwater basin through an Aquifer Reclamation Program to stop the spread of saltwater already in the groundwater basin and to reclaim the aquifers of the basin for future potable use. Brackish water from some of these wells is treated at the desalination facility rather than being returned to San Francisco Bay. The treated water is then blended with the harder water pumped from other parts of the groundwater basin. Recent studies have shown that the use of the freshwater recharge ponds adjacent to Alameda Creek have been effective in reducing salt water intrusion into groundwater resources for Fremont and Newark.[28] [29]

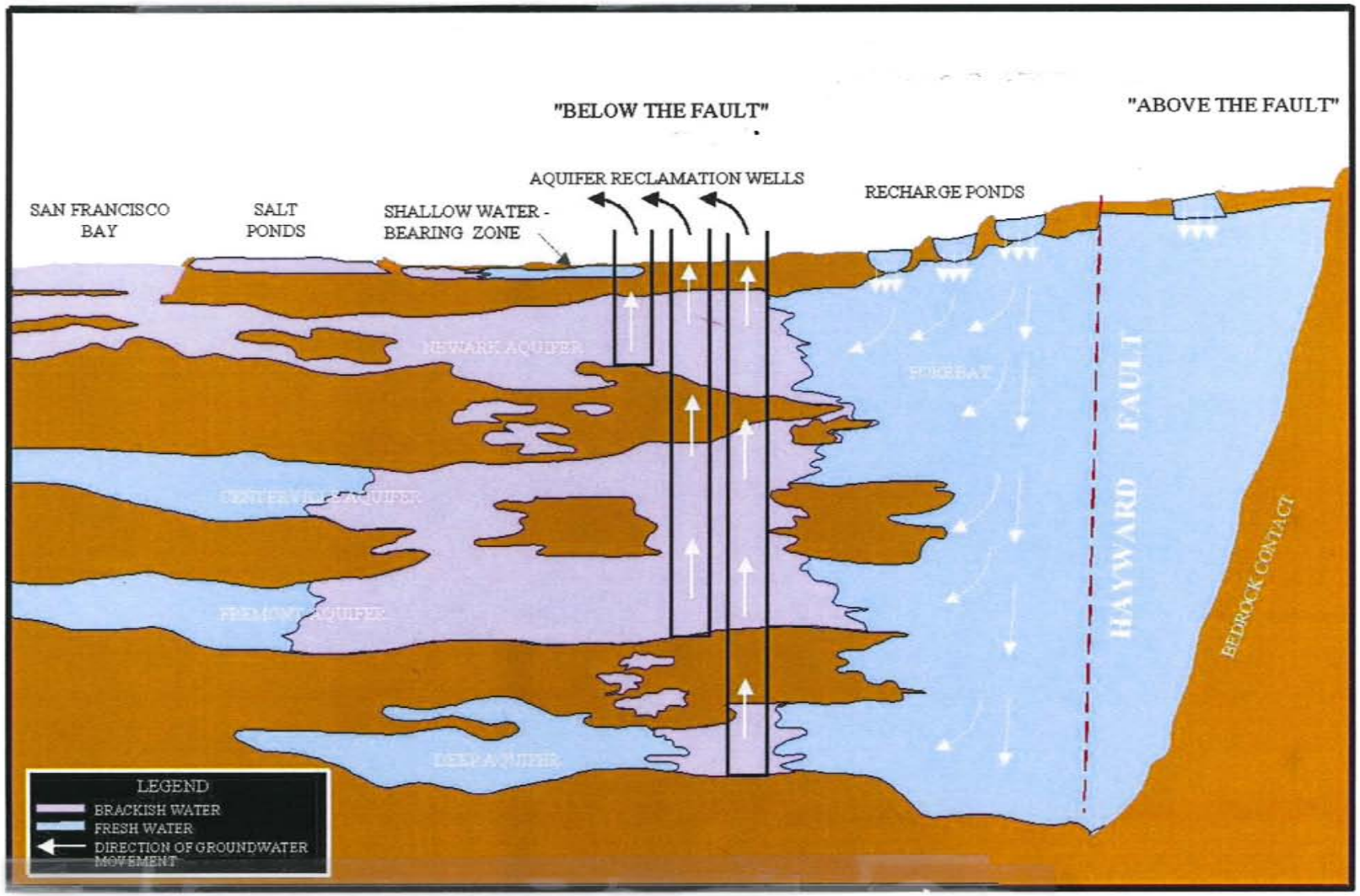
Region. 2003. A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins. May.

[27] Alameda County Water District, 2007. (http://www.acwd.org/)

[28] Balance Hydrologics, 2002. Review of Historical and Recent Ground-water Levels Affecting the Ardenwood 2000 Site, City of Fremont.

[29] California Environmental Protection Agency, Regional Water Quality Control Board San Francisco Bay Region. 2003. A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins. May.

**Figure 4.7: Niles Cone Groundwater Basin Section View**[30]




[30] Source: ACWD, 2007. (http://www.acwd.org/sources_of_supply.php5#acw).

Flooding

The primary causes of flooding are excessive surface runoff resulting from heavy rainfall, extremely high tides, and the failure of flood control or water supply structures such as levees and reservoirs. Although it is not possible to prevent excessive rainfall, it is possible to manage areas subject to flooding to protect life and property. Through the use of hydrologic data, regulatory controls, and flood proofing measures, land use planning can effectively reduce flood hazards.

Flooding generally occurs in some of the lower elevations of Fremont near San Francisco Bay. FEMA maps of the 100-year flood zone primarily indicate flood hazards in the marshes and alluvial terraces adjacent to the outlets of Crandall Creek, Newark Slough, Plummer Creek, Mowry Slough, and Coyote Slough. Additional flooding occurs around Lake Elizabeth (see **Figure 4.8**, below). Most of Fremont's flood prone areas have been designated for permanent open space such as salt ponds, parks, and wetlands. However, a 100-year flood could affect portions of the North Fremont, the city's industrial areas west of I-880 and south of Warren Avenue, and along Laguna Creek.

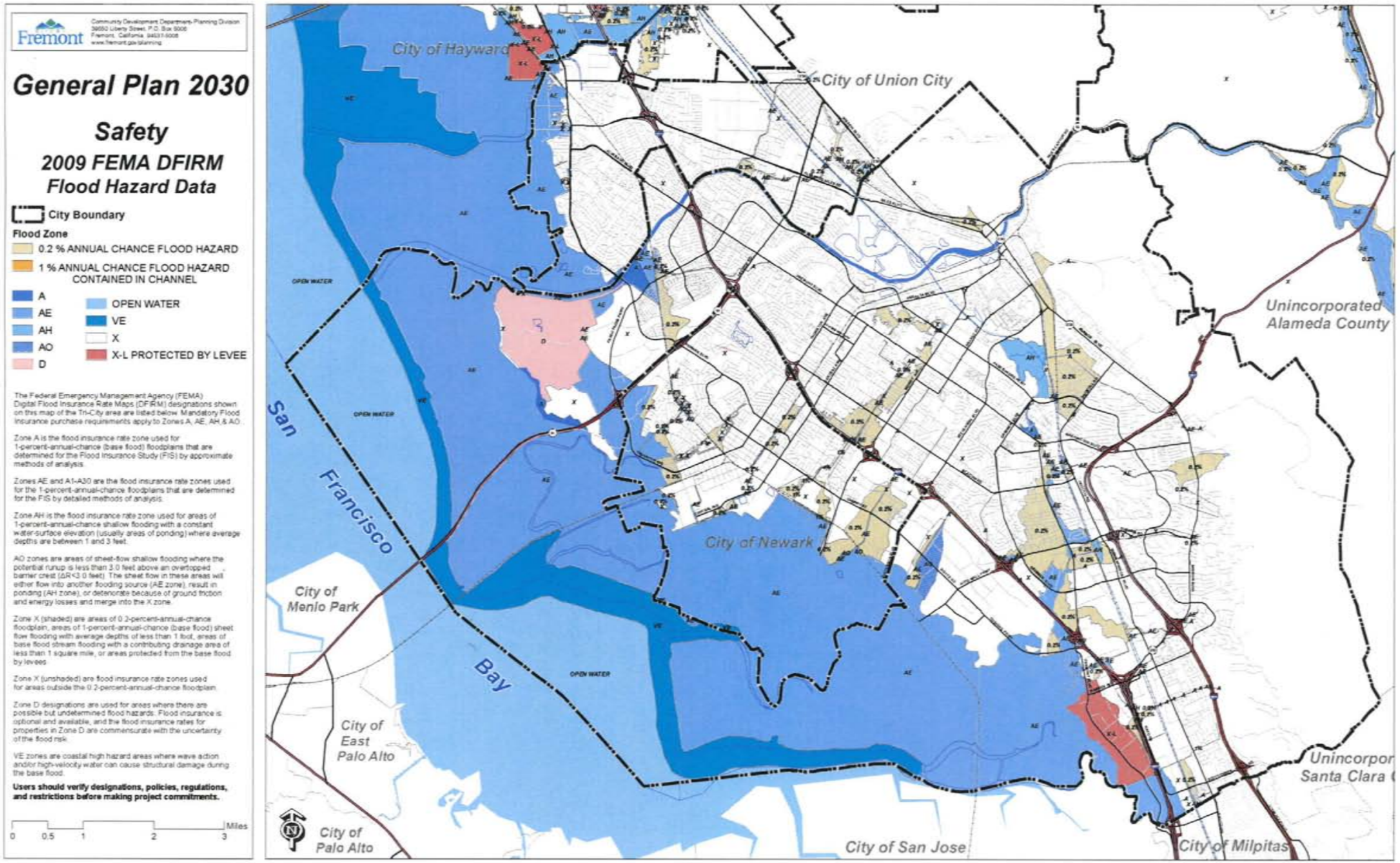
Extensive flooding along Alameda Creek and adjacent farms and roads in 1955 and 1958 prompted the creation of the ACFC/WCD. The ACFC/WCD redirected the creek into a 200-foot-wide, 10-mile-long flood control channel. By 1965, channel improvements along the creek and dams on its tributaries were determined to have reduced the threat of flooding to less than once every 100 years. Formerly flood-prone areas in North Fremont and Niles sections of Fremont were subsequently developed.

Fremont's eight smaller creeks have been greatly altered by flood control projects. Instead of meandering as they once did, the creeks now flow across the Bay Plain in relatively straight channels. For flood control purposes, vegetation along the channels is kept to a minimum and access is restricted by chain-link fences. Most of the channels were designed to retain a flood with a one in 50 chance of occurring in any given year (i.e., the 50-year flood).

Flood risk in communities is identified by the community Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) issued by the Federal Emergency Management Agency (FEMA). In November 1982, FEMA issued the first FIS for the City of Fremont, and, six months later, in May 1983, the City of Fremont became a regular participating community in the National Flood Insurance Program (NFIP), when FEMA released the first FIRMs for the City.

The first major revision to the FIS and FIRM occurred in July 1987. The 1987 revision incorporated detailed flooding information from a 1984 report by the U.S. Army Corps of Engineers (USACE). The 1987 revision included increasing the 100-year water surface elevations of the San Francisco Bay from a previous elevation of 7 feet to new elevations of 8 feet and 9 feet.

## Figure 4.8: FEMA Flood Map



The last and most recent revision to the FIS and FIRM was in February 2000. This revision incorporated detailed flood hazard information from several ACFC/WCD channels, including Toroges Creek, Laguna Creek, and Aqua Caliente Creek. The 2000 revision increased the special flood hazard area in the Irvington District along Laguna Creek, between Lake Elizabeth and Auto Mall Parkway. As part of the FEMA Flood Map Modernization project, the paper maps revised in 2000 were converted to digital maps in 2009.

Flood protection responsibilities by the ACFC/WCD include maintenance of the flood channels. This includes dredging, silt removal, and erosion repair for lakes, ponds, and creeks in Fremont. The ACFC/WCD also operates and maintains 22 pump stations that collect stormwater from low-lying areas during heavy storms and high tides and discharge it to San Francisco Bay. The District has permitting authority for storm drainage in its service area, including discharge point connections. ACFC/WCD reviews drainage plans associated with development for consistency with its policies and regulations regarding runoff, stormwater management, detention, flooding, and bank erosion.

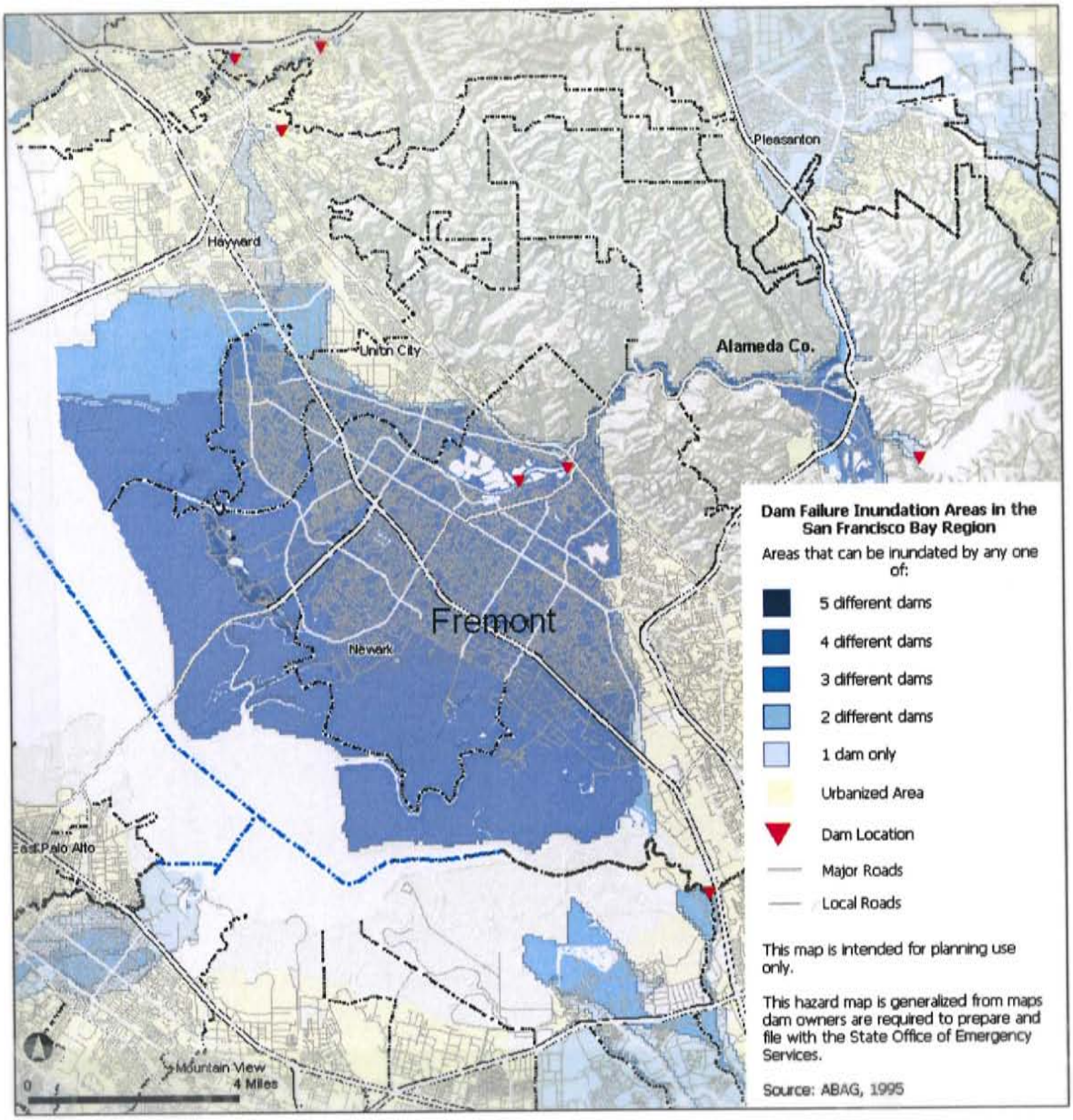
Dam Failure

Dam failures are one of the greatest threats to life and property of all natural disasters because of the large population typically exposed to danger. Risk of inundation as result of dam failure includes the majority of Fremont's urbanized areas. Three dams have the potential to flood the city. These dams are located in the upper reaches of the Alameda Creek watershed and include Del Valle Dam and the Arroyo Valle Reservoir, James H. Turner Dam and the San Antonio Reservoir, and Calaveras Dam and the Calaveras Reservoir. All three reservoirs are located to the east and southeast of Fremont and have the potential to flood the city via Alameda Creek. The severity and risk of flooding is related to earthquake faults in the area, as well as dam storage conditions and the timing and severity of individual dam failures. These dams include:

- **Calaveras** - 100,000 acre-feet capacity - owned by City/County of San Francisco
- **Del Valle** - 77,100 acre-feet capacity - owned by California Department of Water Resources
- **James H. Turner** - 50,500 acre-feet capacity - owned by City/County of San Francisco

The failure of water storage tanks is another potential risk. There are several tanks and reservoirs located on the lower slopes of Fremont's eastern hills. If these facilities failed, a large volume of water would suddenly be released downslope.

**Figure 4.9: Dam Failure Inundation Areas**



Levee Failure

Levee failure also poses a great risk to life and property in areas where levees protect surrounding property. The City has two primary levees: one located along Alameda Creek, the other in the south Baylands area. If the levees were to fail, then property adjacent to these areas would be susceptible to flooding and flood damage. The ACFC/WCD has jurisdictional authority over the maintenance of the levees. Recent natural disasters and current concerns over rising sea levels have brought attention to the local area's susceptibility to levee failure.

FEMA, as part of the nationwide Flood Map Modernization project, has asked communities and levee owners to show that levees, which are currently designated as protecting land from flooding, continue to meet minimum design, operation, and maintenance standards consistent with the National Flood Insurance Program regulations. FEMA identified two levee systems in Fremont that provide flood protection and must be accredited by FEMA. The two levee systems are along Alameda Creek and Coyote Creek.

In August 2007, the City and ACFC/WCD agreed to pursue accreditation of these levee systems by providing necessary documentation to demonstrate the levees meet the requirements of the National Flood Insurance Program. In response, FEMA designated both levee systems as provisionally accredited levees (PALs). The PAL designation requires that the City and ACFC/WCD provide FEMA with the necessary accreditation documents. Should either or both levee systems not be accredited, the land areas behind the levees will be designated by FEMA as special flood hazard areas, or areas within the 100-year flood plain.

Sea Level Rise

Historical records show that sea level in San Francisco Bay has risen 18-20 cm (7 inches) over the past 150 years. The Intergovernmental Panel on Climate Change and the 2006 California Climate Action Team Report project that mean sea level will rise between 10 and 90 cm (12 and 36 inches) by the year 2100. Sea level rise models indicate that a 30 cm (11.8 inch) rise in sea level would shift the 100-year storm surge-induced flood event to once every 10 years. With each flood event, the Bay Area stands to lose valuable real estate, critical public infrastructure, and natural resources.

According to the Bay Conservation and Development Commission (BCDC), global warming is expected to result in sea level rises in San Francisco Bay of 16 inches by 2050[31]. A rise of this magnitude would put about 180,000 acres of Bay shoreline at risk of flooding. BCDC employed geographic information system software to identify the shoreline areas likely to be most impacted by sea level rise, shown in **Figure 4.10**, below. The sea level rise maps are

[31] http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml

generally consistent with the projections in the 2006 California Climate Action Team Report. They illustrate an impact scenario in which sea level rises one meter by the year 2100. Limitations in the geospatial data and accounting for existing flood protection may affect accuracy. Therefore, they are illustrative and should not be used for small-scale planning purposes. The maps are based on USGS 2005 Urban Areas digital elevations and National Agriculture Imagery Program 2004 aerials.

Regulatory Framework

Water resources are regulated by a variety of statues at the local, State, and federal levels. Agencies with regulatory and enforcement jurisdiction in the City of Fremont include the City, the ACFCWCD, the Alameda Countywide Clean Water Program (ACCWP), the State Water Resources Control Board (SWRCB), the San Francisco Bay RWQCB, the California Department of Fish and Game, FEMA, the U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency (EPA). Plans, policies, and regulations pertaining to hydrology and water quality in Fremont are outlined below.

*Clean Water Act*

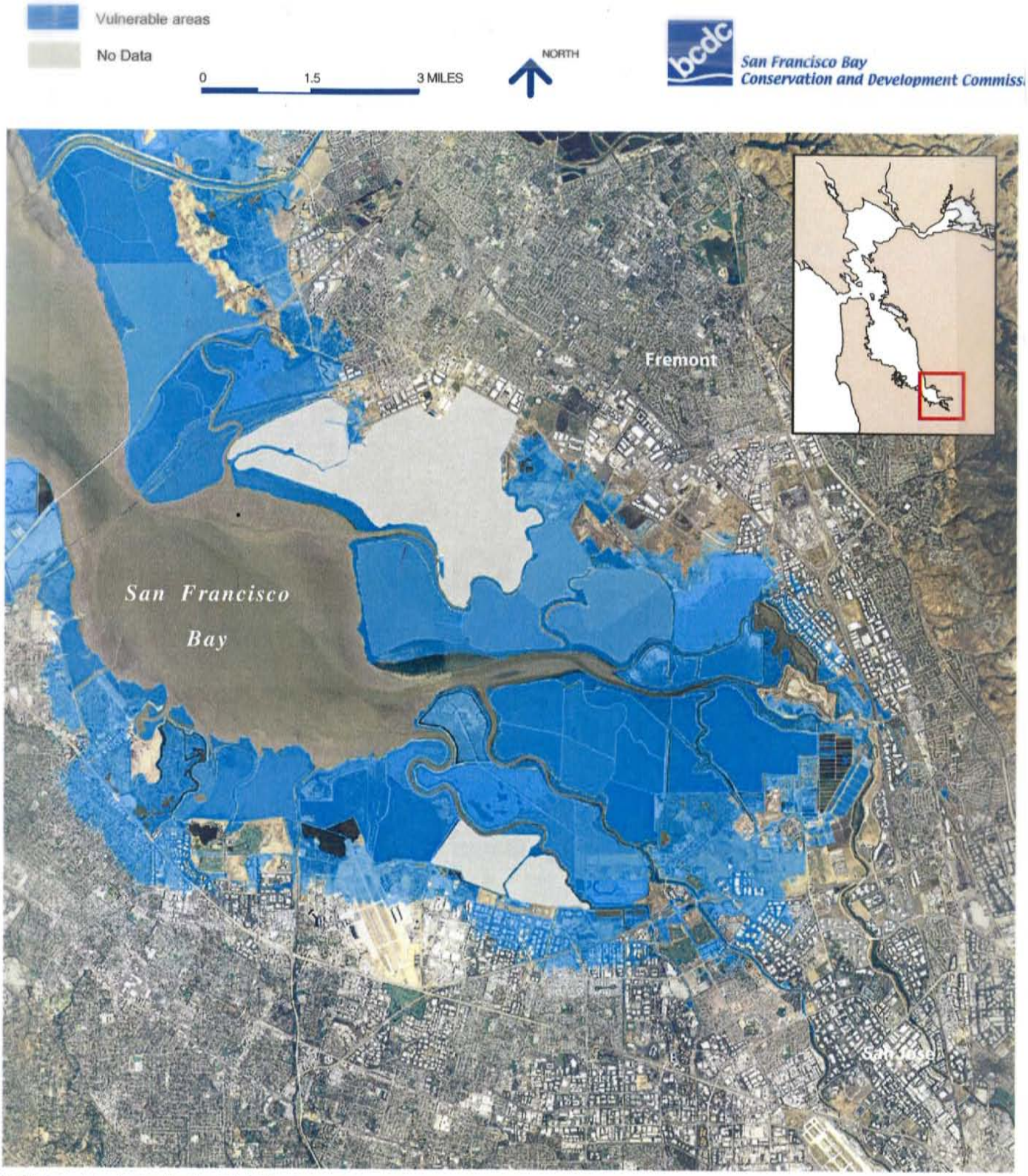
Under the Clean Water Act (CWA) of 1972, the U.S. Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity in the nation's waters. The CWA authorizes the EPA to implement water quality regulations. The EPA has delegated authority for water permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay Regional Water Quality Control Board (RWQCB, Region 2) regulates water quality in Fremont.

*San Francisco Bay Basin Plan*

By law, the RWQCB is required to develop, adopt (after public hearing), and implement a Basin Plan for the Region. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the Region. The plan must include:

- A statement of beneficial water uses that the RWQCB will protect;
- The water quality objectives needed to protect the designated beneficial water uses; and
- The strategies and time schedules for achieving the water quality objectives.

## Figure 4.10: 16-inch Sea Level Rise by Mid-Century – South Bay




SOURCE: Inundation data from Knowles, 2008. Additional salt pond elevation data by Siegel and Bachand, 2002. Aerial imagery is NAIP 2005 data.

DISCLAIMER: Inundation data does not account for existing shoreline protection or wave activity. These maps are for informational purposes only. Users, by their use, agree to hold harmless and blameless the State of California and its representatives and its agents for any liability associated with its use in any form. The maps and data shall not be used to assess actual coastal hazards, insurance requirements, or property values or be used in lieu of Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA).

The RWQCB first adopted a plan for waters inland from the Golden Gate in 1968. After several revisions, the first comprehensive Basin Plan for the Region was adopted by the RWQCB and approved by the State Water Board in April 1975. Subsequently, major revisions were adopted in 1982, 1986, 1992, 1995, 2002, and 2004. The current Basin Plan has been adopted and approved by the State Water Resources Control Board, EPA, and the Office of Administrative Law where required. The Basin Plan is currently being updated to reflect the Basin Plan amendments adopted since 2006.

The Basin Plan contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the Region and describes beneficial uses of major surface waters and their tributaries. The beneficial uses for the larger water bodies within and downstream of the City of Fremont are presented in **Table 4-39**, below. This table reflects the "Addition of Unnamed Water Bodies & Beneficial Uses" Basin Plan amendment that was adopted by the Water Board on July 14, 2010. The Amendment adds nearly 275 surface water bodies to the existing Table 2-1, "Beneficial Uses of Water Bodies in the SF Bay Region," of the Basin Plan. It also designates beneficial uses for the newly added and for some existing water bodies.

*Section 303(d) and Total Maximum Daily Loads (TMDLs)*

Section 303(d) of the CWA requires each state to identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load or TMDL for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

In accordance with Section 303(d), the RWQCB has identified impaired water bodies within its jurisdiction, and the pollutant or stressor responsible for impairing the water quality. Within Fremont, the RWQCB has designated the lower San Francisco Bay as an impaired water body. Pollutants that contribute to this impairment are chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, polychlorinated biphenyls. The potential sources of the pollutants listed are non-point sources, atmospheric deposition, ballast water, industrial and municipal point sources, resource extraction, atmospheric deposition, and natural sources (RWQCB, 2003a). Alameda Creek is a 2002 303(d)-listed impaired waterbody that is adjacent to a Wildlife Refuge (Eden Landing Ecological Reserve). The RWQCB has identified Alameda Creek as impaired for pollutant diazinon and sediment from urban runoff via storm sewers and hydromodification.

## TABLE 4-39: BENEFICIAL USES FOR WATER BODIES IN FREMONT[32]

| Basin | County/Waterbody | AGR | FRSH | GWR | IND | COMM | SHELL | COLD | EST | MIGR | RARE | SPWN | WARM | WILD | REC-1 | REC-2 | NAV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Bay Basin | Alameda Creek Quarry Ponds | □ | | E | | E | | E | | | | | E | E | E | E | |
| | Coyote Hills Slough | □ | | | | | | | E | E | E | E | | E | E | E | |
| | Alameda Creek | E | □ | E | | E | | E | | E | E | E | E | E | E | E | |
| Santa Clara Basin | San Francisco Bay South | | □ | | E | E | E | | E | E | E | E | | E | E | E | E |
| | Newark Slough | □ | □ | | | | | | E | | E | | | E | E | E | |
| | Plummer Creek (Zone 5 Line F-1) | □ | □ | | | | | | E | | E | | | E | E | E | |
| | Mowry Slough | □ | □ | | | | | | E | | E | | | E | E | E | |
| | Coyote Slough | | □ | | | | | | E | | E | | | E | E | E | |
| | Mud Slough | | | | | | | | E | | E | | | E | E | E | |
| | Laguna Creek (Zone 6 Line E) | | | | | | | | | | | | E | E | E | E | |
| | Mission Creek (Zone 6 Line L) | | | | | | | | | | | | E | E | E | E | |
| | Lake Elizabeth | | | | | | | E | | | | E | E | E | E* | E | |
| | Sabercat Creek (Zone 6 Line K) | | | | | | | | | | | | E | E | E | E | |
| | Canada del Aliso (Zone 6 Line J) | | | | | | | | | | | | E | E | E | E | |
| | Agua Caliente Creek (Zone 6 Line F) | | | | | | | | | | | | E | E | E | E | |
| | Agua Fria Creek (Zone 6 Line D) | | | | | | | | | | | | E | E | E | E | |
| | Stivers Lagoon | | E | | | | | | | | | | E | E | E | E | |
| | Mallard (Artesian) Slough | | | | | | | | E | | E | | | E | E | E | |
| | Scott Creek (Zone 6 Line A) | | | | | | | | | | | | E | E | E | E | |
| | Toroges Creek (Zone 6 Line C) | | | | | | | | | | E | | E | E | E | E | |

E: Existing beneficial use E*: Water quality objectives apply; water contact recreation is prohibited or limited to protect public health P: Potential beneficial use

[32] California Regional Water Quality Control Board San Francisco Bay Region. Revised Table 2-1: Beneficial Uses of Water Bodies in the SF Bay Region. Basin Plan Amendment July 14, 2010. San Francisco Bay Basin (Region 2) Water Quality Control Plan. http://www.swrcb.ca.gov/rwqcb2/basin_planning.shtml#amendments

Multi-stakeholder programs to address the pollutants include:

- Protecting and restoring the natural ecosystems of the Alameda Creek watershed
- Public education on natural resource management
- Development of strategies to restore steelhead trout to Alameda Creek.
- Proposals to partially remove Sunol and Niles Dams to eliminate barriers to fish passage and to address public safety and risk management concerns.
- Installation and retrofit fish ladders.
- Implementation strategies for diazinon Total Maximum Daily Load (Urban Pesticide TMDL) in Bay Area urban creeks, San Francisco Bay Mercury TMDL, and San Francisco Bay Polychlorinated Biphenyls (PCBs) TMDL
- Rangeland Stewardship in South Alameda Creek
- Regional Storm-water Monitoring and Urban BMP Evaluation: A Stakeholder-Driven Partnership to Reduce Contaminant Loadings

*National Pollutant Discharge Elimination System (NPDES)*

The National Pollutant Discharge Elimination System (NPDES) program under section 402(p) of the Clean Water Act controls water pollution by regulating pollutant discharges into the waters of the U.S. California has an approved state NPDES program.

The NPDES permit system was established in the CWA to regulate point source discharges. Point sources include a municipal or industrial discharge at a specific location or pipe. Under the Water Quality Act of 1987, industrial stormwater discharges and municipal separate storm sewer systems were required to obtain NPDES permits. This includes non-point sources that are diffuse and originate over a wide area. As such, urban stormwater runoff and construction site runoff are regulated under the NPDES permit program because they are conveyed in a discrete system and discharge at a specific location(s).

For individual point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge; however, Fremont would not be considered such an individual point source for NPDES permit purposes because the source of discharge is diffuse. For stormwater runoff, the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying

harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a comprehensive Stormwater Management Program.

To meet the goals of the NPDES permit, each local stormwater program and each permittee within a program establishes a Stormwater Management Plan (SWMP). These SWMPs provide specific local requirements targeted to meet the environmental needs of each watershed, as well as to reflect the political consensus of each community. The goal of the NPDES diffuse source (stormwater) regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" (MEP)[33] through the use of best management practices (BMPs).

BMPs can include the development and implementation of various practices including educational measures (e.g., workshops informing public of what impacts result when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage facility design), public policy measures (e.g., label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (e.g., filter strips, grass swales, and detention ponds).

Implementation of development projects under the DRAFT General Plan Update would be subject to the NPDES permit system through the following NPDES permits and likely successor permits:

- California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit. Alameda County and its incorporated cities are permitted under Phase I for municipal stormwater and urban runoff discharges under NPDES Permit No. CAS612008, Order No. R2-2009-0074, October 14, 2009. One of the primary objectives of the regulations for pollutant dischargers is the reduction of pollutants in urban stormwater discharge through the use of structural and nonstructural BMPs 99-059/R2–2003–0023.

Regulated Projects as defined in the Construction General Permit (Provision C.3) are required to implement certain construction and post-construction stormwater quality BMPs.

Regulated Projects must provide permanent/post-construction treatment controls for stormwater according to specific calculations. The primary means of post construction controls includes Low Impact Development (LID) measures which reduce runoff and treat runoff on site through vegetated bio-treatment facilities. In addition to stormwater runoff

[33] BMPs are intended to reduce impacts to the Maximum Extent Practicable (MEP), a general standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. Regulations do not define a single MEP standard, but reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed.

water quality controls, the NPDES permit includes measures for controlling hydromodification when there is a substantial increase in impervious surfaces.

*Alameda County Public Works Agency*

The Alameda County Flood Control and Water Conservation District (ACFC/WCD), part of Alameda County Public Works Agency, is in charge of protecting county citizens from flooding while preserving the natural environment. It is responsible for maintaining the infrastructure of Alameda County's roads, bridges, flood channels, and natural creeks. It has permitting authority for proposed alternatives to storm drainage systems, including discharge point connections. ACFC/WCD reviews drainage plans associated with land development for consistency with its policies and regulations regarding runoff, stormwater management, detention, flooding, and bank erosion.

ACFC/WCD divides its area of responsibility into 10 zones. Zones 5 and 6 include the areas of Fremont. Zone 5 includes the Ardenwood and Centerville areas of Fremont, as well as the City of Newark, while Zone 6 includes Fremont's Irvington, Mission San Jose, and Warm Springs areas.

Construction and operation of new development projects would be required to comply with ACFC/WCD requirements concerning drainage, flooding, and stormwater management issues as a condition of receiving a drainage permit.

*Alameda County Water District*

The Alameda County Water District (ACWD) supplies water to Fremont and protects the quality of surface and groundwater supplies through the administration of Fremont's Well Ordinance.[34] The district was formed in 1913 after over-extraction from the Niles Cone caused groundwater levels to decline alarmingly. Today, groundwater represents 35 percent of water supply in normal years, and up to 60 percent in dry years. Under the County Water District Law and the Replenishment Assessment Act of the Alameda County Water District, the District has statutory authority to prevent pollution, contamination, or diminution in quality of the groundwater supply through local well ordinances, agreements with other agencies, and local hazardous materials ordinances. The Replenishment Assessment Act gives the Water District authority to charge operators of water production facilities for the water they produce. This includes water wells, dewatering wells, and chemical investigation extraction wells. ACWD also developed a program that notifies cities of the destruction of

[34] (City of Fremont Ordinance No. 950 on June 26, 1973, as amended by Ordinance No. 963 on October 16, 1973; ACWD, 2001.

wells when land use changes are proposed, and subjects well destruction to permit approval under Fremont's building ordinances.[35]

*San Francisco Public Utilities Commission Water System Improvement Program*

The San Francisco Public Utilities Commission (SFPUC) proposes to adopt and implement the Water System Improvement Program (WSIP) to increase the reliability of the regional water system that serves 2.4 million people in San Francisco and the San Francisco Bay Area. The WSIP would improve the regional system with respect to water quality, seismic response, water delivery, and water supply to meet water delivery needs in the service area through the year 2030. The WSIP would implement a proposed water supply option, modify system operations, and construct a series of facility improvement projects. The proposed program area spans seven counties, including Alameda County. As such, cumulative impacts for hydrology and water quality must include consideration of the proposed SFPUC WISP and other potential future development within the local drainage area.

The SFPUC currently delivers an annual average of about 265 million gallons per day (mgd) of water to its customers. The local source of the water supply includes streamflow and runoff from the Alameda Creek watershed, captured from the San Antonio and Calaveras Reservoirs (Alameda Reservoirs Drainage). The SFPUC serves about two-thirds of its water supplies to wholesale customers, largely represented by the Bay Area Water Supply and Conservation Agency (BAWSCA), which includes the Alameda County Water District. The City of Fremont receives approximately 30 percent of its drinking water from the system.

In 2005, the SFPUC developed goals and objectives for the WSIP based on a planning horizon through 2030. The goals and objectives are founded on two fundamental principles pertaining to the existing regional water system: (1) maintaining a clean, unfiltered water source from the Hetch Hetchy system, and (2) maintaining a gravity-driven system. To further these program goals, the WSIP includes objectives that address system performance in the areas of water quality, seismic reliability, delivery reliability, and water supply through the year 2030.

*San Francisco Water Department*

The San Francisco Water Department (SFWD) provides ACWD much of the City's drinking water and manages two major water transmission pipelines that pass through Fremont and carry drinking water to the majority of the Bay Area's 2.4 million customers.[36] SFWD provides planning, design and construction of its water delivery projects in Fremont such as

[35] Alameda County Water District 2001.Alameda County Water District Groundwater Management Policy

[36] SFWD, 2007.

the seismic retrofit of its pipelines and construction of the proposed New Irvington Tunnel located near Mission Avenue.

*San Francisco Bay Conservation and Development Commission*

The San Francisco Bay Conservation and Development Commission (BCDC) is dedicated to the protection and enhancement of San Francisco Bay and to encouragement of the Bay's responsible use.[37] The 27-member BCDC is the federally-designated state coastal management agency for the San Francisco Bay segment of the California coastal zone. This designation empowers the Commission to use the authority of the federal Coastal Zone Management Act to ensure that federal projects and activities are consistent with the policies of the Bay Plan and state law. BCDC is made up of appointees from Federal, state, and local governments, and regulates new development within the first 100 feet inland from the Bay to ensure that maximum feasible public access to the Bay is provided and implements the Coastal Zone Management Act within the San Francisco Bay segment of the California Coast.

*Alameda Countywide Clean Water Program*

The Alameda Countywide Clean Water Program (ACCWP) is a collaborative association of local member agencies within Alameda County that share a joint National Pollutant Discharge Elimination System Permit (NPDES Permit), issued by the RWQCB. ACCWP's Stormwater Quality Management Plan requires individual projects to prepare site-specific plans to demonstrate incorporation of appropriate site design strategies, including source controls, and post-construction stormwater treatments to control and manage stormwater runoff and quality. ACCWP provides a large amount of information to planners, developers, and the public regarding stormwater pollution prevention and best management practices. Through their Stormwater Technical Guidance Handbook, web resources, workshops, stewardship programs, and coordination with other pollution prevention programs, the ACCWP educates the public and businesses how to reduce their contribution to storm water pollution and improve water quality and habitat.

*Floodplain Management*

FEMA is responsible for completing a Flood Insurance Study that establishes flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplain.

[37] Fremont General Plan 1991.

FEMA allows development in the floodplain; however, development activities are regulated in the flood hazard areas. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR), which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. Because the City participates in the NFIP, some development anticipated under the DRAFT General Plan Update would be subject to FEMA regulations for development within a floodplain.

*Porter-Cologne Water Quality Control Act*

The Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface water and groundwater) and directs the RWQCBs to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

The San Francisco Bay RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. Water quality objectives for the San Francisco Bay and its tributaries are specified in the San Francisco Bay Basin Water Quality Control Plan Basin (Basin Plan) prepared by the RWQCB in compliance with the federal CWA and the State Porter-Cologne Water Quality Control Act. Because the Fremont is located within the San Francisco RWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements.

The principal elements of the Basin Plan are a statement of beneficial water uses protected under the plan; water quality objectives necessary to protect the designated beneficial water uses; and strategies and time schedules for achieving the water quality objectives. The water quality objectives are achieved primarily through the establishment and enforcement of Water Discharge Requirements (WDRs). WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions.

The designated beneficial uses for the South San Francisco Bay, specified in Table 2-1 of the Basin Plan, are industrial processing, shellfish harvesting, ocean, commercial and sport fishing, preservation of rare and endangered species, estuarine and other wildlife habitat, fish migration, navigation, and water contact and noncontact water recreation. Cold and warm freshwater habitats and fish spawning are also listed as potential beneficial uses. Designated beneficial uses for the Niles Cone are municipal and domestic water supply, industrial

processes water supply, industrial services water supply, and potential agricultural water supply.

Together, the narrative and numerical objectives define the level of water quality that shall be maintained within the region. Beneficial uses and their associated water quality objectives, together, comprise the relevant water quality standards. In instances where water quality is better than that prescribed by the objectives, the state Antidegradation Policy applies (State Board Resolution 68-16: Statement of Policy with Respect to Maintaining High Quality of Waters in California). This policy is aimed at protecting relatively uncontaminated aquatic systems where they exist and preventing further degradation. The state's Anti-degradation Policy is consistent with the federal Anti-degradation Policy, as interpreted by the SWRCB in State Board Order No. 86-17.

*Waste Discharge Requirements*

The RWQCBs have the primary responsibility for issuing WDRs. All discharges are regulated under WDRs for discharge to land surfaces or NPDES permits for discharge to surface waters (the NPDES permit also serves as a WDR). The RWQCBs may issue individual WDRs to cover individual discharges or general WDRs to cover a category of discharges. As noted previously, the proposed project is not expected to need an individual NPDES permit/WDR, although there is a possibility if extensive dewatering were necessary.

*California Toxics Rule (CTR)*

Numeric criteria are required by the CWA for many priority toxic pollutants. However, in 1994, a state court overturned the state's water quality control plans containing water quality criteria for priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the EPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in the State of California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA. Although the proposed project would not be expected to directly discharge priority toxic pollutants to water resources, the CTR comprises water quality criteria for meeting applicable water quality objectives and water quality standards. Additionally, the proposed project may result in higher amounts of priority toxic pollutants in stormwater runoff (e.g., metals, pesticides, and others).

*California Water Code*

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code. Section 13260 states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state, other than into a

community sewer system, shall file a Report of Waste Discharge containing information that may be required by the appropriate RWQCB. The projects are then required to obtain approval of WDRs from the appropriate RWQCB. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan, or SIP)**.** In March of 2000, the State Water Board adopted the SIP in Resolution No. 2000-015, which establishes the following: (1) implementation provisions for priority pollutant criteria promulgated by the EPA through the National Toxics Rule (40 CFR 131.36) (promulgated on December 22, 1992 and amended on May 4, 1995) and through the California Toxics Rule (40 CFR 131.38) (promulgated on May 18, 2000 and amended on February 13, 2001), and for priority pollutant objectives established by Regional Water Boards in their basin plans; (2) monitoring requirements for 2,3,7,8-TCDD (dioxin) equivalents; and (3) chronic toxicity control provisions. In addition, this policy includes special provisions for certain types of discharges and factors that could affect the application of other provisions in this policy. A list of priority pollutants and associated criteria can be found in the CFR, Section 40, Part 131.

*City of Fremont Ordinances*

The City of Fremont Municipal Code contains ordinances that directly pertain to Fremont's hydrology and water quality. For topics directly related to the hydrology and water quality of Fremont, the relevant ordinances are provided under specific chapters of Title 8, Planning and Zoning.

Chapter 4, "Grading, Erosion and Sediment Control" seeks to ensure that future development of lands occurs with a minimum of risk, and is performed in the manner that is the most compatible with surrounding areas so as to have the least adverse effect upon other persons, lands, or upon the general public.[38] Development is to be planned and permitted in manner that:

> (a) Soil will not be stripped or removed from lands in the more scenic parts of the city, leaving the same barren, unsightly, unproductive, and subject to erosion and the hazards of subsidence and faulty drainage;
>
> (c) Water quality is protected by avoiding pollution of watercourses with nutrients, sediments or other earthen materials generated on or caused by surface runoff on or across private property.

(d) Planning, design and development of building sites provide the maximum in safety and human enjoyment, while adapting development to and taking advantage of the best use of the natural terrain; and

Chapter 8, Flood Damage Prevention, is imbued with the statutory authority given to municipalities by the State of California to adopt regulations designed to promote the public health, safety and general welfare of its citizenry and prevent loss due to flood conditions in specific areas. The intents of the Fremont's Flood Damage Prevention ordinances are to:

(a) Protect human life and health;

(b) Minimize expenditure of public money for costly flood control projects;

(c) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(d) Minimize prolonged business interruptions;

(e) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;

(f) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

(g) Ensure that potential buyers are notified that property is in an area of special flood hazard; and

(h) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

Chapter 11, Storm Water Management and Discharge Control, seeks to ensure the future health, safety, and general welfare of City of Fremont citizens by protecting and enhancing the water quality of Fremont's watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the Federal Clean Water Act. This includes:

(a) Reducing, to the maximum extent practicable, non-storm water discharges to the city storm drain system.

(b) Controlling the discharge to the city storm drain system from spills, dumping or disposal of materials other than storm water.

[38] Fremont Municipal Code. 2007. Sec. 8-4100. Purpose and Intent of chapter.

(c) Reducing pollutants in storm water discharges to the maximum extent practicable.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

Under the State CEQA guidelines and general practice, the changes proposed in the general plan would have significant impacts to the planning area if they will:

1) Violate any water quality standards or waste discharge requirements;

2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation within or outside of the planning area;

4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding within or outside of the planning area;

5) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

6) Otherwise substantially degrade water quality;

7) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

8) Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

9) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or

10) Expose people or structures to inundation by seiche, tsunami, or mudflow (Potential impacts of inundation by seiche, tsunami, or mudflow are discussed in the **Geology, Soils and Seismicity** section, below.).

## DRAFT GENERAL PLAN UPDATE POLICIES

The DRAFT General Plan Update contains policies, and implementation programs to protect surface and groundwater quality and supply as listed below.

*Policy 7-2.1: Preservation of Water Resources.*

- *Implementation 7-2.1.A: Development Near Riparian Areas.*
- *Implementation 7-2.1.B: Creek Master Plans.*
- *Implementation 7-2.1.C: Preserve Locations Providing Water Quality Benefits.*

*Policy 7-2.3: Niles Cone Aquifer Maintenance.*

- *Implementation 7-2.4.A: Protect Ground Water Resources.*

*Policy 7-3.1: Protect and Improve Water Quality.*

- *Implementation 3.1.A: Limit Projects that Decrease Water Quality.*
- *Implementation 7-3.1.B: Protection of Niles Canyon.*
- *Implementation 7-3.1.C: Maximize Use of Quarry Lakes.*

*Policy 7-3.2: Groundwater Resources.*

- *Implementation 7-3.2.A: Prevent Spills and Leakages.*
- *Implementation 7-3.2.B: Establish Buffers.*
- *Implementation 7-3.2.C: Review Water Quality Annual Reports.*
- *Implementation 7-3.2.D: ACWD Coordination.*

*Policy 7-3.3: Enforce Water Quality Requirements.*

- *Implementation 7-3.3.A: Alameda Countywide Clean Water Program.*
- *Implementation 7-3.3.B: Stormwater Control in New Developments.*
- *Implementation 7-3.3.C: Reduce Impervious Surface Areas.*
- *Implementation 7-3.3.D: Landscape-Based Treatment.*
- *Implementation 7-3.3.E: Preserve Areas with Water Quality Benefits.*

- *Implementation 7-3.3.F: Protect Areas Susceptible to Erosion.*
- *Implementation 7-3.3.G: Landscape Design.*
- *Implementation 7-3.3.H: Green Roofs.*
- *Implementation 7-3.3.I: Low Impact Development.*
- *Implementation 7-3.3.J: Trash Reduction.*

*Policy 7-4.1: Water Conservation.*

- *Implementation 7-4.1.A: Water Efficient Landscape Ordinance.*
- *Implementation 7-4.1.B: Bay Friendly Landscape Guidelines.*
- *Implementation 7-4.1.C: Water Retention on Site.*
- *Implementation 7-4.1.D: Green Building Plumbing Code.*

*Policy 7-4.2: Reclaimed Water.*

- *Implementation 7-4.2.A: Reclaimed Water Program.*
- *Implementation 7-4.2.B: "Purple-Pipes" in Development Projects.*
- *Implementation 7-4.2.C: Tertiary Treatment at Pump Stations.*
- *Implementation 7-4.2.D: Recycled Water Systems (gray water).*
- *Implementation 7-4.2.E: Municipal Uses for Recycled Water.*

*Policy 7-4.3: Water Conservation in City Operations.*

- *Implementation C4.3.A: Conservation in City Operations.*
- *Implementation 7-4.3.B: Collaboration with ACWD.*
- *Implementation 7-4.3.C: Bay Friendly Landscape Maintenance.*

*Policy 7-6.1: Awareness of Soil Conditions.*

- *Implementation 7-6.1.A: Analysis of Soil Prior to Construction.*

*Policy 7-6.2: Minimize Soil Erosion.*

- *Implementation 7-6.2.A: Blend-in Engineered Slopes.*
- *Implementation 7-6.2.B: Limit Erosion with BMPs.*
- *Implementation 7-6.2.C: Enforce Control Measures.*
- *Implementation 7-6.2.D: Consistency with City Ordinances and Acts.*

*Policy 10-3.1: Limit Construction in Floodplain.*

- *Implementation 10-3.1.A: Flood Control Ordinance.*
- *Implementation 10-3.1.B: National Flood Insurance Program.*
- *Implementation 10-3.1.C: Efforts to Reduce Flood Insurance Costs.*
- *Implementation 10-3.1.D: Minor Encroachments in Floodplain.*
- *Implementation 10-3.1.E: Flood Control System Impacts.*
- *Implementation 10-3.1.F: Flood Resistant Construction.*
- *Implementation 10-3.1.G: Impervious Surface Area.*
- *Implementation 10-3.1.H: Flood Maps.*
- *Implementation 10-3.1.I: Project Referral.*
- *Implementation 10-3.1.J: Critical Facilities.*
- *Implementation 10-3.1.K: Public Agency Projects.*
- *Implementation 10-3.1.L: Creek Restoration.*

*Policy 10-3.2: Design to Minimize Flooding.*

- *Implementation 10-3.2.A: Infrastructure to Accommodate Development.*

*Policy 10-3.3: Public Facility Operation.*

- *Implementation 10-3.3.A: Location of Public Facilities.*
- *Implementation 10-3.3.B: Evacuation Plan for Inundation.*
- *Implementation 10-3.3.C: Levee Certification.*

*Policy 10-3.4: Mitigate Flood Hazards.*

- *Implementation 10-3.4.A: Water Storage Facilities.*
- *Implementation 10-3.4.B: Water Storage Inventory.*

*Policy 10-3.5: Critical Facilities Locations.*

- *Implementation 10-3.5.A: Special District Facilities.*
- *Implementation 10-3.5.B: Critical Facilities List.*

*Policy 10-3.6: Flood Impacts from Sea-Level Rise.*

- *Implementation 10-3.6.A: Building Pad Elevation.*
- *Implementation 10-3.6.B: Land Use Designations.*
- *Implementation 10-3.6.C: Interagency Coordination.*
- *Implementation 10-3.6.D: Sea Level Rise Adaptation.*
- *Implementation 10-3.6.E: Climate Action Plan.*

*Policy 11-1.3: Adapting to Sea Level Rise.*

*Policy 11-5.17: Sunol Valley Watershed Protection.*

*Policy 11-5.19: Use of Natural Drainage in Hill Area.*

## IMPACTS AND MITIGATION MEASURES

Water Quality

*Water Quality – Residential, Commercial, Industrial, and Public Uses*

Development and maintenance of land uses such as residential, commercial, industrial, and public facilities (e.g., roads, schools, energy generation and wastewater facilities) creates additional impervious surfaces and automobile use. Additionally, this development can result in the use of materials that can impair water quality such as fertilizers and pesticides (e.g., for landscaping) and toxic chemicals (e.g., for industrial uses or energy production). Water, typically as rainfall, moves over these impervious surfaces where it picks up and carries away natural (e.g., sediment) and human-made pollutants (e.g., oil, pesticides, etc.) and deposits them into streams, rivers, wetlands, and eventually coastal waters. Runoff from

these uses is one component of water pollution known as non-point source pollution (i.e., having many diffuse sources).

Several different types of pollutants, including sediment, organic compounds, nutrients, trace metals, bacteria and viruses, and oil and grease compounds, are common in runoff from these uses. Sediment sources include roads and parking lots, as well as destabilized landscape areas, stream banks, unprotected slopes and denuded or disturbed areas. Sediment also transports pollutants such as trace metals, nutrients, and hydrocarbons that attach to each particle. Organic compounds are derived from automotive fluids, pesticides, and herbicides. Nutrients include nitrogen, phosphorus, and other organic compounds that can be found in organic litter, fertilizers, food waste, sewage, and sediment. Sources of trace metals include motor vehicles, roofing and construction materials, and chemicals. Animal wastes, sanitary sewer overflow, and trash handling areas can contribute bacteria and viruses. Sources of oil and grease compounds include motor vehicles, food service establishments, and fueling stations. Potential water quality impacts related to soil erosion and sedimentation are discussed below.

As the DRAFT General Plan Update employs a "strategically urban" growth strategy, its implementation could result in development of some currently unpaved lands, resulting in an increase in impervious surface area. Such development would result in an increase in pollutants associated with runoff. Therefore, the water quality of streams within the City would likely be further degraded by urban land use activities. Conversely, sites that are being redeveloped will now be subject to NPDES requirements, which will result in improvements to stormwater quality.

As described in the Regulatory Setting section, permitting programs regulate municipal storm drain systems, industrial facilities, and construction sites. Under the NPDES permitting program, the preparation and implementation of Stormwater Pollution Prevention Plans (SWPPPs) are required for construction activities. Project applicants may also be required (depending on the nature of the project) to develop a long-term SWPPP or a long-term Stormwater Management Program (SWMP) to cover potential storm water pollution associated with the land use after construction. A SWMP must identify potential sources of pollution that may be reasonably expected to affect the quality of stormwater discharges in accordance with C.3 requirements of the permit. This includes incorporating appropriate on-site BMPs and continued maintenance and reporting on stormwater treatment measures.

The DRAFT General Plan Update Conservation Element contains several policies designed to protect and improve water quality in the City. Goal 7-2 specifically addresses water quality and seeks to achieve high quality water protected from pollutants and managed to improve the quality of the San Francisco Bay. Policy 7-3.1 "Protect and Improve Water Quality," including Implementations A, B, and C, would limit projects that decrease water quality and take into special consideration existing water quality resources in Niles Canyon and Alameda Creek Quarries. Policy 7-3.3 "Enforce Water Quality Requirements," including

Implementations A-J, would enforce Federal, State, and locally issued mandates regarding water quality. These mandates include the Alameda Countywide Clean Water Program, stormwater Best Management Practices, and other development requirements. In general, the DRAFT General Plan Update policies would help to ensure that future urban-type development does not result in an increased violation of water quality standards.

Adoption and implementation of the current stormwater, grading, and erosion control regulations and proposed policies and implementation programs would ensure that the impact to water quality resulting from residential, commercial, industrial and public uses consistent with the DRAFT General Plan Update would be reduced a level considered ***less than significant***. No mitigation would, therefore, be required.

*Water Quality: Soil Erosion and Sedimentation Related to Construction*

Implementation of the DRAFT General Plan Update could result in the construction of a wide range of uses including residential, commercial and industrial buildings, public facilities (e.g., roads, wastewater, energy production, and landfill facilities), amongst others. Erosion and sedimentation resulting from construction activities in Fremont could represent a significant source of pollution conveyed in storm water runoff. Grading and other earthmoving activities could alter drainage patterns and, therefore, have the potential to accelerate soil erosion above natural background rates. Vegetative cover, which acts to stabilize the soil, would generally be removed from areas where earthwork and grading activities would occur during the construction.

Although the construction of most new development would occur on relatively gentle slopes surrounding existing urban areas, the DRAFT General Plan Update allows limited development of residential and other land uses on hillside areas. Even with the implementation of erosion control measures, development on moderate slopes would be particularly susceptible to increased erosion and sedimentation which has the potential to impair water quality. A high level of attention to the planning and implementation of erosion control measures would be required in these areas. Sediment could also accumulate at the inlets of downstream storm drain system, reducing the system's capacity to convey stormwater. Soil loss from erosion could generate costs to the public associated with the clean up and maintenance of storm drains.

Impacts resulting from development anticipated under the DRAFT General Plan Update would be reduced by compliance with the existing City building and grading requirements and by NPDES permitting requirements described above. Goal 7-6, "Land Resources," specifies urban development consistent with soil conditions to minimize erosion and protect health and property. Policy 7-6.1, "Awareness of Soil Conditions," including Implementation A, ensures that development projects take soil conditions into account. Policy 7-6.2, "Minimize Soil Erosion," including Implementations A-D, eliminates soil erosion from development to the maximum extent possible.

Land use and development consistent with the DRAFT General Plan Update could result in increased soil erosion and sedimentation during construction activities, thereby degrading water quality in downstream waterways. However, existing regulations and proposed water quality policies and implementation programs of the DRAFT General Plan Update would ensure that impacts to water quality resulting from construction would be less than under existing conditions. Therefore, this is considered to be a ***less than significant*** impact.

*Groundwater Quality – Residential, Commercial, Industrial, and Public Uses Impacts on Groundwater Recharge*

Existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce the potential for groundwater contamination to a considered ***less than significant***.

Local and imported water is percolated into the Niles Cone Groundwater Basin through percolation both in Alameda Creek and the adjacent recharge ponds in the Quarry Lakes Regional Recreational Area. The water is subsequently recovered through ACWD's groundwater production wells and provided as a potable supply to a population of over 330,000 in the cities of Fremont, Newark, and Union City. Residential, commercial, industrial, and public uses consistent with the DRAFT General Plan Update could allow additional non-point source pollutants to contaminate groundwater recharge supplies.

Policy 7-3.2, "Groundwater Resources," including Implementations A-D, would protect groundwater from contamination. This policy proposes to prevent spills and leakages that could potentially contaminate groundwater resources, establishes buffers between development and surface water recharge areas, reviews annual ACWD groundwater quality reports and coordinates with ACWD regarding any pending development proposals that could have a negative impact on groundwater.

Existing regulations and the proposed water quality policies and implementation programs of the DRAFT General Plan Update would ensure that impacts to groundwater quality associated with development anticipated under the DRAFT General Plan Update would be less than under existing conditions. Therefore, this is considered to be a ***less than significant*** impact.

<u>Drainage</u>

*Changes to Drainage Patterns Leading to Streambank Erosion*

Land use patterns and development anticipated under the DRAFT General Plan Update would result in a gradual increase in impervious cover, especially in urban service areas. Typically, increases in impervious cover result in an increase in stormwater runoff, higher peak stream discharges, and decreased groundwater recharge. Increased peak discharges resulting from changes in land use have the potential to degrade water quality by creating

erosive velocities and shear stress and ultimately cause erosion and sedimentation in drainage swales and streams. Minor increases in tributary flows can also exacerbate creek bank erosion and / or cause destabilizing channel incision. The magnitude of these effects depends on total impervious surfaces in the local watershed, the nature of the storm drain system, and the extent that the drainage system incorporates peak flow reduction methodologies (e.g., porous pavement, on-site stormwater detention, in-pipe detention). Conversely, sites that are being redeveloped will now be subject to NPDES requirements, which will result in drainage improvements intended to enhance stormwater quality.

The Conservation and Safety Elements of the DRAFT General Plan Update contain several stormwater management policies which would help mitigate the potential drainage and erosion impacts associated with new development. In general, the policies would encourage better land use planning through the use of appropriate hydrologic and hydraulic analysis in the discretionary project approval process with respect to site design, building location and drainage infrastructure design.

Policy 7-2.1, Implementation A, requires proposed projects near riparian areas to protect the aesthetic, recreational and biological benefits consistent with flood control; Implementation B provides for the development of master plans for creek watersheds, which would allow for a watershed-wide overview of streambank erosion impacts.

Policy 7-3.2, Implementation B**,** would help protect stream water quality and stream stability by establishing streamside buffers and by limiting certain kinds of activities along streams that may be harmful to the functions and values of the streams.

Policy 7-3.3, Implementation B**,** requires stormwater controls for new developments, and Implementation F protects areas susceptible to erosion. Implementation I would develop regulations that require the use of Low Impact Development (LID) technologies. LID is a stormwater management approach that strives to manage rainfall runoff at the source using planning and site design techniques that include infiltration, filtration, storm water storage, evaporation, and detention. While traditional stormwater management systems are designed to function well under a single design condition (e.g., 10 year storm), LID uses the stormwater from more frequent events as a resource in efforts to restore the developed area's natural rainfall-runoff and groundwater recharge relationships.

Policy 7-6.2 minimizes soil erosion to the maximum extent possible, and requires blend-in engineered slopes, erosion control Best Management Practices, and compliance with City ordinances and acts. Soil erosion is also discussed in the **Geology, Soils and Seismicity** section, below.

In summary, current practices utilized in the review of flood control, drainage, and grading permits, stormwater runoff controls under the Phase I and II NPDES programs, as well as policies contained in the DRAFT General Plan Update, would mitigate potential impacts associated with increased runoff and other surface drainage modifications, including

potential impacts to channel stability, and stream bank erosion. The DRAFT General Plan Update policies would ensure that drainage impacts to streambank erosion would be ***less than significant.***

*Increased Flood Risk from Drainage System Alteration, including Impediment or Redirection of Flows in Flood Hazard Areas*

Land uses and development consistent with the DRAFT General Plan Update could increase runoff and modifications to local and regional hydrology. Future development may necessitate the construction of new drainage facilities for stormwater conveyance and management. In areas where drainage infrastructure already exists, drainage systems may need to be enlarged or expanded to accommodate future growth. Stormwater management practices commonly used to mitigate increases in peak flows (e.g., detention, retention, infiltration) may also be implemented, as deemed appropriate under policies in the DRAFT General Plan Update.

Local storm drainage modifications, stream channel alterations, and structural bank stabilization measures could create significant flooding impacts, in some cases by moving the existing flooding and channel instability problems cross channel or downstream, or by changing the timing of peak flows and point of discharge of runoff.

Goal 10-3, "Flood Hazards," within the Safety Element of the DRAFT General Plan Update, seeks to minimize feasible risks to life and property resulting from flooding and flood induced hazards. Policy 10-3.2 requires design of new development and redevelopment projects to minimize hazards associated with flooding and limit the amount of runoff that contributes to flooding. Specifically, Implementation A requires new development to demonstrate that existing and/or planned (on- or off-site) drainage facilities area sized to accommodate project storm runoff and to prevent off-site increase in peak runoff rates and flood elevations.

Although flooding would continue to occur in flood prone areas, this is considered an existing condition for purposes of CEQA review, and the policies and programs of the DRAFT General Plan Update would ensure that flooding in these areas would not worsen. Adoption and implementation of the policies and programs contained in the DRAFT General Plan Update as discussed above would generally ensure that potential impacts of future development of on- and off-site flooding and drainage infrastructure would be reduced to a level considered ***less than significant***, with the exception of the Laguna Creek Drainage Facility, which is addressed in **Impact HYD-1** and **Mitigation HYD-1**, below.

**Impact HYD-1: Increased Runoff to Laguna Creek Drainage Facility.** Development within the tributary area of Laguna Creek (generally Irvington and northeastern parts of the Mission San Jose Community Plan Area) has the potential to contribute runoff beyond the existing flood control capacity of Laguna Creek. This represents a ***potentially significant*** impact.

Laguna Creek has a utilized capacity of 100 percent as modeled by the Alameda County Flood Control and Water Conservation District. Modeled analysis of the area assumes runoff values for existing developed property and assigned average values for vacant property in the tributary area. Any substantial net increase in runoff that has not been accounted for in the prior modeling could potentially adversely affect the ability of Laguna Creek to convey flood waters.

**Mitigation HYD-1: Include an Implementation Measure as part of DRAFT General Plan Update Policy 10.3-2 Design to Minimize Flooding to Acknowledge Laguna Creek as an Area of Design Concern.** Additionally, implementation should include an update to the City's Flood Control Ordinance with measures that ensure that prior to issuance of building permits for a project with a potential net increase in stormwater runoff, the City finds that a flood control management and design plan results in no net increase in runoff or consistency in runoff volumes modeled by Alameda County Flood Control and Water Conservation District.

Implementation of **Mitigation HYD-1** would result in reducing this potential impact to a level considered ***less than significant***.

Flooding

The DRAFT General Plan Update Land Use and Housing Elements generally would prohibit new development and redevelopment within areas designated as FEMA 100-year flood hazard zones unless sufficient mitigation could be provided. The DRAFT General Plan Update provides policies to mitigate the potential consequences of such development by means of appropriate design criteria to protect both proposed structures as well as existing structures downstream.

Policy 10-3.1, "Limit Construction in Floodplain," would prohibit new construction of any type in the 100-year flood zone or any other flood prone areas as determined by the Federal Emergency Management Agency (FEMA) and as shown on the FEMA Flood Insurance Rate Maps (FIRM) unless sufficient mitigation can be provided or the area is removed from the flood zone. The following Implementations A-L address limiting construction in the 100-year floodplain:

- *Implementation 10-3.1.A: Flood Control Ordinance.*

- *Implementation 10-3.1.B: National Flood Insurance Program.*
- *Implementation 10-3.1.C: Efforts to Reduce Flood Insurance Costs.*
- *Implementation 10-3.1.D: Minor Encroachments in Floodplain.*
- *Implementation 10-3.1.E: Flood Control System Impacts.*
- *Implementation 10-3.1.F: Flood Resistant Construction.*
- *Implementation 10-3.1.G: Impervious Surface Area.*
- *Implementation 10-3.1.H: Flood Maps.*
- *Implementation 10-3.1.I: Project Referral.*
- *Implementation 10-3.1.J: Critical Facilities.*
- *Implementation 10-3.1.K: Public Agency Projects.*
- *Implementation 10-3.1.L: Creek Restoration.*

Policy 10-3.5, "Critical Facilities Locations," Implementations A and B, would locate critical facilities and systems vital to public health and safety (e.g., water, power and waste disposal systems, police and fire stations, hospitals, bridges and communication facilities) away from the areas subject to 100 or 500 year flood.

Development anticipated under the DRAFT General Plan Update within designated 100-year flood hazard zones would be subject to development standards aimed at minimizing on-site and off-site flood damage. Implementation of the above policies and their corresponding implementation programs would reduce potential impacts associated with development in the 100-year flood hazard area to a level considered ***less than significant***.

*Failure of Levee or Dam*

It is anticipated that inundation by dam failure is unlikely and a relatively low risk due to the structural engineering of the dams in the vicinity of Fremont and compliance with federal and state laws enacted to enhance dam safety. Furthermore, in compliance with Federal requirements, the Association of Bay Area Governments (of which Fremont is a member) developed a Local Hazard Mitigation Plan. The Plan is a comprehensive approach to emergency preparedness, addressing possible hazards which may result from an emergency such as a natural disaster, technological incident, nuclear defense, and civil disorder or terrorism. The Plan is designed to not only consider the effects of a single natural catastrophe (such as an earthquake), but emergency problems that often result from major disasters such

as the failure of an upstream dam. The Plan includes critical facilities within Fremont that can be used as shelter and emergency evacuation routes.

Policy 10-3.3, "Public Facility Operation," would ensure satisfactory operation of public facilities in the event of localized or regional flooding. Implementation A would annually evaluate emergency operation plans and locations of facilities for compliance with this Policy and update when necessary. Implementation B would prepare an evacuation plan in the event of inundation related to dam failure that considers use of automatic phone call-warning and direction system. And Implementation C would continue cooperation with ACFC/WCD for the maintenance and certification of existing levees in Fremont.

Policy 10-3.1, "Mitigate Flood Hazards," would require appropriate mitigation of flood hazards associated with failing water storage tanks and other water supply and storage facilities.

The existing ABAG Local Hazard Mitigation Plan, in conjunction with federal and state laws in relation to dam safety, would minimize the risk of exposing people and structures to the failure of dams in the project vicinity.

The proposed Policies of the DRAFT General Plan Update, together with other existing flood prevention strategies and policies, would reduce potential inundation hazards from dam and levee failure to existing and future development to a level considered ***less than significant***.

*Sea Level Rise*

Sea level rise could expose the City to inundation impacts. According to the Bay Conservation and Development Commission (BCDC), global warming is expected to result in sea level rises in San Francisco Bay of 16 inches by 2050[39]. A rise of this magnitude would put about 180,000 acres of Bay shoreline at risk of flooding. **Figure 4.10**, above, indicates that in the event of a 16-inch rise in current sea level by mid-century, BCDC is projecting that some developed areas in southern Fremont near San Francisco Bay could be subject to inundation in the absence of protective measures to counter anticipated increases in sea level. In terms of development anticipated under the DRAFT General Plan Update, however, Policy 10-3.6, "Flood Impacts from Sea-Level Rise," would require evaluation of all proposed development in areas of Fremont subject to flooding impacts caused by rising sea levels.

The proposed Policies of the DRAFT General Plan Update, together with other existing flood prevention strategies and policies, would reduce potential inundation hazards from sea-level rise to future development to a level considered ***less than significant***.

[39] http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml

Cumulative Impacts

The analysis of cumulative surface water quality and hydrology impacts includes future growth and development within the local drainage area for surface water and the Niles Cone subbasin for groundwater quality impacts. Those issues for which implementation of the DRAFT General Plan Update would have no impact are not analyzed, because Plan implementation would have no potential to contribute to cumulative impacts.

Development anticipated under the DRAFT General Plan Update, in combination with other development in the region, would contribute to an increase in impervious surface in the watershed area that could increase the quantity and velocity of stormwater runoff and reduce groundwater recharge. Any additional impervious areas would decrease the amount of rainfall expected to infiltrate into the ground and would result in higher peak flows in area drainages. Increased peak flows could exacerbate flooding problems along the drainage lines that experience flooding under existing conditions. If post-construction flows were not controlled, existing flooding problems could be exacerbated, and additional flooding and channel bank scouring could take place, resulting in an adverse impact on drainage and flooding.

However, all future and planned projects in the region would be required to comply with the requirements of the State Water Resource Control Board C.3 regulations and coordinate with City and County construction and flooding regulations, including (for projects located within Fremont) City of Fremont Conservation and Safety Policies. The SWRCB regulations require the incorporation of post-construction stormwater controls, which include measures to reduce stormwater pollutants, or otherwise minimize the change in rate and flow of stormwater runoff. Each project would convey its stormwater runoff via different drainage systems, which would be required to have adequate capacity for any increased runoff. Therefore, the implementation of the DRAFT General Plan Update, in combination with other planned projects, would have a ***less than significant*** cumulative impact to drainage or flooding.

# H. GEOLOGY, SOILS AND SEISMICITY

Fremont is located in one of the most seismically active regions of the world. The Hayward Fault traverses the eastern portion of the City and many areas within the City are susceptible to seismic hazards such as strong ground shaking, liquefaction, and seismically induced landslides. Erosion hazards and landslides are present, especially in the hilly areas of the eastern part of the city.

## SETTING

Regional Geology

Fremont lies along the southeastern margin of San Francisco Bay. The Bay lies within the California Coast Ranges geomorphic and physiographic province, a region dominated by active tectonics astride the margin between the Pacific and North American tectonic plates. Regional tectonic forces generate an estimated relative motion between the North American and Pacific plates of approximately two inches per year. Over time, these forces have created the varied mountainous, valley, and fault-bound blocks seen in the San Francisco Bay Area today.

Plate motion continues today and is manifested along the various fault systems in the region. The San Francisco Bay Area contains numerous faults considered active with evidence of historic or recent movement. Two are the San Andreas and Hayward Faults, which approximately form the western and eastern boundaries of the broad submerged valley containing San Francisco Bay. The Calaveras Fault, which lies to the east of Fremont, is also a major regional fault structure. Tectonic movement in the region has resulted in a variety of active fault types. Although the boundary between the North American and Pacific plates is primarily a transverse margin with horizontal movement, there is still a compressive aspect to the strain, which is largely responsible for the uplift of the Coast Ranges, including the Hamilton-Diablo Range along the eastern margin of the City of Fremont.

Regional Faulting and Seismicity

Faults form in rocks when stresses overcome the internal strength of the rock resulting in a fracture. Large faults develop in response to large regional stresses operating over a long time, such as those stresses caused by the relative displacement between the North American and Pacific tectonic plates. According to the elastic rebound theory, these stresses cause strain to build up in the earth's crust until enough strain has built up to exceed the strength along a fault and cause a brittle failure. The slip between the two stuck plates or coherent blocks generates an earthquake. Following an earthquake, strain will build once again until another earthquake occurs. The magnitude of slip is related to the maximum allowable strain that can be built up along a particular fault segment. The greatest buildup in strain due to the largest relative motion between tectonic plates or fault blocks over the longest time will generally produce the largest earthquakes. The distribution of these earthquakes is, of course, a study of much interest for both hazard prediction and the study of active deformation of the earth's crust. Deformation is a complex process, and strain due to tectonic forces is not only accommodated through faulting, but also folding, uplift, and subsidence, which can be gradual or in direct response to earthquakes.

Faults are mapped to determine earthquake hazards since they are where earthquakes tend to recur. A historic plane of weakness is more likely to fail under stress and strain than a previously unbroken block of crust. Faults are, therefore, a prime indicator of past seismic activity and faults with recent activity are presumed to be the best candidates for future earthquakes. However, since slip is not always accommodated by faults that intersect the surface along traces, and since the orientation of stresses and strains in the crust can shift, predicting the location of future earthquakes is complicated. Earthquakes sometimes occur in areas with previously undetected faults or along faults previously thought inactive.

The California and United States Geological Surveys have developed a system to assess the activity of faults. Under this system, faults are classified active if they have ruptured in the last 11,000 years or within the Holocene period. Faults that have ruptured in the last 1,600,000 years are considered conditionally or potentially active. Other faults are considered inactive.

There are several fault maps that include the City of Fremont. The Fault Activity Map of California shows nearly all faults that are considered active, potentially active or inactive. The Alquist-Priolo Earthquake Fault Zones Maps show only faults considered active. In Fremont, all mapped active fault traces lie along the main Hayward Fault trace. Detailed 7.5 minute quadrangle maps of Alquist-Priolo Earthquake Fault Zones in the city of Fremont include the Newark Quadrangle, the Niles Quadrangle and the Milpitas Quadrangle. The only fault in these quadrangles deemed active and subject to the effects of surface fault rupture under the Alquist-Priolo Earthquake Fault Mapping Act is the Hayward Fault. However, there are several smaller faults in the area parallel to the Hayward Fault; one of particular concern to planners in Fremont is the Mission Fault.

The Mission Fault was originally placed in an Alquist-Priolo Special Studies Zone (later renamed Earthquake Fault Zone) in 1974, based on a compilation of previous geologic, topographic, and air-photo studies. During the 1981 revision of the Niles and Milpitas quadrangles, the geomorphic evidence for the location of the Mission Fault was re-examined. It was not considered that the evidence met the current criteria for historic or geologically recent movement along fault traces. Consequently the fault was removed from the list of faults that have the potential to cause surface fault rupture, and the Special Studies Zone (Earthquake Fault Zone) was deleted from the quadrangles. The removal of the Mission Fault from the Alquist-Priolo Earthquake Fault Zone maps does not mean that it poses no hazard to the community. Many seismologists believe that the Mission Fault acts as a "step-over" feature, transferring strain between the Calaveras and Hayward Faults. Microseismicity was documented in the area of the Mission Fault between 1969 and 1991, the largest earthquake documented was a magnitude 3.0[40]. It was concluded that these small earthquakes represented a transfer of slip from the Hayward Fault to the Calaveras Fault.[41] Given the lack of evidence of Holocene displacement on the fault, it is no longer subject to the Alquist-Priolo Earthquake Fault Zoning Act, and the risk of surface fault rupture of the Mission Fault is deemed to be low.

Active seismicity in the San Francisco Bay area is controlled by the San Andreas Fault system, which, at Fremont's latitude, is dominated by movement on the San Andreas, Hayward, and Calaveras Faults. The trace of the Hayward Fault runs through the eastern part of the city, and has the most influence on the city of Fremont, although a large earthquake on either of these faults would impact the entire region. A list of active and conditionally (potentially) active faults within 50 miles of the City of Fremont is presented as **Table 4-40**, below. A map of active faults and major historical earthquakes in the vicinity of Fremont is presented as **Figure 4.11**, below.

[40] Andrews. D. J., Oppenheimer, D.H., and Lienkaemper, J.J., 1992, The Mission link between the Hayward and Calaveras faults: in Borcherdt and others, eds., Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area: CDMG Special Publication 113, p. 217-223.

[41] Rogers, J.D., and Drumm, P., Overview of the 1998 Mission Peak Landslide, Fremont California, UM-Rolla, Department of Geological Engineering obtained from http://web.umr.edu/~rogersda/hazard_mitigation_techniques/landslides/fremont/MP.htm#Top%20(6)

**TABLE 4-40: ACTIVE AND CONDITIONALLY ACTIVE FAULTS WITHIN 50 MILES OF THE CITY OF FREMONT**

| Fault Name | Distance from Fremont City Hall | Direction | Last Surface Rupture | Status* | Mean Characteristic Moment Magnitude[42] |
|---|---|---|---|---|---|
| Hayward | 1/1.6 | E | Historic | Active | 6.9 |
| Calaveras | 6.5/10 | E | Holocene | Active | 6.9 |
| Williams | 10/16 | E | Late Quaternary | Conditionally Active | -- |
| Las Positas | 11/18 | E | Historic | Active | -- |
| Pleasanton | 14/23 | NE | Holocene | Active | -- |
| Monte Vista | 15/24 | S | Late Quaternary | Conditionally Active | 6.8 |
| San Andreas | 18/28 | SW | Historic | Active | 7.9 |
| Greenville | 19/30 | NE | Historic | Active | 6.9 |
| Marsh Creek | 20/32 | NE | Holocene | Active | -- |
| Concord | 24/38 | N | Historic | Active | 6.7 |
| Clayton | 26/42 | NE | Holocene | Active | -- |
| Seal Cove | 27/43 | W | Holocene | Active | -- |
| Midway | 27/43 | NE | Late Quaternary | Conditionally Active | -- |
| San Gregorio | 28/46 | SW | Holocene | Active | 7.4 |
| Green Valley | 37/59 | N | Holocene | Active | 6.7 |
| Napa | 45/75 | N | Holocene | Active | 6.7 |

*Faults showing displacement during Holocene time are considered active, faults showing evidence of displacement during Late Quaternary time are considered conditionally active.

[42] 2007 Working Group on California Earthquake Probabilities (WGCEP). Uniform California Earthquake Rupture Forecast, Version 2. USGS Open File Report 2007-1437, CGS Special Report 20, 2008.

The entire Bay Area has a history of high seismic activity. The following is a list of historic >6.0 Richter magnitude earthquakes that caused ground shaking in Fremont[43]. This list is not exhaustive, but is only meant to indicate the likelihood of Fremont experiencing seismically induced ground shaking in the future.

**1838 -** San Andreas Fault. A Richter magnitude 6.8-7.4 earthquake ruptured the San Andreas Fault from San Francisco to San Juan Bautista ~140 km in June 1838. There was little registered damage associated with this earthquake due to the low population levels at the time, but an equivalent earthquake in contemporary time could be devastating to the region.

**1868 -** Hayward Fault. A 7.0 Richter magnitude earthquake struck near Hayward, California, on October 21, 1868. Known as "The Great San Francisco Earthquake" until that title was expropriated in 1906, strong ground shaking was pervasive throughout the San Francisco Bay Area, and a Modified Mercalli Intensity (MMI) of VIII to IX was estimated in Fremont. Thirty people were killed and an estimated $350,000 was lost to damages. An explanation of the MMI scale is presented as **Table 4-42**, below.

**1892 -** Blind Thrusting along Great Valley – Coast Range border region. Two earthquakes on April 19 and April 21, 1892 struck in the Vacaville-Winters area. Richter Magnitude 6.6 and 6.4 earthquakes led to a MMI of about V in the Fremont area. The earthquakes resulted in three deaths and approximately $225,000 in damage.

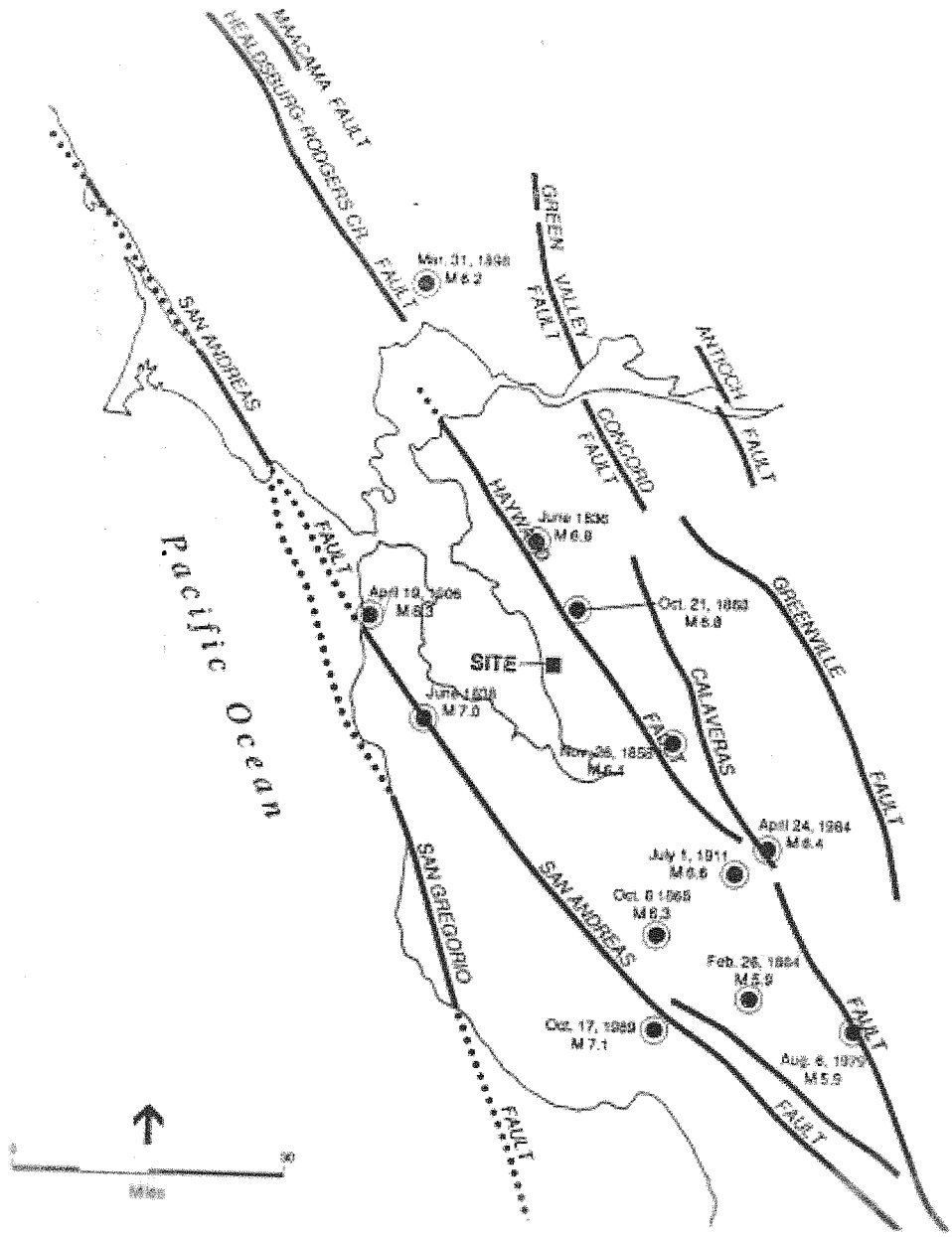
**1906 -** San Andreas Fault. A Richter Magnitude 7.8 earthquake struck near San Francisco on April 18, 1906. Known as the Great San Francisco Earthquake, it (along with the fire it started) destroyed much of San Francisco, and MMI values of VIII to IX were felt in Fremont. An estimated 3,000 lives and $524 million in property were lost.

**1984 -** Calaveras Fault. A Richter Magnitude 6.2 earthquake struck about 10 miles east of San Jose, in Santa Clara County on April 24, 1984. $7 Million in damage was reported, with the most damage reported in the city of Morgan Hill.

**1989 -** San Andreas Fault. A Richter Magnitude 6.9 earthquake struck in the Santa Cruz Mountains at Loma Prieta, on October 18, 1989. 57 deaths and $6 billion in damages were attributed to the Loma Prieta Earthquake.

[43] California Historical Earthquake Online Database, California Geological Survey, 2007, obtained from http://www.consrv.ca.gov/CGS/rghm/quakes/historical/index.htm

**Figure 4.11: Map Showing Active Fault Traces and Historic Earthquakes in the San Francisco Bay Region**[44]




[44] Modified from Earthquake Planning Scenario for a Magnitude 7.5 Earthquake on the Hayward Fault. California Division of Mines and Geology, Special Publication 78, 1987.

In 2002 the Working Group on California Earthquake Probabilities calculated a 62 percent probability of a strong ($M^3$6.7) earthquake occurring on one of the faults of the San Francisco Bay area between the years 2003-2030[45]. They also calculated rupture probabilities for the individual faults in the region. These probabilities and 95 percent confidence bounds are presented as **Table 4-41**, below.

**TABLE 4-41: FAULT RUPTURE PROBABILITIES FOR THE SAN FRANCISCO BAY AREA**

| Source Fault | Probability | 95% Confidence Bounds |
|---|---|---|
| SF Bay Region | 0.62 | [0.37 to 0.87] |
| San Andreas | 0.21 | [0.02 to 0.45] |
| Hayward/Rogers Creek | 0.27 | [0.10 to 0.58] |
| Calaveras | 0.11 | [0.03 to 0.27] |
| Concord/Green Valley | 0.04 | [0.00 to 0.12] |
| San Gregorio | 0.10 | [0.02 to 0.29] |
| Greenville | 0.03 | [0.00 to 0.08] |
| Mount Diablo thrust | 0.03 | [0.00 to 0.08] |
| Background | 0.14 | [0.07 to 0.37] |

## Local Geology

A deep bedrock trough underlies the City of Fremont, the edges of which form the Hamilton-Diablo range at the eastern margin of the city and the Coyote Hills at the bay margin. This trough is filled with as much as 600 feet of Quaternary alluvium. The alluvium is loose to weakly consolidated silt, sand and gravel, generally less than 1 million years old, and derived from the nearby uplands of Alameda County. The Coyote Hills at the San Francisco Bay margin consist of Jurassic-aged Franciscan Mélange, a sheared matrix including coherent blocks of sandstone, greenstone, meta-greywacke, chert, shale, meta-chert, basalt, marble, conglomerate, amphibolite, eclogite, and gloucophane schist. The bedrock forming the hill area in the east of Fremont is made up of rocks of the following formations: Tbr - Briones,

[45] Earthquake Probabilities in the San Francisco Bay Region: 2002-2030, Working Group on California Earthquake Probabilities, United States Geological Survey Open-File Report 03-214. Obtained from http://pubs.usgs.gov/of/2003/of03-214/

Tor – Orinda, To – Oursan Sandstone, Tt – Tice Shale, and Ks – Unnamed Sandstone unit. Descriptions of these units follow, below.[46]

- *Tbr - Briones Formation (Late Miocene):* Distinctly to indistinctly bedded, gray and white, fine to coarse-grained, quartz-lithic sandstone and shell breccia. Pebble and cobble conglomerate lenses are present in a few places. Conglomerate clasts include black and .red chert, quartzite, andesite, argillite, siltstone, basalt, felsic tuff, and quartz. The formation also includes distinct, thin interbeds of hard white to light gray sandstone and gray siltstone near its base.

- *Tor Orinda Formation (Late Miocene):* Distinctly to indistinctly bedded pebble to boulder conglomerate, conglomeratic sandstone, and coarse- to medium-grained lithic sandstone. Conglomerate clasts include red, green, and black chert, quartzite, greenstone, diorite, lithic sandstone, and minor andesite. The formation contains interlayered plagioclase porphyry dacite, mapped locally.

- *Tt - Tice Shale (middle or late Miocene):* Distinctly bedded, dark brown, gray, and tan siltstone, mudstone, and silicious shale. The shale contains numerous fish scales and poorly preserved foraminifers in places. Bright orange weathering lenses of tan dolomite are present in the shale locally.

- *To - Oursan Sandstone (middle or late Miocene):* Distinctly bedded black mudstone, and foraminifer bearing, brown to tan siltstone and fine-grained sandstone. The unit also contains large (as much as 2 meters long) lenses of bright orange weathering, tan dolomite, similar to those found in the overlying Tice Shale.

- *Ks - Unnamed sandstone unit (Cretaceous):* This member of the Great Valley sequence is distinctly bedded, gray to white, hard, in places cross-bedded, mica bearing, coarse- to fine-grained sandstone siltstone, and shale. Sandstone is granitic (quartz, feldspar, and biotite grains) or lithic, and forms discontinuous outcrops on ridges and uplands. Siltstone and shale outcrop only in canyons

Geologic Hazards

Geologic hazards pose a substantial danger to property and human safety and are present due to the risk of naturally occurring geologic events and processes impacting human development. Therefore, the hazard is as influenced by the conditions of human development as much as by the frequency and distribution of major geologic events. From a planning point of view, these hazards are potential constraints on the intended use of the land. By analyzing these constraints, the risks can be assessed and may be mitigated to an acceptable level.

[46] Graymer, R.W., Jones, D.L., and Brabb, E.E., Preliminary Geologic Map Emphasizing Bedrock Formations in Alameda County, California: A Digital Database. USGS Open File Report 96-252

Billions of dollars and hundreds of lives have been lost due to geologic hazards in California, many of which affect the City of Fremont. Common geologic hazards that affect Fremont include ground rupture along faults, strong seismic shaking, liquefaction, expansive soil, and slope failure.

*Fault Rupture*

Fault rupture is a seismic hazard that affects structures situated above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault. Typically, this movement takes place during the short time of an earthquake, but can also occur slowly over many years in a process known as fault creep. The only known creeping fault in the City of Fremont is the Hayward Fault. Most structures and underground utilities cannot accommodate the surface displacements of several inches to several feet commonly associated with fault rupture or creep.

In response to the severe fault rupture damage of structures by the 1971 San Fernando earthquake, the State of California enacted the Alquist-Priolo Earthquake Fault Zoning Act in 1972. This act required the State Geologist to delineate Earthquake Fault Zones (EFZ) along known active faults that have a relatively high potential for ground rupture. Faults that are zoned under the Alquist-Priolo Act must meet the strict definition of being sufficiently active and well-defined for inclusion as an EFZ. Properties within EFZs are subject to State regulations that include prohibiting structures for human occupancy being sited within 50 feet of an active fault, geologic reports addressing surface fault hazard, and geologic review of fault reports, among other provisions. Based on fault investigations and evidence of past rupture, the only state-designated EFZ in Fremont is along the Hayward Fault. While the Hayward Fault is the only fault in the city of Fremont that is officially designated as an EFZ, the Mission Fault acts as a step-over feature transferring strain between the Hayward and Calaveras Faults. It was though to have the potential for surface fault rupture and was previously zoned under the act. However, due to a lack of evidence of surface expression and Holocene activity, the designation of Alquist-Priolo Earthquake Fault Zone was removed from the Mission Fault.

*Fault Creep*

In addition to sudden ruptures leading to earthquakes, active faults are also subject to gradual movement known as fault creep. It is generally accepted that the Hayward Fault undergoes creep at a rate of approximately 5 millimeters annually, but studies have shown that the creep rate along the segment of the fault through Fremont may be as high as 9 mm/year.[47] This gradual fault movement eventually distorts and fractures structures built on the trace of the

[47] Lienkaemper, J., Galehouse, J., and Simpson, R., Long-Term Monitoring of Creep Rates on the Hayward Fault and Evidence for a Lasting Creep Response to the 1989 Loma Prieta Earthquake, United States Geological Survey, obtained from http://quake.usgs.gov/research/geology/docs/HFcrpGRL01a.pdf

fault. Six sets of railroad tracks in Niles have been bent and shifted laterally as much as six inches by creep along the Hayward Fault. In Irvington, an industrial storage building at Union Street and High Street contained a concrete floor slab, exterior columns and walls 20 inches thick that were broken, bent, and offset by as much as six inches by fault creep. The slight, apparently continuous movement is also referred to as aseismic creep, indicating the lack of accompanying, noticeable, earthquakes.[48]

*Ground Shaking*

As previously mentioned, strong ground, or seismic, shaking is a major hazard in the City of Fremont, as well as the San Francisco Bay Region as a whole. The severity of ground shaking depends on several variables such as earthquake magnitude, epicenter distance, local geology, thickness and seismic wave-propagation properties of unconsolidated materials, ground water conditions, and topographic setting. The California Geological Survey has developed a Probabilistic Seismic Hazards Assessment Program wherein probabilities for estimated peak ground acceleration due to an earthquake are given for any location within the State. This program estimates the peak ground acceleration within the City of Fremont to range from approximately 50 percent of the acceleration due to gravity, to approximately 80 percent of the acceleration due to gravity, with a 10 percent chance of being exceeded in 50 years[49]. The wide range of peak ground accelerations illustrates the effects bedrock conditions and distance from source fault have on ground shaking potential. The Modified Mercalli Earthquake Intensity Scale is a subjective ground shaking intensity scale based upon structural damage and subjective human experiences. Using a regression formula relating peak ground acceleration to the Modified Mercalli Earthquake intensity scale, this correlates with a Modified Mercalli intensity of VIII to XI: very strong to violent shaking. This scale is presented as **Table 4-42**, below. Seismically-induced shaking potential maps have been produced as part of the Association of Bay Area Governments' Multi-Jurisdictional Hazard Mitigation Plan. A map showing the seismic shaking potential in and around Fremont is presented as **Figure 4.12**, below.

The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage by falling objects (e.g., bookcases or water heaters), or broken water or gas pipes. In industrial settings, chemical spills are a serious potential hazard. Fire and explosions are also major hazards associated with strong ground shaking.

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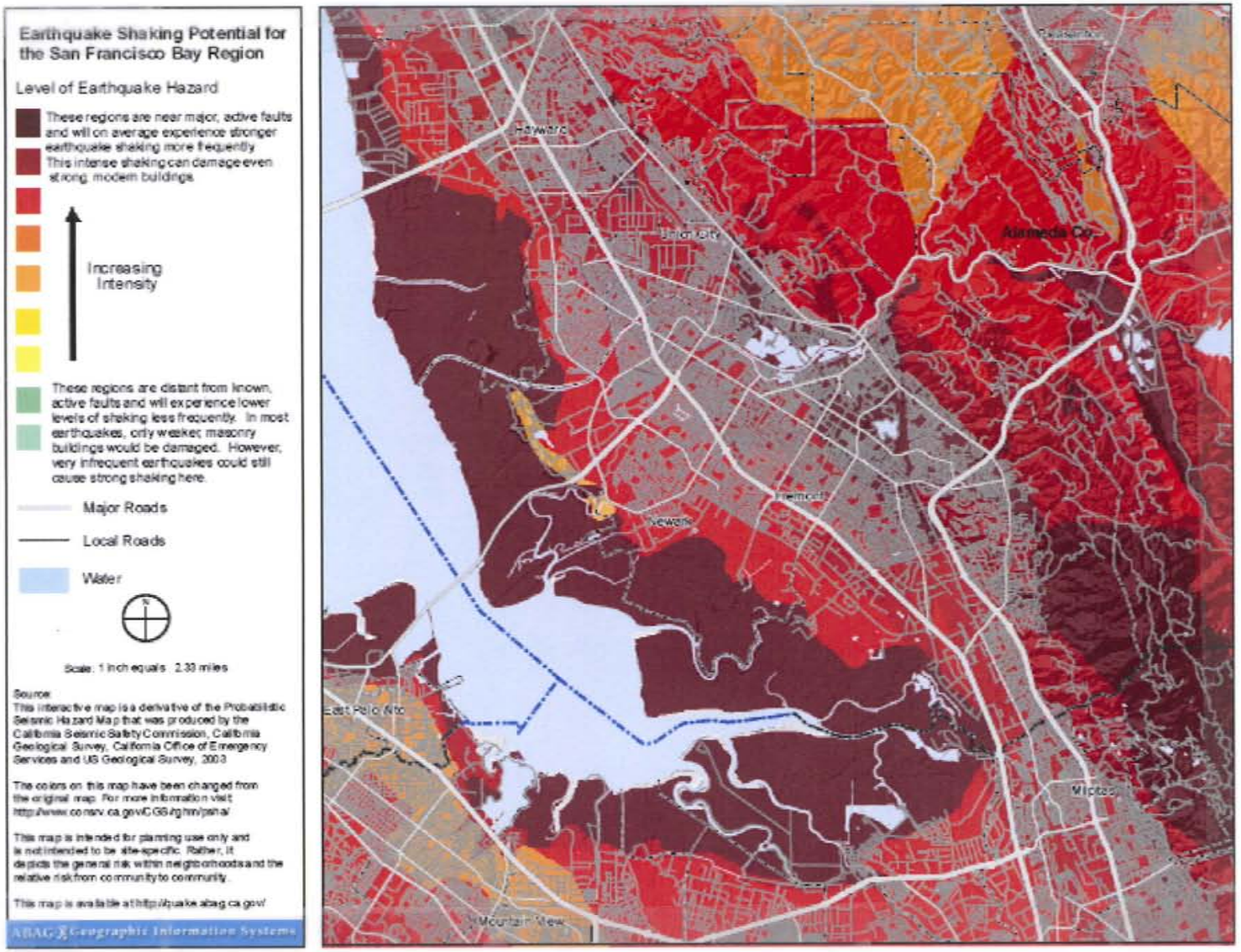
[48] Fremont General Pan 2001 Update Environmental Impact Report, Geology, Soils and Seismicity Section.

[49] California Division of Mines and Geology and United States Geological Survey, 1996, Probabilistic Seismic Hazards Assessment for the State of California http://www.consrv.ca.gov/CGS/rghm/pshamap/pshamap.asp

**Figure 4.12: Earthquake Shaking Potential for the Vicinity of Fremont, CA[50]**




50 Derived from Probabilistic Seismic Hazard Map, California Seismic Safety Commission, California Geological Survey, California Office of Emergency Services, and US Geological Survey, 2003. Available at http://quake.abag.ca.gov

**TABLE 4-42: MODIFIED MERCALLI EARTHQUAKE INTENSITY SCALE**

| **Scale** | Intensity | Effects |
|---|---|---|
| I | | Not felt. |
| II | | Felt by persons at rest, on upper floors, or favorably placed. |
| III | | Felt indoors. Hanging objects swing. Vibration like passing of light trucks. |
| IV | | Hanging objects swing. Vibration like passing of heavy trucks. Standing motorcars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV, wooden walls and frame creak. |
| V | Light | Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pictures move. Pendulum clocks stop, start, change rate. |
| VI | Moderate | Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Objects fall off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and poorly constructed or weak masonry cracked. Trees, bushes shaken (visibly, or heard to rustle). |
| VII | Strong | Difficult to stand. Noticed by drivers of motorcars. Hanging objects quiver. Furniture broken. Damage to poorly constructed or weak masonry. Weak chimneys broken at roofline. Fall of plaster, loose bricks, stones, tiles, and cornices. Some cracks in average unreinforced masonry. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged |
| VIII | Very Strong | Steering of motorcars affected. Damage to average masonry and partial collapse. Some damage to reinforced masonry, but not to that specially designed for seismic loading. Fall of stucco and some masonry walls. Collapse of chimneys, factory stacks, monuments, towers, and elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. |
| IX | Violent | General panic. Poorly built or weak masonry destroyed; average unreinforced masonry heavily damaged, sometimes with complete collapse; reinforced masonry seriously damaged. (General damage to foundations.) Frame structures, if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters. |
| X | Very Violent | Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly. |
| XII | Very Violent | Rails bent greatly. Underground pipelines completely out of service. |
| XII | Very Violent | Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air. |

The ability to predict which areas will shake the strongest is vital to building design, emergency management, and analysis of related hazards such as liquefaction and earthquake-induced landslides. Although it is not possible to predict the exact level of shaking at a site, it is feasible to assess what level of ground shaking is likely to occur in a given time period.

The most common level of ground shaking used in designing residential and commercial buildings is the Design Basis Ground Motion, which has a seismic shaking level (peak ground acceleration) with a 10 percent chance of being exceeded in 50 years. Expressed another way, this level of ground motion has a 1 in 475 chance of being exceeded each year. Public schools, hospitals, and essential services buildings are designed to resist the Upper-Bound Earthquake, which has a 10 percent chance of being exceeded in 100 years or a 1 in 949 chance of being exceeded each year.

*Seismically-Induced Ground Failure*

Seismically-induced ground failure refers to a loss of ground strength and/or cohesion as a result of seismically-induced ground shaking. There are multiple types of ground failure, including, liquefaction, differential settlement, lurch cracking, lateral spreading and seismically-induced landslides.

*Liquefaction:* Liquefaction is a process in which uniform, clean, loose, fine sandy and silty sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high ground water levels. The process of liquefaction involves seismic waves passing through saturated granular layers, distorting the granular structure, and causing the particles to collapse. This causes the granular layer to behave temporarily as a viscous liquid rather than a solid.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Large ground motions resulting from liquefaction, such as lateral spreading, can cause damage to buried pipelines. Most pipeline breaks during the Loma Prieta earthquake were in areas with a significant thickness of liquefiable soil (greater than 3 feet). Broken pipelines represent a serious public safety issue as demonstrated by broken natural gas pipelines in the 1994 Northridge earthquake that ignited, and burned and broken water mains in San Francisco in the 1906 earthquake which prevented firefighters from being able to effectively fight the fire that followed the earthquake.

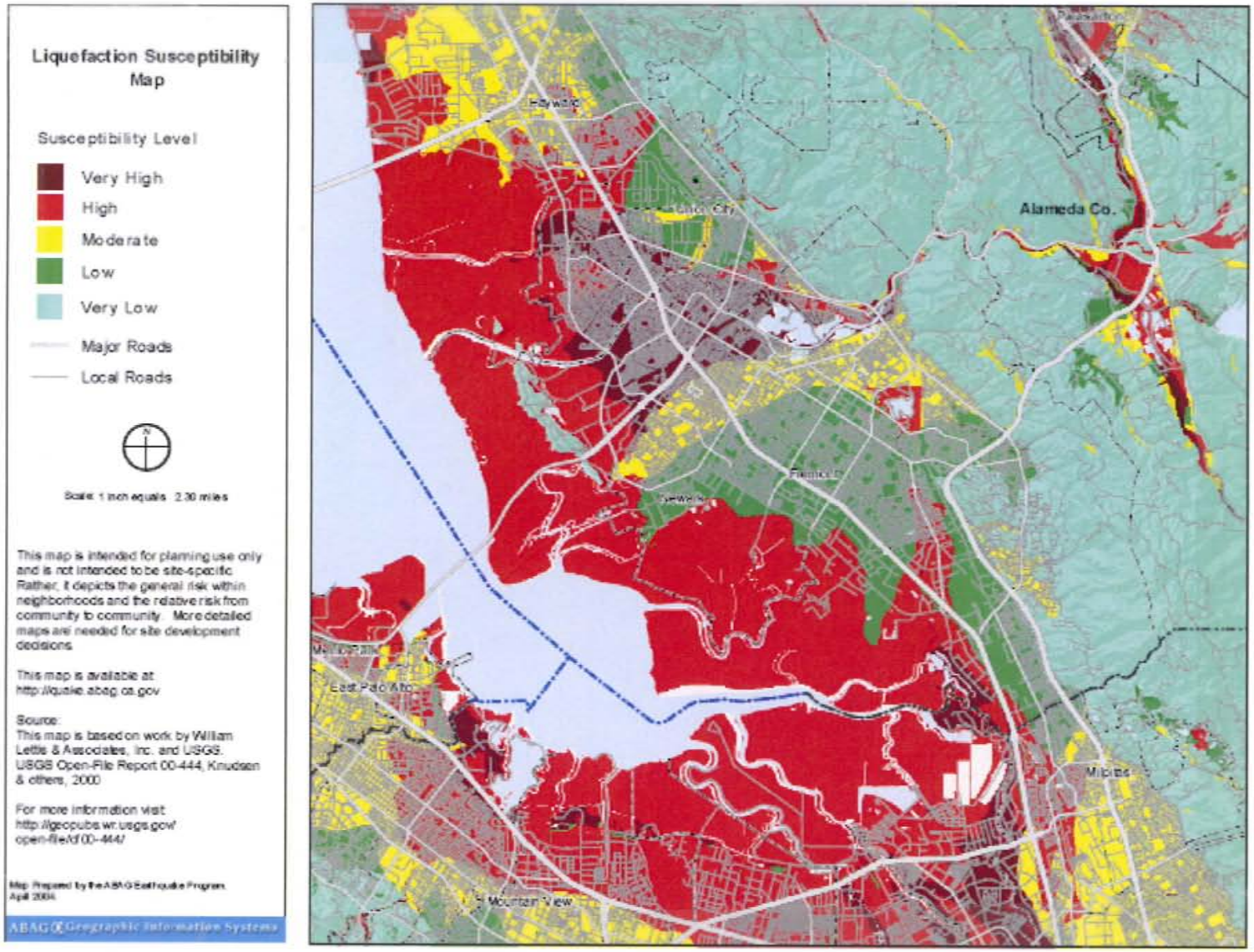
The Association of Bay Area Governments (ABAG) is an inter-municipal regional planning agency for the San Francisco Bay Area. During the past 25 years, ABAG, in collaboration with William Lettis and Associates, Inc and the United States Geological Survey, and with funding from the National Science Foundation, has produced a number of earthquake maps for the nine-county San Francisco Bay Area. Included are maps of liquefaction susceptibility and liquefaction hazards. The City of Fremont has widely varying susceptibility to liquefaction; the hills in the eastern portion of the city are underlain by bedrock and are not susceptible to liquefaction, while portions of the flats, especially the tidal flats at the bay margin and the northern part of Fremont, around Alameda Creek and straddled by Union City and Newark, are very highly susceptible to liquefaction. Central and southern Fremont varies in liquefaction susceptibility from low to high. The potential for liquefaction increases as groundwater and loose sand pockets occur closer to the ground surface in unconsolidated deposits. Fremont has such varying liquefaction susceptibility because abandoned stream channels that form pockets of unconsolidated sand and silt underlay much of the lowland portions of the city. A map produced by ABAG depicting the liquefaction susceptibility in the vicinity of Fremont is presented as **Figure 4.13**, below.

*Densification:* Densification is a process akin to liquefaction, wherein dry, uniform, clean, loose, fine sand undergoes settlement due to strong, seismically induced ground shaking. Unlike liquefaction, densification occurs in dry soil above the water table. Densification can result in differential settlement if the underlying soil contains only pockets of unconsolidated silt and sand.

*Dam Failure Inundation:* Another secondary effect of seismically-induced ground shaking is inundation. Seismically-induced ground shaking can generate flooding if it causes dams or tanks to fail, creates a wave that overtops a dam, or creates landslides that temporarily dam stream channels. The shoreline levees are particularly vulnerable to seismic failure due to the potential liquefaction hazard of the underlying soils. ABAG has created dam failure inundation maps for the Bay Area, including the City of Fremont. The three major dams upstream from Fremont are the James H. Turner Dam (San Antonio Reservoir), the Del Valle Dam (Arroyo Valle Reservoir) and the Calaveras Dam (Calaveras Reservoir), which are inspected regularly by the California Division of Safety of Dams. Flood waters from the nearest two of these dams would take one hour and thirty minutes (Turner) and two hours and forty minutes (Del Valle) to reach populated areas of Fremont.[51] Most water tanks in Fremont are situated such that released water would pond away from development.

[51] Fremont General Plan 2001 Update Environmental Impact Report, Geology, Soils and Seismicity Section.

**Figure 4.13: Liquefaction Susceptibility Map for the Vicinity of Fremont, CA[52]**




[52] William Lettis and Associates & The United States Geological Survey, USGS open file report 00-444, obtained from http://quake.abag.ca.gov

*Slope Instability and Landslides*

Landslides are common in the hilly areas of Fremont due to the combination of steep slopes in the Hamilton-Diablo range, locally fractured and weak rocks, and occasional periods of intense rainfall. Many ancient landslides formed during the Pleistocene era, between 11,000 and 2 million years before the present. Younger landslides formed during the Holocene, or past 11,000 years, are commonly divided into recent or historic deposits and old landslides. Very young landslides have fresh scarps, disrupted drainages, closed depressions, and disturbed vegetation. Older landslides are modified by erosion, resulting in subdued scarps, re-established vegetation, and new drainage paths. Soils have formed on some older landslide deposits; however, most soils are poorly developed or absent because of high erosion rates and steep slopes.

Landslides are common in several geologic units, especially the Tertiary Orinda and Briones units in the southeastern portion of the city on the slopes of Mission Peak.[53] This area was the location of one of the largest landslides in the Bay Area. It occurred during the El Niño season of 1998, and was one mile long.[54] The harder, Cretaceous-age Great Valley units in the central hill area include less landslides than within the Orinda and Briones formations, but due to the predominately steep slopes, some landslides do occur[55]. There have also been minor landslides in the Franciscan bedrock of the Coyote Hills. A map depicting landslide zones in the vicinity of Fremont is presented as **Figure 4.14**, below.

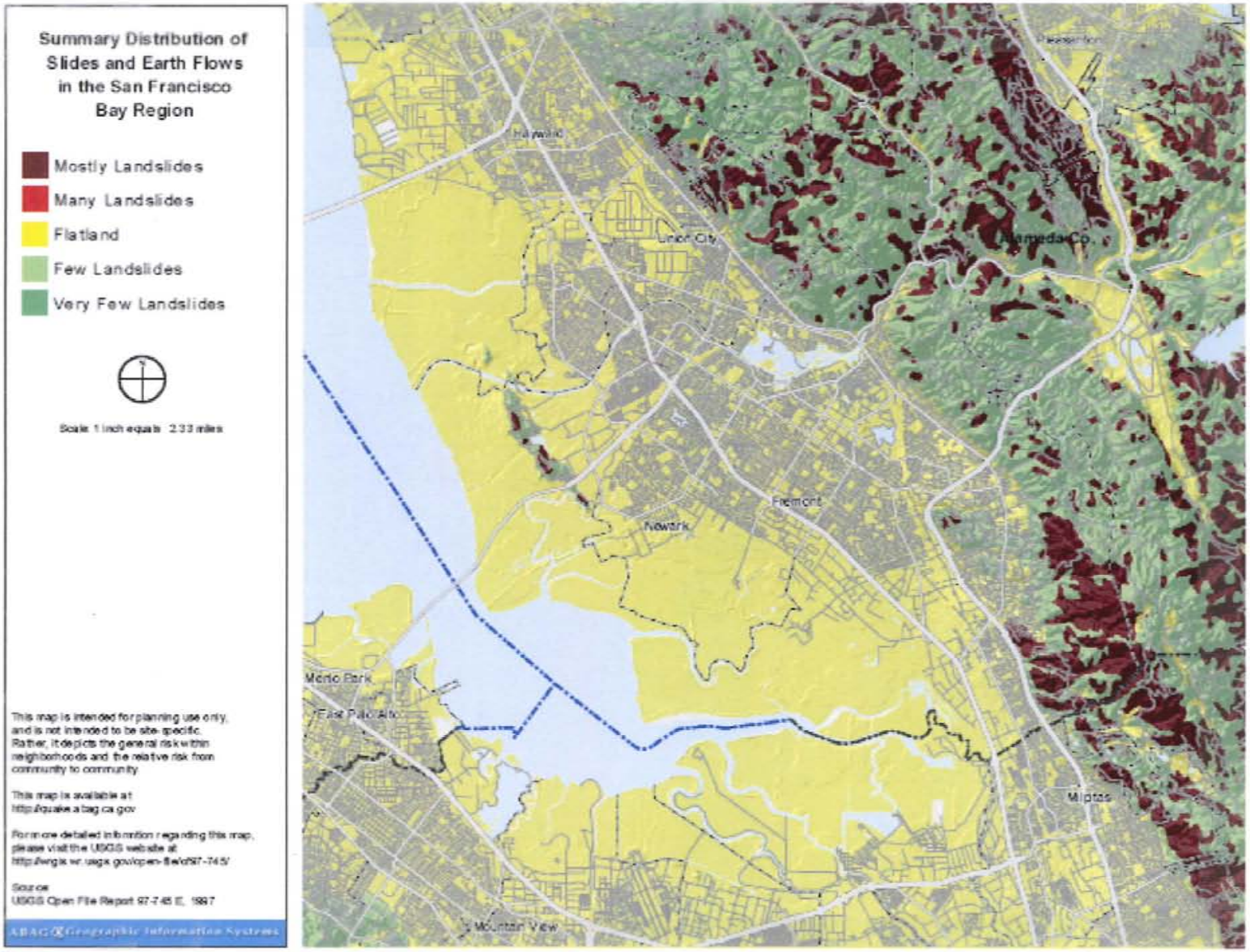
There are many causes of landslides, but for geologic hazard evaluation, they can be divided into two main groups: human activity induced and natural causes. Humans can cause landslides by improperly designing or constructing roads, buildings, and septic systems; excavating the toe of a slope or loading the upper slope; vegetation removal; mining; and human-introduced water sources (lawn watering, leach fields, storm drains, and water lines). Natural causes include steep slopes, weak rock, unfavorably inclined planes of weakness (bedding, joints, and faults), undercutting by streams and waves, intense rainfall, vegetation removal by fire, and earthquakes.

[53] California Division of Mines and Geology. Fault Evaluation Report 88 Prepared Under the Alquist-Priolo Earthquake Fault Zoning Act. March 19, 1979.

[54] Rogers, J.D., & Drumm, P.L., "Overview of the 1998 Mission Peak Landslide" UM-Rolla Department of Geological Engineering, obtained from http://web.umr.edu/~rogersda/hazard_mitigation_techniques/landslides/fremont/MP.htm

[55] Roberts, S., Roberts, M., Brennan, E., USGS Open File Report 99-504, Landslides in Alameda County, California, A Digital Database Extracted from Preliminary Photointerpretation maps of Surficial Deposits by T.H. Nilson in USGS Open File Report 75-277.

**Figure 4.14: Map Depicting Landslide Zones in and around Fremont, CA[56]**




[56] California Geological Survey, 2007 available at http://quake.abag.ca.gov

Most landslides are generated by intense rainfall. Other initiating causes include fires and earthquakes. The temporal pattern of high intensity, short duration rainfall is a more important factor in triggering landslides than annual or monthly precipitation totals. Antecedent moisture conditions determine whether large amounts of rainfall will successfully trigger a landslide. If earth materials already contain significant moisture from prior rainfall, the severity of precipitation from a new storm can be less yet still trigger landsliding. If the other factors described above (steep slopes, weak rocks, planes of weakness, etc.) are equal, magnitude, intensity, and duration of the storm are all-important factors that can contribute to hillslope instability.

Landslides and other forms of slope failure occur in response to the long-term geologic cycle of uplift, mass wasting, and disturbance of slopes. Mass wasting refers to a variety of erosional processes from gradual downhill soil creep to mudslides, debris flows, landslides, and rock fall, processes that are commonly triggered by intense precipitation that varies according to climactic shifts. Often, various forms of mass wasting are grouped together as landslides, which are generally used to describe the down slope movement of rock and soil.

Geologists classify landslides into several different types that reflect differences in the type of material and type of movement. The four most common types of landslides are translational, rotational, earth flow, and rock fall. A debris flow is another common type of landslide that is similar to an earth flow, except that the soil and rock particles are coarser. Mudslide is a term that appears in non-technical literature to describe a variety of shallow, rapidly moving earth flows.

*Soil Hazards*

Soil hazards can be considered a subset of geologic hazards that, due to their complexity, are often considered separately. Soils are directly impacted by land use change and climate patterns since they lie at the surface, where development impacts are concentrated. They are, therefore, a primary consideration of any geotechnical investigation or soils report for a development. Soil characteristics directly impact land use. Soil ideal for agriculture may not be suitable for building foundations or roadways, while certain erosive or expansive soils are entirely unsuitable to use as engineered fill. Important soil characteristics include the properties related to agricultural and natural habitat resources, as well as those properties related to land development projects. Once site-specific soil properties are known, potential impacts on particular land use projects should be evaluated and necessary mitigations implemented. Improper design for specific soil conditions can cause significant financial losses and can influence the performance and safety of civil works. Similarly, soils often have important agricultural or habitat properties that should be considered in planning decisions. To put the importance of soil characterization in perspective, the State of

California has estimated statewide losses [57] due to damage from expansive soils for the period 1970 though 2000 exceeding $150 million, with losses from erosion during the same period at $565 million.

Due to the active geologic history of the region, twelve distinct soil series can be found within the City of Fremont. These soil series were mapped and analyzed in great detail by the United States Department of Agriculture Soil Conservation Service. Common soils associations include the Dublin adobe soils (Da), Yolo clay loams (Ys), Altamont loam and clay loam (Al), Yolo loam (Yl) Montezuma loam and clay loam (Mc) and Altamont Adobe soils (Aa).

The Natural Resources Conservation Service has interpreted the behavior of the soils they mapped under various circumstances and examined their suitability for particular land uses. The soil behaviors relevant to planning and land use decisions are runoff potential; erosion hazard; shrinking and swelling behavior; and suitability for agriculture, shallow excavations, sanitary landfills, septic tank absorption fields, roads and streets, dwellings and small commercial buildings.

*Erosion*

Erosion can be defined as the wearing away of the land surface by flowing water, waves, wind, or by such processes as mass wasting and corrosion. Erosion can lead not only to soil loss, but also to other effects including degraded water quality, unwanted soil deposition leading to property damage, and increased danger from flooding.

Erosion is commonly concentrated on steep slopes, and, therefore, any soil disturbance or grading on steep slopes is likely to trigger erosion unless tightly controlled. Common causes of erosion are: (1) site grading and disturbance of soil and rock during construction, where runoff and improper drainage can trigger erosion and improper drainage; and (2) post-construction drainage. Problems during construction include gullying across freshly graded slopes that have not been seeded or mulched for the winter, and slumping of loose soils, or rock fall over steeply cut banks. Poorly graded roads may also allow water to concentrate, resulting in erosion and deposition. In extreme cases, ruts can channel water, creating washouts and triggering minor debris flows or landslides. Post-construction erosion is mainly a result of poorly designed and maintained drainage structures such as culverts, pipe down-drains, and ditches. Concentrated runoff may erode soil simply by the large impact force that can be generated from high velocity flows, while sediment-laden water from turbid runoff can often cause drainage ways to become clogged and may trigger further erosion by redirecting flow into areas unable to handle the concentrated runoff.

[57] The estimate assumes agricultural and engineering practices are consistent through the 30-year period.

*Unstable Geologic Units*

Unstable geologic units are those that lack the integrity to support human-made improvements such as buildings and roadways. This may be due to lack of strength, lack of compaction or low density, or unsuitability of material for a particular foundation or keyway. Unstable geologic units may also be initially stable and lose stability due to improper drainage or buildup of pore pressure that causes a reduction in strength. Major problems are settlement, lurch cracking, differential settlement, expansion, etc. Instability is often due to a range of factors that may be difficult to quantify, but can be divided into unstable native materials and unstable fill soils. Unstable geologic units include soft marshy soils that are prone to subsidence, sandy soils with shallow groundwater prone to liquefaction, and friable or poorly indurated rock such as weaker areas of Franciscan Mélange or alluvium that can fail on slopes. Particularly unstable are fill soils or debris placed over marshes and wetlands to create new land. This includes a variety of heterogeneous mixtures of loose to very well consolidated gravel, sand, silt, clay, rock fragments, organic matter, and human-made debris. Unstable geologic units within Fremont include areas of liquefiable or expansive soil in the flat lying areas, and steep slopes in easily eroded units such as the Orinda and Briones formations.

*Expansive Soils*

Expansive soils shrink and swell with changes in moisture content as the clay minerals in these soils expand and contract. Soils with moderate or high expansion potential are a common cause of foundation deterioration, pavement damage, cracking of concrete slabs, and shifting of underground utilities. According to the 2010 California Building Code, soils meeting all four of the following provisions shall be considered expansive: (1) Plasticity Index (PI) of 15 or greater; (2) More than ten percent of the soil particles pass a number 200 sieve; (3) More than ten percent of the soil particles are less than five micrometers in size; and (4) Soil has an expansion index greater than 20[58]. These soils are undesirable for use as engineered fill or subgrade directly underneath foundations or pavement, and must be replaced with non-expansive engineered fill or require treatment to mitigate the impact of their expansion potential.

[58] California Building Standards Code, California Code of Regulations, Title 24, Chapter 18, section 1802, International Code Council, 2007.

*Other Hazards*

Tsunami

Tsunamis are ocean waves caused by large earthquakes and landslides that occur near or under the ocean. When tsunamis approach shore, they behave like a very fast moving tide that extends far inland. Powerful tsunamis, such as the one that struck Southeast Asia in December 2004 and Japan in 2011, can level structures and result in the loss of significant human life. Tsunami waves can persist for many hours because of complex interactions with the coast. The most recent tsunami to strike California occurred in 2011, and resulted in damage to coastal facilities such as the boat harbors in Crescent City and in Santa Cruz, among others. Within San Francisco Bay, only very minor damages occurred, primarily because the tsunami pulses occurred at or near low tide, when the water levels within the Bay were already low. A Tsunami Inundation Map for Emergency Planning in the San Francisco Bay Area (December 9, 2009) has been developed by the California Emergency Management Agency, the California Geological Survey, and the University of Southern California. This map shows that areas within the City of Fremont coastline could be inundated by the modeled tsunamis, which included a Japan subduction zone earthquake of Richter magnitude 8.8. This modeled earthquake is essentially the earthquake and tsunami of March 11, 2011. Due to the shallowness of the San Francisco Bay along the Fremont waterfront, tsunami run-up is not considered a significant hazard, as most of the potential areas of inundation are not developed. Inundation risks are limited to the approach to the Dumbarton Bridge and the National Wildlife Refuge Area. Inundation in the area of the Mowry Slough would affect the Hetch Hetchy Aqueduct and Southern Pacific Railroad track crossing between Fremont and East Palo Alto. The developed portion of the city would not be at risk.

Seiche

Seiches are standing waves set up on rivers, reservoirs, ponds, and lakes when seismic waves from an earthquake pass through the area. Seiches can have similar effects as a tsunami. Seiches could affect Fremont by causing either of the reservoirs (Del Valle and Turner) in the hills to overtop their dams, leading to inundation or flooding in portions of the city.

Regulatory Setting

*Federal Regulation*

Disaster Mitigation Act of 2000: The Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390) amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions (Section 409) and replaced them with a new set of requirements (Section 322). The new law emphasizes the need for state, tribal, and local entities to coordinate disaster mitigation planning and implementation efforts closely.

Section 322 continues the requirement for a State mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the State level through the establishment of requirements for two different levels of state plans: Standard and Enhanced. States that demonstrate an increased commitment to comprehensive mitigation planning and implementation through the development of an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program (HMGP). Section 322 also established a new requirement for local mitigation plans and authorized up to 7 percent of HMGP funds available to a state to be used for development of state, tribal, and local mitigation plans.

Provisions of the DMA 2000 include:

- Funding for disaster planning and mitigation;
- Development of experimental multi-hazard maps to better understand risk;
- Establishment of state and local government infrastructure mitigation planning requirements (Advance Infrastructure Mitigation [AIM]);
- Defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP);
- Adjusting ways in which management costs for projects are funded; and
- Establishment of performance-based standards for mitigation plans and adding a requirement that states have a program (AIM) to develop county government plans. Should counties fail to develop an infrastructure mitigation plan their federal share of damage assistance would be reduced from 75 percent to 25 percent if there was recurrent damage to the same facility or structure in response to the same type of disaster.

In order to maintain compliance with DMA 2000 and receive full federal funding, the Association of Bay Area Governments (ABAG) received funds from the Federal Emergency Management Agency (FEMA) to serve as the lead agency in the creation of a Local Hazard Mitigation Plan for the nine-county San Francisco Bay Area. With participation from Fremont and other Bay Area cities, ABAG produced an umbrella Hazard Mitigation Plan entitled "Taming Natural Disasters." The City of Fremont subsequently developed an annex to the Plan, which includes a brief explanation of the City's planning process, an assessment of hazards and risks, and a discussion of mitigation priorities and activities.[59]

[59] Association of Bay Area Governments Multi-Jurisdictional Local Hazard Mitigation Plan obtained from http://quake.abag.ca.gov/mitigation/plan.html

*State Regulations*

Alquist-Priolo Earthquake Fault Zoning Act: The Alquist-Priolo Special Studies Zones Act was signed into law in 1972. In 1994, it was renamed the Alquist-Priolo Earthquake Fault Zoning Act (A-P Act). The primary purpose of the A-P Act is to mitigate the hazard of surface fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. Passage of this law was a direct result of the 1971 San Fernando Earthquake. Extensive surface fault ruptures during this earthquake damaged numerous homes, commercial buildings, and other structures.

The A-P Act requires the State Geologist (Chief of the California Geologic Survey) to delineate Earthquake Fault Zones (EFZs) along faults that are sufficiently active and well defined. Sufficiently active faults show evidence of Holocene surface displacement along one or more or their segments. Well-defined faults are clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The boundary of an EFZ is generally about 500 feet from major active faults, and 200 to 300 feet from well-defined minor faults.

Before a project can be permitted within an identified EFZ, cities and counties require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. This requires that a site-specific evaluation and written report prepared by a state-licensed geologist document the occurrence or absence of an active fault. This commonly requires trenching to identify any offset strata, but may also be completed through simple observation of surface fault expression. If an active fault is identified, a structure intended for human occupancy cannot be placed over the trace of the fault and must be set back, generally no closer than 50 feet from the fault.

The State Geologist has completed A-P Zone mapping for the Niles, Newark and Milpitas quadrangles, which include the Hayward Fault. The maps are distributed to all affected cities, counties, and state agencies for their use in developing planning policies and controlling renovation or new construction. Local agencies must regulate most development projects within the A-P Zones. Projects include all land divisions and most structures constructed for human occupancy. While state law exempts single-family wood-frame dwellings and steel-frame dwellings that are less than three stories and are not part of a development of four units or more, local regulations may be more restrictive than state law.

The A-P Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards.

The Seismic Hazards Mapping Act: Passed in 1990, the Seismic Hazards Mapping Act (SHMA) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides.

The California Geological Survey (CGS) is the principal State agency charged with implementing the 1990 SHMA. Pursuant to the SHMA, the CGS is directed to provide local

governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The goal is to minimize loss of life and property by identifying and mitigating seismic hazards. The seismic hazard zones delineated by the CGS are referred to as "zones of required investigation." Zones of required investigation for liquefaction are based on the presence of shallow (less than 40 feet) historic groundwater in un-compacted sands and silts deposited during the most recent 15,000 years and sufficiently strong seismic ground shaking predicted during the next 50 years. Zones of required investigation for landsliding are based upon expected levels of seismic ground shaking, evidence of existing landslides, slope gradient and strength of hill-slope materials. Site-specific geotechnical hazard investigations are required by SHMA when construction projects fall within these areas.

Seismic Hazards Zones maps have been prepared for the Niles, Newark and Milpitas quadrangles, which are located partially within the City of Fremont limits. These maps show areas of required investigation for liquefaction hazard in green and areas of required investigation for landslide hazard in blue.

California Building Standards Code: Title 24 of the California Code of Regulations, also known as the California Building Standards Code, sets minimum requirements for building design and construction. The 2010 version of the California Building Standards Code was adopted by the State of California on January 1, 2011. The City of Fremont adopted the new code with amendments effective January 1, 2011. The California Building Standards Code is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes;

- Building standards that have been adopted and adapted from the national model code standards to meet California conditions; and

- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns[60].

In the context of earthquake hazards, the California Building Standards Code's design standards have a primary objective of assuring public safety and a secondary goal of minimizing property damage and maintaining function during and following seismic event. The 2010 and its predecessor 2007 version of the California Building Standards Code differs significantly from the previous versions of the code. Starting with the 2007 code, a seismic design category (SDC) was assigned to each structure. The SDC is assigned as a means of

[60] California Building Standards Commission website at http://www.bsc.ca.gov/title_24/default.htm

capturing both the seismic hazard, in terms of mapped acceleration parameters (spectral values), site class (defining the soil profile), and the occupancy category (based on its importance or hazardous material contents). The SDC affects design and detailing requirements as well as the structural system that may be used and its height. The previous versions of the code captured these requirements simply based on the location's seismic zone[61].

California Department of Transportation Seismic Safety Retrofit Program: The California Department of Transportation (Caltrans) Seismic Safety Retrofit Program was established by emergency legislation (SB36X) after the October 17, 1989, Loma Prieta earthquake. The purpose of this program is to evaluate all publicly owned bridges in California and to take actions necessary to prevent their collapse due to earthquakes. The local component of the Seismic Safety Retrofit Program provides funding and other assistance to cities and counties for evaluating bridges and constructing seismic retrofit projects.

*Local Regulations*

Fremont General Plan: The City of Fremont Health and Safety Elements were last updated in 2001. This element incorporates two of the seven state-mandated General Plan elements, the Safety Element and the Noise Element. The Safety Element is designed to protect the community from any unreasonable risks associated with the effects of seismically-induced surface rupture, ground shaking, ground failure, tsunami, seiche, dam failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic and geologic hazards; flooding; and wildland and urban fires.

Safety elements address evacuation routes, traffic congestion and peak occupant and traffic loads for structures, water supply requirements, and minimum road widths and clearance around structures, as those items relate to identified fire and geologic hazards. The intent of the state-mandated Safety Element is to ensure that local governments develop the regulatory tools necessary to protect public health, safety, and welfare against disasters and hazards.

City of Fremont Local Hazard Mitigation Plan: The Association of Bay Area Governments (ABAG) is a multi-jurisdictional planning agency, which has developed a Local Hazard Mitigation Plan (LHMP) for the nine-county San Francisco Bay Area. This Plan is designed to identify natural hazards such as earthquakes, flood, wildland fires, and other natural hazards. The Plan includes seismic and safety elements which analyze impacts of hazards. The Plan identifies policies and actions that may be implemented by local agencies to reduce the potential for loss of life and property damage in these areas based on an analysis of the frequency of earthquakes, floods, wildland fires and landslides in terms of frequency,

[61] Bonneville, David, New Building Code Provisions and Their Implications for Design and Construction in California (abstract), 2007, obtained from http://www.consrv.ca.gov/cgs/smip/docs/seminar/SMIP07/Pages/Paper12_Bonneville.aspx

intensity, location, history, and damage effects. The Plan serves as a guide for decision-makers as they commit resources to reduce the effects of natural hazards. Individual cities within the jurisdiction of ABAG have developed annexes to the ABAG LHMP. Fremont adopted an annex on July 5 2005, and it is to be reviewed and updated every five years.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

According to CEQA Guidelines, exposure of people or structures to major geological hazards is considered a significant adverse impact. The analysis of geological hazards is based on the degree to which local geology could produce hazards to people or structures from earthquakes, ground shaking, ground movement, fault rupture, or other geologic hazards, features or events. According to CEQA Guidelines, the proposed Project would have a significant environmental impact if it were to result in:

1) Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

    i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.

    ii. Strong Seismic Ground Shaking

    iii. Seismic-related ground failure, including liquefaction.

    iv. Landslides

    v. Flooding, including flooding as a result of the failure of a levee or dam.

2) Substantial erosion or loss of topsoil.

3) Soil or a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse.

4) Location on expansive soil, creating substantial risks to life or property.

5) Soil incapable of supporting the use of septic tanks or other alternative wastewater disposal systems where sewers are not available.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies and actions are intended to reduce potentially adverse effects related to geology and soils may be associated with future development:

*Policy 7-6.1: Awareness of Soil Conditions.*

*Policy 7-6.2: Minimize Soil Erosion.*

*Policy 10-1.1: Location of Buildings and Structures.*

- *Implementation 10-1.1.A: Limit Development in the Hill Area.*
- *Implementation SF 10-1.1.B: Limit Development in Areas of Land Instability.*
- *Implementation SF 10-1.1.C: Owner Notification of Land Failure.*
- *Implementation SF 10-1.1.D: Mitigation Hazards to Acceptable Levels.*

*Policy 10-1.2: Mitigation of Hazards.*

- *Implementation 10-1.2.A: Site Specific Geologic Studies.*
- *Implementation 10-1.2.B: Peer Review of Site Specific Geologic Studies.*

*Policy 10-1.3: Limits on Grading.*

- *Implementation 10-1.3.A: Grading Ordinance Consistency.*
- *Implementation 10-1.3.B: Grading Plan Review.*

*Policy 10-2.1: Location of Buildings and Structures.*

- *Implementation 10-2.1.A: Consistency with Seismic Safety Criteria.*
- *Implementation 10-2.1.B: Mitigate Seismic Impacts.*
- *Implementation 10-2.1.C: Limit Development near Seismic Hazard Areas.*

*Policy 10-2.2: Building Setbacks from Fault.*

- *Implementation 10-2.2.A: Identification of Fault Trace.*
- *Implementation 10-2.2.B: Peer Review of Seismic Hazard Studies.*

*Policy 10 2.3: Soil Engineering Standards.*

- *Implementation 10-2.3.A: Seismic Mitigation.*

*Policy 10-2.4: Location of Critical Facilities.*

- *Implementation 10-2.4.A: Retrofit Existing Facilities.*
- *Implementation 10-2.4.B: Utility Lines.*
- *Implementation 10-2.4.C: Critical Facility Locations.*

*Policy 10-2.5: Removal of Damaged Structures.*

- *Implementation 10-2.5.A: Seismic Retrofit Programs.*

*Policy 11-5.13: Environmental Assessments for Hill Area Projects.*

*Policy 11-5.20: Minimization of Hill Area Grading.*

*Policy 11-5.21: Minimization of Hill Area Erosion and Pollution Impacts.*

## IMPACTS AND MITIGATION MEASURES

Seismic Hazards

*Surface Fault Rupture*

The City of Fremont is in a seismically active region and is traversed by the Hayward Fault. The Hayward Fault is one of the most active strands of the San Andreas Fault System and is subject to the provisions of the Alquist-Priolo Earthquake Fault Zoning Act. According to a recent study by the USGS Working Group on California Earthquake Probabilities, there is a 29 percent probability of a major earthquake rupturing the Hayward Fault. The DRAFT General Plan Update identifies goals, policies and actions designed to minimize the impact of surface fault rupture. Rupture or displacement has a limited scope of impact that is addressed by setback distance requirements from fault traces. DRAFT General Plan Update implementations, including 10-2.1.A, 10-2.2.A, 10-2.2.B, 10-2.4.B, described above, would reduce the potential impacts associated with surface fault rupture to a level considered ***less than significant***.

*Seismic Ground Shaking*

There is a long history of strong seismic ground shaking in the city of Fremont. According to earthquake shaking maps produced by ABAG, a rupture of the Hayward Fault could result in a Modified Mercalli Intensity (MMI) of up to X – Very Violent in Fremont. Ruptures of other regional faults, including the San Andreas, San Gregorio and Calaveras Faults would result in MMI values of VI to IX, moderate to violent. Property damage, personal injury, and

loss of life may result from poorly constructed buildings subject to strong to violent seismic ground shaking. The 2010 California Building Code (*CalGreen*), which was adopted by the City of Fremont through Ordinance No. 23-2010, includes seismic design standards to minimize damage resulting from seismic shaking. The DRAFT General Plan Update identifies additional policies and actions designed to minimize the impacts of strong to very violent seismic shaking. Implementation of DRAFT General Plan Update implementations, including 10-2.1.A, 10-2.1.B, 10-2.2.A, 10-2.2.B, 10-2.4.A, 10-2.5.A, described above, would reduce the impact of strong to very violent seismic ground shaking to a level considered ***less than significant***.

*Seismically-Related Ground Failure, Including Liquefaction*

Liquefaction is a process in which uniform, clean, loose, fine sandy and silty sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high ground water levels. According to liquefaction potential maps produced by ABAG (see **Figure 4.13**, above), and seismic hazard zone maps produced by CGS, large portions of the city of Fremont are susceptible to liquefaction. These areas are generally found within the historic alluvial fan of Alameda Creek and along the bay margin, where loosely consolidated silty soils are underlain by shallow groundwater. Implementation of the proposed DRAFT General Plan Update would result in construction in areas that may be underlain by liquefiable material. However, the DRAFT General Plan Update identifies objectives and policies designed to minimize the impact of seismically-related ground failure. Implementation of proposed DRAFT General Plan Update actions, including 10-2.1.A, 10-2.1.B, 10-2.1.C, 10-2.3.A, 10-2.4.A, 10-2.4.C, described above, will reduce the potential impacts associated with seismically-related ground failure to a level considered ***less than significant***.

*Landslides (including Seismically-Induced)*

Landslides are common in the hilly areas of Fremont due to the combination of steep slopes in the Hamilton-Diablo range, locally fractured and weak rocks, and occasional periods of intense rainfall. Any landsliding would be further exacerbated by seismic shaking. According to seismic hazard maps produced by the California Geological Survey, much of Fremont located northeast of Mission Boulevard (SR-238) or east of Interstate-680 is within landslide hazard zones. The DRAFT General Plan U[date identifies objectives and policies designed to minimize the impacts of landsliding (including seismically-related). Implementation of DRAFT General Plan Update actions, including 10-1.1.A, 10-1.1.B, 10-1.1.C, 10-1.1.D, 10-1.2.A, 10-1.2.B, 10-1.3.A, 10-1.3.B, 10-2.1.A, 10-2.1.B, 10-2.1.C, 10-2.3.A, 10-2.4.A, and 10-2.4.C, described above, would reduce the potential impacts associated with landslides and seismically-induced landslides to a level considered ***less than significant***.

*Flooding (as a result of Failure of a Dam or Levee)*

As stated in the Setting discussion, above, failure of one or more of the three dams (Calaveras, Del Valle or Turner) in the hills east of Fremont would result in inundation of much of the city. However, it is anticipated that inundation by dam failure is unlikely and a relatively low risk due to the structural engineering of the dams and compliance with federal and state laws enacted to enhance dam safety. Furthermore, in compliance with Federal requirements, the Association of Bay Area Governments (of which Fremont is a member) developed a Local Hazard Mitigation Plan. The Plan is a comprehensive approach to emergency preparedness, addressing possible hazards which may result from an emergency such as a natural disaster, technological incident, nuclear defense, and civil disorder or terrorism. The Plan is designed to not only consider the effects of a single natural catastrophe (such as an earthquake), but emergency problems that often result from major disasters such as the failure of an upstream dam. The Plan includes critical facilities within Fremont that can be used as shelter and emergency evacuation routes. Therefore, this Plan, in conjunction with federal and state laws related to ensuring dam safety, would minimize the risk of exposing people and structures to the failure of dams in Fremont, reducing related potential impacts to a level considered ***less than significant***.

Soil Erosion and Loss of Topsoil

The DRAFT General Plan Update is intended to guide development within Fremont. Construction activities involved in development under the Plan will disturb topsoil, which, if not properly mitigated, can be mobilized by stormwater runoff, increasing erosion and loss of topsoil. The DRAFT General Plan Update identifies policies and actions designed to minimize the impact of soil erosion and loss of topsoil. Implementation of DRAFT General Plan Update actions, including 10-1.3.A, described above, would reduce the impact of soil erosion and loss of topsoil to a level considered ***less than significant***.

Unstable Geologic Unit

Portions of Fremont are located on geologic units subject to landsliding, liquefaction, and other seismically related ground failure. The steeply sloping areas in the portion of the city generally east of Mission Boulevard and I-680 are subject to landslides (see **Figure 4.14**, above). Additionally, the northern portions of the city, underlain by the alluvial fan of Alameda Creek, as well as the San Francisco Bay margin along the southwestern edge of the city, are subject to liquefaction (see **Figure 4.13**, above). Expansive soils are also encountered within areas planned for development. Relevant DRAFT General Plan Update Policies identified in the discussion of potential impacts associated with seismic ground shaking, seismically-related ground failure, landslides and soil erosion, above, will reduce the potential impacts associated with possible construction on unstable geologic units to a level considered ***less than significant***.

Expansive Soils

Development under the DRAFT General Plan Update would entail construction on expansive soil subject to shrinking and swelling in response to changes in moisture content. Expansive soils are a major cause of foundation related property damage in California, and are found in many areas of the City of Fremont. The 2010 California Building Code (*CalGreen*), which was adopted by the City of Fremont with amendments on January 1, 2011, requires a preliminary soil report to identify and mitigate potential geologic and soil related constraints to development, including expansive soils. As all development anticipated under the DRAFT General Plan Update would be required to comply with the current version of the California Building Code, potential impacts related to construction on expansive soils would be considered ***less than significant***.

Soils Incapable of Supporting Septic Systems

Most new development anticipated following adoption of the DRAFT General Plan Update would be required to be connected to the Union Sanitary District sanitary sewer facilities. Any development under the DRAFT General Plan Update not connected to the Union Sanitary District would be subject to the Alameda County On-site Wastewater Treatment System and Individual/Small Water System Ordinance. Therefore, the impact related to future development on soils incapable of supporting septic systems is considered ***less than significant***.

Cumulative Impacts

Geologic and soil-related impacts associated with future development in the Fremont would involve potential hazards associated with site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each development site would be specific to that site, and its users and would not be common or contribute to (or be shared with, in an additive sense) the impacts associated with other sites. In addition, development on each site would be subject to uniform site development and construction standards designed to protect public safety. Therefore, provided the policies and implementation measures included in the Safety Element of the DRAFT General Plan Update are carried out, potential cumulative impacts related to geology and soils would be considered ***less than significant***.

# I. HAZARDS AND HAZARDOUS MATERIALS

This section of the environmental impact report provides information on hazards and hazardous materials within the City of Fremont, including environmental hazards associated with fire, emergency preparedness, and hazardous waste disposal.

Hazardous material and waste are generated in a multitude of manners, including manufacturing and service industries, small businesses, agriculture, hospitals, schools and households. A hazardous material is a substance or combination of substances which, because of its quantity, concentration, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazards to the environment or human health and safety when improperly stored, transported, disposed of or otherwise managed. Hazardous materials are generally used to produce products that enable society to enjoy a higher standard of living. Examples of these products include household cleaners, paint, television sets, computers and plastic products. Hazardous waste (a subset of hazardous material) refers to hazardous material that is to be abandoned, discarded, or recycled.

## SETTING

### History

Prior to the post-WWII suburbanization boom, the Fremont area was largely dedicated to agriculture, serving to provide the rapidly growing San Francisco Bay Area with fresh, local produce. However, once Fremont was incorporated in 1956, heavy industry began to play a larger part in the city's economy. In this more industrialized economy, hazardous materials were used with more regularity, and businesses began producing much larger quantities of hazardous waste. Today, industries from manufacturing to software to the service industry do business in Fremont. Such industrial and commercial endeavors typically store and/or use hazardous material. In particular, manufacturing, small industrial facilities, laboratories, dry cleaners, automotive repair shops, and gas stations are present and have the potential for (or have had) hazardous material and/or waste releases.

### Significant Hazardous Materials Sites As Described By Fremont Fire Department

There are over 1,000 registered hazardous materials sites within the City of Fremont, associated with numerous industries. However, the most significant sites are associated with companies in the manufacturing/high-tech industry, the industrial refrigeration industry and the life sciences/biotechnology industry. A large proportion of the most significant sites are located in the Warm Springs District in the southern portion of Fremont. This is largely due to Warm Springs' proximity to Silicon Valley and the preponderance of hazardous materials

used in the high-tech field. According to the Fremont Fire Department's Hazardous Materials Division, the following sites (in no particular order) are the most significant in the city:[62]

- Tesla auto manufacturing facility (formerly NUMMI), located at 45500 Fremont Boulevard, produces electric vehicles.
- Hexion Specialty Chemicals, Inc., located at 41100 Boyce Road, produces resins, adhesives, molding compounds, and other specialty chemicals[63].
- Lam Research Corporation, located at 48201 Fremont Boulevard, produces wafer fabrication technology for the semi-conductor industry[64].
- Seagate Magnetics, located at 47001 Benicia Street, manufactures computer disk drives.
- Western Digital Corporation, located at 44100 Osgood Road, produces computer hard drives[65].
- Solyndra, Inc., located at 47700 Kato Drive, produces photovoltaics[66].
- Allied Sysco Food Services of San Francisco, located at 5900 Stewart Avenue, supplies food products throughout the Bay Area[67].
- The Glacier Ice Company, located at 43960 Fremont Boulevard, produces packaged ice products[68].
- Boehringer Ingleheim, located at 6701 Kaiser Drive, is a biotechnology firm producing pharmaceuticals[69].

[62] Personal Communication with J. Swardenski, Fremont Fire Marshall on Monday January 7, 2008.

[63] Hexion website http://www.Hexion.com

[64] Lam Research website http://www.lamrc.com/index.htm

[65] Western Digital website http://www.wdc.com/en/

[66] Solyndra website http://www.solyndra.com/index.php

[67] Allied Sysco Food Services of San Francisco website http://www.syscosf.com/

[68] Glacier Ice Company website http://www.glacierice.com/

[69] Boehringer Ingleheim website http://www.boehringer-ingleheim.com/

Hazardous materials stored, used, or disposed of by these companies include, but are not limited to, the following: acetone, styrene, methylene chloride, methyl ethyl ketone, arsenic, boron, antimony, arsine, phosphine silane, cadmium telluride, hydrogen peroxide, nitric acid, sulfuric acid, hydrofluoric acid, hydrogen bromide, halogenated and non-halogenated solvents, and bio-hazardous waste including waste cell cultures, bacteria colonies, tissue cultures, and medical or infectious "red bag" waste.

The sites listed above, as well as all other sites using, storing, or disposing of hazardous material in excess of 55 gallons of liquids, 200 cubic feet of gasses, or 500 pounds of solids are required to submit a Hazardous Materials Business Plan to the Certified Unified Program Agency (CUPA). The Fremont Fire Department is the CUPA for the City of Fremont and handles the Hazardous Materials Business Program. The responsibilities of the CUPA are discussed further in the **Regulatory Setting** section, below.

Transportation corridors used by vehicles or railcars containing hazardous materials are also potential sources of an accidental hazardous material release. Transportation of hazardous material through the Fremont would primarily be along the local freeways and railroads (e.g., Interstate 880 (I-880), Interstate 680 (I-680), California Highway 84 (SR 84), and the Union Pacific Railroad). Transportation of materials along railroads is subject to federal regulation without local oversight. I-880, also known as the Nimitz Freeway, roughly bisects Fremont in a northwest-southeasterly manner, with the southwestern side of the freeway occupied mostly by industrial land use and tidal wetlands, and the northeastern side occupied mainly by residential and commercial land uses. I-680 connects Fremont to inland Alameda County to the north and San Jose to the south. California Highway 84 runs roughly east-west, easterly through Niles Canyon to Sunol, and westerly to San Mateo County via the Dumbarton Bridge. The California Department of Transportation (CALTRANS) regulates transportation of hazardous material on California highways.

Current Contamination Levels and Health Risks

The California State Water Resource Control Board (SWRCB) has identified many sites within Fremont that have the potential to impact drinking water. These sites include leaking underground fuel tank (LUFT) sites, Spills, Leaks, Investigations and Clean-up (SLIC) sites, Department of Defense (DOD) sites, Land Disposal Sites, and California Hazardous Material Incident Report System Sites (CHMIRS). Information on the location and nature of certain sites listed on SWRCB databases are available online through GeoTracker. GeoTracker is a geographic information system (GIS) that provides online access to environmental data. GeoTracker is the interface to the Geographic Environmental Informational Management System, a data warehouse which tracks regulatory data about underground fuel tanks, fuel pipelines, and public drinking water supplies[70]. GeoTracker is accessible to the public at

[70] California State Water Resource Control Board's GeoTracker website

http://geotracker.swrcb.ca.gov/. Additionally, the Department of Toxic Substances Control (DTSC) has recently launched the EnviroStor data management system. EnviroStor provides online access to detailed information on hazardous waste permitted and corrective action facilities, as well as existing site clean-up information. EnviroStor allows the public to search for information on investigation, clean-up, permitting, and/or corrective actions that are planned, being conducted or have been completed under DTSC oversight.[71] EnviroStor can be accessed at http://www.envirostor.dtsc.ca.gov/public/. The primary concerns associated with a hazardous material release are the short- and long-term effects on the local population and environment. To minimize potential impacts, hazardous materials are governed by regulations that require proper storage and handling, business/environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventative and response measures necessary to minimize the risk of accidental releases and associated environmental impacts.

*Household and Small Business Hazardous Waste*

Many common household items used regularly contain hazardous materials and cannot be collected with regular garbage destined for a landfill. These items include, but are not limited to: batteries, fluorescent light bulbs, televisions and electronic waste such as computers. Household hazardous waste disposal in Fremont is operated by BLT Enterprises at 41149 Boyce Road. This location for hazardous waste disposal is available to residents and Conditionally Exempt Small Quantity Generators (CESQG), as defined in California Health and Safety Code, section 25218.1, and the Code of Federal Regulations 40, section 261.5. CESQG businesses must generate less than 220 pounds or 27 gallons of hazardous waste of any kind, and less than 2.2 pounds of extremely hazardous waste per month. Small businesses that qualify as CESQG must register as such by filling out a CESQG self-certification form and returning to the Alameda County Household Hazardous Waste CESQG department.[72]

*Wildland Fire Hazards*

The wildland-urban interface along the eastern and northeastern edge of Fremont is the area that is at greatest risk of wildland fire hazards. The combination of rugged terrain, flammable vegetation, high winds and limited access has prompted the City to designate much of the hills as a Hazardous Fire Area, requiring special development controls. These controls include the use of non-combustible roofing, one-hour rated exterior walls, irrigated greenbelt

http://geotracker.swrcb.ca.gov/about.htm

[71] EnviroStor fact sheet at Department of Toxic Substance Control's website http://www.envirostor.dtsc.ca.gov/public/EnviroStor%20Fact%20Sheet.pdf

[72] Alameda County Household Hazardous Waste webpage at http://stopwaste.org/home/index.asp?page=583

barriers, firebreaks, sufficient clearance between structures, drought tolerant landscaping, and "defensible space" clear of vegetation around residences.[73]

The 2007 California Building Standards Code for Wildland-Urban Interface Fire Areas established fire hazard severity designations for parts of the Fremont hills and triggered fire protection standards. In October 2007, the Director of California Fire (Cal Fire) issued the first draft maps designating fire hazard severity zones. Most areas previously identified by the City of Fremont as part of the Hazardous Fire Area are identified by Cal Fire as moderate of high fire hazard severity zones. The City of Fremont has a locally adopted ordinance concerning wildland fires.

## Regulatory Setting

### *Federal and State Level*

The chief environmental regulator at the federal level is the U.S. Environmental Protection Agency (EPA), Region IX for Northern California. In California, the Department of Toxic Substances Control is chiefly responsible for regulating the safe, handling, use, and disposal of toxic materials, while the State Water Resources Control Board regulates discharge of potentially hazardous materials into waterways and aquifers. Programs intended to protect workers from exposure to hazardous materials and from accidental upset are covered under the Occupational Health and Safety Administration (OSHA) at the federal level and at the state level through the California Department of Occupational Safety and Health (CAL/OSHA), as well as through the California Department of Health Services (DHS).

#### Resource Conservation and Recovery Act

The RCRA is the United States' primary law governing the handling and disposal of solid hazardous waste. The RCRA is actually an amendment, made in 1976, to the solid waste disposal act of 1965, but the amendments were so comprehensive that it is generally referred to as a new act. The RCRA defines solid and hazardous waste, authorizes the EPA to set standards for facilities that generate or manage hazardous waste, and establishes a permit program for hazardous waste treatment, storage, and disposal facilities. The RCRA was last re-authorized by the Hazardous and Solid Waste Amendments of 1984.

#### Department of Transportation

Transportation of hazardous materials on the highways is regulated through the Federal Department of Transportation (DOT) and the California Department of Transportation (Caltrans). This includes a system of placards, labels, and shipping papers required to

[73] City of Fremont, Draft General Plan 2030, Safety Element obtained from http://www.fremont.gov/index.aspx?nid=1188

identify the hazards of shipping each class of hazardous materials. Existing federal and state laws address risks associated with the transport of hazardous materials. These laws include regulations outlined in the Hazardous Materials Transportation Act administered by the DOT. Caltrans is mandated to implement the regulations established by the DOT, which is published as the Federal Code of Regulations, Title 49, commonly referred to as 49 CFR. The California Highway Patrol (CHP) enforces these regulations. Regulations of hazardous materials and wastes include the manufacture of packaging and transport containers; packing and repacking; labeling; marking or placarding; handling; spill reporting; routing of transports; training of transport personnel; and registration of highly hazardous material transport.

State Water Resource Control Board

The State Water Resource Control Board (SWRCB) was created by the state legislature in 1967, with the joint authority of water allocation and water quality protection. The SWRCB runs Geo Tracker, a database of environmentally regulated facilities in California. Within California there are nine regional water quality control boards. The mission of the regional boards is to develop and enforce water quality objectives and implementation plans that will best protect the state's waters, recognizing local differences in climate, topography, geology and hydrology. The City of Fremont is under the purview of the San Francisco Bay Area Regional Water Quality Control Board.

*Local and Regional Level*

Pre-Disaster Hazard Mitigation Program

The Pre-Disaster Hazard Mitigation Program was authorized by the Robert T. Stafford Disaster Assistance and Emergency Relief Act. Funding for the program is provided through the National Pre-Disaster Mitigation Fund to assist state and local governments in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program. 44 Code of Federal Regulations (CFR) part 201, Hazard Mitigation Planning, establishes criteria for state and local hazard mitigation planning authorized by the Stafford Act. After November 1, 2003, local and tribal governments applying for PDM funds through the state have to have an approved local hazard mitigation plan prior to the approval of local hazard mitigation project grants. The Association of Bay Area Governments (ABAG), of which Fremont is a member, is the umbrella planning agency for the greater San Francisco Bay Area. ABAG has produced a local hazard mitigation plan, adopted March 17, 2005. The City of Fremont has produced an annex to this plan, adopted July 5, 2005[74]. These documents fulfill the requirements of the Robert T. Stafford Disaster Assistance and Emergency Relief Act.

[74] http://www.abag.ca.gov/bayarea/bayarea_info/eqmaps/mitigation/plan.html

### Wildland-Urban Interface Ordinance

The City of Fremont has a locally adopted amendment to the Building and Fire codes known as the Wildland-Urban Interface Ordinance (Ord. No. 33-2007, § 2, 12-4-07) as part of Title VII Chapter 13 of the Fremont Municipal Code. The ordinance identifies hazard areas of the City susceptible to wildland fires. It includes development standards for setbacks, access, and defensible space around structures, including wetbands.

### Certified Unified Program Agency

Local responsibility for hazardous materials oversight, permitting, and regulation is through the Certified Unified Program Agencies (CUPA). These programs were developed when the State of California delegated responsibility to local jurisdictions. The Fremont Fire department is the CUPA for all businesses in the City of Fremont. The Fremont Fire Department is responsible for implementing the following programs at the local level: hazardous materials management plan, Hazardous Materials Business Plan, risk management program, underground storage tank program, spill prevention, control and countermeasure plan (SPCC) for aboveground petroleum product storage, hazardous waste generators, and on-site hazardous waste treatment. These programs include inspections of businesses and review of permit conditions and procedures for the handling, storage, use and disposal of hazardous materials. The Hazardous Materials Business Plan is used to keep track of the use of hazardous materials by businesses in accordance with both state and federal laws. In general, a Hazardous Materials Business Plan must be submitted and maintained when a business stores or uses more than 55 gallons of hazardous liquids, 200 cubic feet of hazardous gasses, or 500 pounds of hazardous solids. The Hazardous Waste Generator Program is based on the Hazardous Waste Control Law found in the California Health and Safety Code Division 20, Chapter 6.5 and regulations found in the California Code of Regulations, Title 22, Division 4.5.

### Environmental Services Division

The Fremont Environmental Services Division administers over thirty different garbage, recycling, and stormwater programs for Fremont residents and businesses. The City of Fremont contracts with Allied Waste Services, located at 42600 Boyce Road, for non-hazardous garbage disposal and recycling. Household hazardous waste disposal is through the Alameda County Department of Environmental Health, with four locations within Alameda County in Fremont, Hayward, Oakland, and Livermore.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?

2) Create a significant hazard to the public to the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?

3) Reasonably be expected to emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

4) Is the project located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

5) For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

6) For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people working or residing in the project area?

7) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

8) Expose people or structures to the risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies and actions are intended to reduce potentially adverse effects related to hazards and hazardous materials that may be associated with future development:

*Policy 10-4.1: Fire Safety and Prevention.*

- *Implementation 10-4.1.A: Public Demonstrations.*
- *Implementation 10-4.1.C: Fire Safety Evaluation.*
- *Implementation 10-4.1.D: Public Outreach.*

*Policy 10-4.2: Development Standards.*

- *Implementation 10-4.2.A: Fire Code Compliance.*

*Policy 10-4.3: Access and Clearance.*

- *Implementation 10-4.3.A: Development Review.*
- *Implementation 10-4.3.C: Fire Resistant Construction.*

*Policy 10-4.4: Supplemental Fire Mitigation.*

- *Implementation 10-4.4.A: Adequate Service to Hillside Subdivisions.*
- *Implementation 10-4.4.B: Supplemental Mitigation.*
- *Implementation 10-4.4.C: Vegetation Management.*

*Policy 10-5.1: Standard of Cover.*

- *Implementation 10-5.1.A: Fire Station Location Review.*
- *Implementation 10-5.1.B: Fire Station Improvement.*

*Policy 10-5.2: Response Time.*

- *Implementation 10-5.2.A: Response Time Evaluation.*
- *Implementation 10-5.2.B: Traffic Signal Override.*

*Policy 10-5.3: Emergency Response Training.*

- *Implementation 10-5.3.A: Maintain Training.*
- *Implementation 10-5.3.B: Adequate Training Facilities.*
- *Implementation 10-5.3.C: SEMS/NIMS Training.*

*Policy 10-5.4: Emergency Operation Center (EOC).*

- *Implementation 10-5.4.A: EOC Annual Evaluation.*

*Policy 10-5.5: Local Hazard Mitigation Plan.*

- *Implementation 10-5.5.A: LHMP Evaluation.*

*Policy 10-6.1: Hazardous Material Regulation.*

- *Implementation 10-6.1.A: Land Use Evaluation.*

*Policy 10-6.2: Sensitive Receptors.*

- *Implementation 10-6.2.A: Proximity to Hazardous Materials Users.*

*Policy 10-6.3: Remediation.*

- *Implementation 10-6.3.A: Environmental Site Assessments.*
- *Implementation10-6.3.B: Regulatory Agency Coordination.*
- *Implementation 10-6.3.C: Existing Hazard Remediation.*

*Policy 10-6.4: Hazardous Waste Management Plan.*

- *Implementation 10-6.4.A: County Plan as City Plan.*

*Policy 10-6.5: Hazardous Material Oversight.*

- *Implementation 10-6.5.A: Hazardous Material Enforcement.*
- *Implementation 10-6.5.B: Hazardous Material Monitoring on SR 84.*
- *Implementation 10-6.5.C: Truck Route Review.*

*Policy 10-6.6: Hazardous Material Disclosure.*

- *Implementation 10-6.6.A: Disclosure and Emergency Action Plans.*

*Policy 10-6.7: Emergency Action Plans.*

- *Implementation 10-6.7.A: Hazardous Materials Emergency Response.*
- *Implementation 10-6.7.B: Hazardous Material Emergency Training.*

## IMPACTS AND MITIGATION MEASURES

Routine Use, Transport, or Disposal of Hazardous Materials

Implementation of the DRAFT General Plan Update would likely result in an increase in the number of businesses storing, using, transporting, and/or disposing of hazardous material within Fremont. However, the DRAFT General Plan Update identifies goals, policies and implementation measures designed to reduce the impact of businesses routinely using, storing, and transporting hazardous material. These actions, including 10-6.1.A, 10-6.2.A, 10-6.4.A, 10-6.5.A, 10-6.5.B, and 10-6.5.C, described above, in combination with California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential impacts associated with the routine use, transport, or disposal of hazardous material to a level considered ***less than significant***.

Reasonably Foreseeable Accidental Release of Hazardous Material

No hazardous material release is foreseen as a result of implementation of the DRAFT General Plan Update. However, implementation of the DRAFT General Plan Update would result in an increase in the number of people exposed to a potential release of hazardous materials. The DRAFT General Plan Update identifies objectives and policies designed to reduce the hazard to the population due to a hazardous material release. These actions, including 10-6.1.A, 10-6.2.A, 10-6.4.A, 10-6.5.A, 10-6.5.B, 10-6.5.C, 10-6.6.A, 10-6.7.A, and 10-6.7.B, described above, in combination with emergency response from the City of Fremont Fire Department would reduce the potential impact of a reasonably foreseeable accidental release of hazardous material to a level considered ***less than significant***.

Potential Hazardous Material Release Within 0.25 Miles of an Existing or Proposed School

Implementation of the DRAFT General Plan Update would include development in the vicinity of existing and/or planned schools; however, state regulations on siting of hazardous materials facilities and schools limit the facilities' proximity to schools. Additionally, the DRAFT General Plan Update includes Policy 10-6.2, described above, would reduce the potential impact to a level considered ***less than significant***.

Listed Hazardous Material Sites

There are a number of sites within Fremont listed on government databases. These generally consist of leaking underground storage tanks (LUSTs), many of which have impacted soil and groundwater with petroleum. Public and environmental hazards are reduced by federal and state remediation regulations. Additionally, DRAFT General Plan Update actions 10-6.3.A, 10-6.3.B, and 10-6.3.C, described above, would reduce the potential impact of the inclusion of listed hazardous material sites in the DRAFT General Plan Update to a level considered ***less than significant***.

Airport Land Use Plan

There are no airports within 2 miles of the Fremont city limits, therefore, ***no impact***.

Private Airstrip Hazards

There are no private airstrips in the vicinity, therefore, ***no impact.***

Interference with an Adopted Emergency Response or Emergency Evacuation Plan

Implementation of the DRAFT General Plan Update would result in denser development within Fremont and would have the potential to change circulation patterns which could impact emergency evacuation or response plans. However, the DRAFT General Plan Update includes policies, and implementation actions designed to provide for sufficient emergency response in Fremont. These actions include the following implementation measures, described above: 10-5.1.A, 10-5.1.B, 10-5.2.A, 10-5.2.B, 10-5.2.A, 10-5.2.B, 10-5.3.A, 10-5.3.B, 10-5.3.C, 10-5.4.A, and 10-5.5.A. Therefore, potential interference with an adopted emergency response or emergency evacuation plan would be considered a ***less than significant*** impact.

Exposure of People and/or Structures to Wildland Fire Risk

The Land Use Element of the DRAFT General Plan Update would allow limited development in areas of high wildland fire risk. Fremont has cool, wet winters and warm, dry summers, a pattern that results in significant fuel (dry vegetation) load in the summer and fall. Additionally, the eastern portions of the City consist of moderately to steeply sloping hills, indicating an even higher fire risk. DRAFT General Plan Update implementation measures 10-4.1A, 10-4.1.C, 10-4.1.D, 10-4.2.A, 10-4.3.A, 10-4.3.C, and 10-4.3.C, described above, and application of the Wildland-Urban Interface Ordinance would reduce potential risks associated with wildland fires to a level considered ***less than significant***.

Cumulative Impacts

Implementation of the DRAFT General Plan Update would result in increased population and a commensurate increase in the number of sites handling hazardous materials in the City. However, the cumulative impact is expected to be slight, and identified DRAFT General Plan Update policies, as well as California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential cumulative hazardous materials impacts of Plan implementation. Implementation of the DRAFT General Plan Update would also result in new construction in areas that are subject to wildland fire hazards. However, implementation of the DRAFT General Plan Update would not result in a cumulative impact on wildland fire hazards in surrounding areas. Cumulative hazards and hazardous materials impacts are considered ***less than significant.***

# J. CULTURAL AND ARCHAEOLOGICAL RESOURCES

## SETTING

Archaeological Resources

Prior to the arrival of Europeans in California, the Fremont area was occupied by the Ohlone (also known as Costanoan and as the Muwekma) Indians. The Ohlone were hunters and gatherers, as were many of the California Indian tribes. Because the climate was mild (much as it is today), there was a reliance on the diversity of the area's natural food supply. Mussels were an important food to the Ohlone. Sea lions were hunted and an occasional whale would wash ashore and be eaten. Plant foods were abundant along streams and in the woodlands. Seeds were eaten by those living along the immediate shore, although acorns were eaten when available.

Generally, there are sites which were historically favored for human habitation and resources procurement, and which are of high archaeological sensitivity. These sites include flat to gently sloping terrain near water sources. Areas of moderate archaeological sensitivity have been characterized by low-lying terrain subject to seasonal flooding, gentle to moderate slopes, intermittent water sources, ridgelines, and the bases of hills. Usually, seasonal or task-specific activities took place in such settings. Areas of low archaeological sensitivity include those which are characterized by continuously inundated terrain, steep slopes, or no water.

The area around Fremont has prehistoric resources that are of major cultural and scientific significance and are listed with the California Archaeological Inventory. At Coyote Hills Regional Park, visitors can view 2,000-year-old Ohlone shell mound sites (as well as exhibits and displays about Ohlone life). Former village sites are located in Mission San Jose, at Tyson's Lagoon, and near the intersection of Curtner Road and Mission Boulevard.

In 1908, N.C. Nelson completed a survey of shellmounds in the San Francisco Bay region. Nelson mapped and studied nearly 425 shellmounds. In Alameda County he mapped and studied some 20 shellmounds scattered along the Bay shore. One was located in Centerville and another was located at Mowry's Landing west of Irvington. The shellmounds serve as an important link to the prehistory of the San Francisco Bay region. The first people who came to the Bay probably camped just above the shoreline and discarded their shells from the abundant Bay mollusks. Over time, these shells increased and began to add to the available dry area for habitation. As subsequent generations utilized the shellmounds for habitable sites, the mounds grew and became repositories for the prehistoric cultural artifacts. Burial grounds, house sites, and middens have all been found in the shellmounds. Although most of the shellmounds are now either destroyed or covered over, the shellmounds were a rich source of information about the Bay region's prehistory.

Historical Resources

Between 1769 and 1776, several Spanish expeditions passed through Ohlone territory. These included the expeditions led by Ortega (1769), Fages (1772) and Anza and Font (1776). Mission San Jose was established in 1797 on a site that had long been inhabited by the Ohlone. The mission gradually became a complex of adobe buildings, including a church, a girl's dormitory, a barracks/guardhouse, schoolrooms, workshops, and dwellings for families and the padres. A cemetery was also dedicated, in part because many of the Ohlone succumbed to diseases. What has become Mission Boulevard bordered the hills south to Mission Santa Clara and north to Mission Pass and beyond, while a second road (now Washington Boulevard) ran from the mission west across the flatlands to an embarcadero along San Francisco Bay. After Mexico declared independence from Spain in 1821, the Mexican government began partitioning mission holdings into privately held ranchos, a process that was completed in 1846. Mission San Jose is the major historical resource remaining in Fremont from the Mission Era, with part of the original compound remaining and the rest having been reconstructed. Other important resources from this era include the Vallejo Adobe in Niles, the Galindo-Higuera Adobe site in Warm Springs, and several sites of importance where the associated structures no longer exist.

Three years after California attained statehood in 1850, Alameda County was created and subdivided into six townships, including Washington Township (which encompassed the present-day cities of Fremont, Newark and Union City). By the 1870's, Washington Township supported a large-scale agricultural economy, and several towns: Alvarado, Centreville (later Centerville), Mission San Jose and Washington Corners (later Irvington). With the arrival of several rail lines in the late 1860's and early 1870's, four additional towns developed near the stations: Vallejo Mills (later Niles), Newark, Decoto and Warm Springs.

In 1956, the City of Fremont was incorporated from five towns: Centerville, Niles, Irvington, Warm Springs and Mission San Jose. Each of the five districts still contains a central commercial area, and has its own history. Four of the districts (Niles, Centerville, Irvington and Mission San Jose) have important historic elements. Together, the five districts bring a uniqueness to the Fremont area.

*Niles*

Where the Alameda Creek issues from Niles Canyon and passes into the plain, the old settlement of Vallejo Mills (now known as Niles) grew up in the 1850s. Niles began as an agricultural and horticultural center for the Bay Area, as well as a railroad hub, where one leg of the intercontinental railroad was completed with a golden spike in 1869.

The town of Niles was named in 1869 for Judge Addison C. Niles, an executive of the Central Pacific Railroad. The town was part of the Rancho Arroyo de la Alameda, a tract of 17,705 fertile acres given to Jose de Jesus Vallejo on August 8, 1842.

Historic landmarks still may be found in the Niles area. For example, a flour mill was erected about 1850 on the Vallejo Rancho. The stone foundations of a second flour mill erected here by Vallejo around 1856 are found in a Fremont city park at the northeast corner of Mission Boulevard and Niles Canyon Road. One mile up the canyon, the stone aqueduct, which Vallejo built to conduct water to the flour mill, still parallels the road for some distance. Furthermore, the site of one of the several adobes built by Vallejo for his overseer is located at the entrance of the canyon.

Perhaps the most picturesque reminder of adobe days in the Niles area is the adobe building in the gardens of the California Nursery Company northwest of Niles off Niles Boulevard. The California Nursery (founded in 1865) played an important part in the development of the fruit industry and home beautification in California. This adobe, the first of the Vallejo adobes built in the vicinity, has been restored by the City.

Also located in Niles was one of the first motion picture studios located in the West. The Essanay Company (S for Spoor, A for Anderson) had been founded in Chicago. Anderson decided to relocate in the West, and selected Niles. Anderson made his first moving picture in a barn which still stands at the rear of 37467 Second Street. Actors who worked in Niles include Charles Chaplin, Ben Turpin, and Wallace Beery. Chaplin made his film The Tramp in Niles. The studio closed in 1916.

In the 1930's, Mission Boulevard was relocated and retrofitted with several grade separations to prevent collisions between trains and automobiles. As a result, Mission Boulevard traffic bypassed Niles. In 1941, the Southern Pacific Railroad discontinued passenger service to Niles due to decreasing demand. Together, these factors contributed to a decline for the Niles commercial district.

*Irvington*

According to The History of Washington Township, small groups of settlers began arriving at Irvington in 1847. Irvington became a center of industry, mechanics and grain warehouses serving the surrounding ranches. Often referred to as the "Corners", the center of the historical settlement was at what is now the intersection of Fremont Boulevard, Washington Boulevard, Bay Street and Union Street.

By 1880, Irvington had 300 residents and a commercial district that supported several general stores and blacksmith shops, a hotel and several saloons. Most of the commercial district was destroyed by fire in 1887, but ten years later the rebuilt district included approximately 20 buildings near the crossroads, including two, two-story brick structures (the Odd Fellows Lodge and W.W. Hirsch Building). Irvington served as an agricultural shipping point, and as a site for fruit packing and other industrial operations such as an oil storage depot, a lumberyard, and a factory for hospital supplies. Irvington experienced moderate, but steady, growth from 1900 through the 1940's, with the population reaching approximately 2,500 by 1950.

The site of the old Washington College, founded in 1871, is on the hill at the northeast corner of Washington Boulevard and Driscoll Road in Irvington (formerly Washington Corners). The college was established as a nonsectarian institution by pioneers interested in education. These pioneers, including E.L. Beard, Henry Curtner, and the Rev. W.F.B. Lynch, intended to make it a school of science and industrial art. The school ceased to be a college after 1894. A private school, Anderson Military Academy, replaced the college.

A 22-room house, built about 1889, was the private residence of Mr. and Mrs. C.F. Giles. The estate was replaced by a housing tract in the mid-1970s, and only remnants of the entryway landscaping remain today.

*Warm Springs*

Warm Springs is located on what was once Rancho Aqua Caliente. The historic center of the settlement was located at what is now the intersection of Warm Springs Boulevard and Warren Avenue. This rancho was granted to Don Fulgencio Higuera on a April 4, 1839, having been released by its earlier grantee, Antonio Sunol. About two miles south of Mission San Jose on Mission Boulevard is the area where the homes of the Higuera family stood.

The hot springs, after which Warm Springs was named, were first frequented by the Indians. The portion of the ranch containing the hot springs was purchased by Clemente Columbet in 1850, and buildings for the resort were erected. From that time until the earthquake of 1868, Warm Springs was one of the most fashionable watering places in the State. Persons of wealth and leisure, as well as invalids from many places, came to enjoy the benefits of the hot sulphur water.

Columbet moved a house from San Jose to serve as a hotel at the springs. In 1858 he leased the hotel to Alexander Beaty, who maintained its reputation for grand festivities. Governor Leland Stanford purchased the estate and had it planted with orchards and vineyards. The estate was owned for a time by the Sisters of the Holy Names and used as a summer villa, but now it is a resort. The Stanford winery is now operated by Weibel Vineyards, which uses some of the original brick buildings. The winery is located just east of Mission Boulevard on Stanford Avenue. The old wooden hotel stands near the winery.

An adobe stands south of and adjacent to the old hotel property. Although there is evidence that the adobe was actually the residence of Juan Criostomo Galindoof, it is traditionally associated with Abelardo Higuera. The adobe's location in the lower foothills commands a magnificent view of San Francisco Bay and the Santa Clara Valley. As a requirement of approval of a residential development, the adobe has been recently reconstructed. The adobe's location is slightly more than one mile east of Mission Boulevard via Curtner Road and Rancho Higuera Road.

The Central Pacific Railroad opened the Warm Springs station in 1869, and by 1900, local agriculture had largely shifted to producing vegetables to supply the canneries in the area.

Virtually none of the small historic commercial area in Warm Springs remains.

*Centerville*

The town of Centerville was located in the center of Washington Township, and on the northern part of the old Mission San Jose land grant. Two major historic trails crossed the site of this small settlement. The North to South trail was the route to San Jose from what is now East Oakland. The cross trail led from the foot of Alameda Creek to the embarcaderos along the Bay.

In 1850, George Loyd and Frank Pepe located within the town of Centerville. According to references in the History of Washington Township, Loyd initially lived with his family in a tent. He set up obstructions across the road in order to delay travelers and call attention to the area. Another settler, John Horner, built a second house in 1850 for children from the valley farms. The structure was also used for religious services. Mr. Horner also developed Centerville's first cemetery.

During the 1850s, Centerville saw: the opening of a general store (1852); the planting of orchards (1853); initiation of an express stage coach line (1853); construction of the Centerville Presbyterian Church (1855); and establishment of a textile factory for manufacturing grain bags (1855). By 1878, the population was about 300. From 1870 to 1914, the population grew to 1,425, and by this time several shops, banks, lodges and schools were well established in the town. The arrival of the railroad in 1909 led to Centerville becoming an important packing and shipping point for local produce. As manufacturing and industry arrived in the area in the 1920's, suburban development also began to appear (an example is the Hansen Tract in the vicinity of Oak Street and Thornton Avenue). A number of bungalows from the 1920's and 1930's still remain in the area.

*Mission San Jose*

Mission San Jose was formally established in 1797 and became probably the most prosperous of California missions in the decade of the 1830s. Mission San Jose operated as a mission until May 5, 1846, when most of the property was sold by Governor Pio Pico to Andres Pico and J.B. Alvarado for $12,000.

Several subsequent owners presided over the Mission's land. The greater part of the estate was secured by E.L. Beard, who resided at the Mission until at least 1876. During his residency, he was said to possess one of the loveliest places in the State. The Beard homestead at Mission San Jose was later owned by Juan Gallegos and is now the motherhouse of the Sisters of the Holy Family Catholic Church.

The wooden steepled St. Joseph's Church, built on the Mission's lands shortly after the 1868 earthquake, was displaced by the restoration of the Mission and moved to the West Bay. The old cemetery adjacent to the Mission holds the members of many old Spanish families.

A burial ground for the Ohlone Indians is located approximately one mile west of Mission San Jose on Washington Boulevard. Some four thousand members of the Ohlone tribe are buried here. On January 6, 1965, the old cemetery was presented by Bishop Floyd L. Begin to the American Indian Historical Society.

In 1900, the population of Mission San Jose was approximately 800, and it increased only slightly over the next 50 years, largely due to the area's lack of rail access and the relative commercial success of nearby Irvington, Centerville and Niles.

Historic Buildings and Sites in Fremont

Currently, five Fremont resources are listed on the National Register:

- California Nursery Co. Guest House
- Mission San Jose
- George W. Patterson House – Ardenwood
- Washington Union High School
- Niles Canyon Transcontinental Railroad Historic District

Currently, two Fremont resources are listed on the California Register of Historic Resources, in addition to the aforementioned National Register resources:

- Vallejo Flour Mill
- Leland Stanford Winery

The Fremont Register lists 153 historic resources that have been officially adopted by the City Council. The Fremont Register does not currently list any post-1950 resources.

Historical Overlay Districts

The City has also established two Historical Overlay Districts (HODs), in Niles and Mission San Jose. Proposed developments in these HODs undergo review by the Historical Architectural Review Board (HARB) in order to ensure compatibility with historic resources and settings. There are two neighborhood conservation districts located within the historic core area of Mission San Jose: one adopted by City Council as Subarea C-3, and the other as the Bryant Street Conservation District. In addition, both the Irvington Concept Plan and the Centerville Specific Plan include goals and concepts aimed at preserving and enhancing the historic aspects of the districts.

Historic Parks

The City of Fremont maintains two historic parks: Shinn Historic Park and Arboretum (1251 Peralta Boulevard) and the Vallejo Adobe (36500 Niles Boulevard). Williams Park is located within the City's Central Business District, and includes the historic carriage house (NOTE: The DRAFT General Plan Update identifies a new land use designation, "City Center", with an area of 430 acres, which encompasses the area now designated "CBD" under the current General Plan).

Local Preservation Efforts and Community Organizations

There are a number of community groups involved in historic preservation. The Niles Main Street Association is a non-profit focused on revitalizing and enhancing the Niles Commercial District. The Committee for the Restoration of Mission San Jose spearheaded the reconstruction of the adobe church in 1985, and plans to reconstruct additional rooms that were destroyed in the earthquake of 1868.

The Museum of Local History, housed in the former Anza Fire Station 4, features historical items and artifacts of late 19th century Washington Township and outlying areas. The Niles Depot Museum, located in the former Niles Passenger Depot, is home to the Tri-City Society of Model Engineers, to the Jim Sullivan Memorial Library (which has over 1,000 books on railroad history), and to a variety of rail-related exhibits. The Pacific Locomotive Association operates the popular Niles Canyon Railway in an effort to preserve the physical aspects and atmosphere of Pacific Coast railroading as it existed between 1910 and 1960. The Niles Essanay Silent Film Museum and Edison Theater showcases local history and the Essanay Silent Film Studio. The Mission San Jose complex includes a museum that houses a collection of artifacts, vestments and memorabilia. These and other local organizations help maintain Fremont's links with its heritage.

Regulatory Setting

*Federal*

National Register of Historic Places

The National Historic Preservation Act of 1966 established the National Register of Historic Places to recognize resources associated with the country's history and heritage. Structures and features must usually be at least 50 years old to be considered for listing on the National Register, barring exceptional circumstances. Criteria for listing on the National Register, which are set forth in Title 26, Part 63 of the Code of Federal Regulations (36 CFR Part 63) are applied to resources deemed to possess significance in American history, architecture, archaeology, engineering and culture as present in districts, sites, buildings, structures and objects that posses integrity of location, design, setting, materials, workmanship, feeling and association. The four criteria for listing include historic resources that:

- Are associated with events that have made a significant contribution to the broad patterns of our history; or

- Are associated with the lives of persons significant in our past; or

- Embody the distinctive characteristics of a type, period or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction; or

- Have yielded, or may be likely to yield, information important in prehistory or history (this criterion is usually reserved for archaeological and paleontological resources).

Secretary of the Interior's Standards for the Treatment of Historic Properties

The Secretary of Interior is responsible for establishing standards for the preservation and protection of buildings and other cultural resources eligible for listing in the National Register. The *Secretary of Interior's Standards for the Treatment of Historic Properties* (1995) document outlines specific standards and guidelines for the preservation, rehabilitation, restoration and reconstruction of historically designated structures. Preservation standards and guidelines apply to those buildings that require on-going maintenance to sustain historic value. Rehabilitation standards and guidelines involve the reuse of a historic structure or property while maintaining portions that contribute to historic value. Restoration standards and guidelines are applicable to projects that remove portions of a building from another historic period in order to reconstruct missing features from the restoration period. Reconstruction standards and guidelines apply to new developments that replicate a historic period or setting. Each set of standards provides specific recommendations for the proper treatment of specific building materials, as well as parts of building development.

*State of California*

California Register of Historic Resources

In 1992, the California Register of Historic Resources (CRHR) was created to identify resources deemed worthy of preservation on a state level. The CRHR was modeled closely after the National Register. The criteria for listing of historic resources are nearly identical to those of the National Register. The CRHR encourages public recognition and protection of resources of architectural, historical, archaeological and cultural significance, and protection of resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under the *California Environmental Quality Act* (CEQA). The CRHR automatically includes historic resources listed on the National Register, and consequently, is a more inclusive and extensive list than the National Register.

Specifically, the CRHR includes the following resources:

- Resources formally determined eligible for, or listed in, the National Register of Historic Places;
- State Historical Landmarks numbered 770 or higher;
- Points of Historical Interest recommended for listing by the State Historical Resources Commission (SHRC);
- Resources nominated for listing and determined eligible in accordance with criteria and procedures adopted by the SHRC including individual historic resources and historic districts;
- Resources identified as significant in historical resources surveys that meet certain criteria; or
- Resources and districts designated as city or county landmarks pursuant to a city of county ordinance when the designation criteria are consistent with the California Register criteria.

*City of Fremont*

General Plan and Historic Resources Ordinance

Historic preservation is recognized as one of the City's "fundamental goals" in the existing General Plan. The primary mechanism for achieving this goal is the Historic Resources Ordinance (see Fremont Municipal Code, Article 19.1). The ordinance establishes procedures to evaluate and protect structures greater than 50 years of age. Alteration or demolition of buildings over 50 years old requires a discretionary permit. The ordinance also charges the Historical Architectural Review Board (HARB) with advising the City Council on the establishment or amendment of Historic Overlay Districts (HOD – see Fremont Municipal Code, Article 18.4); with making recommendations for additions and deletions to the Fremont Register of Historic Resources (the City's officially adopted inventory of historic resources); and with reviewing and making recommendations regarding alterations to properties that are either located in an HOD or are individually listed in the Fremont Register.

For structures located in HODs, on properties designated as Fremont Register Resources, or potential Register Resources, the HARB conducts Historical Architectural Review of alterations. Where modifications are proposed in structures 50 years of age or older, screening will be conducted prior to the issuance of any required permits (see Fremont Municipal Code, Section 8-219115).

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5;

2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5;

3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or

4) Disturb any human remains, including those interred outside of formal cemeteries.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies are intended to reduce potentially adverse effects on cultural resources that may be associated with future development:

- *Policy 4-6.1: Protection of Historic Resources.*
- *Policy 4-6.2: Construction and Alterations within Historic Areas.*
- *Policy 4-6.3: Resource Documentation and Funding.*
- *Policy 4-6.4: Historic Settings and Landscapes.*
- *Policy 4-6.5: Context-Sensitive Design.*
- *Policy 4-6.6: Historic Preservation Regulations.*
- *Policy 4-6.7: Infrastructure Improvements within Historic Districts.*
- *Policy 4-6.8: Historic Resource Education and Awareness.*
- *Policy 4-6.9: Adaptive Use of Historic Properties.*
- *Policy 4-6.10: Protection of Native American Remains.*
- *Policy 11-3.9: Centerville Historic Preservation.*

- *Policy 11-6.4: Historic Preservation in Irvington.*
- *Policy 11-7.1: Mission San Jose Design Guidelines and Regulations.*
- *Policy 11-7.2: Historic Resources.*
- *Policy 11-7.5: Building Form and Height.*
- *Policy 11-7.8: Historic Landscapes.*
- *Policy 11-8.4: Historic Character.*

## IMPACTS AND MITIGATION MEASURES

Historical Resources

*Demolition/Degradation of Historical Resources*

The extensive set of policies in the DRAFT General Plan Update formulated to protect local historical resources, and associated City regulations and programs (including the Historic Resources Ordinance, Fremont Register of Historic Resources, City Zoning Code, Historic Overlay Districts and required evaluation by the HARB of projects which involve historic resources) provide strong protection for the City's historic resources. DRAFT General Plan Update Implementation 4-6.1.A: "Demolition, Alteration or Relocation of Historic Resources" fosters preservation by requiring an evaluation of all applications for demolition, alteration or relocation of buildings, structures or objects constructed prior to 1955 (year of City's incorporation) to determine if there is sufficient significance and integrity to merit classification as a Potential Fremont Register Resource or formal designation as a Register Resource. Nevertheless, the possibility remains that future development envisioned under the DRAFT General Plan Update could result in a substantial adverse change in the significance of historic resources or potential resources in the City, if, after evaluation under all applicable policies, it is determined that circumstances warrant demolition, relocation, etc. If one or more historic resources were the subject of a future site-specific development proposal, substantial adverse changes that may potentially occur include physical demolition, destruction, relocation or alteration of one or more contributing features, such that the resources is "materially impaired." A historic resource is considered to be "materially impaired" when a project demolishes or materially alters the physical characteristics that justify the determination of its significance (CEQA Guidelines 15064.5(b).). The limited possibility of such an adverse change to a CEQA-defined historic resource would constitute a ***potentially significant*** impact.

**Impact CUL-1: Possible Demolition/Degradation of Historic Resources.** Despite the many safeguards and substantial protections in place in City policies, ordinances and regulations, it is theoretically possible that development

under the DRAFT General Plan Update could result in the material impairment of historic resources that are unknown to the City and likely to have gained significance subsequent to 1955. The limited possibility of such an adverse change to a CEQA-defined historic resource would constitute a ***potentially significant*** impact (see criteria No. 1, listed above in "Significance Criteria.)"

**Mitigation CUL-1:** **Compliance with City of Fremont Historical Resource Protection Policies, Design Guidelines, Regulations and Programs.** Required compliance with the City's extensive set of applicable historical resources protection policies, design guidelines, regulations and programs set forth in the DRAFT General Plan Update, Irvington Concept Plan, Niles Concept Plan, Centerville Specific Plan, Fremont Historic Resources Ordinance, Fremont Register of Historic Resources, and City Zoning Code Historic Overlay District in Niles serves to substantially reduce this potential impact. The policies and implementing measures set forth in DRAFT General Plan Update Goal 4-6, Historic Preservation, also serve to mitigate this impact. In those instances where development projects are proposed which could result in the demolition or material impairment of any structure, building or object constructed prior to 1955, the City must evaluate the application to determine if there is sufficient significance and integrity to merit classification as a Potential Fremont Register Resource or formal designation as a Register Resource (DRAFT General Plan Update Implementation 4-6.1A). Where a structure, building or object has been classified as a Potential Fremont Register Resource or formally identified as a Register Resource, the development proposal must be modified to ensure protection/preservation of those historic resources, consistent with applicable guidelines. Despite these protections, it remains possible that a future project, after going through all applicable processes could result in the demolition of an historical resource, or otherwise cause the significance of the resource to be "materially impaired" (as defined in CEQA Guidelines section 15064.5(b)(2)). This possibility constitutes a ***significant and unavoidable*** impact for CEQA purposes.

As indicated above, although implementation of this mitigation measure would reduce potential impacts to historic resources to a level considered less than significant in most instances, there remains a limited possibility that demolition or substantial material alteration of historic resources could occur, which would represent a ***significant and unavoidable*** impact.

*New Building Construction, Building Alteration and Architectural Context*

The DRAFT General Plan Update identifies various sites where new construction or alterations to existing buildings may take place to achieve DRAFT General Plan Update objectives. Such construction may alter the characteristics that justify a resource's historical significance, and may change the architectural context of nearby historical architectural resources.

Existing City regulations and proposed DRAFT General Plan Update policies are designed to identify and discourage incompatible new construction and inappropriate building alterations. The HARB is empowered by the Historic Resources Ordinance to conduct design review for new construction involving historic resources listed on the Fremont Register. For properties over 50 years of age that are not listed on the Fremont Register, the HARB provides pre-development screening and advisory comments under Fremont Municipal Code Section 8-219115. In considering the appropriateness of modifications or new construction, the HARB assesses a full range of construction and design variables for the subject property (e.g., architectural style, appearance, arrangement, height, texture, materials, color, appurtenances, etc.), as well as the suitability of the proposed work for the subject property's setting.

Section 15065 of the *CEQA Guidelines* mandates a finding of a significant impact if a project would eliminate important examples of major periods of California history or prehistory. In addition, pursuant to Section 15064.5 of the *CEQA Guidelines*, a project could have a significant effect on the environment if it "may cause a substantial adverse change in the significance of an historical resource". A "substantial adverse change" means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is impaired." Material impairment means altering "In an adverse manner those characteristics of an historical resources that convey its historical significance and eligibility for inclusion in the California Register of Historical Resources.

Impacts to historical resources not determined to be significant according to any of the significance criteria described above are not considered significant for the purposes of CEQA. Generally, under CEQA, a project that follows "The Standards" is considered to have mitigated impacts to a historical resource to a level of less than significant (*CEQA Guidelines* 15064.5). Section 15126.4 (b) (2) of the *CEQA Guidelines* notes that in some circumstances, documentation of a historical resource may not mitigate the effects to a level of less than significant.

DRAFT General Plan Update Policy 4-6.2 and Implementation 4-6.2.A (which requires review of any proposed alterations to Register Resources and Potential Register Resources associated with proposed development projects are consistent with the recommended procedures and best practices provided in *The Secretary of Interior Standards for the Treatment of Historic Properties*) would reduce potential impacts associated with alteration of historic resources a level considered ***less than significant***.

Archaeological Resources

**Impact CUL-2: Possible Disturbance of Unidentified Subsurface Archaeological Resources.** Ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction or disturbance of unidentified subsurface archaeological resources, which would represent a ***potentially significant*** impact.

**Mitigation CUL-2: Halt Work/Archaeological Evaluation/Site-Specific Mitigation.** If archaeological resources are uncovered during construction activities, all work within 50 feet of the discovery shall be redirected until a qualified archaeologist can be contacted to evaluate the situation, determine if the deposit qualifies as an archaeological resource, and provide recommendations. If the deposit does not qualify as an archaeological resource, then no further protection or study is necessary. If the deposit does qualify as an archaeological resource, then the impacts to the deposit shall be avoided by project activities. If the deposit cannot be avoided, adverse impacts to the deposit must be mitigated. Mitigation may include, but is not limited to, archaeological data recovery. Upon completion of the archaeologist's assessment, a report should be prepared documenting the methods, findings and recommendations. The report should be submitted to the City, the project proponent and the NWIC.

Implementation of this mitigation measure would reduce the impact to a level considered ***less than significant***.

Paleontological Resources/Unique Geological Resources

**Impact CUL-3: Possible Disturbance of Unidentified Subsurface Paleontological Resources.** Although no paleontological resources are currently known to exist in those portions of the City where development would be anticipated under the DRAFT General Plan Update, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction of unidentified subsurface paleontological resources, which would represent a ***potentially significant*** impact.

**Mitigation CUL-3: Halt Work/Paleontological Evaluation/Site-Specific Mitigation.** Should paleontological resources be encountered during construction or site preparation activities, such works shall be halted in the vicinity of the find. A qualified paleontologist shall be contacted to evaluate the nature of the find and determine if mitigation is necessary. All feasible recommendations of the paleontologist shall be implemented.

Mitigation may include, but is not limited to, in-field documentation and recovery of specimen(s), laboratory analysis, the preparation of a report detailing the methods and findings of the investigation, and curation at an appropriate paleontological collection facility.

Implementation of this mitigation measure would reduce the impact to a level considered ***less than significant***.

Human Remains

**Impact CUL-4: Possible Disturbance of Unidentified Human Remains.** Ground-disturbing activities associated with new construction and related underground utility installation could result in the disturbance of unidentified subsurface human remains. Although DRAFT General Plan Policy 4-6.10 would require coordination with representatives of local Native American organizations to ensure protection of Native American resources, the evaluation of human remains which may be uncovered during construction activity would represent a ***potentially significant*** impact.

**Mitigation CUL-4: Halt Work/Coroner's Evaluation/Native American Heritage Consultation/Compliance with Most Likely Descendent Recommendations.** If human remains are encountered during construction activities, all work within 50 feet of the remains should be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and any associated grave goods. The archaeologist shall recover scientifically-valuable information, as appropriate and in accordance with the recommendations of the MLD. Upon completion of the archaeologist's assessment, a report should be prepared documenting methods and results, as well as recommendations regarding the treatment of the human remains and any associated archaeological materials. The report should be submitted to the City, the project proponent and the NWIC.

Implementation of this mitigation measure would reduce the impact to a level considered ***less than significant***.

Cumulative Impacts

Any demolition of historic resources to occur within Fremont following adoption of the DRAFT General Plan Update could be regarded as a cumulative contribution to the on-going loss of historic resources within the Washington Township area, which would be considered a ***significant and unavoidable*** cumulative impact associated with development under the Plan. Effective implementation of the applicable DRAFT General Plan Update policies, implementation actions and mitigation measures identified above would be expected to reduce any potential development-related impacts associated with alteration of historic structures or disturbance of undiscovered archaeological resources, paleontological resources or human remains to a level considered less than significant, which would also reduce any corresponding potential cumulative impact to a level considered ***less than significant***.

# K. AGRICULTURAL RESOURCES

## INTRODUCTION

This section describes existing agricultural resources in Fremont and the policies and regulations applicable to these resources. Potential impacts to agricultural resources resulting from adoption of the DRAFT General Plan Update are described and mitigation measures are provided to address potentially significant impacts, where feasible. Information within this section is derived from maps published by the Farmland Monitoring and Mapping Division of the California Department of Conservation.

## SETTING

The California Department of Conservation (DOC) administers the Farmland Mapping and Monitoring Program (FMMP), California's statewide agricultural land inventory. Four classifications of farmland, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, are considered valuable, and any conversion of land within these categories is typically considered an adverse impact. Other categories of land that are not protected by the DOC include Grazing Land, Urban and Built-Up Land, and Other Land.

Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.

Unique Farmland consists of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California.

Farmland of Statewide Importance is farmland similar to Prime Farmland but with minor shortcomings, such as greater slope or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date. No Farmland of Statewide importance has been formally identified in Fremont.

Farmland of Local Importance holds a different definition within each county in California. According to the DOC, the Alameda County Board of Supervisors has determined that there is no Farmland of Local Importance in Alameda County.

Urban and Built-Up Land is developed property used for residential, commercial, industrial, institutional, recreational, public or other urban uses. This also includes vacant property surrounded on all sides by urban development.

Most development in Fremont has been built on land which was previously used for agriculture, from former Mexican ranchos to field crops and nurseries. There are currently 5,438 acres within Fremont that have been identified by the County of Alameda as being used for "Open Space - Agriculture", or approximately 9.54 percent of the City's total land area (see DRAFT General Plan Update, page 2-6, Table 2-1, Existing Land Use, 2009 [Source: Alameda County Tax Assessor, 2009]). However, much of the land within this classification supports grazing, salt pond and quarries, rather than crops. The largest portion of land in this designation which supports agricultural operations is used for grazing livestock in the hills, and only a very limited amount of land is currently used for field crops or orchards. There are no large-scale commercial agricultural production facilities in the City.

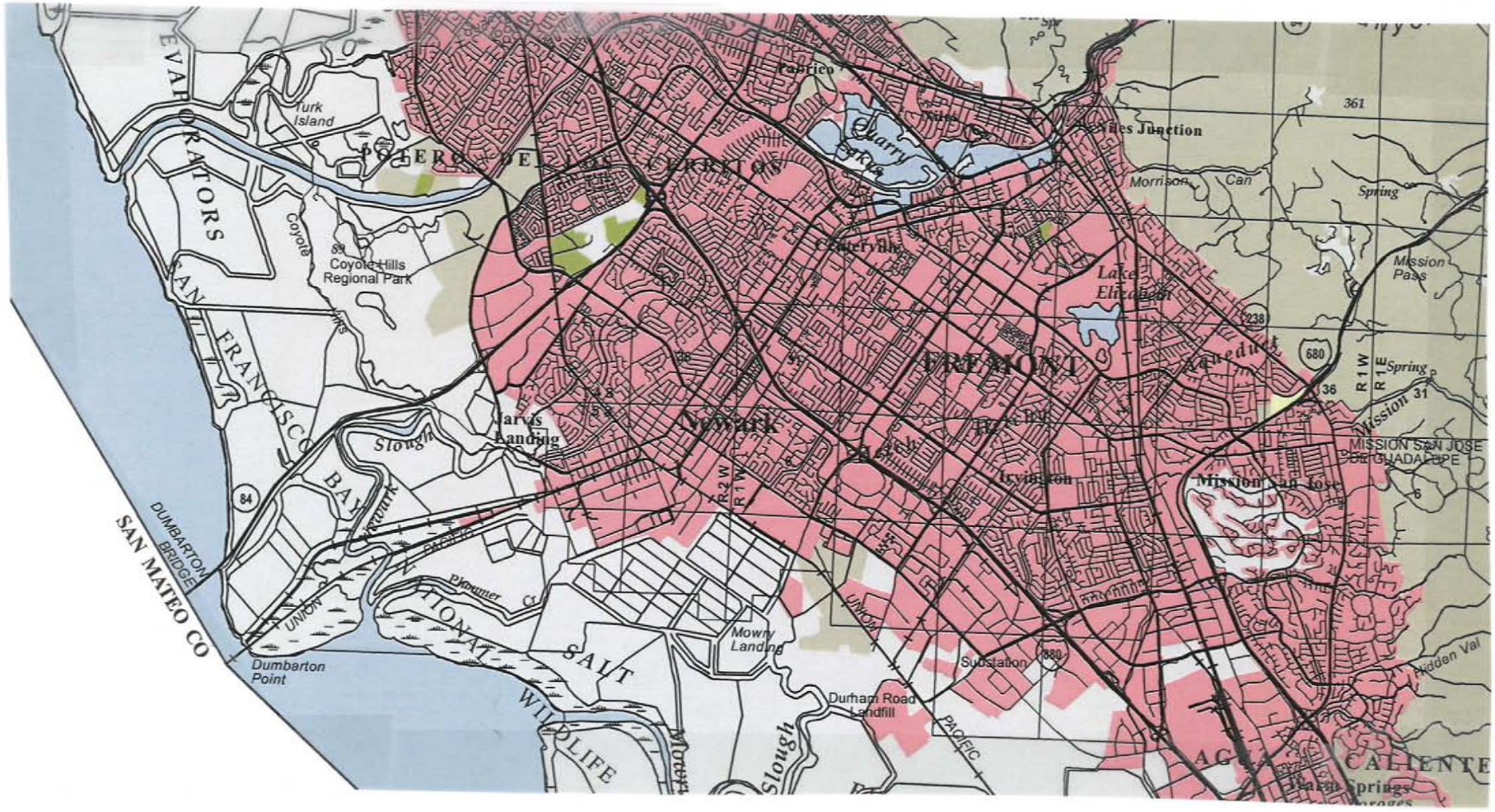
Although the DOC has classified the majority of Fremont as Urban and Built-Up Land, it has also identified several areas of "Prime Farmland" or "Unique Farmland" in Fremont (see **Figure 4.15**). As of 2010 (the most recent FMMP map of the area), a relatively small area of Unique Farmland has been mapped in the Mission San Jose area (adjacent to a smaller area of mapped Grazing Land), a relatively small area of Prime Farmland has been mapped off Walnut Avenue southeast of Lake Elizabeth (the Guardino parcel), and larger areas of Prime Farmland have been mapped on the publicly-owned Ardenwood Historic Farm which is operated by East Bay Regional Park District. Grazing Land is mapped in the Hill Area east of Mission Boulevard and in the Patterson Ranch area.

Regulatory Setting

The current General Plan has designated several areas comprising approximately 976 acres within Fremont as "Open Space, Agriculture". These are remnants of farms/ranches and sensitive biological areas, where limited very low density residential development could be permitted. The two largest areas are located in southern Fremont west of Boyce Road, and a smaller area is located in western Fremont along SR 84 within the Baylands area. None of the areas designated as "Open Space, Agriculture" represent either Prime Farmland or Unique Farmland.

As indicated above, the Guardino parcel (Walnut Avenue and Guardino Street) has been classified as Prime Farmland, and the Mission San Jose parcel has been classified as Unique Farmland on the most recent (2010) FMMP map. However, both of these areas are designated as residential in the current Fremont General Plan, as the City has long-standing plans for residential development on both of those parcels.

**Figure 4.15: Important Farmland in the Fremont Area, 2010**




PRIME FARMLAND | UNIQUE FARMLAND | GRAZING LAND | URBAN AND BUILT-UP LAND | OTHER LAND

(Source: "Alameda County Important Farmland 2010", California Department of Conservation, 2011)

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;

2) Conflict with existing zoning for agricultural use, or a Williamson Act contract; or

3) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g);

4) Result in the loss of forest land or conversion of forest land to non-forest use?

5) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest use.

As there are no forest lands located in Fremont, the CEQA Guidelines' significance thresholds related to the potential loss of forest or timberlands do not apply.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update Policies are intended to reduce potentially adverse agricultural effects that may be associated with future development:

- *Policy 2-6.6: Agriculture.*

- *Policy 2-6.10: Sphere of Influence.*

## IMPACTS AND MITIGATION MEASURES

Existing General Plan Policy LU 4.1 (Agricultural Land Use) is similar to DRAFT General Plan Update Policy 2-6.6 (Agriculture).

Although the DRAFT General Plan Update merges different categories of open space into a single open space designation, all areas currently identified as open space under existing land use regulations would remain under the single proposed open space designation.

Under the DRAFT General Plan Update, the Ardenwood Regional Preserve would be designated as a City Park (similar to the "Institutional Open Space" designation under the current General Plan), which will protect it from future development.

Almost all of the City's remaining agricultural activity is located in the Ardenwood Regional Park Preserve, with grazing in the Hill Area. A small amount of land is farmed in other scattered locations throughout the City in areas long-planned for development (e.g., near the Fremont BART Station), and there are nurseries in other areas which are sometimes considered agricultural uses.

The DRAFT General Plan Update does not designate any areas within Fremont specifically for agricultural use, although Policy 2-6.6 indicates that most agricultural uses will be allowed in the city's open space areas. DRAFT General Plan Update Policy 2-6.2, Land Use Policy 2-6.3, Conservation Policy 7-1.1, Conservation Policy 7-1.3 and Conservation Policy 7-1.4 all protect open space areas.

The DRAFT General Plan Update continues to identify the Guardino parcel at the corner of Walnut Avenue and Guardino Drive and properties along I-680 northeast of Palm Avenue as planned for residential development. Under the DRAFT General Plan Update, the Guardino parcel would be within the new TOD overlay (which would increase its development potential). As indicated above, the City has long-standing plans for residential development on both of those areas.

Conversion of Farmland

**Impact AG-1:** **Conversion of Agricultural Land to Urban Uses.** Implementation of the DRAFT General Plan Update could result in the irrevocable conversion of existing agricultural land currently designated by the California Department of Conservation as "Prime Farmland" (the Guardino parcel) or "Unique Farmland" (I-680/Palm properties) to urban uses. This would represent a ***potentially significant and unavoidable*** impact.

The Guardino parcel is the only site in Fremont which has been identified by the Department of Conservation as "Prime Farmland" that is designated for urban uses under existing land use regulations and under the DRAFT General Plan Update. This parcel is located within a TOD overlay identified in the DRAFT General Plan Update, and the City has longstanding plans for its ultimate residential development, given its location in central Fremont and proximity to public transit. The I-680/Palm properties are the only sites in Fremont which have been identified by the Department of Conservation as "Unique Farmland" that are

designated for urban uses under existing land use regulations and under the DRAFT General Plan Update.

Potential mitigation for conversion of farmland would include rezoning of the properties to open space to limit the development potential of property and ensure its continued availability for use in agricultural production. A second mitigation measure option would be to extract an impact fee for conversion of the land for the purpose or restoring or conserving other lands in the City related to agricultural production. Both of these measures are unlikely to be feasible as the limiting of their development as infill sites within the City would not be consistent with the DRAFT General Plan Update vision and goals for infill development. Additionally, there is no commercial agricultural production in and around Fremont to support the conservation of land through the collection of impact fees. Impact fees would not serve to restore or protect additional lands in the City related to agricultural production.

When residential development of the Guardino parcel actually takes place in the future (resulting in the loss of "Prime Farmland") and when development of the I-680/Palm properties actually takes place in the future (resulting in the loss of "Unique Farmland"), this would represent a ***significant and unavoidable*** impact associated with implementation of the DRAFT General Plan Update.

Conflicts with Existing Agricultural Zoning

Implementation of the DRAFT General Plan Update would not result in any conflict with existing agricultural zoning, since agricultural zoning designations would still be allowed in areas designated Open Space under the DRAFT General Plan Update (***no impact***).

Conflicts with Williamson Act Contracts

Significant acreage in Fremont (largely in the "Hill Face" and "Hill" area east of SR 238, although there is also an isolated parcel located north of SR 84) is currently under Williamson Act contracts as "Non-Prime" agricultural land. Under the DRAFT General Plan Update, these areas are designated "Open Space - Hill Face", "Open Space - Hill", and "Open Space - Resource Conservation/Public" where future urban development is not anticipated. For this reason, it is unlikely that future development in these areas would conflict with any current Williamson Act contracts, and the impact would be considered ***less than significant***.

Cumulative Impacts

Any conversion of land which is currently in agricultural use to non-agricultural uses would contribute to an on-going cumulative loss of agricultural land in Alameda County, which could be considered a ***significant and unavoidable*** cumulative impact associated with implementation of the DRAFT General Plan Update.

# L. BIOLOGICAL RESOURCES

## SETTING

The biological resources within Fremont were determined from a review of previous environmental documentation for the area including the City of Fremont General Plan (1991). Furthermore, a number of other resources were used for this assessment including an online list of federally listed species provided by the U.S. Fish and Wildlife Service (USFWS) Endangered Species Office (USFWS 2011), the California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB) (CDFG 2011), and the California Native Plant Society's (CNPS) Electronic Inventory (CNPS 2011) for the Newark, Niles, and Milpitas, California, U.S. Geological Survey (USGS) 7.5-minute quadrangles.

Fremont contains three distinct physical areas roughly corresponding to topography. These are the Baylands, Bay Plain (or flatlands), and the Hill Area. Each of these areas can be further subdivided into ecological "habitat zones" corresponding to vegetative cover and biotic features. While each habitat zone has been altered by urban development resulting (in some cases) in the conversion to ruderal vegetation cover, each still includes some original habitat characteristics and supports a diversity of plant and animal species.

### Baylands

The Baylands consist of six distinct habitats: 1) open water and sloughs, 2) tidal mudflats, 3) tidal wetlands, 4) saltponds, 5) brackish marsh and 6) Coyote Hills and freshwater marsh. The majority of Fremont's Baylands are incorporated into the San Francisco Bay National Wildlife Refuge, which includes over 18,600 acres of the South Bay, approximately half of which are in the City of Fremont.

*Open Water*. Fremont's city boundaries extend into San Francisco Bay. San Francisco Bay is an important link for migratory birds along the Pacific Flyway. The Bay is habitat for 70 to 100 species of fish, as well as a variety of shellfish, shrimp, crabs and other marine life. Birds such as loons, grebes and cormorants feed in the South Bay's open waters. The open waters found at the mouth of the Alameda Creek Flood Control Channel attract steelhead (sea-run trout) as they move upstream to spawn.

*Tidal Mudflats*. Mudflats provide important feeding areas for shore birds, particularly for the birds that migrate along the Pacific Flyway. Tidal mudflats provide habitat for algae and microscopic plants, as well as over 100 species of invertebrates. Mollusks, such as mussels, clams and snails are common and extremely valuable as food sources to support the diversity of bird species that use the Bay.

*Tidal Wetlands (Salt Marshes)*. The salt marshes of the Baylands, particularly the zones dominated by the plants pickleweed (*Salicornia* spp.) and cordgrass (*Spartina* spp.), support several species listed as endangered or threatened under Federal and State laws.

*Salt Ponds*. Salt ponds have been created in the Baylands of Fremont by the diking of historic tidal flats to allow evaporation of Bay water for salt extraction. Many species of birds feed on the invertebrates found in these highly saline waters. Waterfowl also use the protected waters of these ponds as a refuge from the sometimes turbulent conditions on the open Bay, and some birds nest on the levees and islets formed by dike configuration and distribution.

*Coyote Hills*. The Coyote Hills are an isolated part of the Hill Area which occurs within the Bay Plain. Historically, the area surrounding the Hills was tidal marsh. Currently, most of the former tidal marsh is salt ponds. Coyote Hills and the large Alameda Creek Flood Control Channel are unique features. The diked baylands east of Coyote Hills support the largest remaining willow groves in the Baylands ecosystem, seasonal and diked wetlands, and a permanent freshwater pond. The realignment of Alameda Creek through the northern portion of this segment has dramatically altered the hydrology of the area. The surrounding mudflats are very important foraging areas for shorebirds and the largest population of non-native, invasive smooth cordgrass (*Spartina alterniflora*) in the region.

Bay Plain (Flatlands)

Because of the predominance of urban development, biological resources of the flatlands are generally restricted to parks, preserves, and scattered remaining grasslands. Native species such as California poppies, ground squirrels, and western meadowlarks occur, although the relatively small size and isolation of these undeveloped portions of the flatlands limit their overall diversity and production. Introduced annual grasses are common.

Vernal pools are a special habitat which occurs in some grassland in Fremont. Vernal pools are low depressions which are seasonally inundated during the wet months of the year. Typical vernal pools occur in the Warm Springs area of Fremont, in the transition between flatlands and hills. The rich flora of these pools may provide habitat for rare plant species. Vernal pools historically may have occurred throughout Fremont, particularly the Coyote Hills, but such seasonal wetlands have been significantly reduced because they tend to occur in areas suitable for development, and during the dry portions of the year, it is difficult to identify them.

Lake Elizabeth was created by excavation of a portion of Stivers Lagoon Marsh in 1968. Stivers Lagoon is one of a number of freshwater marshes along the east side of the Hayward Fault. The marsh is primarily fed by Mission Creek and several other creeks, as is part of the Laguna Creek Watershed. Stivers Lagoon provides valuable riparian and forested wildlife habitat. This area contains native plants, such as California black walnut, Fremont cottonwood, various species of willow, and California blackberry. These provide habitat for swallows, warblers, towhees, sparrows, finch, and raptors. Nesting habitat is provided for

great egret, great blue heron, green-backed heron, marsh wren, common yellowthroat, American bittern, and red-winged blackbird.

Lake Elizabeth and associated wetlands and riparian woodland in Central Park attract numerous gulls, geese, and other resident or migratory waterfowl. The aquatic areas in this park system are subject to poor water quality due to siltation and eutrophication. Burrowing owls nest in ground squirrel holes, and are vulnerable to tilling activities which are undertaken around the lake. Burrowing owls are identified as "species of special concern" by the California Department of Fish and Game (CDFG) due to their declining population. Habitat preferred by burrowing owls can be found in other areas within the flatlands where abandoned ground squirrel burrows and extensive short grasses remain undisturbed.

Urban landscaping and agricultural fields in the flatlands support primarily non-native vegetation and wildlife species which are accustomed to human disturbance. Common weeds are black mustard, wild radish and yellow star thistle. Mourning doves, starlings, eastern grey squirrels and western fence lizard are wildlife species which may be found in the vegetated strips of urban or agricultural developments.

Hill Area

The vegetation habitat cover of Hill Area on the eastern side of Fremont is characterized by grassland, shrublands, or woodlands. The grasslands are often used for cattle grazing, and are also a common foraging area for deer and raptors.

Hillslopes vegetated with coyote bush, poison oak, monkey flower, and other brushy species make up the shrubland component in Fremont. Since the brushy profile provides shelter, ground-foraging birds, rodents, skunks and some reptiles are more common in the shrublands than in the grasslands. Fire can be an important element in maintaining open shrubland and grasslands.

Wooded areas occur in the moist and sheltered locations of the hills. Oaks are a very common overstory tree in these woodlands. Other naturally occurring trees are California bay and California buckeye, and these are often joined by planted eucalyptus and redwood stands. Riparian woodlands occur along stream courses in the notches and depressions between hills, especially in Niles and Morrison Canyons. Typical riparian trees in these canyons are willows, big-leaf maple, and western sycamore.

Mill Creek, Mission Creek, Alameda Creek and several smaller stream courses descend from the hills and cross the flatlands to drain into San Francisco Bay. Riparian woodland can be found in the flatlands where urban development and flood control practices have not removed the tangled complex of willows, cottonwoods, and blackberry brambles.

Ruderal-Developed areas

Ruderal communities are assemblages of plants that thrive in disturbed areas, and weedy, non-native annual forbs and grasses are typically the first species to colonize these sites following disturbance. These weedy areas could be a component of any of the native ecological communities in the Baylands, flatlands, or hill locations. Typical ruderal species include ripgut brome (*Bromus diandrus*), filaree (*Erodium* sp.), black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), shepherd's purse (*Capsella bursa-pastoris*), and yellow star-thistle (*Centaurea solstitialis*). Several wildlife species are typically associated with ruderal habitats including western fence lizard, California ground squirrel, house mouse, nesting Western meadowlark, and foraging finches, sparrows, and blackbirds. In addition, loggerhead shrikes and raptors such as red-tailed hawk, white-tailed kites, and Northern harriers forage in these areas. Common ravens, American crow, turkey vulture, raccoon, and striped skunks are common, as well as the ubiquitous gulls, including California gulls, herring gulls, ring-billed gull, Western gulls, and others. European starlings, Brewer's blackbirds, red-winged blackbirds, and brown-headed cowbirds forage in and around landfills.

Developed areas, although largely vegetated with landscape or ornamental plants, offer some limited wildlife habitat areas in Fremont. Bare ground, hardscape, asphalt areas, compacted gravel, and other such areas around building structures and urban land use areas are often planted with such trees as eucalyptus (*Eucalyptus* sp.), alder (*Alnus* sp.), Monterey pine and other typical urban-adapted trees. Few wildlife species can tolerate the intensive disturbance that occurs within developed areas, but some bird species nest in and around urban structures. These include the native house finch, mourning dove, barn swallow, cliff swallow, and black phoebe, along with non-native European starling, rock pigeon, and house sparrow. Western fence lizards occur in the developed portions, as do mammals such as the black-tailed hare and introduced Norway rats. Other introduced species that commonly occur within developed habitats include house mice, and, where more cover exists, feral cats, Virginia opossums, and striped skunks.

Plant species present vary with topography, disturbance, and flooding-tolerance. Grassland species present in the ruderal habitat include Italian ryegrass (*Lolium multiflorum*), wild oats (*Avena fatua*), Mediterranean barley (*Hordeum marianum* ssp. *gussoneanum*), ripgut brome, saltgrass, and foxtail barley (*Hordeum jubatum*). Ruderal species dominating this habitat include black mustard, field mustard (*Brassica rapa*),purple vetch (*Vicia benghalensis*), curly dock (*Rumex crispus*), wild radish, bull thistle *(Cirsium vulgare*), and charlock (*Synapsis arvensis*).

Special-Status Species

Special-status plant and animal species are those that are afforded special recognition by federal, state, or local resource agencies or organizations. Special-status species are of

relatively limited distribution and generally require specialized habitat conditions. Special-status species are defined as:

- Listed, proposed, or candidate for listing under the state or federal Endangered Species Acts;
- Protected under other regulations (e.g., local policies, Migratory Bird Treaty Act);
- California Department of Fish Game's Species of Special Concern and California Fully Protected Species;
- Listed as species of concern (List 1A , 1B, or 2 plants) by California Native Plant Society; or
- Species that receive consideration during environmental review under CEQA.

The potential for special-status species to occur within Fremont was evaluated by querying the California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) databases for previously recorded occurrences of special-status species within the Newark, Niles, and Milpitas, USGS 7.5 minute quadrangles (**Appendix E**).

The California Department of Fish and Game (CDFG) maintain records for the distribution and known occurrences of sensitive species and habitats in the CNDDB. The CNDDB is organized into map areas based on 7.5-minute topographic maps produced by USGS. The CNDDB is based on actual recorded occurrences, but does not constitute an exhaustive inventory of every resource. The absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from that area, but rather that no data has been entered into the CNDDB inventory. Detailed field surveys are generally required to provide a conclusive determination on presence or absence of sensitive resources from a particular location where there is evidence of potential occurrence.

**Appendix E** identifies the special-status species that have potential to be affected by development projects occurring within Fremont. The habitat preferences for each special-status species were carefully reviewed and considered in the context of the physical zones within Fremont. Species having no potential for occurrence are not expected to occur based on the known elevation or distribution range of the species or the lack of suitable habitat.

Twenty-four (24) special-status plant species and forty-six special-status wildlife identified in **Appendix E** have the potential to occur within Fremont. The Fremont area does not contain designated critical habitat for any listed plant or wildlife species.

Regulatory Framework

This section describes the federal and State regulations that provide for protection and management of sensitive biological resources.

*Federal*

The federal laws that regulate the treatment of biological resources include the Endangered Species Act, the Migratory Bird Treaty Act, and the Clean Water Act. The following sections outline the relevant principles of each.

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) is responsible for implementation of the Federal Endangered Species Act (FESA) (16 U.S.C. § 1531 et seq.). The Act protects fish and wildlife species that are listed as threatened or endangered, and their habitats. "Endangered" species, subspecies, or distinct population segments are those that are in danger of extinction through all or a significant portion of their range, and "threatened" species, subspecies, or distinct population segments are likely to become endangered in the near future.

Section 7 of the FESA mandates that all federal agencies consult with the USFWS and NOAA Fisheries do determine if a proposed project could adversely affect a listed species or its habitat. The purpose of consultation with USFWS and NOAA Fisheries is to ensure that the federal agencies' actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for a listed species.

Section 9 of the FESA prohibits the take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. "Take" is defined as an action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing.

Under Section 9 of the FESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and possession, or malicious damage or destruction, of any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species, and species that are proposed or under petition for listing, receive no protection under Section 9.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.) governs the taking, killing, possession, transportation and importation of migratory birds and their eggs, parts and nests. Moreover, the MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, of any migratory bird and their eggs, parts and nests, except as authorized under a valid permit (50 CFR 21.11).

### Federal Clean Water Act

The Federal Clean Water Act (FCWA) is administered by the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). The USACE is responsible for regulating the discharge of fill material into waters of the United States, including lakes, rivers, and streams and their tributaries, as well as wetlands. Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances support a prevalence of vegetation typically adapted for life in saturated soil conditions."

The discharge of dredged or fill material into waters of the United States is subject to permitting under Section 404 (Discharges of Dredge or Fill Material). Section 401 (Certification) specifies additional requirements for permit review, particularly at the State level. Project proponents must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed action. USACE permits must be certified by the State Water Resources Control Board (SWRCB) in order to be valid. Thus, certification from the SWRCB should be requested at the same time an application is filed with the USACE.

Certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB) is also required when a proposed activity may result in discharge into navigable waters, pursuant to Section 401 of the Clean Water Act and EPA 404(b) (1) Guidelines.

#### *State*

The most relevant State laws regulating biological resources are the California Endangered Species Act, the California Fish and Game Code, and the California Native Plant Protection Act, each of which is described below.

### California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) establishes state policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a species that is on the federal and State lists, compliance with FESA satisfies CESA if the California Department of Fish and Game (CDFG) determines that the federal incidental take authorization is consistent with CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species that is only State-listed, the project proponent must apply for a take permit under Section 2081(b).

California Fish and Game Code

Under the California Fish and Game Code, the CDFG provides protection from "take" for a variety of species. The CDFG also protects streams, water bodies and riparian corridors through the Streambed Alteration Agreement process under Section 1601 to 1606 of the California Fish and Game Code. The Fish and Game Code stipulates that it is "unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake" without notifying the Department, incorporating necessary mitigation and obtaining a Streambed Alteration Agreement. CDFG's jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 prohibits importation of rare and endangered plants into California, "take" of rare and endangered plants and sale of rare and endangered plants. CESA defers to the California Native Plant Protection Act, which ensures that state-listed plant species are protected when State agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but rather under CEQA.

*Local*

City of Fremont Tree Preservation Ordinance

The City of Fremont Tree-Removal Controls (Fremont Municipal Code, Sec. 4-5101) serve to protect all trees having a trunk diameter of 6 inches or greater at a height measured 4 ½ feet above the natural grade of slope, growing within the city limits. The ordinance protects all trees other than commercial nut and fruit bearing trees, except black walnut and olive trees, or any tree located on a lot or parcel of land which is less than ten thousand square feet in area. A tree-removal permit is required from the City of Fremont for the removal of ordinance-sized trees. The City of Fremont also maintains a list of Landmark Trees (Fremont Municipal Code, Sec. 4-5109) which serves to protect trees having significant girth, height, spread, or is of some unique quality or species. It is unlawful to vandalize, mutilate, remove, or destroy landmark and ordinance trees. In addition, the City of Fremont requires, prior to the issuance of any approval or permit for construction of any improvement of the project site, that all trees on a project site be inventoried and categorized in a Tree Location Plan according to size, species, and spot elevation at the base of each tree (Fremont Municipal Code, Sec. 4-5107).

Existing General Plan Policies

Various existing General Plan objectives and principles provide for the protection, careful use, or enhancement of biological resources. The existing General Plan states that significant, rare or endangered plant and animal species and habitat; and woodlands, marshes and

streams in their natural stale should be protected and preserved. Protection is recommended for the "intrinsic variety and complexity of local ecological systems." Another objective is "to preserve selected areas of flora and fauna for their ecologic, biotic, research and educational values." The Open Space Element encourages public access into important wildlife habitats if such habitat will not be damaged.

Policies support protection and preservation of the Baylands and wildlife habitat associated with San Francisco Bay. Area policies for the Baylands (which take precedence over more general policies) provide that most of the Baylands should be retained for open space and recreation and native wildlife habitats should be preserved. Existing Natural Resources policies also prohibit filling, or other activities which reduce tidal circulation of the Baylands, except for minimal filling for open space and recreational uses.

Policies regarding the hill area provide for protection and enhancement of creeks, canyons, wooded areas, and natural vegetation. Mill Creek Canyon is specifically recommended for preservation as a scenic and recreational resource.

Hill Area Initiative of 2002

The Hill Area Initiative of 2002 (Measure T) was approved by the voters with the purpose of protecting the character and quality of the Fremont Hills. The initiative applies to all lands within Fremont located above the Toe of the Hill to the eastern city limits, and also applies to the lands immediately east of Fremont to Calaveras Creek. The Initiative severely regulates parcel size and creation, and density limits in an effort to compatible with the hillside. It also protects areas of special environmental concern including riparian and creek areas, critical wildlife habitat, steep slopes and ridgelines and hilltops. The initiative and associated policies and provisions have helped regulate development in the Fremont hills and preserve biological resources in this sensitive area.

Habitat Restoration Efforts

The City of Fremont actively supports other agencies in restoration efforts of sensitive habitats and wetland areas. The Pacific Commons development project recently completed a large donation of land for habitat restoration and preservation. Other large parcels in the Baylands portion of Fremont are used for restoration. However, the largest restoration effort currently underway is the South Bay Restoration Project.

The State of California and the Federal government have embarked on the restoration of 15,100 acres of Cargill’s former salt ponds in South San Francisco Bay. Acquisition of these ponds by large governmental agencies provides an opportunity for landscape-level wetlands restoration, improving the physical, chemical, and biological health of the Bay.

The South Bay Salt Pond Restoration Project is integrating restoration with flood management, while also providing for public access, wildlife-oriented recreation, and

education opportunities. The Project is restoring and enhancing a variety of wetlands, creating a vibrant ecosystem. Restored tidal marshes will provide critical habitat for the endangered California clapper rail and the salt marsh harvest mouse. Large marsh areas with extensive channel systems will also provide habitat for fish and other aquatic life and haul out areas for harbor seals. In addition, the restored tidal marshes will help filter out and eliminate pollutants. Many of the ponds will remain as managed ponds and be enhanced to maximize their use as feeding and resting habitat for migratory shorebirds and waterfowl.

Flood management is integrated with restoration planning to ensure flood protection for local communities such as Fremont, Newark and Union City. Where feasible, flood capacities of local creeks, flood control channels and rivers will be increased by widening the mouths of the waterways and reestablishing connections to historical flood plains. As ponds are opened to the tide, levees between the newly created tidal marsh and local communities will be built or enhanced to provide flood protection.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

To determine the level of significance of an identified impact, the criteria outlines in the CEQA Guidelines were used. CEQA (Section 15065) directs lead agencies to find that a project may have a significant effect on the environment if it has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered and rare or threatened species.

CEQA (Section 15206) further specifies that a project shall be deemed to be of statewide, regional, or area-wide significance if it would substantially affect sensitive wildlife habitats, including, but not limited to riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species.

CEQA (Section 15380) further provides that a plant or animal species, even if not on one of the official lists, may be treated as "rare or endangered" if, for example, it is likely to become endangered in the foreseeable future.

Additional criteria to assess significant impacts to biological resources due to implementation of the DRAFT General Plan Update are specified in the CEQA Guidelines Section 15382 (Significant Effect on the Environment) "… a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance".

Based on the Environmental Checklist in Appendix G of the CEQA Guidelines, the DRAFT General Plan Update would result in significant impacts on biological resources if it would:

1) Have a substantial adverse effect, either directly or through habitat modifications, on a plant or animal population, or essential habitat, defined as a candidate, sensitive or special status species;

2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community type, such as native grasslands;

3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

4) Have a substantial interference with the movement of any native resident or migratory fish or wildlife species, their wildlife corridors, or native nursery sites;

5) Conflict with any local policies or ordinances protecting biological resources; or

6) Conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies and actions are intended to reduce potentially adverse effects related to biological resources that may be associated with future development:

*Policy 7-1.1: Preservation of Natural Habitat.*

- *Implementation 7-1.1.A: Environmental Review Process for Preservation.*
- *Implementation 7-1.1.B: Limit Development near Bodies of Water.*
- *Implementation 7-1.1.C: Control Measures to Limit Soil Erosion.*
- *Implementation 7-1.1.D: Conservation of Habitat Areas.*

*Policy 7-1.2: Protection of Species.*

- *Implementation 7-1.2.A: Creation of Habitat Protection Areas.*
- *Implementation 7-1.2.B: Weed Abatement.*
- *Implementation 7-1.2.C: Limit Development in Habitat Protection Areas.*

- *Implementation 7-1.2.D: Mitigation of Special Status Species.*

*Policy 7-1.3: Preservation of Hill Areas.*

- *Implementation 7-1.3.A: Hillside Initiatives.*

*Policy 7-1.5: Promotion of Interagency Coordination.*

- *Implementation 7-1.5.A: Maximizing Use of Public Lands.*
- *Implementation 7-1.5.B: Preparation of Habitat Conservation Plans.*
- *Implementation 7-1.5.C: Preservation of Wetlands in Creek and Flood Areas.*

*Policy 7-1.7: Mitigate Development Impacts.*

- *Implementation 7-1.7.A: Evaluate Projects with CEQA.*

*Policy 7-1.8: Healthy Tree Resources.*

- *Implementation 7-1.8.1: Tree Master Plan.*
- *Implementation 7-1.8.2: Monitor Tree Resources.*
- *Implementation 7-1.8.3: Residential Tree Planting Program.*
- *Implementation 7-1.8.4: Tree Preservation Ordinance.*
- *Implementation 7-1.8.5: Tree Removal Requests.*
- *Implementation 7-1.8.6: Encourage Planting of Native Trees.*
- *Implementation 7-1.8.7: Landmark Tree Program.*

*Policy 7-2.1: Preservation of Water Resources.*

- *Implementation 7-2.1.A: Development near Riparian Areas.*
- *Implementation 7-2.1.B: Creek Master Plans.*
- *Implementation 7-2.1.C: Preserve Locations Providing Water Quality Benefits.*

*Policy 7-2.2: Low-Impact Hill Area Development.*

- *Implementation 7-2.2.A: Enforce the Hill Area Initiative of 2002 (Measure T).*

*Policy 7-5.4: Preservation of Former Extraction Areas.*

- *Implementation 7-5.4.A: Habitat Conversion as Part of Rehabilitation Plans.*
- *Implementation 7-5.4.B: Donation of Former Mineral Resource Extraction Areas.*

*Policy 11-1.1: Conservation and Restoration of Baylands Habitat.*

*Policy 11-1.6: Durham Road Landfill Reclamation.*

*Policy 11-2.8: Environmental Compatibility.*

*Policy 11-5.13: Environmental Assessments for Hill Area Projects.*

*Policy 11-5.18: Design Sensitivity to Natural Features.*

*Policy 11-7.12: Creek Restoration and Access.*

## IMPACTS AND MITIGATION MEASURES

Given the disturbed and developed nature of the Fremont area and surrounding vicinity, impacts to biological resources are expected to be minimal, as there is a low likelihood of special-status plant or wildlife species occurrence within developable portions of Fremont.

Special-Status Species

Land uses and development consistent with the DRAFT General Plan Update could result in the loss of populations or essential habitat for special-status plant and animal species. This would be considered a *potentially significant* impact.

Land use and development consistent with the DRAFT General Plan Update could result in adverse impacts on special-status species or essential habitat for special-status species in Fremont. As indicated in **Appendix E,** numerous occurrences of special-status plants and animals are known to occur within or near Fremont. Any development within areas that are currently undeveloped, especially larger tracts of land connected to waterways or open space areas designated as Open Space (Hill, Hill Face, Resource Conservation/Public, and Private) the Land Use - Planned Land Use Map (DRAFT General Plan Update), could result in impacts to habitat resources that may support special-status species. Construction of future projects could result in direct take of habitat and loss of individuals of these species. Where there are direct impacts to special-status species, indirect impacts would occur as well. Indirect impacts include increased human/wildlife interactions, habitat fragmentation, and encroachment by exotic weeds, and area-wide changes in surface water flows due to development of previously undeveloped areas. These impacts would be considered ***potentially significant.***

The actual land areas ultimately impacted would be based on future development design proposals, and would be subject to the application of DRAFT General Plan Update policies that address protection of biological resources, as well as possible further review on a project-by-project basis. These policies and possible further review are expected to reduce impacts.

Further environmental review of each development proposal would be necessary, depending on whether the potential environmental impacts of future proposed projects within Fremont have the potential to cause one or more direct or reasonably foreseeable indirect physical changes in the environment that have not been addressed through the implementation of the planning process. This DRAFT EIR is a programmatic analysis of the broad environmental effects associated with development which may take place under the DRAFT General Plan Update. Goals, policies, and action items contained within the DRAFT General Plan Update would apply to all future improvement plans within Fremont. Future development projects that have the potential to cause a direct or reasonably foreseeable indirect physical change in the environment will undergo additional, project-specific CEQA-review, as required by statute. Those future projects will also be subject to the federal Endangered Species Act and the California Endangered Species Act, as appropriate.

The following applicable DRAFT General Plan Update policies and implementation actions proposed in the Conservation Element would assist in reducing any potential biological impacts to special-status species:

Policy 7-1.1: Preservation of Natural Habitat

- Implementation 7-1.1.A: Environmental Review Process for Preservation
- Implementation 7-1.1.B: Limit Development near Bodies of Water

Policy 7-1.2: Protection of Species

- Implementation 7-1.2.A: Creation of Habitat Protection Areas
- Implementation 7-1.2.C: Limit Development in Habitat Protection Areas
- Implementation 7-1.2.D: Mitigation of Special Status Species

Policy 7-1.3: Preservation of Hill Areas

- Implementation 7-1.3.A: Hillside Initiatives

Policy 7-1.5: Promotion of Interagency Coordination

- Implementation 7-1.5.B: Preparation of Habitat Conservation Plans

Policy 7-1.7: Mitigate Development Impacts

- Implementation 7-1.7.A: Evaluate Projects with CEQA
- Implementation 7-5.4.A: Habitat Conversion as Part of Rehabilitation Plans

While implementation of the above DRAFT General Plan Update policies would only partially reduce and/or avoid direct and indirect impacts to special-status species within Fremont, environmental review as described above will ensure that adequate mitigation measures will be identified for future projects that will help to further reduce/minimize impacts to special-status species and loss of sensitive habitats supporting these species. Therefore, implementation of the DRAFT General Plan Update would reduce potential impacts to special-status species to a level considered ***less than significant.***

Sensitive Natural Communities, Including Waters of the U.S.

Land uses and development anticipated under the DRAFT General Plan Update could result in the loss of riparian habitat or other sensitive natural communities. This would be considered a ***potentially significant*** impact.

Implementation of the DRAFT General Plan Update could result in disturbance, degradation, and removal of annual grassland and oak woodland. Remnant riparian habitats (if present), drainages, and wetlands (vernal pools) within these communities may be impacted by the future development. Riparian habitat and waters of the U.S. or the State, including wetlands and isolated vernal pools, are considered to be sensitive natural communities by CDFG. Therefore, disturbance and loss of these features would be considered ***potentially significant***.

Riparian habitat in the hill and hill sides support a high diversity of wildlife species and provide shade for streams, maintaining stream temperatures and reducing stream evaporation. Riparian obligates (those species dependent on riparian habitat) often benefit from setbacks where development is prohibited. The benefits of riparian corridor buffers increase if they are adjacent to larger tracts of conserved land.

Jurisdictional waters of the U.S. and the State, including vernal pools in grassland areas, provide for a variety of functions for plants and wildlife within Fremont. Jurisdictional waters provide habitat, foraging, cover, migration and movement corridors, and water sources for both special-status and other species. In addition to habitat functions, jurisdictional waters provide physical conveyance of surface water flows as well as channels for the handling of large stormwater events. Large storms can produce extreme flows that cause bank cutting and sedimentation of ephemeral drainage and water bodies such as open water and streams in Fremont. Jurisdictional waters found within Fremont can slow these flows and lessen the effects of these large storm events, protecting habitat and other resources.

The following applicable DRAFT General Plan Update policies and implementation programs proposed in the Conservation Element would assist in reducing any potential biological impacts to sensitive natural communities:

- Implementation 7-1.1.C: Control Measures to Limit Soil Erosion
- Implementation 7-1.5.C: Preservation of Wetlands in Creek and Flood Areas

Policy 7-2.1: Preservation of Water Resources

- Implementation 7-2.1.A: Development near Riparian Areas
- Implementation 7-2.1.B: Creek Master Plans
- Implementation 7-2.1.C: Preserve Locations Providing Water Quality Benefits

Policy 7-2.2: Low-Impact Hill Area Development

- Implementation 7-2.2.A: Enforce the Hill Area Initiative of 2002 (Measure T)

While implementation of the above DRAFT General Plan Update policies and implementation actions would partially reduce and/or avoid direct and indirect impacts to riparian habitat or other sensitive natural communities, environmental review as described above would ensure that adequate mitigation measures will be identified for future projects that will help to further reduce/minimize impacts to sensitive habitat acreage, values, and function. Therefore, implementation of the DRAFT General Plan Update would reduce impacts to riparian habitat or other sensitive natural communities, including waters of the U.S. and the State, to a level considered ***less than significant***.

Wildlife Corridors

Land uses and development anticipated under the DRAFT General Plan Update could restrict aquatic or terrestrial wildlife movement through travel corridors. This would be considered a ***potentially significant*** impact.

Fremont's boundaries extend into San Francisco Bay, an important link for migratory birds along the Pacific Flyway. Migratory birds may use the riparian corridors and other natural habitats within Fremont during migration. Furthermore, open space provides an opportunity for dispersal and migration of wildlife species. The primary travel corridors available in Fremont include the riparian habitats which provide adequate cover and vegetation to be used as a migratory corridor for common and special-status fish and wildlife species. Development under the DRAFT General Plan Update may result in disturbance, degradation, and removal of important corridors for the movement of common and special-status wildlife species. This would be considered a ***potentially significant*** impact.

The following applicable DRAFT General Plan Update policy implementation proposed in the Conservation Element would assist in reducing any potential wildlife corridor impacts:

- Implementation 7-1.1.D: Conservation of Habitat Areas

The DRAFT General Plan Update policies and implementation measures identified above would mitigate impacts to wildlife movement corridors and would, therefore, reduce potential impacts to wildlife travel corridors to a level considered ***less than significant***. No additional mitigation is required.

Conflict with Local Policies or Ordinances

The proposed DRAFT General Plan Update would update policies and implementation measures regarding biological resources, particularly those related to riparian corridors, wetlands, special-status species, sensitive natural communities, and wildlife movement corridors. In addition, the following applicable DRAFT General Plan Update policy and implementation actions proposed in the Conservation Element would be consistent with the intent of the City of Fremont Tree-Removal Controls (Fremont Municipal Code, Sec. 4-5101:

Policy 7-1.8: Healthy Tree Resources

- Implementation 7-1.8.1: Tree Master Plan
- Implementation 7-1.8.2: Monitor Tree Resources
- Implementation 7-1.8.3: Residential Tree Planting Program
- Implementation 7-1.8.4: Tree Preservation Ordinance
- Implementation 7-1.8.5: Tree Removal Requests
- Implementation 7-1.8.6: Encourage Planting of Native Trees
- Implementation 7-1.8.7: Landmark Tree Program

The policies and implementation measures contained within the DRAFT General Plan Update would not conflict with existing City policies and ordinances (***no impact***).

Conflict with Adopted Habitat or Natural Community Conservation Plans

Land uses and development anticipated under the DRAFT General Plan Update would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. The City of Fremont is near (but not within) the proposed Santa Clara Valley Habitat Conservation Plan area.

The vast majority of the City of Fremont's Baylands are incorporated in the San Francisco Bay National Wildlife Refuge, the largest urban wildlife refuge in the United States. However, implementation measures identified in the DRAFT General Plan Update would minimize potential conflicts with habitat or natural community conservation and wildlife management plans.

The following DRAFT General Plan Update policies and implementation measures would specifically reduce or avoid conflicts with any future habitat or natural community conservation plans, reducing potential impacts to a level considered ***less than significant***:

- Implementation 7-1.1.D: Conservation of Habitat Areas
- Implementation 7-1.2.A: Creation of Habitat Protection Areas

Policy 7-1.5: Promotion of Interagency Coordination

- Implementation 7-1.5.A: Maximizing Use of Public Lands
- Implementation 7-1.5.B: Preparation of Habitat Conservation Plans

Policy 7-5.4: Preservation of Former Extraction Areas

- Implementation 7-5.4.B: Donation of Former Mineral Resource Extraction Areas

Cumulative Impacts

The City of Fremont has urban development (e.g., residential, commercial and industrial uses) to the north and south in the cities of Union City and Milpitas. It also has urban development to the west in the City of Newark, an enclave along the west central side of the City. Open space and grazing areas are present in the East Bay Hills to the east, and extensive wetlands are present along the margins of San Francisco Bay to the west. The DRAFT General Plan Update continues the open space preservation policies of two voter-approved hill initiatives known as Measures "A" and Measure "T."

Approved, planned, proposed, and reasonably foreseeable projects, existing land use conditions and planned development under the DRAFT General Plan Update, and planned and proposed land uses and development patterns in communities near the City have the potential to adversely affect the biological resources in the region and could contribute to the loss of potential habitat within the region. Future developments would require on- and off-site improvements to provide water, wastewater, storm drainage, solid waste disposal, and other such services at the City's required level of service. Anticipated development, public projects, and related improvements could contribute to the loss of potential habitat within the region.

On a cumulative level, the land uses may contribute to a loss of potential habitat for special-status species that currently inhabit the area or could inhabit the area in the future. In addition to potential direct impacts on biological resources from project implementation, the increased human presence would be anticipated to cause potential indirect impacts. These could disturb breeding and foraging behavior of wildlife, and if so may result in a ***significant and unavoidable cumulative*** impact. Planned urbanization of the Fremont area would create new sources of light and glare. While project-specific measures would be undertaken to orient or shield lights to minimize illumination of adjacent lands, the combined effect of all new developments approved or planned in the area may create a ***significant and unavoidable cumulative*** impact associated with increased human presence.

Planned, proposed and foreseeable projects covered under the DRAFT General Plan Update, in combination with other reasonably foreseeable projects in adjacent cities and unincorporated County areas, could result in direct mortality and loss of habitat for special-status species and waters of the U.S and State, including wetlands. This would be a ***potentially significant cumulative*** impact.

Many biological communities within the Fremont area and the region are critically important for the protection of several sensitive species. Development under the DRAFT General Plan Update may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development within surrounding areas, may result in significant cumulative impacts. Future development within the City of Fremont and the surrounding vicinity would have an unknown and unquantifiable impact on special-status species, biologically sensitive habitats, and potentially jurisdictional features (wetlands and waters of the U.S. and State). The loss of wetlands and other waters within Fremont would result in a decline in water quality condition, which may result in adverse effects to downstream aquatic resources and riparian habitat. Furthermore, increased development and disturbance created by human activities (e.g., fires, increased nighttime lighting) would result in direct mortality, habitat loss, and deterioration of habitat suitability. These impacts are considered cumulatively considerable.

Implementation of the DRAFT General Plan Update policies and implementation measures will reduce the development-related impacts to these resources to a level considered ***less than significant*** through either resource avoidance or replacement measures. Therefore, the cumulative contribution to impacts on these resources associated with implementation of the DRAFT General Plan Update would be considered ***less than cumulatively considerable*** for a ***less than significant cumulative*** impact.

# M. MINERAL RESOURCES

## SETTING

The City of Fremont has identified mineral resources within its city limits. There are six sectors designated by the State Mining and Geology Board as containing regionally significant aggregate resources. Sectors H, I, and LL are in the East Hills area adjacent to public park lands and regional preserves. Sector K is west of I-880 in a designated industrial area adjacent to the San Francisco Bay National Wildlife Refuge. A large portion of Sector K has been designated as seasonal wetlands under the jurisdiction of the U.S. Army Corps of Engineers. Sector L is on five parcels in northwestern Fremont over the area known as the Niles Cone, the aquifer complex that provides much of the area's drinking water. Sector M is the former Dumbarton Quarry on the west side of Fremont, covering approximately 91 acres adjacent to Coyote Hills Regional Park on the north and the Dumbarton Bridge on the south. The site operated as a crushed rock aggregate quarry for 40 years until its closure in 2007, and is planned to be deeded to the East Bay Regional Park District for inclusion in the Coyote Hills Regional Park.[75]

Salt concentration ponds occupy about 8,800 acres in Fremont along the margins of the San Francisco Bay.[76] The salt concentration ponds also provide an important wildlife habitat for shorebirds and other wildlife. Many of the salt ponds in Fremont are included in the Don Edwards San Francisco Bay Wildlife Refuge, which allows salt production on its land. In October 2000, Cargill Salt, owner and operator of most of the salt concentration ponds in the Southern San Francisco Bay, proposed to consolidate its operations and sell 61 percent of its South Bay operation area. In 2003, Cargill sold the ponds to the U.S. Fish and Wildlife Service and the California Department of Fish and Game. This area of 15,100 acres includes portions of Fremont in the southwest, along its border with Milpitas and Alviso. This area is the site of the South Bay Salt Pond Restoration Project. Over the past century and a half, the San Francisco Bay has lost up to 90 percent of its original tidal wetlands. This project intends to re-establish much of these lost wetlands. In March 2006, 479 acres of ponds (ponds A19, A20, and A21) along the southern city limits were restored to full tidal inundation, initiating the project.[77] While salt production will continue in Fremont, this project will seek to balance

[75] Fremont Planning Commission Meeting Agenda and Minutes, February 12, 2004, Obtained from http://www.ci.fremont.ca.us/CityHall/PlanningMeetings/040212PlanningAgendas.htm

[76] Fremont General Plan 2001 Update Environmental Impact Report, Geology, Soils and Seismicity Section

[77] EDAW, South Bay Salt Pond Restoration Project Environmental Impact Statement/Report – Executive Summary, December, 2007, obtained from http://www.southbayrestoration.org/EIR/

that need with a plan to restore and enhance a mixture of wetland habitats, provide for flood management, and provide wildlife-oriented public access and recreation opportunities.[78]

One clay pit, located at the terminus of Old Canyon Road in the northeast corner of Fremont, was in operation for some years and is now idle. The Fremont Planning Commission approved the final reclamation and grading plans on December 8, 2005. The intent of the final reclamation plan is to re-grade to conform to the surrounding topography and re-vegetate the former quarry to an end use of open space[79].

Fremont also contains two mineral hot springs, and large quantities of limestone deposits are found under the city. No mineral or energy value has been identified for the hot springs, but significant land use modifications in their vicinity would require a full evaluation. Limestone resource development is highly constrained by the presence of the Don Edwards San Francisco Bay National Wildlife Refuge and by water quality protection issues. Extensive analysis would be required by the City prior to expanding existing permits or issuing new quarrying permits.

Each of the construction aggregate sectors in the city is constrained by one or more environmental issues, including visual/aesthetic resources, water quality, park/public facilities, seasonal wetlands, historic or cultural sites and groundwater resources. The City has not categorically excluded mineral resource development in theses sectors, but would review any proposal for resource extraction, recognizing the severe constraints from pre-existing potentially incompatible uses.

## Regulatory Setting

### *Surface Mining and Reclamation Act of 1975 (SMARA)*

SMARA is an acronym for the Surface Mining and Reclamation Act of 1975, which was enacted by the State legislature to address the need for a continuing supply of mineral resources, and to prevent or minimize the negative impacts of surface mining to public health, property and the environment. The Department of Conservation's Office of Mine Reclamation (OMR) and the State Mining and Geology Board (SMGB) are jointly charged with administering the Act's requirements. The SMGB publishes regulations to clarify and interpret the Act's provisions, and also serves as a policy and appeals board. The OMR provides ongoing technical assistance to lead agencies and mine operators, maintains a database of mine locations and operational information statewide, and is responsible for compliance-related matters.

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[78] South Bay Salt Pond Restoration Project Description, obtained from http://www.southbayrestoration.org/Project_Description.html

[79] Fremont Planning Commission Meeting Agenda and Minutes, December 8, 2005. Obtained from http://www.ci.fremont.ca.us/CityHall/PlanningMeetings/051208PlanningAgenda.htm#clayprod

The process of reclamation includes maintaining water and air quality, minimizing flooding, erosion and damage to wildlife and aquatic habitat caused by surface mining. The final step in this process is often topsoil replacement and re-vegetation with suitable plant species.

The Act's requirements apply to anyone, including government agencies, engaged in surface mining operations in California (including those on federally-managed lands) which disturb more than one acre or remove more than 1,000 cubic yards of material. This includes, but is not limited to: prospecting and exploratory activities, dredging and quarrying, streambed skimming, borrow pitting, and the stockpiling of mined materials.

*California Department of Conservation Office of Mine Reclamation (OMR)*

OMR was created in 1991 to administer the Surface Mining and Reclamation Act of 1975. Their primary purpose is to provide assistance to cities, counties, state agencies and mine operators for reclamation planning by promoting cost-effective reclamation. OMR strives to reclaim mined lands to a beneficial end-use through the implementation of SMARA, prevent or minimize the adverse environmental effects of mining by providing assistance to lead agencies and miners in the review of reclamation plans, and minimize residual hazards to public health and safety through the Abandoned Mine Lands program.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

2) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies are intended to reduce potentially adverse effects related to mineral resources that may be associated with future development:

- *Policy 7-5.1: Protect Mineral Resources.*
- *Policy 7-5.2: Minimize Impacts of Mineral Resource Extraction on City.*
- *Policy 7-5.3: Mineral Resource Extraction Areas.*

- *Policy 7-5.4: Preservation of Former Extraction Areas.*
- *Policy 11-1.2: Salt Harvesting.*
- *Policy 11-5.13: Environmental Assessments for Hill Area Projects.*

## IMPACTS AND MITIGATION MEASURES

Loss of Availability of Known Mineral Resource

Development under the General Plan Update would not be expected to result in the loss of availability of known mineral resources. Effective implementation of Policy 7-5.1 would reduce the potential for substantive loss of availability of known mineral resources in Fremont to a level considered ***less than significant***.

Loss of Availability of Locally-Important Mineral Resource Recovery Site

Development under the DRAFT General Plan Update would not be expected to result in the loss of availability of any locally-known mineral resource recovery site. Effective implementation of Policy 7-5.1 would reduce the potential for substantive loss of availability of locally-known mineral resource recovery sites in Fremont to a level considered ***less than significant***.

Cumulative Impacts

As DRAFT General Plan Update Policy 7-5.1 would be expected to protect existing mineral resources and locally-important mineral recovery sites from incompatible uses, development anticipated within Fremont would not be expected to add to any cumulative loss of access to existing mineral resources or mineral recovery sites within the region, and any related cumulative impacts would be considered ***less than significant***.

# N. PUBLIC SERVICES

## SETTING

Fire and Emergency Response Services

The Fremont Fire Department is responsible for fire prevention, fire fighting, and emergency medical response. Most Fire Department calls relate to medical emergencies and citizen assistance, with fires representing only about 10 percent of all calls. About 60 percent of the emergency calls are for medical emergencies. The Department is responsible for providing emergency pre-hospital care throughout the city. All members off engine and truck companies are certified emergency medical technicians and at least one member of each company is a paramedic.

The Fremont Fire Department maintains 13 companies and has in 11 permanently built fire stations:

- Fire Station 1: 4200 Mowry
- Fire Station 2: 37299 Niles Boulevard
- Fire Station 3: 40700 Chapel Way
- Fire Station 4: 1000 Pine Street
- Fire Station 5: 55 Hackamore Lane
- Fire Station 6: 4355 Central Avenue
- Fire Station 7: 43600 South Grimmer Boulevard
- Fire Station 8: 35659 Fremont Boulevard
- Fire Station 9: 39609 Stevenson Place
- Fire Station 10: 5001 Deep Creek Road
- Fire Station 11: 47200 Lakeview Boulevard

In 2010, the Fremont Fire Department responded to 12,958 calls for service, including 360 fire incidents and 8,700 EMS/Rescue incidents.

In November 2002, Fremont voters approved Measure R, a fire safety bond for $51,000,000 to replace three fire stations, to seismically retrofit seven fire stations, and to build public safety training centers. This program is nearing completion as of June, 2011.

*Peakload Water Requirements*

The peak load requirement for a given land use varies with the type of development, the degree of fire hazard, and the building occupancy. Requirements range from 1,500 gallons per minute (gpm) for low density residential areas, to 12,000 gpm for commercial and industrial areas. A minimum residual pressure of 20 pounds per square inch (psi) should remain in the system while the required gallons per minute are flowing. The Alameda County Water District periodically runs fire flow tests to verify that water pressure is maintained. If tests show that pressure is substandard, system improvements are required when development is proposed.

The Insurance Service Organization rates all cities for their emergency response capabilities and the availability of peak load water to fight fires. The rating affects insurance costs for private property owners and range from 1 (highest) to 9 (lowest). Fremont has received a rating of 2.

Some portions of Niles do not currently conform to the residual pressure water flow requirements because of inadequately sized water mains. For this reason, the area of Niles east of Niles Boulevard has been designated as a High Fire Hazard Severity Area. New construction is required to meet special standards to mitigate this hazard.

*Fire Prevention*

All proposed development in Fremont is reviewed by the Fire Department to ensure that appropriate measures are taken to minimize fire risks. Projects are reviewed for adequacy of access, design features (setbacks, clearances, etc.) and compliance with code requirements. Access is particularly important to ensure that fire and other emergency apparatus can reach fires, and that people can escape in the event of an emergency. If necessary, the provision of alternative access routes may be required and need to be identified as part of the planning process.

Industrial fires also present special hazards, both to the firefighter and to the community. These fires may include hazardous substances that can be spread off-site into the environment and endanger nearby areas. The City has a Hazardous Incident Team specially trained to assess the type of material involved in an emergency and dispatch the specialized equipment necessary for hazardous materials incident response.

Station #11 has been constructed, but is currently closed due to lack of funding. The Fire Department also participates in the Alameda County Mutual Aid Plan with all other fire agencies within Alameda County. The Alameda County Fire Mutual Aid Plan was

established to provide assistance to a fire jurisdiction responding to emergencies and is implemented when resources have been depleted to the point that additional resources are necessary to provide reasonable protection for the jurisdiction. Fremont also participates in the California Master Mutual Aid Plan that allows a resource request to be filled from an agency outside Alameda County.

*Emergency Response*

The City of Fremont strives to respond as quickly as possible to all emergencies. The City has a currently adopted five minute thirty second response time goal for ninety percent of all emergency calls. (NOTE: The DRAFT General Plan Update Goal 10-5 revises this standard to six minutes and forty seconds.). This standard is based on the rate fire spreads and the length of time a non-breathing person can survive. Response time includes drive time and turn-out time (receipt of alarm, crew readiness, and initiation of travel). The City has also adopted a response time goal for "Concentration", which is the amount of time required to place a full alarm assignment (14 firefighters) on the scene of a structure fire. This goal establishes 14 as the minimum number of firefighters required to carry out all of the critical tasks at a structure fire safely and efficiently. In Fremont, the full assignment goal is currently nine minutes 30 seconds for 90 percent of calls.

Police Protection

The Fremont Police Department has divided the service area into sectors to better meet the response time goal set by the Department (five minutes for emergency calls). Department Headquarters is located at 2000 Stevenson Boulevard. All City police functions are housed within this 67,000 square foot complex, including administration, the crime unit, the traffic unit and neighborhood services. The Fremont Police Detention facility is located to the rear of the Police Station. The number of sworn officers averages 188, yielding a ratio of 0.89 officers per 1,000 citizens.

The Department Headquarters building has the capacity to expand to 80,000 square feet on the same site, and although this expansion is not currently planned, it could take place within the twenty-year planning period.

Schools

Public schools in Fremont are operated by the Fremont Unified School District (FUSD), which is governed by a five-member board elected by residents of the City. In 2010, the District had 29 elementary schools, five junior high schools, and six high schools, as well as Vista Alternative School (grades 7-12), an adult school, an educational center for Native American children, and it hosts a regional occupational training program. District enrollment in 2009-2010 was 32,304 students in grades K through 12, and the total number of students served by the District has remained relatively stable for the last ten years. FUSD strives to assign students in schools within their home attendance zones, but due to fluctuating capacity

at some schools in the district, the district makes school assignments based on a priority placement policy that may not allow all students to attend schools in their home attendance zone.

Ohlone College is a two-year community college located in the Mission San Jose area. It is within the Fremont-Newark Community College District, which is governed by a seven-person elected Board of Trustees (five from Fremont, two from Newark).

The State of California operates two special schools in Fremont: the School for the Deaf, and the School for the Blind. The School for the Deaf serves students from pre-school age through high school, while the School for the Blind serves students in Kindergarten through 12th grade.

Parks and Recreation

The City of Fremont has an extensive park system, anchored by 434-acre Central Park and supplemented by numerous citywide and neighborhood parks, which provide a range of recreational facilities (i.e., sports fields, children's play areas, tennis and basketball courts, walking paths, etc.).

*City of Fremont Parks and Recreation Facilities*

The City of Fremont operates 53 parks totaling 1,053 acres (865 acres owned by the City, with the remainder leased from other agencies).

Citywide Parks

The 12 citywide parks (totaling 621 acres) provide sports fields used by organized leagues (including baseball, softball, soccer, cricket and football), facilities that accommodate others sports (tennis, basketball, handball and volleyball), playgrounds, picnic areas and pathways, as well as parking and restroom facilities. There are five community centers (Centerville, Fremont, Los Cerritos, Wally Pond Irvington and Warm Springs) located in citywide parks, and the Fremont Senior Center is located in Central Park. Citywide parks comprise approximately 58 percent of the total park system acreage.

Development of Fremont's Central Park began in 1960, with dedication of the 83-acre Lake Elizabeth following in 1969. Located at 40000 Paseo Padre Parkway (near Stevenson Boulevard), this park provides 10 soccer fields, 6 softball fields, a golf driving range, 18 tennis courts, a dog park, a skate park, boating facilities, 4 playgrounds and 10 picnic sites.

The four-acre Aqua Adventure (Water Park) within Central Park opened in May, 2009, and includes four 40-foot tall slides, lazy river, youth water play structures, tot spray pad, lap pool, picnic shelters, concessions and support buildings.

Neighborhood Parks

Fremont's twenty neighborhood parks (totaling 147 acres) range in size from one to eleven acres, and are intended to feature grass and trees and to be used for informal leisure and free-play activities by those living in the vicinity. Some are located next to elementary schools, and most contain play apparatus.

Mini Parks

The City's ten mini parks (totaling 30 acres) include several parks which were formerly designated as "trail parks", due to their linear nature. These parks provide limited recreational facilities, with play structures and ball courts being the most common. Mini parks represent about 30 acres, or approximately 3 percent of the City's parkland.

Historic Parks

The primary purpose of the City's ten historic parks (totaling 255 acres) is the preservation of historic structures or sites. These parks contain buildings and other resources with local, regional, state- and nation-wide significance, and make up about 24 percent of the City's parklands. These parks range in size from the 0.18-acre Mission San Jose Bicentennial Park to the 205-acre Ardenwood Historic Farm. Services in historic parks are typically limited to passive use or interpretive history.

Civic Parks

Civic parks are small urban spaces providing a plaza-like atmosphere with street furniture. The City Council has approved one civic park in conjunction with a mixed-use development that has not yet been built (0.25 acre).

Community Centers

The City has five community centers located throughout the City. There is one in Central Park and in the Centerville, Los Cerritos, Irvington and Warm Springs Community Parks. The Olive Hyde Art Gallery near Mission San Jose can also be rented for programs. All of these facilities are used for community meetings and recreation programs. The City also has a multi-purpose senior center in Central Park, which provides health, nutrition, fitness, educational, arts and crafts, and cultural activities and programs. A teen center is also located in Central Park.

*Regional Parks*

The East Bay Regional Park District maintains the following parks and recreational facilities within Fremont:

- Ardenwood Regional Preserve (205 acres)
- Quarry Lakes Regional Recreation Area (539 acres)
- Alameda Creek Regional Trail (12 miles)
- Mission Peak Regional Preserve (2,999 acres)
- Coyote Hills Regional Park (978 acres)

Two additional areas in Fremont are slated for inclusion in the Regional Park system:

- The District owns approximately 785 acres south of Niles Canyon Road, with plans to acquire additional property for the development of the Vargas Plateau Regional Park, which was approved by the EBRPD Board in April, 2008.
- The former Dumbarton Quarry is proposed for transfer to the District for inclusion into Coyote Hills, according to the current reclamation plan.

*San Francisco Bay Trail*

There are two completed portions of the San Francisco Bay Trail which pass through Coyote Hills and along southern Fremont Boulevard with plans to complete the trail from Coyote Hills to the Fremont-Milpitas border.

*Don Edwards San Francisco Bay National Wildlife Refuge*

The Visitors Center for the Don Edwards San Francisco Bay National Wildlife Refuge is located south of the Dumbarton bridge toll plaza in Fremont. There is a self-guiding nature trail in the vicinity of the Visitors Center, and there are other accessible areas within the Refuge where wildlife-oriented recreational activities can be pursued.

*Regulatory Setting*

The City's General Plan and Parks and Recreation Master Plan include a number of park policies, including the standard of acquiring five acres of new park land per 1,000 new residents to meet the demands of a growing population, while seeking to maintain the goal of 5.79 acres per 1,000 residents (the ratio of park land to population which existed in 1990).

Library Services

Library services are provided by the Alameda County library system, which operates the four public libraries in Fremont: the Main Library Central Park and branch libraries in Centerville, Irvington and Niles. The branch libraries have limited hours due to lack of funding availability. The City provides and maintains the library buildings, with the exception of the

Niles branch, which is located in a building that was provided by the County prior to incorporation. The County library system is administered by the Alameda County Board of Supervisors, which provides funding for staffing, materials and equipment through property taxes. A County Library Commission advises the Board on countywide services, and a Fremont Library Commission, appointed by the City Council, advises the City and the Fremont library staff on local issues. The Fremont Main Library is the central library for the County library system. It is the repository of the bulk of the system's reference materials, and has space for 300,000 books. The County bookmobile operates out of the Fremont Main Library. Administrative services of the County library system are also housed in the Fremont Main Library. According to the *2008 Capital Facilities Development Impact Fee Technical Report*, the Fremont Main Library and branch libraries are expected to meet the City's needs over the General Plan Update horizon.

### Child Care

In 2006, Fremont had approximately 32,000 children, age 12 and younger, and had 57 California-licensed child care facilities. At that time, approximately 40 percent of an estimated 14,460 infants, toddlers and preschoolers needed child care, but demand is expected to increase. According to the *2006 Child Care Needs Assessment Report*, there is already a significant gap in facilities to meet the child care needs of infants and toddlers, while the demand for facilities to serve school-age children is projected to decrease slightly.

### Regulatory Setting

*Fire Protection and Emergency Response Services*

Since the 1991 General Plan, several changes have occurred to strengthen Fremont's fire prevention program. The California Building Code and the California Fire Code, both adopted with local amendments by the City of Fremont, require that almost all new construction includes a fire sprinkler system or automatic fire extinguishing system. Increases in square footage, changes in use, or fire damage repair may also require a sprinkler or automatic fire extinguishing system to be implemented. The Fire Code also includes ingress and egress provisions to ensure the safety of building occupants.

High rise buildings (greater than seven stories, according to the California Building Code) present special problems of access and emergency exit. Moving fire fighters and equipment up stairways typically increases response time. Thus, advanced built-in protection measures such as early warning and detection systems, automatic sprinklers, fire resistive materials, and appropriate design are required components of new development. Higher density residential and commercial development also poses special risks due to the concentration of people and the greater chance of fire spreading from one dwelling unit (or business) to the next.

*Schools*

The construction of new schools within California must comply with the provisions of Title 5, California Code of Regulations, Division 1, Chapter 13, Subchapter 1, which specify site and facility requirements.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

    i) Fire Protection

    ii) Police Protection

    iii) Schools

    iv) Parks

    v) Other Public Facilities.

2) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

3) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update policies are intended to reduce potentially adverse effects related to public services that may be associated with future development:

- *Policy 8-1.1: Parks and Recreational Facility Guidelines.*

- *Policy 8-1.2: Acreage Standards for Park Acquisition and Development.*

- *Policy 8-1.3: Standards for New Parks and Recreational Facilities.*
- *Policy 8-1.4: Interesting Urban Spaces.*
- *Policy 8-1.5: Linear Parks.*
- *Policy 8-2.1: Parks Maintenance.*
- *Policy 8-5.1: Resource Consumption in Park Operations.*
- *Policy 9-1.2: Public Safety Facilities.*
- *Policy 9-1.3: Provide Library, Cultural, and Community Facilities.*
- *Policy 9-9.1: Inform FUSD of Development Plans.*
- *Policy 9-9.2: Impact Fees.*
- *Policy 9-10.1: Addressing Circulation, Traffic and Parking Issues at Schools.*
- *Policy 9-11.1: Coordination on Sustainability.*
- *Policy 9-12.1: Funding for Local Service Providers.*
- *Policy 9-12.2: Direct Services.*
- *Policy 9-12.3: Collaboration.*
- *Policy 9-13.1: Non-Profit Agencies.*
- *Policy 9-13.2: A Range of Child Care Facilities.*
- *Policy 10-3.5: Critical Facilities Locations.*
- *Policy 10-4.1: Fire Safety and Prevention.*
- *Policy 10-4.2: Development Standards.*
- *Policy 10-4.3: Access and Clearance.*
- *Policy 10-4.4: Supplemental Fire Mitigation.*
- *Policy 10-5.1: Standard of Cover.*
- *Policy 10-5.2: Response Time.*

- *Policy 10-9.1: Crime Preventive Design.*
- *Policy 10-9.2: Lighting.*
- *Policy 10-9.3: Project Design.*
- *Policy 11-1.5: Recreation in the Baylands*
- *Policy 11-4.10: City Center Open Space Network.*
- *Policy 11-4.18: Central Park.*
- *Policy 11-5.26: Hill Area Trail Development.*
- *Policy 11-6.17: Laguna Creek.*
- *Policy 11-8.15: Alameda Creek.*
- *Policy 11-9.4: North Fremont Open Space.*
- *Policy 11-10.4: South Fremont Open Space.*
- *Policy 11-10.5: South Fremont Community Facilities.*
- *Policy 11-11.6: Public and Quasi-Public Facilities.*

## IMPACTS AND MITIGATION MEASURES

Fire Protection and Emergency Medical Response

Planned improvements to fire service will enable the Fire Department to meet its 6 minute 40 second response goal in most residential areas with the exception of the Hill Area. Although some additional residential development along the base of the Fremont hills is anticipated during the planning period, most of these areas are within the expected 6 minute 40 second response time for the Fire Department. However, new development in these areas would face special hazards due to their relative isolation and proximity to open brush and grassland, where fires can easily spread. In these areas, the City has special development requirements to minimize the risk of fire, including provision of adequate water supply, noncombustible roofing, one-hour rated exterior walls, irrigated greenbelt (wetbands) barriers, firebreaks, sufficient clearance between structures, and drought-tolerant/fire-resistant irrigated landscaping, in addition to fire roads and firebreaks.

Under the DRAFT General Plan Update, there is likely to be additional construction of taller buildings, especially in the City Center area. Project-specific review to assess compliance

with regulations and standards will continue to be especially important with high rise and high density commercial or residential development.

During the planning period, there could be additional development in portions of Niles that do not currently conform to the residual pressure water flow requirements because of inadequately sized water mains. The area east of Niles Boulevard has been designated a High Fire Hazard Severity Zone, and new construction in that area would be required to meet special standards to mitigate fire hazards related to failure to meet established peakload water requirements.

Implementation of the DRAFT General Plan Update would not require the provision of new or physically altered fire stations (the construction of which could cause significant environmental impacts), in order to maintain acceptable response times (***less than significant***).

Police Protection

With the development anticipated under the DRAFT General Plan Update, there would be considerably more people living and working in Fremont than at present, creating an increased demand for police protection in the area. While this may require an increase in police staffing and support equipment, it would not be expected to require the construction of a new police station or the expansion of the existing police station, and the impact would be considered ***less than significant***. An expansion of the existing Department Headquarters building to 80,000 square feet may be anticipated during the twenty-year planning period, with or without implementation of the DRAFT General Plan Update.

Schools

The DRAFT General Plan Update anticipates the development of approximately 17,000new residential units in Fremont during the twenty-year planning period. With its focus on relatively high density TOD in Priority Development Areas, the DRAFT General Plan Update does not provide any sites for the development of new schools in the future as it is not under the jurisdictional capacity of the City. Given the character of the new residential units anticipated within the Priority Development Areas (i.e., relatively high-density, multi-family structures), and demographic trends for projected fewer family households with school-age children, it is likely that student generation rates from such residences may be less than would be anticipated under current conditions with more conventional single-family suburban housing units, although it is likely that some new residents within Fremont will be public school students. FUSD student generation rates assume[80] 0.214 elementary school, 0.068 middle school, and 0.127 high school students per unit. On an average annual basis, development of an anticipated 680 units per year under the DRAFT General Plan Update

[80] Fremont Unified School District, 2006 Facility Master Plan (Figure 4b)

would generate approximately 145 elementary students, 46 middle school, and 92 high school students each year.

The Fremont Unified School District has indicated that the student load at elementary schools in the some portions of Fremont is presently at or near capacity, and is expected to remain so in the foreseeable future. The student loads at these schools may, in the long term, reach a typical maturation period of decline. Therefore, based on the timing of when the residential development anticipated under the DRAFT General Plan Update actually takes place, the Fremont Unified School District may or may not be able to absorb new students in these and other areas.

For example, the FUSD has indicated that in the absence of a site to enable the development of a new elementary school within the Downtown (and the absence of adequate funds to enable construction of a new school were an appropriate site to be identified), it is likely that students generated from anticipated residential development within the Downtown will be enrolled at schools that have room, based on a case-by-case and grade level assessment of each student. Accordingly, the FUSD cannot guarantee that future students residing in new residences within the Downtown will be assigned to schools in proximity to the center of Fremont, but located at any school site(s) with available space, which may be located anywhere in Fremont. At the current time, all home-to-school transportation is supported by fees charged to parents to offset the cost of services. With the current budgetary issues confronting education in this economic downturn, certainty of fee-supported home-to-school transportation cannot be provided.

Under California law, the payment by a developer of all current school impact fees associated with a proposed development effectively mitigates any impact that such development may have on the facilities of the local school district. FUSD collects both Level I and Level II school impact fees of approximately $5.00 per square foot for residential development and $0.47 per square foot of commercial development. At average annual development rates anticipated under the DRAFT General Plan Update, FUSD would collect approximately $4.4 million dollars annually.[81]

Under Policy 9-9.1 of the DRAFT General Plan Update, the City will coordinate with FUSD so that the District Board and staff are aware of development plans and can plan for facility needs accordingly. Under Policy 9-9.2, the City will continue to work with FUS to ensure that developers make required impact fee payments to the Fremont Unified School District prior to the City's issuance of any certificate of occupancy, in effect reducing all development-related impacts to local schools to a level considered ***less than significant***. The secondary effects of use of impact fee mitigations funds for school improvements would be

[81] 680 units annually at an average size of 1,300 square feet, commercial development of 600,000 square feet a year

speculative at this time, as FUSD has not indicated locations for facilities and committed resources to acquiring new sites versus redevelopment of existing sites to alter capacity.

Parks

The DRAFT General Plan Update provides policies which would guide the acquisition and development of parks and recreational facilities consistent with the Parks and Recreation Master Plan, with particular emphasis on the meeting the standard of five acres of developed parkland per one thousand Fremont residents, the development of civic parks, plazas and squares, and the development of linear parks. The DRAFT General Plan Update identifies two future park sites on Diagram 8-1 (one located immediately north of I-680 between Mission Boulevard and Washington Boulevard, and the second located along Dusterberry Way northwest of Central Avenue) and one corridor on Diagram 8-2 (UPRR Rail Trail) for future acquisition and development as parks or recreational facilities. It is anticipated that proposals for additional parks may be brought forward as elements of site-specific proposals for future development within Fremont, particularly for the development of civic parks, plazas and squares.

The City collects development impact fees based on five acres per one thousand residents. Impact fees may be used only for acquisition and development of parkland, not for maintenance or operation.

The development of future parks and recreational facilities could be expected to entail construction-related impacts similar to those associated with other development projects (e.g., temporary air quality and noise effects during the actual construction activity at the two sites), but with implementation of the applicable mitigation measures identified in the corresponding sections of the DRAFT EIR above, these temporary impacts could be reduced to a level considered ***less than significant***. As long as the established standard of five acres of developed parkland per one thousand Fremont residents is met during the operational life of the DRAFT General Plan Update, existing parks and recreational facilities would not be expected to become overused or subject to premature deterioration as the local population grows, and implementation of the DRAFT General Plan Update would have a ***less than significant*** impact on the operation of existing park and recreational facilities.

The development of future park facilities would be expected to increase demands on limited funding for park operations and maintenance. However, policies in the DRAFT General Plan Update calling for mechanisms to pay for new maintenance obligations and for design of parks to reduce maintenance demands would reduce these impacts to a level considered ***less than significant.***

Other Public Facilities

Development anticipated under the DRAFT General Plan Update would be expected to increase the number of residents and workers within Fremont, which could be expected to

place an increase demand on the public library system, result in increased use of existing community and senior centers, and expand demand for child care. However, these increased demands are unlikely to necessitate expansion of existing library facilities, community or senior centers, or child care facilities, or the construction of new facilities and centers (beyond the number of facilities already planned), and the impact would be considered ***less than significant***.

Cumulative Impacts

Increased population and employment under the DRAFT General Plan Update would place increased demands on all public services, not just within Fremont, but within the region as well. However, these increases would not necessarily be expected to result in a corresponding need to build new public facilities or to expand existing public facilities in order to maintain existing levels of public service within Fremont or the region. In the absence of such a need, cumulative impacts related to the provision of public services would be considered ***less than significant***. As individual development projects are proposed following adoption of the DRAFT General Plan Update, specific project-related effects related to the provision of public services will need to be evaluated within the context of maintaining existing levels of service, budgetary constraints, and the long-term plans of service providers to adjust to anticipated population and employment growth within Fremont and the region.

# O. INFRASTRUCTURE AND UTILITIES

## SETTING

Water Supply

The Alameda County Water District (ACWD) provides water to customers in Fremont, Newark and Union City. This water comes from three main sources:

- State Water Project (SWP) water originates in other parts of California and is pumped from the Sacramento/San Joaquin Delta and through the South Bay Aqueduct, or is released from the Del Valle Reservoir. SWP water is either treated at one of the ACWD's two water treatment plants or released into Alameda Creek to recharge the City's underground aquifer, where it is stored for later use. About 40 percent of the District's total water supply is purchased from the SWP.

- Most of the San Francisco Water Department water originates in the Sierra Nevada and is transported from the Hetch Hetchy reservoir in Yosemite National Park. A portion of the water originates in the Alameda Creek watershed, and is stored in the Calaveras Reservoir and the San Antonio Reservoir. San Francisco Water Department water accounts for approximately 20 percent of the ACWD water supply.

- Local runoff within the Alameda Creek watershed and groundwater accounts for approximately 40 percent of the ACWD water supply. Natural run-off enters Alameda Creek and percolates into the City's underground aquifer. Approximately fifty percent of the water delivered to ACWD customers is pumped from the City's natural aquifer, the Niles Cone. The aquifer acts as a huge reservoir, with water percolating in from Alameda Creek or through Quarry Lakes. Water is brought into these storage areas from natural run-off and through releases from the State Water Project. The ACWD pumps out water from wells sunk into the aquifer, treats the water, and distributes it to customers. Because the Niles Cone extends under San Francisco Bay, the drawing down of fresh water has allowed salt water to intrude from the Bay, a process the ACWD is working to reverse.

Water is moved from 11 reservoirs/tanks through 825 miles of pipe to ACWD customers. The District maintains two treatment plants (the Mission San Jose Plant with a daily capacity of 8.5 million gallons per day [MGD], and Plant #2, with a daily capacity of 21 MGD), the Newark Desalination Facility (with a daily capacity of 5 MGD), and a Blending Facility (with a daily capacity of 50 MGD).

In addition to the water supply sources identified above, the ACWD has access to up to 13,500 acre-feet of supplemental stored water from the Semitropic Water Storage District (which has a total of 115,000 acre-feet of water banked to date). This storage is not

considered additional water supply, but is regarded as replacement water to be used to augment normal water supplies during drought years. However, ACWD has identified uncertainties regarding recovery of water from the Semitropic Banking Program, creating a risk that the District may not be able to recover 100 percent of its contractual capacity from Semitropic storage.

The ACWD serves over 340,000 people and over 7,500 businesses within a service area of 104.8 square miles. According to the DRAFT ACWD Urban Water Management Plan 2010-2015, during fiscal year 2009-2010, the ACWD had 80,139 service connections and distributed 47,000 acre-feet of water. Approximately 70 percent of ACWD water was delivered to residences during that year. In fiscal year 2008-2009, average daily production and consumption was 45.25 MGD, and maximum daily production was on July 9, 2008, at 68.21 MGD.

ACWD's long-term water supply strategy includes a recycled water program projected for implementation by 2020. As currently envisioned, this program would provide up to 1,600 acre-feet/year of non-potable water for landscape irrigation and industrial processes, and would be a joint project of ACWD and the Union Sanitary District (USD).

ACWD is currently updating its Integrated Resources Plan and Urban Water Management Plan, which will incorporate a revised district-wide demand forecast and revised assumptions associated with the future availability of water from the SWP. These Plans will also indicate measures to be taken to meet the requirements of Senate Bill 7 (SB 7), which requires water agencies to reduce per capita water consumption by 20 percent by 2020.

Storm Drainage and Flood Control

Primary responsibility for flood control in Fremont lies with the Alameda County Flood Control and Water Conservation District (ACFCWCD). Although the District has a separate funding source, it functions as an arm of the Alameda County Public Works Department. The District is divided into ten zones, and Fremont is in Zone 5 (which also includes Newark and portions of Union City) and Zone 6.

By 1965, channel improvements along Alameda Creek and dams on tributaries were estimated to have reduced the threat of flooding to less than once in every 100 years. Since then, areas in the North Fremont and Niles once subject to flooding nearly every year have been developed.

Since the 1950s, Fremont's eight smaller creeks have been greatly altered by flood control projects. Instead of meandering as they once did, they now flow across the Bay Plain in relatively straight channels. For flood control purposes, vegetation is kept to a minimum, and access is generally restricted by chain-link fences. When proposed development projects would drain into, or cross, one of the flood control channels, the District has direct authority, and must issue a permit before the development project can proceed.

The City of Fremont owns and maintains most storm drainage facilities, which primarily include storm drain facilities in the public right-of-way. These facilities collect runoff from the streets and from storm drain systems on private property. The City has regular maintenance programs to clean storm drain inlets and the City corrects unexpected localized flooding problems. Since most development has taken place since incorporation about fifty-five years ago, the storm drainage system is generally in relatively good condition.

The City and the District work in partnership to manage Lake Elizabeth and the adjacent silt pond. Although the lake was created by the District for flood control purposes, the City manages the lake for recreational use. The City and the District have also collaborated on the development of trails along some segments of Mission Creek.

Sanitary Sewers

The Union Sanitary District (USD) provides wastewater collection, treatment and disposal services to residents of Fremont, Newark and Union City. The USD covers 36.4 square miles in Fremont, but does not include a large part of the Hill Area and a number of small parcels in the flatlands. The USD is a member of the East Bay Dischargers Authority (EBDA), a joint powers agency that plans, constructs, and operates facilities under a regional water quality management program.

The USD gravity wastewater collection system consists of 777 miles of trunk lines and smaller sewers, which accommodated an average dry weather flow of approximately 27.5 MGD in 2005. In 2007, the USD had 104,545 residential connections (which accounted for approximately 97.3 percent of total wastewater flows), 1,631 commercial connections (which accounted for approximately 1.5 percent of total wastewater flows), and 1,276 industrial connections (which accounted for approximately 1.2 percent of total wastewater flows.

In Fremont, the sewer system is divided into three separate drainage areas (Irvington, Newark and Alvarado), with wastewater generated in each area flowing to a major pump station near San Francisco Bay. The drainage areas do not correspond to city boundaries, and parts of Fremont are located in each area.

The majority of wastewater collected in Fremont is pumped to the USD Alvarado Treatment Plant, which has an average dry weather capacity of 33 MGD. Following physical and biological treatment processes to remove 95 percent of the solids and organic materials (secondary treatment), the wastewater is pumped to the EBDA Marina Dechlorination Facility before passing through seven miles of EBDA outfall pipe for disposal in San Francisco Bay north of the Oakland International Airport.

Over 90 percent of the USD wastewater collection system was built after 1950, so the system is in relatively good structural conditions. Most pipes are made of vitrified clay and polyvinyl chloride, although the largest truck sewers are reinforced concrete.

Solid Waste

Allied Waste Services of Alameda County currently provides curbside pick-up of recyclables, organics and garbage in Fremont. Materials collected are transported to the Fremont Recycling and Transfer Station located at 41149 Boyce Road for processing, with garbage later being transported to the Altamont Landfill, approximately seven miles north of Livermore. The majority of solid waste materials are transferred to Altamont Landfill; however some materials are also transferred commercially to other facilities such as Newby Island in San Jose. Altamont Landfill has planned capacity and long term contracts with the City to serve its waste disposal needs after the closure of the Tri-Cities Recycling and Disposal Facility (TCRDF). A limited amount of solid waste and recyclable materials is transported to TCRDF at the western end of Auto Mall Parkway in Fremont, although the facility is not open to the public, and is planned for closure prior to 2012.

The City has increased waste diversion rates by implementing new and expanded recycling programs. Mandatory single-family and multi-family residential recycling was implemented, along with drop-off disposal sites for items such as motor oil, electronic waste, batteries and household hazardous waste. In 2003, the residential program expanded to include additional plastics and co-mingled single stream recycling. The single-stream recycling program improved the convenience of the recycling program and increased the amount of material collected. Food scraps were also added to the curbside collection of yard waste. A commercial food waste recycling program was implemented in 2005. Businesses can receive standard recycling service every other week at no cost to the business. The City continues to add new materials as markets develop. The City permitted in 2008 and continues to support the operation of a household hazardous waste drop-off facility at its 41149 Boyce Road transfer station location. The City adopted an Environmentally Preferable Purchasing policy in its 2010 ordinance to help promote waste reduction and purchase of recycled materials. The City has an adopted 75 percent diversion rate goal. In January 2009, the City implemented a Construction and Demolition Debris Ordinance that requires minimum levels of recycling of construction and demolition debris, further increasing the City's diversion rate. The City is part of the State-sponsored Recycled Market Development Zone Program which encourages recycling based business to locate in Fremont.

Gas, Electricity and Telecommunications Service

Energy (electricity and natural gas) is delivered within Fremont by Pacific Gas and Electric Company (PG&E). Electrical power is generated from various sources, including fossil fuel-burning plants, hydroelectric facilities, nuclear generating plants, wind farms and geothermal plants, which is then fed into a large electrical grid serving Northern California. PG&E brings electrical power into Fremont on overhead transmission lines which cross the City from east to west in an alignment approximately parallel to Durham Road/Auto Mall Parkway. One set of transmission lines carries power from the Hetch Hetchy hydroelectric facility in the Sierra Nevada. These high voltage lines feed into the Newark substation west of I-880 at Auto Mall Parkway and Boyce Road. The Fremont substation (located near Paseo

Padre Parkway and Grimmer Road) and the Jervis substation (located on Decoto Road in Union City) also serve Fremont. Electrical power is stepped down at the substations, and fed into supply lines throughout the City.

Electrical power lines serving new development are generally placed in underground conduits, although transformers are often visible above the ground. In older areas of Fremont, electrical lines are still carried on utility poles. Many remaining overhead powerlines are located within backyard easements, making maintenance (especially tree trimming) difficult.

The main transmission line for natural gas parallels I-880, with a major pumping station located near Auto Mall Parkway. Gas distribution lines branch off from the main transmission line.

Telecommunications services in Fremont are supplied by a number of providers, with telephone land-lines maintained by American Telephone and Telegraph (AT&T) and Comcast providing internet-based telephone service through cable.

### Regulatory Setting

Regulations related to storm drainage and flood control are discussed at length in the **Hydrology and Water Quality** section, above.

California's Title 24 was established in 1978 to improve energy efficiency in new structures, and the current standards respond to the AB 32 in order to reduce energy consumption and greenhouse gas emissions.

The City of Fremont has adopted the 2010 California Green Building Standards Code, which applies to most new building design and construction from January 1, 2011. This code was established to reduce construction waste, make buildings more efficient in the use of materials and energy, and reduce environmental impacts during and after construction.

The California Integrated Waste Management Act of 1989 specifies mandatory diversion rates for solid waste from landfills throughout the state. The current standard for diversion is 50 percent. Stopwaste.org operates as the Alameda County Waste Management Authority and is responsible for the oversight of solid waste operations in the county.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

### CEQA Criteria for Determining Impact

The following thresholds for measuring a Project's environmental impacts are based on CEQA Guidelines and other performance standards recognized by City of Fremont. For the purposes of this EIR, a significant impact would occur if the Project were to:

1) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

3) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

4) Have insufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements necessary.

5) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

6) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.

7) Comply with federal, state, and local statutes and regulations related to solid waste.

## GENERAL PLAN UPDATE POLICIES

Implementation of the following General Plan Update policies are intended to reduce potentially adverse effects related to utilities and other service providers that may be associated with future development:

- *Policy 7-4.1: Water Conservation.*
- *Policy 7-4.2: Reclaimed Water.*
- *Policy 7-4.3: Water Conservation in City Operations.*
- *Policy 9-2.1: Reduce Greenhouse Gas Emissions from City Facilities.*
- *Policy 9-2.2: Sustainable City Buildings.*
- *Policy 9-3.1: Long Range Planning.*
- *Policy 9-4.1: Planning Consistency.*
- *Policy 9-5.1: Free Wireless.*

- *Policy 9-5.2: Enhanced Fiber Optic Network.*
- *Policy 9-5.3: Pre-Wiring for Communications.*
- *Policy 9-6.1: Increase Waste Diversion.*
- *Policy 9-6.2: Protect Public Health and Safety.*
- *Policy 9-6.3: Implement the Waste Management Hierarchy.*
- *Policy 9-6.4: Consider Environmental Benefits and Impacts.*
- *Policy 9-6.5: Support Regional Public and Private Waste Diversion.*
- *Policy 9-7.1: Develop/Utilize Infrastructure and Processing Facilities.*
- *Policy 9-7.2: Require Development Projects to Provide for Waste Handling.*
- *Policy 9-7.3: Utilize Innovative Technologies.*
- *Policy 9-8.1: Public Education.*
- *Policy 9-8.2: Promote Purchasing Decisions that Reduce Waste and Litter.*
- *Policy 9-8.3: Promote Discard Decisions that Reduce Waste and Pollution.*
- *Policy 11-4.13: Sustainable Design.*
- *Policy 11-5.14: County Water District Services in the Hill Areas.*

## IMPACTS AND MITIGATION MEASURES

Water Supply

ACWD has estimated future water demands in its service area through 2030 based on planned future land uses in the service area; in other words, the extent of vacant, undeveloped land which is zoned for development. Additional potential development was included in the Forecast and is based on City-approved plans to redevelop or intensify specific areas. Future water demands associated with projects that have not been considered by the City's General Plan are not included.

Information provided by ACWD on July 28, 2010, commenting on the "Patterson Ranch Recirculated DRAFT EIR" included current water supply and demand estimates at five year intervals between 2010 and 2030. This information indicates that during a normal year, total water supply would exceed total water demand by between 3,100 acre-feet (2030) and 9,700

acre-feet (2010). During a critical dry year, however, total water demand is projected to exceed total water supply (by 1,500 acre-feet in 2010, by 3,400 acre-feet in 2015, by 2,200 acre-feet in 2020, by 4,300 acre-feet in 2025, and by 5,100 acre-feet in 2030). In multiple dry year conditions toward the end of the projection period (2026 – 2030), total water supply and total water demand are estimated to be in balance.

Although ACWD has adopted numerous water conservation measures and programs in the past several years, conservation is likely to play a larger role than ever before as part of the updated Urban Water Management Plans

The City has instituted water conservation in its own operations, including irrigation that is controlled by moisture sensors in many locations. However, the City may be able to identify further opportunities for reductions in water usage through a closer examination of current consumption. The City may also contribute to water conservation in private development through continued strengthening of its Water Efficient Landscape Ordinance, by ensuring that city ordinances allow for use of water-conserving devices, and by supporting use of recycled water on a small scale (on-site grey water systems) as well as a larger scale.

All public water infrastructure construction or modifications related to development projects which may be proposed following the City's adoption of the DRAFT General Plan Update must conform to ACWD's Development Specifications and Standard Specifications for Water Main Installation and applicable ACWD policies related to development and redevelopment.

**Impact UTIL-1: Increased Water Demand.** Development anticipated under the DRAFT General Plan Update would exceed that currently anticipated under the existing General Plan, and that difference in the level of anticipated development over the planning period would place additional unanticipated demand on projected ACWD water supplies. This would represent a ***potentially significant*** impact associated with implementation of the DRAFT General Plan Update.

**Mitigation UTIL-1A: Incorporation of ACWD's "Water Efficiency Measures for New Development" in all Development Projects.** In order to minimize additional demands on potable water supplies, new development shall be required to install the latest technology in water efficient plumbing fixtures, irrigation systems and landscaping according to the California Green Building Code (CalGreen). Consult with ACWD on incorporating "Water Efficiency Measures for New Development".

**Mitigation UTIL-1B: Coordinate Use of Recycled Water with ACWD.** For development projects located in areas where recycled water is made available, developers shall coordinate with ACWD on the installation of

separate, non-potable water distribution systems (i.e., purple pipe) for landscape irrigation and other non-potable water needs.

Implementation of the mitigation measures above would be expected to reduce the impact associated with increased development-related demand for water to a level considered ***less than significant***.

Storm Drainage and Flood Control

As indicated in the **Hydrology and Water Quality** section, above, land use and development anticipated under the DRAFT General Plan Update would result in alterations to existing drainage patterns. The Conservation and Safety Elements of the DRAFT General Plan Update contain several stormwater management policies which would help mitigate the potential drainage and erosion impacts associated with new development. In general, the policies would encourage better land use planning through the use of appropriate hydrologic and hydraulic analysis in the discretionary project approval process with respect to site design, building location and drainage infrastructure design.

Policy 7-2.1, Implementation A, requires proposed projects near riparian areas to protect the aesthetic, recreational and biological benefits consistent with flood control; Implementation B provides for the development of master plans for creek watersheds, which would allow for a watershed-wide overview of streambank erosion impacts.

Policy 7-3.3, Implementation B**,** requires stormwater controls for new developments, and Implementation F protects areas susceptible to erosion. Implementation I would develop regulations that require the use of Low Impact Development (LID) technologies. LID is a stormwater management approach that strives to manage rainfall runoff at the source using planning and site design techniques that include infiltration, filtration, storm water storage, evaporation, and detention. While traditional stormwater management systems are designed to function well under a single design condition (e.g., 10 year storm), LID uses the stormwater from more frequent events as a resource in efforts to restore the developed area's natural rainfall-runoff and groundwater recharge relationships.

In summary, current practices utilized in the review of flood control, drainage, and grading permits, stormwater runoff controls under NPDES C.3 programs, as well as policies contained in the DRAFT General Plan Update, would mitigate potential impacts associated with increased runoff and other surface drainage modifications.

Land uses and development anticipated under the DRAFT General Plan Update would also result in increases in stormwater runoff and peak discharge. Existing storm drain systems, including urban creeks and rivers, may be incapable of accommodating increased flows, potentially resulting in on- or off-site flooding. However, policies and programs contained in the DRAFT General Plan Update would reduce such impacts to a level considered ***less than significant***. Future development may necessitate the construction of new drainage facilities

for stormwater conveyance and management. In areas where drainage infrastructure already exists, drainage systems may need to be enlarged or expanded to accommodate future growth. Stormwater management practices commonly used to mitigate increases in peak flows (e.g., detention, retention, infiltration) may also be implemented, as deemed appropriate under policies in the DRAFT General Plan Update.

Local storm drainage modifications, stream channel alterations, and structural bank stabilization measures could create significant flooding impacts, in some cases by moving the existing flooding and channel instability problems cross channel or downstream, or by changing the timing of peak flows and point of discharge of runoff.

Goal 10-3, "Flood Hazards," within the Safety Element of the DRAFT General Plan Update, seeks to minimize feasible risks to life and property resulting from flooding and flood induced hazards. Policy 10-3.2 requires design of new development and redevelopment projects to minimize hazards associated with flooding and limit the amount of runoff that contributes to flooding. Specifically, Implementation A requires new development to demonstrate that existing and/or planned (on- or off-site) drainage facilities area sized to accommodate project storm runoff and to prevent off-site increase in peak runoff rates and flood elevations.

Although flooding would continue to occur in flood prone areas, this is considered an existing condition for purposes of CEQA review, and the policies and programs of the DRAFT General Plan Update would ensure that flooding in these areas would not worsen (with the exception of potential impacts to the Laguna Creek Drainage Facility – see **Impact HYD-1** and **Mitigation HYD-1**, above). Adoption and implementation of the policies and programs contained in the DRAFT General Plan Update as discussed above would ensure that potential impacts of future development of on- and off-site flooding and drainage infrastructure would be reduced to a level considered ***less than significant***.

Sanitary Sewers

The USD has indicated that the Alvarado Treatment Plant currently has the capacity to accommodate the level of development anticipated under the DRAFT General Plan Update (see **Appendix A**, letter from Rollie Arbolante, P,E,, Coach/Senior Engineer, Union Sanitary District, to Kelly Diekmann, City of Fremont, September 21, 2010). However, the District has indicated that in areas where development would be anticipated at densities higher than would currently be permitted, the existing sewer infrastructure adjacent to proposed development project would need to be reassessed to determine if it is able to accommodate the additional sanitary sewer loading and any downstream ripple effect such development might have on downstream sewer trunk mains.

**Impact UTIL-2:** **Sanitary Sewer Conveyance Capacity Constraints.** Individual development projects that may be proposed in areas designated for residential densities exceeding 29.9 units per acre in the DRAFT

General Plan Update could exceed the capacity of the existing local sanitary sewer conveyance system serving the specific project. This would represent a ***potentially significant*** environmental impact.

**Mitigation UTIL-2: Include Implementation Measure Supporting Updates to Master Plans and Coordinate Site-Specific Analysis of Project-Related Effects on the Sanitary Sewer Conveyance System/Project-Related Contribution to Necessary Capacity Expansion.** Support update of Sewer Conveyance Master Plan by USD as an implementation measure of the General Plan. As individual development projects are proposed in areas designated for residential densities exceeding 29.9 units per acre, coordinate development review process with USD analysis for sanitary sewer capacity and conveyance.

Effective implementation of this mitigation measure would reduce potential development-related impacts to the existing sanitary sewer conveyance system to a level of ***less than significant***.

Solid Waste

Increased development anticipated under the DRAFT General Plan Update would be expected to result in an increased demand for solid waste collection and disposal. However the DRAFT General Plan Update includes a number of policies promoting waste diversion, recycling, processing, and the ultimate elimination of landfill waste (e.g., Policy 9-6.1, Policy 9-6.3, Policy 9-6.4, Policy 9-7.1, Policy 9-7.3, and Policy 9-8.3) which, if effectively implemented, could be expected to limit potential Plan-related effects associated with the collection and disposal of solid waste to a level considered ***less than significant***.

Gas, Electricity and Telecommunications Service

As the number of households and businesses increase under the DRAFT General Plan Update, an increased demand for gas, electricity and telecommunications services can also be anticipated. The providers of these utilities and services (e.g., PG&E, AT&T, etc.) routinely increase the capacity of their delivery systems in order to meet increased demands associated with growth. The costs associated with any network expansions would be borne by those served by those providers through their periodic utility bills. Since the urban portions of Fremont are largely built-out, it is unlikely that there would be a need for existing service providers to significantly expand their utility delivery networks to areas which are not currently served. However, where construction may be required in order to expand service to specific sites which may be developed in the future under the DRAFT General Plan Update, any potential construction-related effects (e.g., temporary noise and air quality impacts) could be reduced to a level considered ***less than significant*** through implementation of the construction-related mitigation measures identified in the corresponding sections of the DRAFT EIR, above.

As indicated in the DRAFT General Plan Update, Executive Order S-14-08 requires that 33 percent of the power provided by California utilities in 2020 come from renewable sources, and the City has taken steps to increase the energy efficiency of its buildings. The DRAFT General Plan Update includes Policy 9-2.1 and Policy 9-2.2 which would require energy efficiency and sustainability in the design of municipal buildings as a way to conserve energy and reduce greenhouse gas emissions.

Cumulative Impacts

Development under the DRAFT General Plan Update would be expected to result in an increase in the total population and in the number of businesses within Fremont, with a corresponding increase in the demand for utility services. Additional growth is anticipated during the planning period within the region as well, so development anticipated within Fremont would contribute to a cumulative increase in the demand for water, wastewater treatment, solid waste disposal, energy and communications service throughout the region. Implementation of the mitigation measures identified above, and the relevant polices of the DRAFT General Plan Update, would be expected to reduce the local contribution to the cumulative increase in regional utility demand to a level considered ***less than significant***.

# P. GLOBAL CLIMATE CHANGE

## INTRODUCTION

This section discusses the underlying causes behind climate change; federal, state and regional governmental programs and regulations aimed at limiting the magnitude of climate change; forecasts the City's future greenhouse gas (GHG) emissions within the context of California's climate change goals; and identifies the GHG Reduction Strategy the City is undertaking to limit its contribution to climate change.

The City's GHG Reduction Strategy is to include broader, higher-level policies in the General Plan Update, with more specific community-wide measures and goals that are detailed in an independent Climate Action Plan (CAP). The City chose this approach recognizing that reducing GHG emissions is an evolving discipline and will require frequent evaluation and modification of strategies. The General Plan Update, therefore, sets overall climate action goals, establishes the overarching "strategically urban" land use pattern for future development, and commits the City to updating its GHG emissions inventory and the CAP every five years. The CAP, in turn, serves as a road map to achieving the community's climate action goals. This approach ensures that GHG reduction measures will be evaluated regularly, new "best practices" will be incorporated, and the City will be better able to respond to the fast-changing regulatory and scientific environment than if the specific strategies were embedded in the General Plan.

It should be noted that while many of the goals, policies and strategies for GHG reductions in the General Plan and the Climate Action Plan will reduce emissions from both existing and future development, this EIR evaluates only the GHG impacts related to adoption of the DRAFT General Plan Update. In other words, the EIR answers the question: "Are the GHG emissions that would be generated by the growth provided for in the DRAFT General Plan Update significant under CEQA?"

## SETTING

Climate Science Overview

Unlike emissions of criteria pollutants and toxic air pollutants, which have local or regional impacts, emissions of GHGs have a broader, global impact. Global warming is a process whereby GHGs accumulating in the atmosphere contribute to an increase in the temperature of the earth's atmosphere. The principal GHGs contributing to global warming are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and fluorinated compounds. The primary GHGs of concern are summarized in **Table 4-43**. These gases allow visible and ultraviolet light from the sun to pass through the atmosphere, but they prevent heat from escaping back out into space, a process known as the "greenhouse effect". Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for

intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate.

According to the Intergovernmental Panel on Climate Change (IPCC), it is extremely unlikely that global climate change of the past fifty years can be explained without the contribution from human activities. The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 parts per million (ppm) to 379 ppm in 2005. Previous scientific assessments assumed that limiting global temperature rise to 2-3°C above pre-industrial levels would require stabilizing greenhouse gas concentrations in the range of 450-550 ppm of carbon dioxide-equivalent (CO2e).

Recent scientific assessments suggest that global temperature rise should be kept below 2°C by stabilizing greenhouse gas concentrations below 350 ppm CO2e, a significant reduction from the current level of 385 ppm CO2e.

**TABLE 4-43: EXAMPLES OF GREENHOUSE GASES GAS SOURCES**

| | |
|---|---|
| **CARBON DIOXIDE (CO2)** | **FOSSIL FUEL COMBUSTION IN STATIONARY AND POINT SOURCES; EMISSION SOURCES INCLUDES BURNING OF OIL, COAL, GAS.** |
| Methane (CH4) | Incomplete combustion in forest fires, landfills, and leaks in natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, and certain industrial processes. |
| Nitrous oxide (N2O) | Fossil fuel combustion in stationary and point sources; other emission sources include agricultural soil management, animal manure management, sewage treatment, adipic acid production, and nitric acid production. |
| Chlorofluorocarbon (CFC), and Hydro-chlorofluorocarbon (HCFC) | Agents used in production of foam insulation; other sources include air conditioners, refrigerators, and solvents in cleaners. |
| Sulfur hexafluoride (SF6) | Electric insulation in high voltage equipment that transmits and distributes electricity, including circuit breakers, gas-insulated substations, and other switchgear used in the transmission system to manage the high voltages carried between generating stations and customer load centers. |
| Perfluorocarbons (PFC's) | Primary aluminum production and semiconductor manufacturing. |

California Emissions Inventory

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural sectors. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2002-

2004, accounting for 38 percent of total GHG emissions in the state. This sector was followed by the electric power sector including both in-state and out-of-state sources (18 percent) and the industrial sector (21 percent).

California produced 474 million gross metric tons (MMT) of CO2e averaged over the period from 2002-2004. CO2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH4 has the same contribution to the greenhouse effect as approximately 23 tons of CO2. Therefore, CH4 is a much more potent GHG than CO2. Expressing emissions in CO2e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO2 were being emitted.[82]

Effects of Climate Change

Among the potential implications of global warming are rising sea levels, and adverse impacts to water supply, water quality, agriculture, forestry, and habitats. In addition, global warming may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health. Details of these changes in California include:

- Mean annual temperature increases from 2 to 6 degrees C. California's complex terrain will modulate the temperature gains locally.
- Unknown change to annual precipitation total, but an increase in extreme wet and dry conditions is expected. More precipitation will fall as rain than snow in the middle elevations of the mountains.
- Decreased seasonal snowpack accumulation, particularly in the northern Sierra (up to 90 percent by 2100) and earlier melt time.
- Less mountain block recharge from snowpack expected, with possible implications for long-term support of regional aquifers.
- Annual runoff concentrated more in winter months, with more variability and greater extremes.

[82] BAAQMD. *Proposed Thresholds of Significance Report*, May 3, 2010. Available at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Proposed-Guidelines.aspx

- Sea level rise up to 55 inches, with the potential for higher rises if ice sheets collapse.
- Ecosystem challenges increased due to exacerbation of existing threats from above changes.

Regulatory Setting

Global climate change resulting from GHG emissions is an emerging environmental concern being raised and discussed at the international, national, statewide, and local levels. At each level, agencies are considering strategies to control emissions of gases that contribute to global climate change. These agencies described below work jointly, as well as individually, to address GHG emissions through legislation, regulations, planning, policy-making, education, and implementation programs.

*Federal*

United States Environmental Protection Agency

In October 2009, the U.S. Environmental Protection Agency (EPA) issued a Final Rule for mandatory reporting of GHG emissions. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufactures of heavy-duty and off-road vehicles and vehicle engines, and requires annual reporting of emissions. The Final Rule went into effect on December 29, 2009, with data collection beginning on January 1, 2010, and the first annual reports due in March 2011. This rule does not regulate the emission of GHGs; it only requires the monitoring and reporting of greenhouse gas emissions for those sources above certain thresholds. The EPA adopted a Final Endangerment Finding for the six defined GHGs on December 7, 2009. The Endangerment Finding is required before the EPA can regulate GHG emissions under Section 202(a)(1) of the federal Clean Air Act (CAA) in fulfillment of the U.S. Supreme Court decision in *Massachusetts v. Environmental Protection Agency* (549 U.S. 497 (2007)). In this matter, the Supreme Court held that the EPA has authority to regulate greenhouse gases. As of April 2010, the Rule and the Endangerment Finding have no direct effect on the state and local regulatory efforts the City is implementing in the General Plan Update.

*State*

California Air Resources Board (CARB)

The CARB is responsible for implementing state policy to address global climate change.

As part of the California Environmental Protection Agency (Cal EPA), CARB is responsible for the coordination and administration of both federal and state air pollution control programs and conducts research, sets air quality standards, develops emission inventories, establishes control measures, and provides oversight to local programs. CARB adopted

Resolution 07-55 on December 6, 2007, which approved 427 million metric tons of CO2e as the statewide GHG emissions limit as of 2020. This statewide target is equivalent to the 1990 levels, and is intended to reduce GHG emissions statewide. There are multiple state laws and regulations that pertain to CARB and provide additional guidance and/or action items for local jurisdictions within the State of California.

Assembly Bill 1493

Signed into law in 2002, Assembly Bill 1493 (AB 1493) required CARB to adopt regulations that achieve the maximum feasible reduction of GHG emissions from passenger vehicles and light-duty trucks and other noncommercial personal transportation vehicles by January 1, 2005. The California Code of Regulations (CCR) regarding existing motor vehicle emission standards was amended and approved in 2005 per AB 1493. GHG emission limits were placed on all aforementioned vehicles beginning with the 2009 model year, with emission limits further reduced each model year through 2016.

Current projections indicate even with these measures enacted, California will still fall short of the 1990 level targets for transportation emission reductions. Under the Administration of President George W. Bush, the EPA blocked California's efforts to implement low carbon fuel standards; however, the Obama Administration has directed the EPA to reconsider its action. Nonetheless, the earlier EPA action and pending legal challenges by the automotive industry could continue to delay California's efforts to achieve emission reduction targets.

State of California Executive Order S-3-05

In June 2005, the Governor of California signed Executive Order S-3-05, which identified the Cal EPA as the lead coordinating state agency for establishing climate change emission reduction targets in California. Under this order, the state plans to reduce GHG emissions by 80 percent below 1990 levels by 2050. Specifically, the order includes the following benchmarks:

- By 2010, reduce statewide GHG emissions to year 2000 levels;
- By 2020, reduce statewide GHG emissions to 1990 levels; and
- By 2050, reduce statewide GHG emissions to 80 percent below 1990 levels.

The Climate Action Team, a group of state agencies, was set up to implement Executive Order S-3-05 and report on the progress made toward meeting statewide targets. The Climate Action Team published the Climate Action Team Report of Governor Schwarzenegger and the Legislature in March 2006, which identified specific emission reduction strategies for reducing GHG emissions and reaching the established targets. A discussion of these strategies is provided under the heading "California Climate Action Team Report Standards."

Assembly Bill 32 – The California Global Warming Solutions Act of 2006

In September 2006, the Governor of California signed into law Assembly Bill (AB) 32, the Global Warming Solutions Act. The Act requires that California cap its GHG emissions at 1990 levels by 2020. This legislation requires CARB to establish a program for statewide GHG emissions reporting, and monitoring/enforcement of that program. CARB recently published a list of discrete GHG emission reduction measures that can be implemented immediately (the Early Action Plan). CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. CARB has estimated the 1990 statewide emissions level to be 427 million metric tons of CO2e. Meeting the reduction targets of AB 32 will, therefore, require a reduction of almost 30 percent of the emissions that would otherwise be anticipated in 2020.

While passenger vehicle emissions are a major source of GHG emissions that CARB has identified for emission reduction, CARB is also targeting other sources of emissions. The main measures to reduce GHG emissions will be contained in the AB 32 Scoping Plan, which was adopted by CARB in December 2008. This plan includes a range of GHG reduction actions, separated by emissions sector (transportation, industry, energy generation, forestry, etc.). Central to the draft plan is a cap and trade program, currently under development, that would assign emissions credits to cover large portions of the state's GHG emissions. This program is being developed in conjunction with the Western Climate Initiative, comprised of seven states and three Canadian provinces, to create a regional carbon market. The Scoping Plan also proposes that utilities produce a third of their energy from renewable sources such as wind, solar and geothermal, and proposes to expand and strengthen existing energy efficiency programs, such as building and appliance standards. The regulatory process to implement the plan begins in 2009. By law, implementation measures must be enacted by 2012.

Senate Bill 97 – Modification to the Public Resources Code

Related to AB 32, Senate Bill 97 (SB 97) required that by July 1, 2009, the California Office of Planning and Research (OPR) prepare, develop, and transmit to the Resources Agency (Natural Resource Agency) guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, including (but not limited to) effects associated with transportation or energy consumption. OPR transmitted draft guidelines to the Natural Resources Agency in June 2009.

Per SB 97, the draft guidelines were approved in December 2009, meeting the requirement of the Natural Resources Agency to certify and adopt the guidelines by January 1, 2010. The guidelines incorporate proposed text changes related to the significance criteria for evaluating GHG emissions on the environment. The draft guidelines were formalized on March 18, 2010 and all CEQA documents prepared after this date are required to comply with the OPR-approved amendments to the CEQA Guidelines. As part of these Guidelines,

OPR recommends that each agency develop an approach to determining the significance of GHG emissions, based to the extent possible on scientific and factual data, that considers the following factors: (1) the extent to which the project may increase or reduce GHG emissions compared to the existing environment; (2) whether project emissions exceed a threshold of significance that the lead agency has determined applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for reducing or mitigating greenhouse gas emissions.

The OPR does not identify a threshold of significance for GHG emissions within the amended CEQA Guidelines, nor has it prescribed methodologies or specific mitigation measures for evaluating and reducing GHG emissions. Thus, the amendments encourage lead agencies to develop their own determinations based on substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier subsequent project-level environmental review processes.

Senate Bill 375 – California's Regional Transportation and Land Use Planning Efforts

California enacted legislation (SB 375) to attempt to reduce GHG emissions by modifying land use planning and approval practices. SB 375, signed in September 2008, requires metropolitan planning organizations (MPO), such as ABAG, to adopt a sustainable community strategy (SCS) or alternative planning strategy when preparing their updated Regional Transportation Plans for the purpose of reducing GHG emissions. All future transportation funding must be consistent with the SCS. The legislation also allows developers to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. SB 375 also directs CARB to develop regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB will work with the MPOs and regional planning agencies (ABAG and MTC in the Bay Area) to align their regional transportation, housing and land use plans to reduce vehicle miles traveled and attain its GHG reduction targets. However, the regional targets for reductions in GHG emissions have not yet been adopted by CARB.

CARB Climate Change Scoping Plan

In response to the aforementioned state legislation (specifically AB 32), CARB prepared the Climate Change Scoping Plan (Scoping Plan), which incorporates programs and measures to address the remaining GHG emission reductions needed to be reduced to 1990 levels by year 2020. The Scoping Plan was approved by the CARB Board in December 2008, and includes a host of strategies to achieve a 30 percent reduction in projected GHG emission levels in 2020 to meet 1990 GHG emission levels. The Scoping Plan also recommends GHG emission reduction targets for each emission section of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emission standards for light-duty vehicles (reduction of 31.7 million metric tons of CO2e);

- Low-Carbon Fuel Standard (15 million metric tons of CO2e);

- Energy efficiency measures in buildings and appliances for heat and power systems (26.3 million metric tons of CO2e); and

- Renewable portfolio standard for electricity production (21.3 million metric tons of CO2e).

California Attorney General's Office Strategies

The California Attorney General's Office developed a set of "best practice" greenhouse gas reduction strategies and mitigation measures for local governments to consider when updating their General Plans. This list was last updated in January 2010.[83] The Attorney General's Office also provides guidance to local jurisdictions in determining climate change impacts as part of the public review process.

California Climate Action Team Report Standards

Per Executive Order S-05-05, signed in June 2005, the State of California mandates the preparation of biennial science assessment reports on climate change impacts and adaptation options for the state. The first California Climate Action Team (CCAT) Assessment Report was produced in March 2006, followed by updated reports in 2009, and 2010. The reports contain a number of strategies that State agencies are pursuing or will undertake in the future to reduce emissions.

State Green Building Standards Code (CALGreen)

Adopted by the State Building Standards Commission in January 2010, CALGreen supplements the California Building Standards Code (Title 24) and went into effect on January 1, 2011. It requires all new buildings in the state to incorporate energy and water saving features. New standards include the following:

- Water efficiency: New buildings must demonstrate at least a 20 percent reduction in water use over typical baseline conditions.

- Construction waste: At least 50 percent of construction waste must be recycled, reused, or otherwise diverted from landfilling.

[83] http://ag.ca.gov/globalwarming/pdf/GP_policies.pdf

- Interior finishes: Interior finishes such as paints, carpet, vinyl flooring, particle board, and other similar materials must be low-pollutant emitting.

- Landscape irrigation: In nonresidential buildings, separate water meters must be provided for a building's indoor and outdoor water use. Large landscape projects must use moisture-sensing irrigation systems to limit unnecessary watering.

*Regional and Local*

Bay Area Air Quality Management District (BAAQMD)

The BAAQMD adopted GHG thresholds in June 2010 as part of its updated CEQA Air Quality Guidelines. For long-range plans like the General Plan Update, the BAAQMD CEQA Guidelines establish a threshold of 6.6 metric tons of CO2e per year per service population for long-range, plan-level GHG emission impacts. In other words, a plan that complied with the BAAQMD standard would result in not more than 6.6 metric tons of CO2e emissions per year per resident and employee.

Fremont GHG Reduction Strategy

Baseline Greenhouse Gas Emissions Inventory: In June, 2008, the City issued a Baseline Greenhouse Gas Emissions Inventory prepared by ICLEI, with results summarized below. The inventory showed that the majority of community emissions in the baseline year of 2005 were a by-product of transportation.

| SECTOR | C02E (TONS) | PERCENT OF TOTAL |
|---|---|---|
| Residential | 276,172 | 15 |
| Commercial/Industrial | 405,996 | 22 |
| Transportation | 1,116,412 | 60 |
| Waste | 63,641 | 3 |
| TOTAL | 1,862,221 | 100 |

About two-thirds of the transportation-related emissions were related to State highways over which the City has no regulatory authority, highlighting the importance of statewide strategies to reducing GHG emissions in Fremont.

City of Fremont Climate Action Plan

The City's DRAFT Climate Action Plan (CAP) outlines strategies and provides tools and encouragement for residents and local businesses to reduce GHG emissions. The CAP was drafted in conjunction with the DRAFT General Plan Update. The CAP includes a GHG emissions inventory from the year 2005 and sets forth a GHG reduction target of 25 percent below the 2005 baseline by the year 2020.

It should be noted that the CAP does not adhere to the DRAFT BAAQMD Guidance for a qualified climate action plan, and is not intended for use in the environmental review of future development projects in the City. Rather, the CAP is a menu of strategies that the City will implement over time: some in the near term (1-3 years), some in the medium term (3-5 years), and some in the long term (beyond 5 years). The CAP is intended to be updated and refined every five years as best practices evolve and quantitative approaches to GHG inventorying and modeling become more sophisticated.

City of Fremont Green Building Requirements

"Green building" is the practice of decreasing a building's demand for energy, water, and other materials and reducing a building's negative impacts on human health and on the local environment. According to the U.S. Green Building Council (USGBC), buildings annually consume more than 30 percent of the total energy and 60 percent of the electricity used in the United States.

In 2006, the City adopted a Sustainability Policy that called for all new City buildings over 10,000 square feet in size to be designed and built to qualify for LEED Silver certification.

In October 2010, in connection with the adoption of the California Green Building Code, the City chose to also adopt the optional Tier 1 standards for residential construction. As a substantially equivalent alternative, home builders can opt to certify (through an independent third party) that their projects achieve 50 points on the Green-Point Rated system developed by Build-It-Green.

City of Fremont Solid Waste Diversion Goal

In 1999, the City of Fremont City Council adopted a goal to divert 75 percent of solid waste generated in Fremont from the landfill, far exceeding the statewide requirement of 50 percent. Since adopting the more aggressive goal, the City has made steady progress; in 2009, the City diverted 71 percent of the community's solid waste from the landfill.

## IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

Significance Criteria

The City of Fremont has determined that a project may have a significant adverse effect on the environment related to greenhouse gas emissions if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases

The City is using consistency with AB32 and with the BAAQMD CEQA Guidelines for the Year 2020 as the threshold to determine significance of GHG impacts. The City considers consistency with the BAAQMD threshold to be a service population ratio of no more than 6.6 metric tons (mtons) of CO2e per year as the appropriate measure for determining the significance of greenhouse gas emission at the plan level[84]. The service population definition is the combination of residents plus employees within the plan boundaries.

## DRAFT GENERAL PLAN UPDATE POLICIES

Implementation of the following DRAFT General Plan Update Policies are intended to reduce potentially adverse effects related to global climate change that may be associated with future development:

- *Policy 2-1.7: Becoming a More Transit-Oriented City.*
- *Policy 2-2.2: Integrating Land Use and Transportation Choices.*
- *Policy 2-3.4: Infill Development.*
- *Policy 2-3.6: Connectivity.*
- *Policy 2-3.7: Green Neighborhoods.*
- *Policy 2-5.12: Transportation Demand Management.*
- *Policy 3-1.3: Transit-Friendly Street Design.*
- *Policy 3-1.5: Improving Pedestrian and Bicycle Circulation.*
- *Policy 3-1.7: Sidewalks.*

[84] BAAQMD CEQA Air Quality Guidelines May 2011

- *Policy 3-2.1: Coordinating Land Use and Transportation.*
- *Policy 3-2.2: Reducing Vehicle Trips through Land Use Choices.*
- *Policy 3-2.3: Pedestrian Networks.*
- *Policy 3-3.4: Improving Bicycle Circulation.*
- *Policy 3-2.5: Pedestrian and Bicycle Master Plans.*
- *Policy 3-2.6: Bus Service.*
- *Policy 3-2.7: Transit Provisions in New Development.*
- *Policy 3-2.8: Transfers Between Transit Modes.*
- *Policy 3-2.9: Reducing Single Occupancy Vehicle Commuting.*
- *Policy 3-2.10: Employer-Based Trip Reduction Programs.*
- *Policy 3-2.11: Car-Sharing.*
- *Policy 3-2.12: Shuttle Buses and Circulators.*
- *Policy 9-2.1: Reduce Greenhouse Gas Emissions from City Facilities.*
- *Policy 9-2.2: Sustainable City Buildings.*
- *Policy 9-6.4: Consider Environmental Benefits and Impacts.*
- *Policy 11-4.13: Sustainable Design.*

## IMPACTS AND MITIGATION MEASURES

GHG Emissions Associated with Implementation of the DRAFT General Plan Update

The DRAFT General Plan Update has the potential to increase the number of future residents and jobs within the City of Fremont, which may both directly and indirectly result in the increase of GHG emissions. However, the expected emissions of the estimated 49,496 new residents and 68,100 new jobs will equate to 5.57 mtons of CO2e per service population, which is below the threshold established by the BAAQMD of 6.6 mtons of CO2e per service population. This increase in GHG emissions associated with implementation of the DRAFT General Plan Update would be considered ***less than significant***.

The DRAFT General Plan Update land use projections include four categories for creating a GHG emission profile. The categories include two residential types and two employment

types. Residential use profiles include the existing "typical" or standard housing types of Fremont in 2010, and a new profile for high density TOD development that will occur within Priority Development Areas (PDA). Employment has a similar definition of existing typical employment patterns and a new profile of high intensity TOD development of office-oriented jobs within PDAs. This approach effectively divides the projected new development into urban and suburban attributes. Approximately one-third of new job creation and approximately two-thirds of new housing development is projected to occur within PDAs. This reflects the relative availability of developable and redevelopable land, existing building stock, and development trends as described in more detail in the **Project Description** (Chapter 3, above).

The analysis uses BAAQMD approved modeling tools of the URBEMIS 2007 v 9.2.4. and the spreadsheet program BGM Calculator 1.1.9. The modeling assumes the 2012 model year information for travel and fleet estimates and uses water, energy and solid waste information contained in the BGM model. No modifications were made to emission factors. Modifications of usage inputs included: reductions in trip generation and corresponding vehicle miles traveled related to local circumstances and travel forecast modeling results; incorporation of city data on solid waste generation; and accounting for existing regulations in place for Title 24 and current CalGreen building code and Tier I CalGreen residential building requirements. These modifications are consistent with the BAAQMD GHG Plan Level Quantification Guidance of May, 2010 (see also **Appendix F**). **Table 4-44** conservatively does not include benefits of state-level actions that are not already in place and in practice.

**Table 4-44** includes estimates for 2010 baseline, interim 2020 benchmark, and 2035 as the planning horizon of the DRAFT General Plan Update. The interim year of 2020 includes projections of housing growth consistent with average annual housing production trends and an estimate of strong job growth, with an emphasis on filling existing vacant space over development of new buildings. Comparing to ABAG Projections 2009, the City has a higher estimate of jobs at 104,900 jobs versus 101,500 as projected by ABAG. The most significant assumption behind the jobs difference is the large number of unique jobs attributable to auto manufacturing at the Tesla plant. The residential housing unit figure also exceeds the ABAG figure to account for presumed reoccupation of vacant housing units that and the additional production of new units. The City estimates 2020 residential units at 77,129 units versus 76,790 as projected by ABAG. The 2035 estimates are consistent with the projected capacity available for housing and jobs as described by Chapter 3, **Project Description**, above. The total 2035 jobs and housing projected in the DRAFT General Plan Update exceed ABAG 2009 projections.

Applying the emission profiles to the 2010 level of existing development yields an estimate of 1.993 million mtons of CO2e annually. Estimated total emissions are projected to increase to 2.187 million mtons by the year 2020 and to 2.649 million metrics tons in 2035. The overall total emissions increase is in accordance with economic and population growth;

however, the performance level ratio of emissions trends downward as a result of the land use plan of the DRAFT General Plan Update. The trend goes from 6.55 mtons CO2e per existing service population to 5.57 mtons CO2e per new service population over the next 25 years. The Citywide service population ratio in 2035 would be 6.27 mtons CO2e. The resulting performance level and service population ratio is projected to be below the BAAQMD-established threshold of 6.6 mtons of CO2e per service population.

**TABLE 4-44: PROJECTED GHG EMISSIONS PER SERVICE POPULATION**

| | 2010 UNITS | 2010 SP | 2010 CO2E (MTONS) | 2020 NEW UNITS | 2020 NEW SP | 2020 NEWS CO2E (MTONS) | 2035 NEW UNITS | 2035 NEW SP | 2035 NEW CO2E (MTONS) |
|---|---|---|---|---|---|---|---|---|---|
| Residential Other | 71,004 units | 214,089 | 1,323,070 | 4,945 units | 14,835 | 86,933 | 5,646 units | 16,938 | 99,257 |
| Jobs Other | 36,000,000 sq. ft. | 90,400 | 669,864 | 2,000,000 sq. ft. | 11,000 | 78,100 | 9,143,000 sq. ft | 47,683 | 338,549 |
| Residential PDA | | | | 1,180 units | 2,950 | 9,352 | 13,023 units | 32,558 | 103,207 |
| Jobs PDA | | | | 1,000,000 sq. ft. | 3,500 | 19,600 | 58,570,000 sq. ft. | 20,500 | 114,800 |
| Totals | | 304,489 | 1,992,934 | | 32,285 | 193,985 | | 117,679 | 655,813 |
| Service Population Ratio (mtons/sp/yr) | | | 6.545 | | | 6.008 | | | 5.573 |

In additional to the land use planning aspects and expanded transit options envisioned in the DRAFT General Plan Update, additional measures will apply to future development and the existing community that will further reduce projected emissions. State-level action in accordance with AB32 will provide substantial reductions in transportation emissions and in the energy sector. Most notably, implementation of AB 1493 will reduce transportation emissions by 20 percent in the year 2020[85], and implementation of the 33 percent renewable energy portfolio standards (RPS) will lower community-wide energy emissions by 2020. The current power provider for Fremont is Pacific Gas and Electric Company (PG&E), which estimates 14.4 percent of its power came from renewable sources in 2010[86]. PG&E

[85] CAPCOA Quantifying Greenhouse Gas Mitigation Measures August 2010

[86] http://www.pge.com/b2b/energysupply/wholesaleelectricsuppliersolicitation/renewables2010 visited May 26, 2011

achievement of the RPS 33 percent standard would result in a 19 percent decrease in the CO2 emission coefficient for electrical energy use community-wide. The City of Fremont also aspires to reduce projected 2020 emissions by 25 percent versus its 2005 ICCLEI inventory with its upcoming Climate Action Plan. The DRAFT Climate Action Plan includes measures affecting community-wide emissions through both mandatory and voluntary programs with an estimated effectiveness of further reductions of 2 percent.

Conflicts with Plans, Policies or Regulations Adopted to Reduce Greenhouse Gas Emissions

The DRAFT General Plan Update does not conflict with existing plans, polices or regulations to reduce GHG emissions. The DRAFT General Plan Update expressly states the intent of promoting sustainability, and includes an aspirational goal of reducing greenhouse gas emissions by 25 percent below 2005 levels by 2020. Goal 7.8 and Policy 7.8.1 of the Conservation Element to strive to reduce greenhouse gas emissions and include a measure to update and review the City's greenhouse gas emission inventory and reduction measures every five years. The overall vision of the DRAFT General Plan Update to create a more strategically urban city also supports regional efforts related to SB 375 for Sustainable Community Strategies that will reduce emissions related to transportation. Overall, the DRAFT General Plan Update promotes consistency with both state- and regional-level initiatives related to greenhouse gas emission reductions. In terms of potential conflicts with plans, policies or regulations adopted to reduce GHG emissions, implementation of the DRAFT General Plan Update would have a ***less than significant*** impact.

Cumulative Impacts

**Impact GCC-1: Potential Exceedance of Future BAAQMD Regulatory Thresholds for Greenhouse Gas Emissions.** While the GHG emission analysis conducted for the DRAFT EIR shows that the DRAFT General Plan Update conforms to BAAQMD-established performance levels standards for emissions through 2020, there are no established BAAQMD regulatory thresholds through 2035. In the absence of BAAQMD guidelines, the operative standard is AB32, which requires an 80 percent reduction from 1990 levels by 2050. Although it is likely that the per-service-population GHG emissions from new development in Fremont in the years subsequent to 2020 will continue to decrease, it is difficult to estimate the magnitude of the decrease. Much depends on actions of the Federal and State governments, as these entities have a much greater ability to effect emission reductions than do local governments. It is, therefore, possible (absent sufficiently aggressive action at the State and Federal levels) that development in Fremont between 2020 and 2035 will result in a ***cumulatively significant and unavoidable*** impact.

# Q. PLANNING POLICY ANALYSIS

This section of the DRAFT EIR summarizes the DRAFT General Plan Update's consistency with federal, state, regional and City of Fremont plans and policies.

## FEDERAL PLANS AND POLICIES

There are a number of federal plans or policies that directly relate specifically to future development within Fremont. There are federally-protected wetlands and special species habitats found within Fremont, and all development proposed in areas where protected wetlands or habitats are present will be required to comply with federal regulations applicable to development in those areas. Most of the local federally-protected wetlands and habitat areas are located in the western portions of Fremont adjacent to San Francisco Bay. Much of this area is in federal ownership and part of the San Francisco Bay National Wildlife Refuge, where no development is anticipated under the DRAFT General Plan Update. Two Interstate Highways pass through Fremont (I-680 and I-880), and any future improvements which may be proposed within those rights-of-way would require coordination with the federal government. All development taking place within Fremont under the DRAFT General Plan Update would be required to comply with all federal regulations which apply to all development projects anywhere in the U.S. (e.g., compliance with NPDES permit conditions to reduce the potential for stormwater-related pollution, compliance with all regulations related to the use, storage, transportation and disposal of hazardous materials, etc.).

## CALIFORNIA PLANS AND POLICIES

As indicated in the discussion of Global Climate Change (**Section M**, above), the State of California has adopted legislation intended to reduce greenhouse gas emissions statewide. This legislation includes **Assembly Bill 32 (AB 32),** the California Global Warming Solutions Act of 2006, which commits California to reduce GHG emissions to 1990 levels, and **Senate Bill 375 (SB 375)**, which would require a significantly increased focus on higher-intensity transit-oriented development in order to accommodate increased population and meet the mandates of AB 32. The DRAFT General Plan Update is intended to promote sustainable development within Fremont, including mixed-use, higher-intensity transit-oriented development in the Priority Development Areas, consistent with the objectives of AB 32 and SB 375.

## REGIONAL PLANS AND POLICIES

The Association of Bay Area Governments (ABAG) has compiled a listing of locally-identified Priority Development Areas (PDAs) within the nine-county San Francisco Bay region which are intended to support pedestrian-friendly, transit-oriented infill development in the future. The DRAFT General Plan Update directs the major portion of future

development in Fremont toward the local PDAs, which would promote pedestrian-friendly, transit-oriented development consistent with ABAG objectives for PDAs.

## CITY OF FREMONT PLANS AND POLICIES

Implementation of the DRAFT General Plan Update would result in development that would substantially increase the intensity of land uses in those portions of the city (e.g., PDAs, including City Center and the Town Centers) where strategic urbanization is desired beyond what would be permitted under the current General Plan and existing land use regulations. However, this need not be considered a "conflict" with existing local land use plans, policies and regulations, since these would permit additional development in these areas (although not to the extent anticipated under the DRAFT General Plan Update). Additionally, development of purely residential projects within the CBD would be inconsistent with current General Plan policies for this area.

Implementation of the applicable DRAFT General Plan Update policies would continue to protect Fremont's hill areas and baylands, and would ensure that future development maintain compatibility with existing residential neighborhoods.

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# 5

# ALTERNATIVES

## INTRODUCTION

CEQA requires the analysis of alternatives to a project subject to environmental review. The purpose of the alternatives section is to provide decision-makers and the public with a discussion of alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. Evaluation of alternatives should present the proposed action and all the alternatives in comparative form, to define the issues and provide a clear basis for choice among the options.

CEQA Guidelines Section 15126.6 requires that a reasonable range of alternatives to the proposed project be described and considered within an EIR. The alternatives considered should represent scenarios that could feasibly attain most of the basic objectives of the project, but will avoid or substantially lessen the significant environmental effects of the project. CEQA requires that the lead agency adopt mitigation measures or alternatives, where feasible, to substantially lessen or avoid significant environmental impacts that would otherwise occur. Where a lead agency has determined that, even after adoption of all feasible mitigation measures, a project as proposed would still cause significant environmental effects that cannot be substantially lessened or avoided, the agency, prior to approving the project as mitigated, must first determine whether, with respect to such impacts, there remain any project alternatives that are both environmentally superior and feasible within the meaning of CEQA.

CEQA provides the following guidelines for discussing project alternatives:

- An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation (§15126.6(a)).

- An EIR is not required to consider alternatives which are infeasible (§15126.6(a)).

- The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project (§15126.6(b)).

- The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (§15126.6(c)).

- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis and comparison with the proposed project (§15126.6(d)).

CEQA requires the analysis of alternatives that would feasibly attain "most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project."[1] Therefore, the Project's stated objectives can be used as a metric against which an alternative can be measured when determining overall feasibility.[2]

## DRAFT GENERAL PLAN UPDATE GUIDING PRINCIPLES

The following are the Guiding Principles of the DRAFT General Plan Update:

- A Sustainable Community
- Becoming Strategically More Urban
- Mobility – It's Not Just About Cars
- Enhancing Fremont's Parks and Open Space
- An Inclusive Community
- Vibrant Centers
- A Diversified and Successful Local Economy
- A Well-Designed Urban Landscape
- Preservation and Enhancement of Single Family Neighborhoods
- Community Life

[1] *CEQA Guidelines*, Section 15126.6 (a)

[2] Ibid., Section 15126.6 (a)

### DRAFT GENERAL PLAN UPDATE OBJECTIVES

The purpose of the DRAFT General Plan Update is to provide the City with a current and relevant vision for its long term growth and development. Specific objectives of the project include:

- Update the existing General Plan prepared in 1991 with a new plan that reflects the goals and vision of the community through the year 2035;
- Ensure the General Plan Update achieves compliance with state laws and applicable regulations;
- Ensure that the long term growth and development of the City is done in a sustainable fashion with an emphasis on conservation and efficient use of resources;
- Ensure a high quality of development with an urban design aesthetic for place making;
- Preserve, acknowledge and embrace the City's cultural and historic heritage;
- Create strong economic sustainability that attracts jobs, provides services in all sectors
- Increase the tax base and revenue to support desired City services
- Allow neighborhoods to grow and evolve to improve the health, safety, general welfare and overall quality of life for all in the City
- Increase use of alternative means of transportation and reduce vehicle miles traveled by providing for attractive and convenient transportation alternatives and places supporting multiple modes of travel;
- Provide a safe and efficient pedestrian and bicycle network throughout the entire City;
- Preserve the City's Open Space Frame and allowed continued enhancement and preservation of all open space areas in the City.

## ALTERNATIVES

The two alternatives discussed in this section are:

- Alternative 1 - No Project/Development Under Existing General Plan
- Alternative 2 – Development Trend Growth

## ALTERNATIVES CONSIDERED BUT NOT FURTHER EVALUATED

In some instances, an alternative project site may be one of the alternatives evaluated in an EIR. However, in the case of the DRAFT General Plan Update, the Project is "location-specific": the DRAFT General Plan Update is intended to guide future development within the City of Fremont. For this reason, an alternative that would consider a different development site was not evaluated further.

There are other possible development patterns that could be imagined for the City of Fremont that could represent alternatives to the DRAFT General Plan Update during the planning period. One might involve modifications of the existing land use regulations to permit more intensive residential development in areas which currently support non-residential uses in certain areas as a means of providing opportunities for urban infill development. Another might involve modifications of the existing land use regulations to permit substantially more retail uses in certain areas, as a means of enhancing the City's ability to generate sales tax revenue. Although there are an infinite number of variants on these concepts, these types of development were not evaluated as alternatives to the proposed General Plan Update because they were considered by the City to be less likely to promote the Guiding Principles of the DRAFT General Plan Update and the objectives of the project than would implementation of the Plan itself.

## ALTERNATIVE 1: NO PROJECT/DEVELOPMENT UNDER EXISTING GENERAL PLAN

CEQA Guidelines Section 15126.6(e) requires that a "no project" alternative be evaluated, along with its impacts. However, the "no project" alternative must be the *practical result* of non-approval of the project, which does not necessarily equate to "no development." CEQA Guidelines Section 15126.6(e)(3)(B) states that "if a project is a development project on an identified property, the "no project" alternative is the circumstances under which the project does not proceed. Here, the discussion would compare the environmental effects of the current General Plan remaining in effect, which would continue to guide development within Fremont in the absence of the DRAFT General Plan Update.

### Description of No Project/Development Under Existing General Plan Alternative

Under this alternative, development in Fremont would continue to be guided by the current General Plan during the planning period of the DRAFT General Plan Update. For the purposes of this alternative, it is assumed that all existing uses in the City would continue to operate as they do now, although new development would also be anticipated, consistent with the current General Plan and other existing land use regulations. The current Housing Element of the General Plan has identified local sites where the development of between 4,000 and 5,000 new residential units could be permitted in Fremont under current land use regulations, which could support an additional population of between 12,000 and 15,000 people. Additional non-residential development would also be anticipated during the planning period, with the City of Fremont estimating that the total number of local jobs

would increase to 126,000 by 2035 under the No Project Alternative development assumptions.

Comparative Environmental Analysis

*Land Use and Planning*

In the EIR for the Fremont 1991 General Plan, it was determined that the 1991 General Plan contained policies which would serve to reduce anticipated development-related impacts associated with intensification of commercial and industrial uses, potential land use incompatibilities, potential impacts on open space and agricultural uses to a level of less than significant, as well as eliminate potential inconsistencies with the zoning code in force at that time (pages 3.1-23 – 3.1-35).

Under the existing General Plan, approximately 63 percent of the City's net land area is designated as Open Space. Of the 10,517 acres designated for residential use, only 619 acres (most in the immediate vicinity of the Fremont BART station) would support high-density residential development (at more than 23 units per acre). A total of 4,907 acres are designated for industrial uses, 1,007 acres are designated for commercial uses, and 48 acres are designated for mixed-use. Assuming that existing uses will remain in place, future development over the planning period would be expected to occur on vacant and underutilized land consistent with the land use designations of the existing General Plan:

| Designation | Vacant Acres | Underutilized Acres | Total Developable Acres |
|---|---|---|---|
| Residential | 172.50 | 315.78 | 488.28 |
| Industrial | 574.35 | 208.96 | 783.31 |
| Commercial | 44.97 | 29.47 | 74.44 |
| Mixed-Use | 2.19 | 26.23 | 28.42 |

Development anticipated under the current General Plan would not be expected to result in the physical division of any existing community within Fremont. Such development would be consistent with existing land use plans, policies and regulations. There are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, and development under the current General Plan would not conflict with any such plans. Development anticipated under the current General Plan would result in a more urbanized Fremont, but would not be expected to result in any cumulative physical disruption of existing communities within Fremont, or any cumulative impacts associated with conflicts with Habitat Conservation Plans or Natural Community Conservation Plans.

*Aesthetics*

In the EIR for the Fremont 1991 General Plan, it was determined that existing positive visual relationships would be strengthened and undesirable aesthetic conditions would be

eliminated or diminished through the implementation of 1991 General Plan policies, and no significant adverse visual effects associated with development anticipated under the 1991 General Plan were identified (page 3.10-19).

Under the existing land use regulations, building heights are limited to a greater extent than would be the case under the DRAFT General Plan Update. This would tend to reduce the potential for new structures to interfere with any formally-identified view corridors, reducing potential impacts related to scenic vistas and scenic routes to a level considered less than significant. In some portions of Fremont, development under the current General Plan would be of higher intensity than that currently present there, and higher density development would represent a change in the existing visual character of those areas. However, development anticipated under the current General Plan would not degrade the existing visual character of these areas, and the resulting change in the existing visual character of the area would be considered a less than significant environmental effect. Development under the current General Plan would result in the construction of new structures on land that is currently vacant. Future structures, the lighting of future parking facilities, and the lights from vehicles that would be parked in those facilities would represent new sources of light and glare within the community. However, site-specific evaluation of the lighting and glare effects associated with proposed development projects would enable potential lighting-related impacts associated with future development to be reduced to a level considered less than significant.

*Population, Employment and Housing*

Population growth under the existing General Plan (based on the availability of housing development sites in Fremont identified in the current Housing Element) would be approximately 30 percent of that anticipated under the DRAFT General Plan Update. Implementation of the current General Plan would not induce population growth, since new residential development under the current General Plan would instead be intended to accommodate a portion of the City's share of the region's anticipated population growth, and would not involve the extension of infrastructure or public services to undeveloped areas to support new residential development.

The Housing Element of the DRAFT General Plan Update (already adopted and in-force) includes a policy and an action intended to promote the preservation of existing housing when redevelopment of property which currently supports housing is considered:

> *Policy 4.01: Preserve the existing supply of affordable housing, rental apartments, and mobile homes.*
>
> *Action 4.01-D: Mobile Home Preservation and Rent Stabilization. Preserve existing mobile homes (756 mobile homes) and continue to enforce the City's Mobile Home Rent Stabilization Ordinance.*

In some instances, future development under the current General Plan could involve the loss of some existing housing units. However, following anticipated development in these areas under the current General Plan there would likely be a net increase in the total number of housing units in these locations due to the increased residential densities, so there would be no need or requirement to construct replacement housing elsewhere. While the loss of existing housing units could also mean the displacement of those currently living in those housing units, the total number of people that might be displaced is not considered substantial by the City of Fremont.

*Transportation and Circulation*

In the EIR for the Fremont 1991 General Plan, it was determined that identified policies and implementation actions (including proposed roadway improvements and TDM measures) would alleviate the potential for traffic congestion (pages 3.3-24 - 3.3-36).

To compare the transportation-related effects of No Project alternative to the DRAFT General Plan Update, a comparison was made between the two travel models. The 2035 General Plan Update Conditions travel forecast model included several land use and network changes that resulted in trips being redistributed compared to the 2030 General Plan model. Some streets are projected to receive less traffic, while others are projected to receive more. This shows up in several places throughout the city. It is not just a result of future development within Fremont and citywide traffic patterns, but also external items that result in how traffic from outside Fremont passes through the city. As through-traffic patterns change, roadway capacity on some streets may become available that was otherwise used. And as capacity on roadways becomes available, local traffic assignments (which are based on travel time) will also change. Similarly, as roadways become more congested, traffic will shift to other routes. The forecast for the No Project Alternative traffic operations would result in degraded signal operations from both increased development (growth of housing by 6 percent and jobs by 30 percent) and traffic increasing on major roadways (due in large part to regional growth) by 1 to 1.5 percent a year. The major through routes and arterials of the City would fall below the LOS D threshold in many locations as travel would be of similar patterns as it is today. Planned TIF improvements would relieve some congestion, but would not mitigate all potential impacts to a less than significant level.

The changes in traffic route choice also lead to changes in trip lengths, as shown by the changes in vehicle miles traveled (VMT). Under the No Project condition, travelers will travel longer distances during the peak hours, but less VMT on a daily basis. This is based on the location of housing and jobs and the choices made available to them, compared to those under the DRAFT General Plan Update. On a daily basis, the total number of trips would be fewer, but trips per capita would be greater.

**Table 5-1** provides a comparison of (VMT) between the No Project alternative, the 2035 Trend Growth alternative (discussed below), and 2035 DRAFT General Plan Update Conditions.

**TABLE 5-1: VEHICLE-MILES TRAVELED (VMT) WITHIN THE CITY OF FREMONT, ALL ALTERNATIVES**

| Period | 2005 Baseline | No Project Alternative (General Plan 2030 Forecast Model) | 2035 Trend Growth Alternative | 2035 General Plan Update |
|---|---|---|---|---|
| AM Peak Hour | 447,423 | 802,875 | 707,057 | 722,315 |
| PM Peak Hour | 480,982 | 824,957 | 728,317 | 750,739 |
| Daily | 6,703,741 | 9,365,265 | 10,437,627 | 10,758,080 |

Development under the existing General Plan would not be expected to affect current air traffic patterns in any way. Project-specific review could be expected to reduce potential traffic hazards associated with design features to a level considered less than significant. All development proposed under the current General Plan would be subject to review by the City of Fremont (including the Fremont Fire Department and the Fremont Police Department) prior to approval to ensure that individual development projects do not impede emergency access, reducing potential impacts to a level considered less than significant. The existing General Plan does not conflict with policies supporting alternative transportation modes.

*Air Quality*

In the EIR for the Fremont 1991 General Plan, it was determined that new construction would generate particulate emissions, increased traffic would change the local spatial and temporal distribution of ambient CO and generate ROG, CO and NOx in quantities large enough to contribute significantly to the regional pollutant load. That EIR identified mitigation measures which, if implemented effectively, would reduce these potential impacts, although those impacts related to increased traffic would remain potentially significant (pages 3.7-12 – 3.7-19).

Development under the existing General Plan could be expected to result in the same types of air quality impacts associated with implementation of the DRAFT General Plan Update, with impacts associated with vehicle emissions likely to remain significant and unavoidable. Since certification of the EIR for the Fremont 1991 General Plan, new methodologies have been developed for evaluating air quality impacts, and thresholds of significance for air quality impacts have been defined more explicitly. As a result, development under the existing General Plan would be expected to have potentially significant adverse air quality impacts related to the provision of parking, exposure of sensitive receptors to TACs, and exposure of

sensitive receptors to construction emissions in the absence of mitigation measures similar to **Mitigation AIR-2** and **Mitigation AIR-3**, discussed above.

*Noise and Vibration*

In the EIR for the Fremont 1991 General Plan, it was determined that noise associated with new development (and with related increased traffic) could be mitigated through the implementation of policies and implementation measures identified in the 1991 General Plan and through the construction of soundwalls as part of the State Route 84 extension project (pages 3.8-7 – 3.8-14).

The use of project-specific noise analyses could be expected to reduce potential exposure of new land uses to excessive noise, and to adverse noise effects associated with potentially incompatible land uses to a level considered less than significant. However, exposure to increased traffic-related noise, and excessive noise and vibration associated with construction activity could result in significant and unavoidable impacts associated with development under this alternative, even with the implementation of **Mitigation NOI-4** and **Mitigation NOI-5**.

*Hydrology and Water Quality*

In the EIR for the Fremont 1991 General Plan, it was determined that a number of 1991 General Plan policies would reduce anticipated development-related effects on water quality and the hydrologic regime (pages 3.5-7 – 3.5-9).

Residential, commercial, industrial, and public uses consistent with the current General Plan could introduce additional non-point source pollutants to downstream surface waters, could result in increased soil erosion and sedimentation during construction activities (thereby degrading water quality in downstream waterways), and could allow additional non-point pollution sources to contaminate groundwater recharge supplies. However, existing regulations and water quality policies and programs would reduce the potential for water pollution from these activities to a level considered less than significant.

Land use and development anticipated under the current General Plan would result in alterations to existing drainage patterns. However, current practices utilized in the review of flood control, drainage, and grading permits, stormwater runoff controls under NPDES programs, would mitigate potential impacts associated with increased runoff and other surface drainage modifications, including potential impacts to channel stability, and stream bank erosion.

Development under the current General Plan would result in increases in stormwater runoff and peak discharge, and could increase runoff and result in modifications to local and regional hydrology. Existing storm drain systems, including urban creeks and rivers, may be incapable of accommodating increased flows, potentially resulting in on- or off-site flooding.

However, existing policies and programs would reduce such impacts to a level considered less than significant.

Land uses and development anticipated under the current General Plan would allow continued development in 100-Year Flood Hazard Areas, which could result in potential adverse impacts in the absence of sufficient mitigation (e.g., appropriate design criteria to protect both proposed structures as well as existing structures downstream). Existing flood prevention strategies and policies would reduce potential inundation hazards from dam and levee failure to existing and future development to a level considered less than significant.

Sea level rise could expose the City to inundation impacts. However, existing flood prevention strategies and policies would reduce potential inundation hazards from sea-level rise to existing and future development to a level considered less than significant.

In terms of potential cumulative impacts, implementation of the current General Plan, in combination with the SFPUC WSIP, would contribute to the disruption of soils such that they could be carried in stormwater runoff to local waterways and wetlands and into the San Francisco Bay. The SFPUC WSIP would be required to comply with the California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, the SWRCB statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit), and coordinate with County and City water quality requirements. Cumulative impacts to stormwater and groundwater quality would, therefore, be considered less than significant.

Development anticipated under the current General Plan, in combination with other development in the region, would contribute to an increase in impervious surface in the watershed area that could increase the quantity and velocity of stormwater runoff and reduce groundwater recharge. If post-construction flows were not controlled, existing flooding problems could be exacerbated, and additional flooding and channel bank scouring could take place, resulting in an adverse impact on drainage and flooding. However, all future and planned projects in the region would be required to comply with the requirements of the State Water Resource Control Board C.3 regulations and coordinate with City and County construction and flooding regulations, including (for projects located within Fremont) City of Fremont Conservation and Safety Policies. The SWRCB regulations require the incorporation of post-construction stormwater controls, which include measures to reduce stormwater pollutants, or otherwise minimize the change in rate and flow of stormwater runoff. Each project would convey its stormwater runoff via different drainage systems, which would be required to have adequate capacity for any increased runoff. Therefore, the implementation of the current General Plan, in combination with other planned projects, would have a less than significant cumulative impact to drainage or flooding.

*Geology, Soils and Seismicity*

In the EIR for the Fremont 1991 General Plan, it was determined that adoption of the Health and Safety policies related to geo-seismic hazards would, in itself, have no adverse effects on the geologic environment, and that these policies are self-mitigating in that they represent administrative responses to the need to reduce or eliminate existing hazards and avoid future hazards (page 3.4-17).

Development under the current General Plan would be required to comply with the provisions of the Alquist-Priolo Earthquake Fault Zoning Act intended to reduce the potential impacts associated with surface fault rupture to a level considered less than significant. The 2010 California Building Code (*CalGreen*), which was adopted by the City of Fremont through Ordinance No. 23-2010, includes seismic design standards to minimize damage resulting from seismic shaking, which would be expected to reduce the impact of strong to very violent seismic ground shaking to a level considered less than significant.

Implementation of the current General Plan would result in construction in areas that may be underlain by liquefiable material or subject to seismically-induced landslides, which could result in potential adverse impacts in the absence of sufficient mitigation (e.g., appropriate design criteria to protect proposed structures). Such measures could reduce the potential impacts associated with seismically-related ground failure to a level considered less than significant.

Implementation of the existing Local Hazard Mitigation Plan, in conjunction with compliance with federal and state laws related to ensuring dam safety, would minimize the risk of exposing people and structures to the failure of dams in Fremont, reducing related potential impacts to a level considered less than significant.

Construction activities involved in development under the current General Plan will disturb topsoil, which, if not properly mitigated, can be mobilized by stormwater runoff, increasing erosion and loss of topsoil. However, existing regulations and water quality policies and programs would reduce the potential for water pollution from these activities to a level considered less than significant.

Expansive soils are encountered within areas planned for development under the current General Plan. The 2010 California Building Code (*CalGreen*), which was adopted by the City of Fremont through Ordinance No. 23-2010, requires a preliminary soil report to identify and mitigate potential geologic and soil related constraints to development, including expansive soils. As all development anticipated under the current General Plan would be required to comply with the 2007 California Building Code, potential impacts related to construction on expansive soils would be considered less than significant.

Development anticipated under the current General Plan would be required to be connected to the Union Sanitary District sanitary sewer facilities. Therefore, there is no impact related to future development on soils incapable of supporting septic systems.

Geologic and soil-related impacts associated with future development in the Fremont would involve potential hazards associated with site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each development site would be specific to that site, and its users and would not be common or contribute to (or be shared with, in an additive sense) the impacts associated with other sites. In addition, development on each site would be subject to uniform site development and construction standards designed to protect public safety. Therefore, provided the current policies and regulations are complied with, potential cumulative impacts related to geology and soils would be considered less than significant.

*Hazards and Hazardous Materials*

Implementation of the current General Plan would likely result in an increase in the number of businesses storing, using, transporting, and/or disposing of hazardous material within Fremont. However, these businesses would be required to comply with California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, which would reduce the potential impacts associated with the routine use, transport, or disposal of hazardous material to a level considered less than significant.

No hazardous material release is foreseen as a result of implementation of the current General Plan, although this would result in an increase in the number of people exposed to a potential release of hazardous materials. Compliance with California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations designed to reduce the hazard to the population due to a hazardous material release, in combination with emergency response from the City of Fremont Fire Department, would reduce the potential impact of a reasonably foreseeable accidental release of hazardous material to a level considered less than significant.

Implementation of the current General Plan would include development in the vicinity of existing and/or planned schools. However, state regulations on siting of hazardous materials facilities and schools limit the facilities' proximity to schools, reducing the potential impact to a level considered less than significant.

There are a number of sites within Fremont listed on government databases. These generally consist of leaking underground storage tanks (LUSTs), many of which have impacted soil and groundwater with petroleum. Public and environmental hazards are reduced by federal and state remediation regulations.

Implementation of the current General Plan would result in increased development within Fremont and would have the potential to change circulation patterns which could impact emergency evacuation or response plans. However, so long as there is adequate coordination with emergency service providers in the consideration of development proposals to prevent potential interference with an adopted emergency response or emergency evacuation plan, this potential impact could be reduced to a level of less than significant.

Under the current General Plan, limited development could take place in areas of high wildland fire risk. However, so long as there is adequate coordination with emergency service providers in the consideration of development proposals, potential risks associated with wildland fires could be reduced to a level considered less than significant.

Implementation of the current General Plan would result in increased population and a commensurate increase in the number of sites handling hazardous materials in the City. However, the cumulative impact is expected to be slight, and compliance with California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential cumulative hazardous materials impacts of current General Plan implementation. Implementation of the current General Plan would also result in new construction in areas that are subject to wildland fire hazards. However, so long as there is adequate coordination with emergency service providers in the consideration of development proposals, potential risks associated with wildland fires could be reduced to a level considered less than significant. Implementation of the current General Plan would not be expected to result in a cumulative impact on wildland fire hazards in surrounding areas.

*Cultural and Archaeological Resources*

In the EIR for the Fremont 1991 General Plan, it was determined that anticipated development could put some cultural or historical sites at risk, and could result in disturbance of subsurface cultural resources. These potential impacts would be reduced through implementation of policies identified in the 1991 General Plan (pages 3-12.10 – 3.12-11).

If future development were to occur under the current General Plan that could result in the demolition of historic resources (even with the level of protection provided by HARB review and the Historic Resources Ordinance), this would represent a significant and unavoidable environmental impact, which could not be mitigated to a level of less than significant. However, should demolition be proposed, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures.

The current General Plan identifies various sites where new construction or alterations to existing buildings may take place to achieve General Plan objectives. Such construction may alter the characteristics that justify a resource's historical significance, and may change the architectural context of nearby historical architectural resources. Existing City regulations are

designed to identify and discourage incompatible new construction and inappropriate building alterations. Some of the effects on historical resources associated with implementation of the current General Plan may be mitigated to a level of less than significant, and others may require further environmental review at the project level. Project compliance with the provisions of the Historic Resources Ordinance and conformance with the Secretary of the Interiors' "Standards" would reduce potential impacts associated with alteration of historic resources a level of less than significant.

Although no archaeological resources are currently known to exist in portions of the City where the current General Plan is anticipating development, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction or disturbance of unidentified subsurface archaeological resources, which would represent a potentially significant impact. Implementation of **Mitigation CUL-2** would reduce this impact to a level considered less than significant.

Although no paleontological resources are currently known to exist in those portions of the City where development would be anticipated under the current General Plan, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction of unidentified subsurface paleontological resources, which would represent a potentially significant impact. Implementation of **Mitigation CUL-3** would reduce this impact to a level considered less than significant.

Ground-disturbing activities associated with new construction and related underground utility installation could result in the disturbance of unidentified subsurface human remains, which would represent a potentially significant impact. Implementation of **Mitigation CUL-4** would reduce this impact to a level considered less than significant.

*Agricultural Resources*

In the EIR for the Fremont 1990 General Plan, it was determined that the 1991 General Plan contained policies which would serve to reduce anticipated development-related impacts on agricultural uses to a level of less than significant (pages 3.1-33 – 3.1-34). Development under the existing General Plan could result in the conversion of some lands currently in agricultural use to no-agricultural uses, and where this would involve lands currently designated as Prime Farmland or Unique Farmland (i.e., Guardino and I-680/Palm properties), such conversions would be considered a significant and unavoidable impact. Existing land use regulations provide some level of protection for parcels currently in and agricultural zoning district and for Hill Area lands which may be under Williamson Act contracts, which would reduce impacts associated with development under the existing General Plan to a level considered less than significant.

*Biological Resources*

In the EIR for the Fremont 1991 General Plan, it was determined that the 1991 General Plan policies would provide for protection and enhancement of the City's biological resources (page 3.6-8).

*Mineral Resources*

Development under the existing General Plan would not be expected to result in the loss of availability of known mineral resources, or in the loss of availability of any locally-known mineral resource recovery site. Development anticipated within Fremont under the existing General Plan would not be expected to add to any cumulative loss of access to existing mineral resources or mineral recovery sites within the region, and any related cumulative impacts would be considered less than significant.

*Public Services*

In the EIR for the Fremont 1991 General Plan, it was determined that the anticipated growth of population and employment would create increased demand for public services (e.g., increased need for additional public leisure and cultural facilities, increased demand for additional school facilities, increased demand for fire protection and increased demand for police protection), overcrowding of city government offices and degradation of open space lands through the development of parks. That EIR indicated that implementation of policies identified in the 1991 General Plan would be expected to reduce those potential impacts to a level of less than significant (pages 3.11-20 – 3.11-22, 3.13-10 – 3.13-11)).

*Infrastructure and Utilities*

In the EIR for the Fremont 1991 General Plan, it was determined that development anticipated would significantly affect the existing water supply, water delivery system, and existing landfill capacity, which could be reduced through implementation of policies identified in the 1991 General Plan (pages 3.11-21 – 3.11-22).

*Global Climate Change*

There would be less development under the "No Project" alternative than would be anticipated under the DRAFT General Plan Update. However, of the development that would occur, a smaller percentage would be in proximity to transit under the current General Plan than under the DRAFT General Plan Update. It is, therefore, likely that GHG emissions per service population would be higher under the "No Project" alternative and would exceed the threshold established by the BAAQMD of 6.6 mtons of CO2e per service population. This would be considered potentially significant. Conflicts with plans, polices, or regulations adopted for purposes of reducing the emissions of greenhouse gases threshold do not apply to this alternative.

*Planning Policy Analysis*

Development under the "No Project" alternative would be fully consistent with the existing General Plan and other current plans and policies.

## ALTERNATIVE 2: DEVELOPMENT TREND GROWTH

Description of Alternative

Under this alternative, anticipated development in Fremont over the planning period would be consistent with the land use designations and patterns established in the DRAFT General Plan Update. It assumed that a total of approximately 10,000 new residential units would be built, resulting in a population increase of 30,000, and that the total number of local jobs would increase to 130,000 during the planning period, based on a continuation of local growth trends in the past ten years. This represents a scenario which would result in more development than would be assumed under the No Project alternative, but approximately 60 percent of the residential development and approximately 45 percent of the non-residential development assumed for the purposes of environmental assessment under the DRAFT General Plan Update.

## COMPARATIVE ENVIRONMENTAL ANALYSIS

*Land Use and Planning*

Development under this alternative would not be expected to result in the physical division of any existing community within Fremont. As would be the case under the DRAFT General Plan Update, most future development would be directed toward the PDAs (which are generally areas where urban development has already taken place), and planned mobility improvements would not physically divide any existing communities. Implementation of Policy 4-1.22, above, would be expected to effectively limit the potential for future physical division of existing neighborhoods, reducing potential impacts to a level considered less than significant.

Implementation of this alternative would result in development that would substantially increase the intensity of land uses in those portions of the city (e.g., PDAs, including City Center and the Town Centers) where strategic urbanization is desired beyond what would be permitted under current plans, policies and regulations. However, this need not be considered a "conflict" with existing land use plans, policies and regulations, since these would permit additional development in these areas (although not to the extent anticipated under this alternative). Implementation of the applicable DRAFT General Plan Update policies would continue to protect Fremont's hill areas and baylands, and would ensure that future development maintain compatibility with existing residential neighborhoods, reducing potential conflicts with current land use plans, policies and regulations to a level considered less than significant.

There are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, and implementation of this alternative would not conflict with any such plans (no impact).

Development anticipated under this alternative would result in a more urbanized Fremont than is currently the case, with relatively high-intensity land uses located in the City Center and in Town Centers where residents and workers would have alternatives to the use of private automobiles. This development pattern would not be expected to result in any cumulative physical disruption of existing communities within Fremont. Since there are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, implementation of this alternative would have no related cumulative impacts associated with conflicts with such plans. Implementation of the applicable DRAFT General Plan Update policies related to land use compatibility would limit potential cumulative impacts associated with anticipated development to a level considered less than significant.

*Aesthetics*

Under this alternative, the implementation of several DRAFT General Plan Update policies would be expected to reduce potential development-related impacts on scenic resources to a level considered less than significant. These include Policy 2-1.3, Policy 4-1.7, and Policy 4-1.8 (which would protect Fremont's open space "frame"). Effective implementation of these policies would enable future development to minimize effects of development and avoid impacts to natural resources of the open space frame.

Some new structures that may be built within Fremont under this alternative could be expected to be taller than existing structures in the surrounding areas. However, compliance with DRAFT General Plan Update Policy 4-1.7 (which would protect Fremont's open space "frame"), Policy 4-3.8 (which would require appropriate massing and scale for proposed structures), and Policy 4-5.5 (which would provide protection for scenic routes) could be expected to result in the placement of taller buildings in such a way as to avoid potential interference with any formally-identified scenic routes within Fremont, reducing potential impacts on to a level considered less than significant.

In some portions of Fremont, development under this alternative would be of higher intensity than that currently present there, and higher density development would represent a change in the existing visual character of those areas. FAR allowances will be greater in the City Center and TOD Overlays. However, such development would not degrade the existing visual character of these areas, and the resulting change in the existing visual character of the area would be considered a less than significant environmental effect.

Development under this alternative would result in the construction of new structures on land that is currently vacant. Future structures, the lighting of future parking facilities, and the lights from vehicles that would be parked in those facilities would represent new sources of

light and glare within the community. However, effective implementation of DRAFT general Plan Update Policy 4-4.6 (which is intended to protect dark skies and reduce glare) would reduce potential lighting-related impacts associated with future development to a level considered less than significant.

Development anticipated under this alternative would contribute to a cumulative change in the visual character of the region that may be associated with all future development in the San Francisco Bay Area. However, as indicated above, development in Fremont would not be expected to degrade the existing visual character of Fremont, and, by extension, would not degrade the existing visual character of the region. Development under this alternative would not result in any substantive adverse effects to scenic vistas or scenic resources, and would not contribute to any cumulative loss of scenic vistas or resources within the region. Although additional development under this alternative would have the potential to increase light and glare locally and cumulatively within the region (particularly as it might adversely affect the night sky), effective implementation of DRAFT General Plan Update Policy 4-4.6 would reduce potential cumulative lighting-related impacts associated with future development in Fremont to a level considered less than significant.

*Population, Employment and Housing*

Population growth in Fremont under this alternative would be approximately two-thirds of that anticipated under the DRAFT General Plan Update during the planning period, with much of the future residential and mixed-use development within the City directed toward those areas best served by public transit, especially in the vicinity of the Fremont BART station and Central Business District, the Centerville Amtrak/ACE station, and the Irvington BART station. Implementation of this alternative would not induce population growth, since new residential development would instead be intended to accommodate the City's portion of the region's anticipated population growth, and would not involve the extension of infrastructure or public services to undeveloped areas to support new residential development.

The adopted Housing Element includes a policy and an action intended to promote the preservation of existing housing units when redevelopment of property which currently supports housing is considered:

> *Policy 4.01: Preserve the existing supply of affordable housing, rental apartments, and mobile homes.*
>
> *Action 4.01-D: Mobile Home Preservation and Rent Stabilization. Preserve existing mobile homes (756 mobile homes) and continue to enforce the City's Mobile Home Rent Stabilization Ordinance.*

Much of the development anticipated under this alternative would involve redeveloping parcels that already support urban uses (e.g., near the Fremont BART station, the Centerville

Amtrak/ACE station and the Irvington BART station) in high-density residential or mixed-use projects. In other areas where land may currently be considered underutilized, existing uses may be displaced by new development. In some instances, future development under this alternative could involve the loss of some existing housing units. However, following anticipated development in these areas under this alternative there would be a net increase in the total number of housing units in these locations due to the increased residential densities, which would reduce the impact associated with the loss of some existing housing units to a level of less than significant. There would be no need or requirement to construct replacement housing elsewhere.

As indicated above, with development under this alternative, some existing housing units may be demolished in order to enable higher density residential or mixed-use development in those areas with easy access to public transit or where parcels are currently considered to be underutilized. While the loss of existing housing units could also mean the displacement of those currently living in those housing units, the total number of people that might be displaced is not considered substantial by the City of Fremont.

Under this alternative, higher density residential and mixed-use development would be directed toward those areas best served by public transit, in an effort to reduce reliance on private automobiles (with a corresponding reduction in development-related traffic, air pollutants and greenhouse gases).

*Transportation and Circulation*

For the DRAFT EIR alternatives analysis, DKS evaluated LOS based on the year 2035 Trend Growth Alternative Condition. Forecasted growth is derived from the City of Fremont 2035 Travel Demand model, based on growth attributable to the City. Lane geometries are revised based on planned roadway improvements. The BART extension to Santa Clara County is assumed, with stations at Irvington and Warm Springs. Other Capital Improvements such as intersection and roadway projects are also assumed to be completed by 2035.

According to City of Fremont intersection LOS standards, about two-thirds of the signalized study intersections would operate below acceptable levels of service under the 2035 Trend Growth Alternative Conditions. The 2035 Trend Growth Alternative Condition intersections levels of service are presented in **Table 5-2** for signalized intersections.

**TABLE 5-2: 2035 TREND GROWTH ALTERNATIVE SIGNALIZED INTERSECTION LOS SUMMARY**

| # | Intersection | Peak | 2035 Trend Growth Alternative | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 1. | Alvarado Blvd / Deep Creek Rd | A.M. | **65.4** | **E** |
| | | P.M. | 45.0 | D |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | A.M. | 23.4 | C |
| | | P.M. | 17.7 | B |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 33.7 | C |
| | | P.M. | **60.3** | **E** |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | **146.5** | **F** |
| | | P.M. | **123.8** | **F** |
| 5. | Fremont Blvd / Decoto Rd | A.M. | **101.9** | **F** |
| | | P.M. | **107.6** | **F** |
| 6. | I-880 NB Ramps / Decoto Rd | A.M. | **147.6** | **F** |
| | | P.M. | **60.8** | **E** |
| 7. | I-880 SB Ramps / Decoto Rd | A.M. | **71.9** | **E** |
| | | P.M. | 14.0 | B |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | A.M. | 23.9 | C |
| | | P.M. | 17.9 | B |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps | A.M. | 18.4 | B |
| | | P.M. | 10.3 | B |
| 10. | Thornton Ave / SR-84 EB Ramps | A.M. | 32.6 | C |
| | | P.M. | 23.1 | C |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | **121.0** | **F** |
| | | P.M. | **107.7** | **F** |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | **222.8** | **F** |
| | | P.M. | **119.1** | **F** |
| 13. | Fremont Blvd / Thornton Ave | A.M. | 29.2 | C |
| | | P.M. | 30.7 | C |
| 14. | I-880 NB off-ramp/Thornton Ave | A.M. | 7.5 | A |
| | | P.M. | 33.7 | C |
| 15. | Fremont Blvd / Peralta Blvd | A.M. | 20.7 | C |
| | | P.M. | **57.4** | **E** |
| 16. | Fremont Blvd / Central Ave | A.M. | **123.9** | **F** |
| | | P.M. | **60.3** | **E** |
| 17. | Central Ave / Blacow Rd | A.M. | 38.5 | D |
| | | P.M. | 31.2 | C |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | **65.0** | **E** |
| | | P.M. | **137.9** | **F** |

Notes: Delay: in average econds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold
na: not applicable

**TABLE 5-2: 2035 TREND GROWTH ALTERNATIVE SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | 2035 Trend Growth Alternative | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 19. | Peralta Blvd / Mowry Ave | A.M. | 10.8 | B |
| | | P.M. | 12.8 | B |
| 20. | Civic Center Dr / Mowry Ave | A.M. | 19.7 | B |
| | | P.M. | 19.4 | B |
| 21. | Paseo Padre Pkwy / Mowry Ave | A.M. | **79.2** | **E** |
| | | P.M. | **55.3** | **E** |
| 22. | Fremont Blvd / Mowry Ave | A.M. | **60.1** | **E** |
| | | P.M. | **87.7** | **F** |
| 23. | Argonaut Way / Mowry Ave | A.M. | 18.0 | B |
| | | P.M. | 27.2 | C |
| 24. | Blacow Rd / Mowry Ave | A.M. | **83.7** | **F** |
| | | P.M. | **71.4** | **E** |
| 25. | Farwell Dr / Mowry Ave | A.M. | **56.0** | **E** |
| | | P.M. | 34.7 | C |
| 26. | I-880 NB off-ramp / Mowry Ave | A.M. | 10.7 | B |
| | | P.M. | 23.8 | C |
| 27. | I-880 SB off ramp / Mowry Ave | A.M. | 40.3 | D |
| | | P.M. | 22.6 | C |
| 28. | Mission Blvd / Niles Canyon Rd | A.M. | **298.2** | **F** |
| | | P.M. | **247.9** | **F** |
| 29. | Mission Blvd / Mowry Ave | A.M. | **254.2** | **F** |
| | | P.M. | **210.6** | **F** |
| 30. | Mission Blvd / Walnut Ave | A.M. | **122.4** | **F** |
| | | P.M. | **64.6** | **E** |
| 31. | Civic Center Dr / Walnut Ave | A.M. | 21.6 | C |
| | | P.M. | 27.1 | C |
| 32. | Paseo Padre Pkwy / Walnut Ave | A.M. | 26.5 | C |
| | | P.M. | 46.7 | D |
| 33. | Fremont Blvd / Walnut Ave | A.M. | 22.8 | C |
| | | P.M. | 30.0 | C |
| 34. | Mission Blvd / Stevenson Blvd | A.M. | **101.8** | **F** |
| | | P.M. | **102.0** | **F** |
| 35. | Paseo Padre Pkwy / Stevenson Blvd | A.M. | 35.0 | C |
| | | P.M. | 27.6 | C |
| 36. | Fremont Blvd / Stevenson Blvd | A.M. | 30.3 | C |
| | | P.M. | 28.5 | C |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold
na: not applicable

**TABLE 5-2: 2035 TREND GROWTH ALTERNATIVE SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | 2035 Trend Growth Alternative | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 37. | Blacow Rd / Stevenson Blvd | A.M. | **79.2** | **E** |
| | | P.M. | **141.5** | **F** |
| 38. | I-880 NB Ramps / Stevenson Blvd | A.M. | 7.7 | A |
| | | P.M. | 13.3 | B |
| 39. | I-880 SB Ramps / Stevenson Blvd | A.M. | 8.9 | A |
| | | P.M. | 9.0 | A |
| 40. | Albrae St / Stevenson Blvd | A.M. | 23.5 | C |
| | | P.M. | 40.6 | D |
| 41. | Cherry St - Boyce Rd / Stevenson Blvd | A.M. | 26.4 | C |
| | | P.M. | 22.3 | C |
| 42. | Fremont Blvd / Grimmer Blvd | A.M. | 32.8 | C |
| | | P.M. | 50.7 | D |
| 43. | Blacow Rd / Grimmer Blvd | A.M. | **164.0** | **F** |
| | | P.M. | **60.8** | **E** |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M. | 45.3 | D |
| | | P.M. | **87.6** | **F** |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | A.M. | 4.2 | A |
| | | P.M. | 9.4 | A |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | A.M. | 7.8 | A |
| | | P.M. | 11.5 | B |
| 47. | Christy St / Auto Mall Pkwy | A.M. | 24.1 | C |
| | | P.M. | 36.7 | D |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M. | **143.7** | **F** |
| | | P.M. | **204.6** | **F** |
| 49. | Fremont Blvd / Blacow Rd | A.M. | 10.8 | B |
| | | P.M. | 17.5 | B |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M. | **99.5** | **F** |
| | | P.M. | **161.6** | **F** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M. | **186.8** | **F** |
| | | P.M. | 32.4 | C |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | A.M. | 29.9 | C |
| | | P.M. | 4.7 | A |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | A.M. | **94.2** | **F** |
| | | P.M. | 7.3 | A |
| 54. | Fremont Blvd / Cushing Pkwy | A.M. | 27.8 | C |
| | | P.M. | 13.6 | B |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold
na: not applicable

**TABLE 5-2: 2035 TREND GROWTH ALTERNATIVE SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | 2035 Trend Growth Alternative | |
|---|---|---|---|---|
| | | | Delay | LOS |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M. | **68.0** | **E** |
| | | P.M. | 47.7 | D |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M. | **182.6** | **F** |
| | | P.M. | **252.9** | **F** |
| 57. | I-680 SB Ramps / Durham Rd | A.M. | 37.1 | D |
| | | P.M. | **129.2** | **F** |
| 58. | I-680 NB Ramps / Durham Rd | A.M. | 20.7 | C |
| | | P.M. | 16.7 | B |
| 59. | Mission Blvd (north) / I-680 SB Ramps | A.M. | 1.3 | A |
| | | P.M. | 28.2 | C |
| 60. | Mission Blvd (north) / I-680 NB Ramps | A.M. | 35.6 | D |
| | | P.M. | 37.1 | D |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M. | **352.3** | **F** |
| | | P.M. | **410.5** | **F** |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | A.M. | **405.9** | **F** |
| | | P.M. | **395.0** | **F** |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M. | **69.1** | **E** |
| | | P.M. | 43.4 | D |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M. | **154.3** | **F** |
| | | P.M. | **166.2** | **F** |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | A.M. | 24.4 | C |
| | | P.M. | 19.9 | B |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | A.M. | **62.4** | **E** |
| | | P.M. | **77.1** | **E** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold
na: not applicable

**Table 5-3** summarizes the Freeway Segment LOS in Alameda County. **Table 5-4** summarizes the freeway segment LOS in Santa Clara County. **Table 5-5** summarizes the arterial LOS results for roadways within Fremont.

**TABLE 5-3: 2035 TREND GROWTH ALTERNATIVE - ALAMEDA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Peak Period | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|
| | | | | | V/C | LOS |
| 1. | I-680 - NB | Scott Creek Rd | Mission Blvd (SR-262) | A.M. | 0.68 | C |
| | | | | P.M. | **1.23** | **F** |
| 2. | I-680 - NB | Mission Blvd (SR-262) | Durham Road | A.M. | 0.70 | C |
| | | | | P.M. | **1.22** | **F** |
| 3. | I-680 - NB | Durham Rd | Washington Blvd | A.M. | 0.59 | C |
| | | | | P.M. | **1.21** | **F** |
| 4. | I-680 - NB | Washington Blvd | Mission Blvd (SR-238) | A.M. | 0.59 | C |
| | | | | P.M. | **1.20** | **F** |
| 5. | I-680 - SB | Mission Blvd (SR-238) | Washington Blvd | A.M. | **1.50** | **F** |
| | | | | P.M. | 0.76 | D |
| 6. | I-680 - SB | Washington Blvd | Durham Rd | A.M. | **1.23** | **F** |
| | | | | P.M. | 0.62 | C |
| 7. | I-680 - SB | Durham Rd | Mission Blvd (SR-262) | A.M. | **1.25** | **F** |
| | | | | P.M. | 0.71 | C |
| 8. | I-680 - SB | Mission Blvd (SR-262) | Scott Creek Rd | A.M. | **1.36** | **F** |
| | | | | P.M. | 0.71 | C |
| 9. | I-880 - NB | Dixon Landing Rd | Mission Blvd (SR-262) | A.M. | 0.67 | C |
| | | | | P.M. | **1.12** | **F** |
| 10. | I-880 - NB | Mission Blvd (SR-262) | Auto Mall Pkwy | A.M. | 0.75 | C |
| | | | | P.M. | **1.42** | **F** |
| 11. | I-880 - NB | Auto Mall Pkwy | Stevenson Blvd | A.M. | 0.86 | D |
| | | | | P.M. | **1.47** | **F** |
| 12. | I-880 - NB | Stevenson Blvd | Decoto Rd | A.M. | 0.83 | D |
| | | | | P.M. | **0.99** | **E** |
| 13. | I-880 - NB | Decoto Rd | Alvarado Blvd | A.M. | 0.85 | D |
| | | | | P.M. | **1.10** | **F** |
| 14. | I-880 - SB | Alvarado Blvd | Decoto Rd | A.M. | **1.34** | **F** |
| | | | | P.M. | **0.91** | **E** |
| 15. | I-880 - NB | Alvarado Blvd | Alvarado-Niles Blvd | A.M. | **0.94** | **E** |
| | | | | P.M. | **1.10** | **F** |
| 16. | I-880 - SB | Decoto Rd | Stevenson Blvd | A.M. | **1.07** | **F** |
| | | | | P.M. | 0.86 | D |
| 17. | I-880 - SB | Stevenson Blvd | Auto Mall Parkway | A.M. | **1.35** | **F** |
| | | | | P.M. | 0.73 | C |
| 18. | I-880 - SB | Auto Mall Pkwy | Mission Blvd (SR-262) | A.M. | **1.33** | **F** |
| | | | | P.M. | 0.57 | B |
| 19. | I-880 - SB | Mission Blvd (SR-262) | Dixon Landing Rd off-ramp | A.M. | 0.88 | D |
| | | | | P.M. | 0.43 | B |
| 20. | SR 84 - EB | Thornton Ave | Ardenwood Blvd | A.M. | 0.38 | B |
| | | | | P.M. | **1.10** | **F** |
| 21. | SR 84 - EB | Toll Plaza | Thornton Ave | A.M. | 0.48 | B |
| | | | | P.M. | **1.35** | **F** |
| 22. | SR 84 - WB | Thornton Ave | Toll Plaza | A.M. | **1.18** | **F** |
| | | | | P.M. | 0.47 | B |

Notes: V/C: Volume:Capacity Ratio LOS: Level of Service Segments operating at capacity are in bold are in bold. V/C based Link Volumes directly from Travel Demand Models.

**TABLE 5-4: 2035 TREND GROWTH ALTERNATIVE - SANTA CLARA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Lane Type | Peak Period | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|---|
| | | | | | | Density | LOS |
| 1. | I-680 - NB | Calaveras Blvd/SR-237 | Jacklin Rd | Mixed | A.M. | 28.5 | D |
| | | | | | P.M. | 32.0 | D |
| 2. | I-680 - SB | Jacklin Rd | Calaveras Blvd/SR-237 | Mixed | A.M. | **81.8** | **F** |
| | | | | | P.M. | 27.1 | D |
| | | | | HOV | A.M. | 43.2 | D |
| | | | | | P.M. | 2.4 | A |
| 3. | I-680 - NB | Jacklin Rd | Scott Creek Rd | Mixed | A.M. | 22.7 | C |
| | | | | | P.M. | 35.9 | D |
| 4. | I-680 - SB | Scott Creek Rd | Jacklin Rd | Mixed | A.M. | **47.7** | **E** |
| | | | | | P.M. | 27.1 | D |
| | | | | HOV | A.M. | 42.2 | D |
| | | | | | P.M. | 2.1 | A |
| 5. | SR-237 - WB | I-880 | McCarthy Blvd | Mixed | A.M. | 25.5 | C |
| | | | | | P.M. | 10.5 | A |
| 6. | SR-237 - EB | McCarthy Blvd | I-880 | Mixed | A.M. | 17.1 | B |
| | | | | | P.M. | 32.2 | D |
| | | | | HOV | A.M. | N/A | N/A |
| | | | | | P.M. | N/A | N/A |
| 7. | SR-237 - WB | McCarthy Blvd | Zanker Rd | Mixed | A.M. | 35.8 | D |
| | | | | | P.M. | 17.8 | B |
| | | | | HOV | A.M. | 33.0 | D |
| | | | | | P.M. | 8.5 | A |
| 8. | SR-237 - EB | Zanker Rd | McCarthy Blvd | Mixed | A.M. | 28.3 | D |
| | | | | | P.M. | **75.1** | **F** |
| | | | | HOV | A.M. | 7.8 | A |
| | | | | | P.M. | **48.9** | **E** |
| 9. | SR-237 - WB | Zanker Rd | N. First St | Mixed | A.M. | 41.1 | D |
| | | | | | P.M. | 20.9 | C |
| | | | | HOV | A.M. | 38.2 | D |
| | | | | | P.M. | 8.5 | A |
| 10. | SR-237 - EB | N. First St | Zanker Rd | Mixed | A.M. | 14.4 | B |
| | | | | | P.M. | 32.3 | D |
| | | | | HOV | A.M. | 8.0 | A |
| | | | | | P.M. | 32.9 | D |
| 11. | I-880 - NB | SR-237 | Dixon Landing Rd | Mixed | A.M. | 18.4 | C |
| | | | | | P.M. | **47.3** | **E** |
| | | | | HOV | A.M. | 19.6 | C |
| | | | | | P.M. | 31.6 | D |
| 12. | I-880 - SB | Dixon Landing Rd | SR-237 | Mixed | A.M. | 39.7 | D |
| | | | | | P.M. | 11.4 | B |
| | | | | HOV | A.M. | 32.5 | D |
| | | | | | P.M. | 14.9 | B |

Notes: LOS: Level of Service Segments operating below acceptable LOS D are in bold. Existing LOS based on 2009 VTA CMP Published results

**TABLE 5-5: 2035 TREND GROWTH ALTERNATIVE - CITY OF FREMONT STUDY ARTERIAL SEGMENTS**

| # | Roadway Segment | From | To | Peak Period | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|
| | | | | | Speed | LOS |
| 1. | Mowry Ave - EB | I-880 | Farwell Dr | A.M. | 35 | A |
| | | | | P.M. | 13 | E |
| 2. | Mowry Ave - EB | Farwell Dr | SR-84 | A.M. | 35 | A |
| | | | | P.M. | 22 | C |
| 3. | Mowry Ave - WB | SR-84 | Farwell Dr | A.M. | **13** | **E** |
| | | | | P.M. | 34 | A |
| 4. | Mowry Ave - WB | Farwell Dr | I-880 | A.M. | **7** | **F** |
| | | | | P.M. | 34 | A |
| 5. | SR 84 / Mowry Ave (Fre) - WB | SR-238 | Peralta Blvd | A.M. | 37 | A |
| | | | | P.M. | 23 | C |
| 6. | SR 84 / Peralta Blvd (Fre) - WB | Mowry Ave | Fremont Blvd | A.M. | 40 | A |
| | | | | P.M. | 40 | A |
| 7. | SR 84 / Fremont Blvd (Fre) - WB | Peralta Blvd | Thornton Ave | A.M. | 35 | A |
| | | | | P.M. | 34 | A |
| 8. | SR 84 / Thornton Ave - WB | Fremont Blvd | I-880 SB | A.M. | 32 | A |
| | | | | P.M. | 35 | A |
| 9. | SR 84 / Thornton Ave - EB | I-880 SB Ramps | Fremont Blvd | A.M. | 26 | B |
| | | | | P.M. | 3 | F |
| 10. | SR 84 / Fremont Blvd (Fre) - EB | Thornton Ave | Peralta Blvd | A.M. | 35 | A |
| | | | | P.M. | 35 | A |
| 11. | SR 84 / Peralta Blvd (Fre) - EB | Fremont Blvd | Mowry Ave | A.M. | 40 | A |
| | | | | P.M. | 39 | A |
| 12. | SR 84 / Mowry Ave (Fre) - EB | Peralta Blvd | SR-238 | A.M. | 28 | B |
| | | | | P.M. | 32 | B |
| 13. | SR 238 (Mission Blvd ) - SB | Nursery Ave | Stevenson Blvd | A.M. | **3** | **F** |
| | | | | P.M. | **1** | **F** |
| 14. | SR 238 (Mission Blvd ) - SB | Stevenson Blvd | I-680 NB Ramp | A.M. | **7** | **F** |
| | | | | P.M. | 18 | D |
| 15. | SR 262 (Mission Blvd ) - EB | I-880 NB Ramps | I-680 NB Ramps | A.M. | 22 | D |
| | | | | P.M. | **39** | **A** |
| 16. | SR 262 (Mission Blvd ) - WB | I-680 NB Ramps | I-880 SB Ramps | A.M. | 23 | C |
| | | | | P.M. | 8 | F |
| 17. | Decoto Rd – WB | Fremont City Limits | I-880 NB Ramps | A.M. | 34 | B |
| | | | | P.M. | 38 | A |
| 18. | Decoto Rd – EB | I-880 NB Ramps | Fremont City Limits | A.M. | 36 | A |
| | | | | P.M. | 27 | C |
| 19. | SR 238 (Mission Blvd) – NB | I-680 NB Ramps | Stevenson Blvd | A.M. | **2** | **F** |
| | | | | P.M. | **11** | **F** |
| 20. | SR 238 (Mission Blvd) – NB | Stevenson Blvd | Nursery Ave | A.M. | **1** | **F** |
| | | | | P.M. | **10** | **F** |

Notes: Speed: MPH LOS: Level of Service Segments operating below acceptable LOS E are in bold. V/C based Link Volumes directly from Travel Demand Models.

**Table 5-6** shows a summary of Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT) and Average Speed for the 2035 Trend Growth Alternative.

**TABLE 5-6: VMT-VHT-AVERAGE SPEED COMPARISON FOR CITY OF FREMONT TDM**

| # | Description | Period | 2005 Base Year | | | 2035 Trend Growth Alternative | | |
|---|---|---|---|---|---|---|---|---|
| | | | VMT (veh-miles) | VHT (veh-hrs) | Avg. Speed (MPH) | VMT (veh-miles) | VHT (veh-hrs) | Avg. Speed (MPH) |
| 1. | Alameda Countywide | Daily | 35,942,039 | 870,427 | 41.29 | 57,447,630 | 2,070,332 | 27.75 |
| | | A.M. Pk Hr | 2,485,450 | 75,332 | 32.99 | 4,168,152 | 326,429 | 12.77 |
| | | P.M. Pk Hr | 2,657,547 | 81,968 | 32.42 | 4,176,531 | 256,381 | 16.29 |
| 2. | Within City of Fremont Limits | Daily | 6,703,741 | 159,660 | 41.99 | 10,437,627 | 393,331 | 26.54 |
| | | A.M. Pk Hr | 447,423 | 13,724 | 32.60 | 707,057 | 58,319 | 12.12 |
| | | P.M. Pk Hr | 480,982 | 15,990 | 30.08 | 728,317 | 49,948 | 14.58 |

Trend Growth Alternative Intersection Impacts

The addition of cumulative growth and the buildout of the Trend Growth Alternative would cause many intersections to deteriorate from acceptable levels of service under the existing condition to LOS E or F during the 2035 Trend Growth Alternative Condition.

**Table 5-7** provides a LOS comparison for A.M., and P.M. peak hours, respectively, to determine significance criteria and Trend Growth Alternative Condition impacts, if any. This table also indicates significance based on the current LOS D threshold criteria. Signalized intersections within future Priority Development Areas and Regionally Significant routes would have a threshold of LOS E under the DRAFT General Plan Update. All of the other signalized intersections would have a threshold of LOS D.

**TABLE 5-7: 2035 TREND GROWTH ALTERNATIVE CONDITION SIGNALIZED LOS COMPARISON**

| # | Intersection | Peak | Existing | | 2035 Trend Growth Alternative | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 1. | Alvarado Blvd / Deep Creek Rd | A.M. | 25.3 | C | 65.4 | E | 40.1 | **YES** | **YES** |
| | | P.M. | 26.1 | B | 45.0 | D | 18.9 | NO | NO |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | A.M. | 17.5 | B | 23.4 | C | 5.9 | NO | NO |
| | | P.M. | 21.6 | C | 17.7 | B | -3.9 | NO | NO |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 40.3 | D | 33.7 | C | -6.6 | NO | NO |
| | | P.M. | 42.4 | D | 60.3 | E | 17.9 | **YES** | **YES** |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | 44.2 | D | 146.5 | F | 102.3 | **YES** | **YES** |
| | | P.M. | 45.3 | D | 123.8 | F | 78.5 | **YES** | **YES** |
| 5. | Fremont Blvd / Decoto Rd | A.M. | 43.8 | D | 101.9 | F | 58.1 | **YES** | **YES** |
| | | P.M. | 41.7 | D | 107.6 | F | 65.9 | **YES** | **YES** |
| 6. | I-880 NB Ramps / Decoto Rd | A.M. | 35.5 | D | 147.6 | F | 112.1 | **YES** | **YES** |
| | | P.M. | 19.8 | B | 60.8 | E | 41.0 | **YES** | **YES** |
| 7. | I-880 SB Ramps / Decoto Rd | A.M. | 25.5 | C | 71.9 | E | 46.4 | **YES** | **YES** |
| | | P.M. | 14.2 | B | 14.0 | B | -0.2 | NO | NO |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | A.M. | 23.1 | C | 23.9 | C | 0.8 | NO | NO |
| | | P.M. | 17.0 | B | 17.9 | B | 0.9 | NO | NO |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps | A.M. | N/A | N/A | 18.4 | B | 18.4 | NO | NO |
| | | P.M. | N/A | N/A | 10.3 | B | 10.3 | NO | NO |
| 10. | Thornton Ave / SR-84 EB Ramps | A.M. | N/A | N/A | 32.6 | C | 32.6 | NO | NO |
| | | P.M. | N/A | N/A | 23.1 | C | 23.1 | NO | NO |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | 31.9 | C | 121.0 | F | 89.1 | **YES** | **YES** |
| | | P.M. | 31.3 | C | 107.7 | F | 76.4 | **YES** | **YES** |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | 50.3 | D | 222.8 | F | 172.5 | **YES** | **YES** |
| | | P.M. | 38.8 | D | 119.1 | F | 80.3 | **YES** | **YES** |
| 13. | Fremont Blvd / Thornton Ave | A.M. | 34.3 | C | 29.2 | C | -5.1 | NO | NO |
| | | P.M. | 38.0 | D | 30.7 | C | -7.3 | NO | NO |
| 14. | I-880 NB off-ramp/Thornton Ave | A.M. | 7.2 | A | 7.5 | A | 0.3 | NO | NO |
| | | P.M. | 35.9 | D | 33.7 | C | -2.2 | NO | NO |
| 15. | Fremont Blvd / Peralta Blvd | A.M. | 26.6 | C | 20.7 | C | -5.9 | NO | NO |
| | | P.M. | 32.4 | C | 57.4 | E | 25.0 | **YES** | NO |
| 16. | Fremont Blvd / Central Ave | A.M. | 28.9 | C | 123.9 | F | 95.0 | **YES** | **YES** |
| | | P.M. | 35.0 | C | 60.3 | E | 25.3 | **YES** | NO |
| 17. | Central Ave / Blacow Rd | A.M. | 29.1 | C | 38.5 | D | 9.4 | NO | NO |
| | | P.M. | 31.8 | C | 31.2 | C | -0.6 | NO | NO |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | 40.3 | D | 65.0 | E | 24.7 | **YES** | NO |
| | | P.M. | 51.3 | D | 137.9 | F | 86.6 | **YES** | **YES** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-7: 2035 TREND GROWTH ALTERNATIVE CONDITION SIGNALIZED LOS COMPARISON (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 Trend Growth Alternative | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 19. | Peralta Blvd / Mowry Ave | A.M. | 15.1 | B | 10.8 | B | -4.3 | NO | NO |
| | | P.M. | 15.4 | B | 12.8 | B | -2.6 | NO | NO |
| 20. | Civic Center Dr / Mowry Ave | A.M. | 29.2 | C | 19.7 | B | -9.5 | NO | NO |
| | | P.M. | 30.0 | C | 19.4 | B | -10.6 | NO | NO |
| 21. | Paseo Padre Pkwy / Mowry Ave | A.M. | 40.3 | D | 79.2 | E | 38.9 | **YES** | NO |
| | | P.M. | 38.4 | D | 55.3 | E | 16.9 | **YES** | NO |
| 22. | Fremont Blvd / Mowry Ave | A.M. | 38.0 | D | 60.1 | E | 22.1 | **YES** | NO |
| | | P.M. | 48.3 | D | 87.7 | F | 39.4 | **YES** | **YES** |
| 23. | Argonaut Way / Mowry Ave | A.M. | 21.1 | C | 18.0 | B | -3.1 | NO | NO |
| | | P.M. | 32.7 | C | 27.2 | C | -5.5 | NO | NO |
| 24. | Blacow Rd / Mowry Ave | A.M. | 31.0 | C | 83.7 | F | 52.7 | **YES** | **YES** |
| | | P.M. | 33.7 | C | 71.4 | E | 37.7 | **YES** | NO |
| 25. | Farwell Dr / Mowry Ave | A.M. | 27.2 | C | 56.0 | E | 28.8 | **YES** | NO |
| | | P.M. | 35.3 | D | 34.7 | C | -0.6 | NO | NO |
| 26. | I-880 NB off-ramp / Mowry Ave | A.M. | 12.7 | B | 10.7 | B | -2.0 | NO | NO |
| | | P.M. | 15.7 | B | 23.8 | C | 8.1 | NO | NO |
| 27. | I-880 SB off ramp / Mowry Ave | A.M. | 12.5 | B | 40.3 | D | 27.8 | NO | NO |
| | | P.M. | 16.2 | B | 22.6 | C | 6.4 | NO | NO |
| 28. | Mission Blvd / Niles Canyon Rd | A.M. | 50.3 | D | 298.2 | F | 247.9 | **YES** | **YES** |
| | | P.M. | **58.3** | **E** | 247.9 | F | 189.6 | **YES** | **YES** |
| 29. | Mission Blvd / Mowry Ave | A.M. | **104.7** | **F** | 254.2 | F | 149.5 | **YES** | **YES** |
| | | P.M. | **89.5** | **F** | 210.6 | F | 121.1 | **YES** | **YES** |
| 30. | Mission Blvd / Walnut Ave | A.M. | 32.7 | C | 122.4 | F | 89.7 | **YES** | **YES** |
| | | P.M. | 27.6 | C | 64.6 | E | 37.0 | **YES** | NO |
| 31. | Civic Center Dr / Walnut Ave | A.M. | 30.2 | C | 21.6 | C | -8.6 | NO | NO |
| | | P.M. | 31.8 | C | 27.1 | C | -4.7 | NO | NO |
| 32. | Paseo Padre Pkwy / Walnut Ave | A.M. | 33.3 | C | 26.5 | C | -6.8 | NO | NO |
| | | P.M. | 42.0 | D | 46.7 | D | 4.7 | NO | NO |
| 33. | Fremont Blvd / Walnut Ave | A.M. | 39.2 | D | 22.8 | C | -16.4 | NO | NO |
| | | P.M. | 50.8 | D | 30.0 | C | -20.8 | NO | NO |
| 34. | Mission Blvd / Stevenson Blvd | A.M. | 30.3 | C | 101.8 | F | 71.5 | **YES** | **YES** |
| | | P.M. | 27.4 | C | 102.0 | F | 74.6 | **YES** | **YES** |
| 35. | Paseo Padre Pkwy / Stevenson Blvd | A.M. | 43.2 | D | 35.0 | C | -8.2 | NO | NO |
| | | P.M. | 43.7 | D | 27.6 | C | -16.1 | NO | NO |
| 36. | Fremont Blvd / Stevenson Blvd | A.M. | 37.6 | D | 30.3 | C | -7.3 | NO | NO |
| | | P.M. | 39.8 | D | 28.5 | C | -11.3 | NO | NO |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-7: 2035 TREND GROWTH ALTERNATIVE CONDITION SIGNALIZED LOS COMPARISON (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 Trend Growth Alternative | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 37. | Blacow Rd / Stevenson Blvd | A.M. | **57.9** | **E** | 79.2 | E | 21.3 | **YES** | **YES** |
| | | P.M. | **119.9** | **F** | 141.5 | F | 21.6 | **YES** | **YES** |
| 38. | I-880 NB Ramps / Stevenson Blvd | A.M. | 13.0 | B | 7.7 | A | -5.3 | NO | NO |
| | | P.M. | 14.5 | B | 13.3 | B | -1.2 | NO | NO |
| 39. | I-880 SB Ramps / Stevenson Blvd | A.M. | 13.7 | B | 8.9 | A | -4.8 | NO | NO |
| | | P.M. | 14.8 | B | 9.0 | A | -5.8 | NO | NO |
| 40. | Albrae St / Stevenson Blvd | A.M. | 25.2 | C | 23.5 | C | -1.7 | NO | NO |
| | | P.M. | 36.0 | D | 40.6 | D | 4.6 | NO | NO |
| 41. | Cherry St - Boyce Rd / Stevenson Blvd | A.M. | 39.0 | D | 26.4 | C | -12.6 | NO | NO |
| | | P.M. | 26.9 | C | 22.3 | C | -4.6 | NO | NO |
| 42. | Fremont Blvd / Grimmer Blvd | A.M. | 38.3 | D | 32.8 | C | -5.5 | NO | NO |
| | | P.M. | 37.6 | D | 50.7 | D | 13.1 | NO | NO |
| 43. | Blacow Rd / Grimmer Blvd | A.M. | **96.2** | **F** | 164.0 | F | 67.8 | **YES** | **YES** |
| | | P.M. | 49.6 | D | 60.8 | E | 11.2 | **YES** | **YES** |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M. | 38.8 | D | 45.3 | D | 6.5 | NO | NO |
| | | P.M. | 43.1 | D | 87.6 | F | 44.5 | **YES** | **YES** |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | A.M. | 9.3 | A | 4.2 | A | -5.1 | NO | NO |
| | | P.M. | 8.6 | A | 9.4 | A | 0.8 | NO | NO |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | A.M. | 12.8 | B | 7.8 | A | -5.0 | NO | NO |
| | | P.M. | 12.3 | B | 11.5 | B | -0.8 | NO | NO |
| 47. | Christy St / Auto Mall Pkwy | A.M. | 25.5 | C | 24.1 | C | -1.4 | NO | NO |
| | | P.M. | 36.1 | D | 36.7 | D | 0.6 | NO | NO |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M. | 25.2 | C | 143.7 | F | 118.5 | **YES** | **YES** |
| | | P.M. | 30.8 | C | 204.6 | F | 173.8 | **YES** | **YES** |
| 49. | Fremont Blvd / Blacow Rd | A.M. | 41.4 | D | 10.8 | B | -30.6 | NO | NO |
| | | P.M. | 32.5 | C | 17.5 | B | -15.0 | NO | NO |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M. | 40.5 | D | 99.5 | F | 59.0 | **YES** | **YES** |
| | | P.M. | **55.8** | **E** | 161.6 | F | 105.8 | **YES** | **YES** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M. | 43.3 | D | 186.8 | F | 143.5 | **YES** | **YES** |
| | | P.M. | 38.2 | D | 32.4 | C | -5.8 | NO | NO |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | A.M. | 19.2 | B | 29.9 | C | 10.7 | NO | NO |
| | | P.M. | 8.7 | A | 4.7 | A | -4.0 | NO | NO |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | A.M. | 10.7 | B | 94.2 | F | 83.5 | **YES** | **YES** |
| | | P.M. | 6.6 | A | 7.3 | A | 0.7 | NO | NO |
| 54. | Fremont Blvd / Cushing Pkwy | A.M. | 21.6 | C | 27.8 | C | 6.2 | NO | NO |
| | | P.M. | 18.9 | B | 13.6 | B | -5.3 | NO | NO |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-7: 2035 TREND GROWTH ALTERNATIVE CONDITION SIGNALIZED LOS COMPARISON (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 Trend Growth Alternative | | ▲ Avg Delay | Significant Impact (Y/N) per 1991 GP | Significant Impact (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | | | |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M. | 34.3 | C | 68.0 | E | 33.7 | **YES** | **YES** |
| | | P.M. | 30.6 | C | 47.7 | D | 17.1 | NO | NO |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M. | **67.2** | **E** | 182.6 | F | 115.4 | **YES** | **YES** |
| | | P.M. | **100.1** | **F** | 252.9 | F | 152.8 | **YES** | **YES** |
| 57. | I-680 SB Ramps / Durham Rd | A.M. | 31.7 | C | 37.1 | D | 5.4 | NO | NO |
| | | P.M. | 11.5 | B | 129.2 | F | 117.7 | **YES** | **YES** |
| 58. | I-680 NB Ramps / Durham Rd | A.M. | 17.3 | B | 20.7 | C | 3.4 | NO | NO |
| | | P.M. | 16.5 | B | 16.7 | B | 0.2 | NO | NO |
| 59. | Mission Blvd (north) / I-680 SB Ramps | A.M. | 12.5 | C | 1.3 | A | -11.2 | NO | NO |
| | | P.M. | 10.9 | B | 28.2 | C | 17.3 | NO | NO |
| 60. | Mission Blvd (north) / I-680 NB Ramps | A.M. | 21.5 | C | 35.6 | D | 14.1 | NO | NO |
| | | P.M. | 23.4 | C | 37.1 | D | 13.7 | NO | NO |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M. | **83.0** | **F** | 352.3 | F | 269.3 | **YES** | **YES** |
| | | P.M. | 34.3 | C | 410.5 | F | 376.2 | **YES** | **YES** |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | A.M. | **73.3** | **E** | 405.9 | F | 332.6 | **YES** | **YES** |
| | | P.M. | 41.3 | D | 395.0 | F | 353.7 | **YES** | **YES** |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M. | 26.8 | C | 69.1 | E | 42.3 | **YES** | **YES** |
| | | P.M. | 40.0 | D | 43.4 | D | 3.4 | NO | NO |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M. | 38.9 | D | 154.3 | F | 115.4 | **YES** | **YES** |
| | | P.M. | 51.5 | D | 166.2 | F | 114.7 | **YES** | **YES** |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | A.M. | 23.1 | C | 24.4 | C | 1.3 | NO | NO |
| | | P.M. | 25.9 | C | 19.9 | B | -6.0 | NO | NO |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | A.M. | 11.6 | B | 62.4 | E | 50.8 | **YES** | **YES** |
| | | P.M. | 15.4 | B | 77.1 | E | 61.7 | **YES** | **YES** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**Table 5-8** shows a summary of the mitigated levels of service and level of significance after mitigation. **Figure 4.3**, above, shows the proposed mitigated geometry at study intersections where modifications are recommended.

**Appendix B (I)** shows the detailed intersection LOS calculations for the mitigated conditions.

**TABLE 5-8: 2035 TREND GROWTH MITIGATED CONDITION SUMMARY**

| # | Intersection | Peak | Existing | | 2035 Trend Growth Alternative | | 2035 Trend Growth Mitigated Conditions | | ▲ Avg Delay | Significant Impact After Mitigation (Y/N) per GP Update |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS | (seconds) | |
| 1. | Alvarado Blvd / Deep Creek Rd* | A.M. | 25.3 | C | **65.4** | **E** | 50.9 | D | 25.6 | N |
| | | P.M. | 26.1 | B | 45.0 | D | MNN | MNN | | N/A |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 40.3 | D | 33.7 | C | MNN | MNN | | N/A |
| | | P.M. | 42.4 | D | **60.3** | **E** | 47.5 | D | 5.1 | N |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | 44.2 | D | **146.5** | **F** | 73.7 | E | 29.5 | N |
| | | P.M. | 45.3 | D | **123.8** | **F** | **84.9** | **F** | 39.6 | **Y** |
| 5. | Fremont Blvd / Decoto Rd | A.M. | 43.8 | D | **101.9** | **F** | 73.5 | E | 29.7 | N |
| | | P.M. | 41.7 | D | **107.6** | **F** | 75.4 | E | 33.7 | N |
| 6. | I-880 NB Ramps / Decoto Rd* | A.M. | 35.5 | D | **147.6** | **F** | **61.0** | **E** | 25.5 | **Y** |
| | | P.M. | 19.8 | B | **60.8** | **E** | 24.3 | C | 4.5 | N |
| 7. | I-880 SB Ramps / Decoto Rd* | A.M. | 25.5 | C | **71.9** | **E** | 24.0 | C | -1.5 | N |
| | | P.M. | 14.2 | B | 14.0 | B | MNN | MNN | | N/A |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | 31.9 | C | **121.0** | **F** | **93.9** | **F** | 62.0 | **Y** |
| | | P.M. | 31.3 | C | **107.7** | **F** | **69.8** | **E** | 38.5 | **Y** |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | 50.3 | D | **222.8** | **F** | 40.7 | D | -9.6 | N |
| | | P.M. | 38.8 | D | **119.1** | **F** | **80.4** | **F** | 41.6 | **Y** |
| 16. | Fremont Blvd / Central Ave | A.M. | 28.9 | C | **123.9** | **F** | 51.9 | D | 23.0 | N |
| | | P.M. | 35.0 | C | 60.3 | E | MNN | MNN | | N/A |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | 40.3 | D | 65.0 | E | MNN | MNN | | N/A |
| | | P.M. | 51.3 | D | **137.9** | **F** | **90.5** | **F** | 39.2 | **Y** |
| 22. | Fremont Blvd / Mowry Ave | A.M. | 38.0 | D | 60.1 | E | MNN | MNN | | N/A |
| | | P.M. | 48.3 | D | **87.7** | **F** | 70.7 | E | 22.4 | N |
| 24. | Blacow Rd / Mowry Ave | A.M. | 31.0 | C | **83.7** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 33.7 | C | 71.4 | E | MNN | MNN | | N/A |
| 28. | Mission Blvd / Niles Canyon Rd | A.M. | 50.3 | D | **298.2** | **F** | **183.5** | **F** | 133.2 | **Y** |
| | | P.M. | **58.3** | **E** | **247.9** | **F** | **194.5** | **F** | 136.2 | **Y** |
| 29. | Mission Blvd / Mowry Ave | A.M. | **104.7** | **F** | **254.2** | **F** | **107.9** | **F** | 3.2 | **Y** |
| | | P.M. | **89.5** | **F** | **210.6** | **F** | **103.8** | **F** | 14.3 | **Y** |
| 30. | Mission Blvd / Walnut Ave | A.M. | 32.7 | C | **122.4** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 27.6 | C | 64.6 | E | MNN | MNN | | N/A |
| 34. | Mission Blvd / Stevenson Blvd | A.M. | 30.3 | C | **101.8** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 27.4 | C | **102.0** | **F** | MNF | MNF | | **Y** |
| 37. | Blacow Rd / Stevenson Blvd | A.M. | **57.9** | **E** | **79.2** | **E** | **72.9** | **E** | 15.0 | **Y** |
| | | P.M. | **119.9** | **F** | **141.5** | **F** | **100.8** | **F** | -19.1 | N |

Notes: Delay: in average seconds per vehicle Bold=Below Standard LOS: Level of service MNN: Mitigation Not Needed MNF=Mitigation Not Feasible

* = Caltrans Jurisdiction

**TABLE 5-8: 2035 TREND GROWTH MITIGATED CONDITION SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 Trend Growth Alternative | | 2035 Trend Growth Mitigated Conditions | | ▲ Avg Delay | Significant Impact After Mitigation (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS | (seconds) | |
| 43. | Grimmer Blvd / Blacow Rd | A.M. | **96.2** | **F** | **164.0** | **F** | **75.2** | **E** | -21.0 | **Y** |
| | | P.M. | 49.6 | D | **60.8** | **E** | 41.4 | D | -8.2 | N |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M. | 38.8 | D | 45.3 | D | MNN | MNN | | N/A |
| | | P.M. | 43.1 | D | **87.6** | **F** | 66.0 | E | 22.9 | N |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M. | 25.2 | C | **143.7** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 30.8 | C | **204.6** | **F** | MNF | MNF | | **Y** |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M. | 40.5 | D | **99.5** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 55.8 | E | **161.6** | **F** | MNF | MNF | | **Y** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M. | 43.3 | D | **186.8** | **F** | 48.5 | D | 5.2 | N |
| | | P.M. | 38.2 | D | 32.4 | C | MNN | MNN | | N/A |
| 53. | I-880 SB Ramps / Fremont Blvd (S)* | A.M. | 10.7 | B | **94.2** | **F** | MNF | MNF | | **Y** |
| | | P.M. | 6.6 | A | 7.3 | A | MNN | MNN | | N/A |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M. | 34.3 | C | **68.0** | **E** | 50.5 | D | 16.2 | N |
| | | P.M. | 30.6 | C | 47.7 | D | MNN | MNN | | N/A |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M. | 67.2 | E | **182.6** | **F** | MNF | MNF | | **Y** |
| | | P.M. | **100.1** | **F** | **252.9** | **F** | MNF | MNF | | **Y** |
| 57. | I-680 SB Ramps / Durham Rd* | A.M. | 31.7 | C | 37.1 | D | MNN | MNN | | N/A |
| | | P.M. | 11.5 | B | **129.2** | **F** | MNF | MNF | | **Y** |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M. | **83.0** | **F** | **352.3** | **F** | 55.3 | E | -27.7 | N |
| | | P.M. | 34.3 | C | **410.5** | **F** | 62.9 | E | 28.6 | N |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262)* | A.M. | 73.3 | E | **405.9** | **F** | **154.6** | **F** | 81.3 | **Y** |
| | | P.M. | 41.3 | D | **395.0** | **F** | **174.4** | **F** | 133.1 | **Y** |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M. | 26.8 | C | **69.1** | **E** | 38.9 | D | 12.1 | N |
| | | P.M. | 40.0 | D | 43.4 | D | MNN | MNN | | N/A |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M. | 38.9 | D | **154.3** | **F** | **131.6** | **F** | 92.7 | **Y** |
| | | P.M. | 51.5 | D | **166.2** | **F** | **127.6** | **F** | 76.1 | **Y** |
| 68. | Fremont Blvd / Dixon Landing Rd | A.M. | 11.6 | B | **62.4** | **E** | MNF | MNF | | **Y** |
| | | P.M. | 15.4 | B | **77.1** | **E** | MNF | MNF | | **Y** |

Notes: Delay: in average seconds per vehicle Bold=Below Standard LOS: Level of service MNN: Mitigation Not Needed MNF=Mitigation Not Feasible

* = Caltrans Jurisdiction

Implementation of this alternative would not be expected to affect current air traffic patterns in any way (no impact). Under this alternative, implementation of DRAFT General Plan Policy 3-3.6 would minimize road hazards associated with overgrown vegetation, structures blocking sight lines, and other visual obstructions, and requires that new development is reviewed to ensure that ingress and egress locations, driveways, crosswalks, and other circulation features, are sited to minimize accident hazards, reducing potential design hazards to a level considered less than significant. All development under this alternative would be subject to review by the City of Fremont (including the Fremont Fire Department and the

Fremont Police Department) prior to approval to ensure that individual development projects do not impede emergency access, reducing potential impacts to a level considered less than significant. As indicated in DRAFT General Plan Update Policy 3-3.3, it is the City's intent to consider grade-separated crossings where major streets bisect railroads or where such crossings are necessary to meet a regional transportation need, which may also improve emergency vehicle response times. Development under this alternative would not conflict with any existing policies which support the use of alternative transportation (no impact).

As shown above, development anticipated under this alternative would be expected to contribute a portion of the cumulative traffic anticipated on local roadways in 2035 (see **Appendix B [I]**), and would, therefore, make a cumulative considerable contribution to traffic congestion at numerous intersections. In some instances, these impacts could be reduced to a level of less than significant through effective implementation of the Mitigations identified above, but in most instances, traffic congestion at impacted intersections would represent a significant and unavoidable cumulative impact associated with implementation of this alternative.

*Air Quality*

Although less vehicular traffic would be generated relative to that associated with the DRAFT General Plan Update, development under this alternative could be generally expected to result in the same types of air quality impacts associated with implementation of the DRAFT General Plan Update, with the specific impact associated with the anticipated rate of increase in VMT (see **Table 5-1** and **Table 5-6**, above) as related to CAP consistency remaining significant and unavoidable. Implementation of **Mitigation AIR-2** and **Mitigation AIR-3**, discussed above, could be expected to reduce potentially significant adverse air quality impacts related to the exposure of sensitive receptors to TACs, and exposure of sensitive receptors to construction-related emissions (for all but the largest development projects) to a level considered less than significant.

*Noise and Vibration*

The use of project-specific noise analyses and the implementation of **Mitigation NOI-1B** and **Mitigation NOI-3B** could be expected to reduce potential exposure of new land uses to excessive noise, and to adverse noise effects associated with potentially incompatible land uses to a level considered less than significant. However, exposure to increased traffic-related noise would be somewhat less than the DRAFT General Plan Update, but would still result in significant increases in roadway noise, and excessive noise and vibration associated with construction activity could result in significant and unavoidable impacts associated with development under this alternative, even with the implementation of **Mitigation NOI-4** and **Mitigation NOI-5**.

*Hydrology and Water Quality*

Residential, commercial, industrial, and public uses consistent with this alternative could introduce additional non-point source pollutants to downstream surface waters. However, existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce this potential source of water pollution to a level considered less than significant.

Land uses and development consistent with this alternative could result in increased soil erosion and sedimentation during construction activities, thereby degrading water quality in downstream waterways. However, existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce the potential for water pollution from these activities to a level considered less than significant.

Residential, commercial, industrial, and public uses consistent with this alternative could allow additional non-point source pollutants to contaminate groundwater recharge supplies. However, existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce the potential for groundwater contamination to a considered less than significant.

Land use and development anticipated under this alternative would result in alterations to existing drainage patterns. Such changes would increase erosion, both in overland flow paths and in drainage swales and creeks. Current practices utilized in the review of flood control, drainage, and grading permits, stormwater runoff controls under NPDES programs, as well as policies contained in the DRAFT General Plan Update, would mitigate potential impacts associated with increased runoff and other surface drainage modifications, including potential impacts to channel stability, and stream bank erosion. The DRAFT General Plan Update policies would ensure that drainage impacts to streambank erosion would be less than significant.

Land uses and development anticipated under this alternative would result in increases in stormwater runoff and peak discharge. Existing storm drain systems, including urban creeks and rivers, may be incapable of accommodating increased flows, potentially resulting in on- or off-site flooding. Although flooding would continue to occur in flood prone areas, this is considered an existing condition for purposes of CEQA review, and the policies and programs of the DRAFT General Plan Update would ensure that flooding in these areas would not worsen (with the exception of potential impacts to the Laguna Creek Drainage Facility – see **Impact HYD-1** and **Mitigation HYD-1**, above). Adoption and implementation of the policies and programs contained in the DRAFT General Plan Update as discussed above would ensure that potential impacts of future development of on- and off-site flooding and drainage infrastructure under this alternative would be reduced to a level considered less than significant.

Land uses and development anticipated under this alternative would allow continued development in 100-Year Flood Hazard Areas with sufficient mitigation. Policies contained in the DRAFT General Plan Update would reduce potential impacts to a level considered less than significant.

Under this alternative, the policies of the DRAFT General Plan Update, together with other existing flood prevention strategies and policies, would reduce potential inundation hazards from dam and levee failure to existing and future development to a level considered less than significant.

Under this alternative, the policies of the DRAFT General Plan Update, together with other existing flood prevention strategies and policies, would reduce potential inundation hazards from sea-level rise to existing and future development to a level considered less than significant.

Implementation of this alternative, in combination with the SFPUC WSIP, would contribute to the disruption of soils such that they could be carried in stormwater runoff to local waterways and wetlands and into the San Francisco Bay. Similar to the policies and implementations incorporated into the DRAFT General Plan Update, the SFPUC WSIP would be required to comply with the California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, the SWRCB statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Construction General Permit), and coordinate with County and City water quality requirements. Compliance will include preparation of a Storm Water Pollution Prevention Plan (SWPPP) and incorporation of Best Management Practices (BMPs), which would require individual onsite treatment of runoff before it is discharged. Cumulative impacts to stormwater and groundwater quality would, therefore, be considered less than significant.

Development anticipated under this alternative, in combination with other development in the region, would contribute to an increase in impervious surface in the watershed area that could increase the quantity and velocity of stormwater runoff and reduce groundwater recharge. However, all future and planned projects in the region would be required to comply with the requirements of the State Water Resource Control Board C.3 regulations and coordinate with City and County construction and flooding regulations, including (for projects located within Fremont) City of Fremont Conservation and Safety Policies. Therefore, the implementation of the DRAFT General Plan Update, in combination with other planned projects, would have a less than significant cumulative impact to drainage or flooding.

*Geology, Soils and Seismicity*

As a result of development under this alternative people and property could be exposed to the risks associated with surface fault rupture in a major seismic event. The DRAFT General Plan Update identifies goals, policies and actions designed to minimize the impact of surface fault rupture. DRAFT General Plan Update implementations, including 10-2.1.A, 10-2.2.A,

10-2.2.B, 10-2.4.B, described above, would reduce the potential impacts associated with surface fault rupture to a level considered less than significant.

As a result of development under this alternative, people and property could be exposed to the risks associated with severe seismic ground shaking. The 2007 California Building Code, which was adopted by the City of Fremont through Ordinance 31-2007, includes seismic design standards to minimize damage resulting from seismic shaking. The DRAFT General Plan Update identifies additional policies and actions designed to minimize the impacts of strong to very violent seismic shaking. Implementation of DRAFT General Plan Update implementations, including 10-2.1.A, 10-2.1.B, 10-2.2.A, 10-2.2.B, 10-2.4.A, 10-2.5.A, described above, would reduce the impact of strong to very violent seismic ground shaking to a level considered less than significant.

Development under this alternative could result in exposure of people and property to the risks associated with seismically-related ground failure, as it could result in construction in areas that may be underlain by liquefiable material. However, the DRAFT General Plan Update identifies objectives and policies designed to minimize the impact of seismically-related ground failure. Implementation of proposed DRAFT General Plan Update actions, including 10-2.1.A, 10-2.1.B, 10-2.1.C, 10-2.3.A, 10-2.4.A, 10-2.4.C, described above, will reduce the potential impacts associated with seismically-related ground failure to a level considered less than significant. The DRAFT General Plan Update identifies objectives and policies designed to minimize the impacts of landsliding (including seismically-related). Implementation of DRAFT General Plan Update actions, including 10-1.1.A, 10-1.1.B, 10-1.1.C, 10-1.1.D, 10-1.2.A, 10-1.2.B, 10-1.3.A, 10-1.3.B, 10-2.1.A, 10-2.1.B, 10-2.1.C, 10-2.3.A, 10-2.4.A, and 10-2.4.C, described above, would reduce the potential impacts associated with landslides and seismically-induced landslides to a level considered less than significant.

Implementation of the Local Hazard Mitigation Plan, in conjunction with federal and state laws related to ensuring dam safety, would minimize the risk of exposing people and structures to the failure of dams in Fremont, reducing related potential impacts associated with development under this alternative to a level considered less than significant.

Construction activities involved in development under this alternative will disturb topsoil, which, if not properly mitigated, can be mobilized by stormwater runoff, increasing erosion and loss of topsoil. The DRAFT General Plan Update identifies policies and actions designed to minimize the impact of soil erosion and loss of topsoil. Implementation of DRAFT General Plan Update actions, including 10-1.3.A, described above, would reduce the impact of soil erosion and loss of topsoil to a level considered less than significant.

Relevant DRAFT General Plan Update Policies identified in the discussion of potential impacts associated with seismic ground shaking, seismically-related ground failure, landslides and soil erosion, above, will reduce the potential impacts on unstable geologic

units associated with possible construction associated with this alternative to a level considered less than significant.

Development under this alternative would entail construction on expansive soil subject to shrinking and swelling in response to changes in moisture content. As all development anticipated under this alternative would be required to comply with the 2007 California Building Code, potential impacts related to construction on expansive soils would be considered less than significant.

Development anticipated following adoption of the DRAFT General Plan Update would be required to be connected to the Union Sanitary District sanitary sewer facilities. Therefore, there is no impact related to future development on soils incapable of supporting septic systems under this alternative.

Geologic and soil-related impacts associated with future development in the Fremont would involve potential hazards associated with site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each development site would be specific to that site, and its users and would not be common or contribute to (or be shared with, in an additive sense) the impacts associated with other sites. In addition, development on each site would be subject to uniform site development and construction standards designed to protect public safety. Therefore, provided the policies and implementation measures included in the Safety Element of the DRAFT General Plan Update are carried out, potential cumulative impacts related to geology and soils would be considered less than significant.

*Hazards and Hazardous Materials*

Implementation of this alternative would likely result in an increase in the number of businesses storing, using, transporting, and/or disposing of hazardous material within Fremont. However, the DRAFT General Plan Update identifies goals, policies and implementation measures designed to reduce the impact of businesses routinely using, storing, and transporting hazardous material. These actions, including 10-6.1.A, 10-6.2.A, 10-6.4.A, 10-6.5.A, 10-6.5.B, and 10-6.5.C, described above, in combination with California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential impacts associated with the routine use, transport, or disposal of hazardous material to a level considered less than significant.

No hazardous material release is foreseen as a result of implementation of this alternative. However, development under this alternative would result in an increase in the number of people exposed to a potential release of hazardous materials. The DRAFT General Plan Update identifies objectives and policies designed to reduce the hazard to the population due to a hazardous material release. These actions, including 10-6.1.A, 10-6.2.A, 10-6.4.A, 10-6.5.A, 10-6.5.B, 10-6.5.C, 10-6.6.A, 10-6.7.A, and 10-6.7.B, described above, in combination with emergency response from the City of Fremont Fire Department would

reduce the potential impact of a reasonably foreseeable accidental release of hazardous material to a level considered less than significant.

Implementation of this alternative would include development in the vicinity of existing and/or planned schools; however, state regulations on siting of hazardous materials facilities and schools limit the facilities' proximity to schools. Additionally, the DRAFT General Plan Update includes Policy 10-6.2, described above, would reduce the potential impact to a level considered less than significant.

There are a number of sites within Fremont listed on government databases. These generally consist of leaking underground storage tanks (LUSTs), many of which have impacted soil and groundwater with petroleum. Public and environmental hazards are reduced by federal and state remediation regulations. Additionally, DRAFT General Plan Update actions 10-6.3.A, 10-6.3.B, and 10-6.3.C would reduce the potential impacts associated with development on, or in the vicinity of, listed hazardous material sites to a level considered less than significant.

There are no airports within 2 miles of the Fremont city limits, therefore, there is no impact under this alternative.

There are no private airstrips in the vicinity, therefore, there is no impact under this alternative.

Implementation of this alternative would result in denser development within Fremont and would have the potential to change circulation patterns which could impact emergency evacuation or response plans. However, the DRAFT General Plan Update includes policies, and implementation actions designed to provide for sufficient emergency response in Fremont. These actions include the following implementation measures, described above: 10-5.1.A, 10-5.1.B, 10-5.2.A, 10-5.2.B, 10-5.2.A, 10-5.2.B, 10-5.3.A, 10-5.3.B, 10-5.3.C, 10-5.4.A, and 10-5.5.A. Therefore, potential interference with an adopted emergency response or emergency evacuation plan would be considered a less than significant impact.

The Land Use Element of the DRAFT General Plan Update would allow limited development in areas of high wildland fire risk, and such development could also be anticipated under this alternative. DRAFT General Plan Update implementation measures 10-4.1A, 10-4.1.C, 10-4.1.D, 10-4.2.A, 10-4.3.A, 10-4.3.C, and 10-4.3.C, described above, would reduce potential risks associated with wildland fires to a level considered less than significant.

Implementation of this alternative would result in increased population and a commensurate increase in the number of sites handling hazardous materials in the City. However, the cumulative impact is expected to be slight, and identified DRAFT General Plan Update policies, as well as California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would

reduce the potential cumulative hazardous materials impacts of Plan implementation. Implementation of this alternative would also result in new construction in areas that are subject to wildland fire hazards. However, implementation of the DRAFT General Plan Update would not result in a cumulative impact on wildland fire hazards in surrounding areas. Cumulative hazards and hazardous materials impacts are considered less than significant.

*Cultural and Archaeological Resources*

It is possible that future development which may occur under this alternative could result in the demolition of historic resources, even with the level of protection provided by Implementation 4-6.1.A, HARB review and the Historic Resources Ordinance. If such a demolition of a historic resource were to take place, this would represent a significant and unavoidable environmental impact, which could not be mitigated to a level of less than significant. However, should demolition be proposed as part of a development project, a separate, site-specific environmental review would be required, requiring an analysis of alternatives and potential project-specific mitigation measures.

The DRAFT General Plan Update identifies various sites where new construction or alterations to existing buildings may take place to achieve DRAFT General Plan Update objectives, and these sites could also be developed under this alternative. Such construction may alter the characteristics that justify a resource's historical significance, and may change the architectural context of nearby historical architectural resources. DRAFT General Plan Update Policy 4-6.2 and Implementation 4-6.2.A (which requires review of any proposed alterations to Register Resources and Potential Register Resources associated with proposed development projects are consistent with the recommended procedures and best practices provided in *The Secretary of Interior Standards for the Treatment of Historic Properties*) would reduce potential impacts associated with alteration of historic resources a level considered less than significant.

Although no archaeological resources are currently known to exist in portions of the City where development is anticipated under this alternative, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction or disturbance of unidentified subsurface archaeological resources. Implementation of **Mitigation CUL-2** would reduce the impact to a level considered less than significant.

Although no paleontological resources are currently known to exist in those portions of the City where development would be anticipated under this alternative, ground-disturbing activities associated with new construction and related underground utility installation could result in the destruction of unidentified subsurface paleontological resources. Implementation of **Mitigation CUL-3** would reduce the impact to a level considered less than significant.

Ground-disturbing activities associated with new construction and related underground utility installation could result in the disturbance of unidentified subsurface human remains. Although DRAFT General Plan Policy 4-6.10 would require coordination with representatives of local Native American organizations to ensure protection of Native American resources, the evaluation of human remains which may be uncovered during construction activity would represent an impact which could be reduced to a level considered less than significant through implementation of **Mitigation CUL-4**.

Any demolition of historic resources to occur within Fremont following adoption of the DRAFT General Plan Update could be regarded as a cumulative contribution to the on-going loss of historic resources within the Bay Area, which would be considered a significant and unavoidable cumulative impact associated with development under this alternative. Effective implementation of the applicable DRAFT General Plan Update policies, implementation actions and mitigation measures identified above would be expected to reduce any potential development-related impacts associated with alteration of historic structures or disturbance of undiscovered archaeological resources, paleontological resources or human remains to a level considered less than significant, which would also reduce any corresponding potential cumulative impact to a level considered less than significant.

*Agricultural Resources*

Development under this alternative could result in the irrevocable conversion of existing agricultural land currently designated as "Prime Farmland" or "Unique Farmland" to urban uses. This would include the same Guardino and I-680/Palm properties as the DRAFT General Plan Update. Where such conversions may take place in the future, and where they would result in the loss of "Prime Farmland" or Unique Farmland", this would represent a significant and unavoidable impact associated with implementation of this alternative.

Development under this alternative would not be expected to result in any conflict with existing agricultural zoning.

Under the DRAFT General Plan Update, areas in Williamson Act contracts are designated "Open Space - Hill Face", "Open Space - Hill", and "Open Space - Resource Conservation/Public" where future urban development is not anticipated. For this reason, it is unlikely that future development in these areas under this alternative would conflict with any current Williamson Act contracts, and the impact would be considered less than significant.

Any conversion of land which is currently in agricultural use to non-agricultural uses would contribute to an on-going cumulative loss of agricultural land in the Bay Area, which could be considered a significant and unavoidable cumulative impact associated with implementation of this alternative.

*Biological Resources*

Land use and development consistent with this alternative could result in adverse impacts on special-status species or essential habitat for special-status species in Fremont. Further environmental review of each development proposal would be necessary, depending on whether the potential environmental impacts of future proposed projects within Fremont have the potential to cause one or more direct or reasonably foreseeable indirect physical changes in the environment that have not been addressed through the implementation of the planning process. Implementation of the applicable policies and actions identified in the DRAFT General Plan Update could reduce these potential impacts to a level considered less than significant. Development under this alternative could also result in disturbance, degradation, and removal of annual grassland and oak woodland. Remnant riparian habitats (if present), drainages, and wetlands (vernal pools) within these communities may be impacted by the future development. While implementation of the applicable DRAFT General Plan Update policies and implementation actions would partially reduce and/or avoid direct and indirect impacts to riparian habitat or other sensitive natural communities, environmental review as described above would ensure that adequate mitigation measures will be identified for future projects that will help to further reduce/minimize impacts to sensitive habitat acreage, values, and function, reducing potential impacts to a level considered less than significant. Land uses and development anticipated under this alternative could restrict aquatic or terrestrial wildlife movement through travel corridors. DRAFT General Plan Update policies would mitigate impacts to wildlife movement corridors and would, therefore, reduce potential impacts to wildlife travel corridors to a level considered less than significant. No additional mitigation is required. The policies and implementation measures contained within the DRAFT General Plan Update would not conflict with existing City policies and ordinances related to the protection of biological resources (no impact).

*Mineral Resources*

Development under this alternative would not be expected to result in the loss of availability of known mineral resources. Effective implementation of Policy 7-5.1 would reduce the potential for substantive loss of availability of known mineral resources in Fremont to a level considered less than significant.

Development under this alternative would not be expected to result in the loss of availability of any locally-known mineral resource recovery site. Effective implementation of Policy 7-5.1 would reduce the potential for substantive loss of availability of locally-known mineral resource recovery sites in Fremont to a level considered less than significant.

As DRAFT General Plan Update Policy 7-5.1 would be expected to protect existing mineral resources and locally-important mineral recovery sites from incompatible uses, development anticipated within Fremont would not be expected to add to any cumulative loss of access to existing mineral resources or mineral recovery sites within the region, and any related cumulative impacts would be considered less than significant.

*Public Services*

Development under this alternative would not require the provision of new or physically altered fire stations (the construction of which could cause significant environmental impacts), in order to maintain acceptable response times (less than significant).

With the development anticipated under this alternative, there would be considerably more people living and working in the Fremont than at present, creating an increased demand for police protection in the area. While this may require an increase in police staffing and support equipment, it would not be expected to require the construction of a new police station or the expansion of the existing police station, and the impact would be considered less than significant. An expansion of the existing Department Headquarters building to 80,000 square feet may be anticipated during the twenty-year planning period, with or without implementation of this alternative.

This alternative anticipates the development of approximately 10,000 new residential units in the Fremont during the twenty-year planning period. Under California law, the payment by a developer of all current school impact fees associated with a proposed development effectively mitigates any impact that such development may have on the facilities of the local school district. Under this alternative, all developers would continue to be required to make such payments to the Fremont Unified School District prior to the City's issuance of any certificate of occupancy, in effect reducing all development-related impacts to local schools to a level considered less than significant.

Under this alternative, the development of future parks and recreational facilities could be expected to entail construction-related impacts similar to those associated with other development projects (e.g., temporary air quality and noise effects during the actual construction activity at the two sites), but with implementation of the applicable mitigation measures identified in the corresponding sections of the DRAFT EIR above, these temporary impacts could be reduced to a level considered less than significant. As long as the established standard of five acres of developed parkland per one thousand Fremont residents is met during the operational life of the DRAFT General Plan Update, existing parks and recreational facilities would not be expected to become overused or subject to premature deterioration as the local population grows, and implementation of this alternative would have a less than significant impact on the operation of existing park and recreational facilities.

Development anticipated under this alternative would be expected to increase the number of residents and workers within Fremont, which could be expected to place an increased demand on the public library system, result in increased use of existing community and senior centers, and an increased demand for child care. However, these increased demands are unlikely to necessitate expansion of existing library facilities, community or senior centers, or child care facilities, or the construction of new facilities and centers, and the impact would be considered less than significant.

Increased population and employment under this alternative would place increased demands on all public services, not just within Fremont, but within the region as well. However, these increases would not necessarily be expected to result in a corresponding need to build new public facilities or to expand existing public facilities in order to maintain existing levels of public service within Fremont or the region. In the absence of such a need, cumulative impacts related to the provision of public services would be considered less than significant. As individual development projects are proposed following adoption of the DRAFT General Plan Update, specific project-related effects related to the provision of public services will need to be evaluated within the context of maintaining existing levels of service, budgetary constraints, and the long-term plans of service providers to adjust to anticipated population and employment growth within Fremont and the region.

*Infrastructure and Utilities*

Development anticipated under this alternative would exceed that currently anticipated under the existing General Plan, and that difference in the level of anticipated development over the planning period would place additional unanticipated demand on projected ACWD water supplies. Implementation of **Mitigation UTIL-1A** and **Mitigation UTIL-1B** would be expected to reduce the impact associated with increased development-related demand for water to a level considered less than significant.

As indicated in the **Hydrology and Water Quality** discussion above, land use and development anticipated under this alternative would result in alterations to existing drainage patterns. The Conservation and Safety Elements of the DRAFT General Plan Update contain several stormwater management policies which would help mitigate the potential drainage and erosion impacts associated with new development. In general, the policies would encourage better land use planning through the use of appropriate hydrologic and hydraulic analysis in the discretionary project approval process with respect to site design, building location and drainage infrastructure design. Current practices utilized in the review of flood control, drainage, and grading permits, stormwater runoff controls under the Phase I and II NPDES programs, as well as policies contained in the DRAFT General Plan Update, would mitigate potential impacts associated with increased runoff and other surface drainage modifications to a level considered less than significant. Future development may necessitate the construction of new drainage facilities for stormwater conveyance and management. In areas where drainage infrastructure already exists, drainage systems may need to be enlarged or expanded to accommodate future growth. Stormwater management practices commonly used to mitigate increases in peak flows (e.g., detention, retention, infiltration) may also be implemented, as deemed appropriate under policies in the DRAFT General Plan Update.

Local storm drainage modifications, stream channel alterations, and structural bank stabilization measures could create significant flooding impacts, in some cases by moving the existing flooding and channel instability problems cross channel or downstream, or by changing the timing of peak flows and point of discharge of runoff. Although flooding would

continue to occur in flood prone areas, this is considered an existing condition for purposes of CEQA review, and the policies and programs of the DRAFT General Plan Update would ensure that flooding in these areas would not worsen (with the exception of potential impacts to the Laguna Creek Drainage Facility – see **Impact HYD-1** and **Mitigation HYD-1**, above). Adoption and implementation of the policies and programs contained in the DRAFT General Plan Update as discussed above would ensure that potential impacts of future development of on- and off-site flooding and drainage infrastructure under this alternative would be reduced to a level considered ***less than significant***.

Individual development projects that may be proposed under this alternative in areas designated for residential densities exceeding 29.9 units per acre under the DRAFT General Plan Update could exceed the capacity of the existing local sanitary sewer conveyance system serving the specific project. This impact could be reduced to a level considered less than significant through implementation of **Mitigation UTIL-2**.

Increased development anticipated under this alternative would be expected to result in an increased demand for solid waste collection and disposal. However the DRAFT General Plan Update includes a number of policies promoting waste diversion, recycling, processing, and the ultimate elimination of landfill waste (e.g., Policy 9-6.1, Policy 9-6.3, Policy 9-6.4, Policy 9-7.1, Policy 9-7.3, and Policy 9-8.3) which, if effectively implemented, could be expected to limit potential effects associated with the collection and disposal of solid waste to a level considered less than significant.

As the number of households and businesses increase under this alternative, an increased demand for gas, electricity and telecommunications services can also be anticipated. The providers of these utilities and services (e.g., PG&E, AT&T, etc.) routinely increase the capacity of their delivery systems in order to meet increased demands associated with growth. However, where construction may be required in order to expand service to specific sites which may be developed in the future under this alternative, any potential construction-related effects (e.g., temporary noise and air quality impacts) could be reduced to a level considered less than significant through implementation of the construction-related mitigation measures identified in the corresponding sections of the DRAFT EIR above.

Development under this alternative would be expected to result in an increase in the total population and in the number of businesses within Fremont, with a corresponding increase in the demand for utility services. Additional growth is anticipated during the planning period within the region as well, so development anticipated within Fremont would contribute to a cumulative increase in the demand for water, wastewater treatment, solid waste disposal, energy and communications service throughout the region. Implementation of the mitigation measures identified above, and the relevant polices of the DRAFT General Plan Update, would be expected to reduce the local contribution to the cumulative increase in regional utility demand associated with this alternative to a level considered less than significant.

*Global Climate Change*

There would be less development under the Development Trend Growth alternative than would be anticipated under the DRAFT General Plan Update. The assumed growth pattern and rate of growth through 2020 would not deviate from the assumption of the DRAFT General Plan Update estimate of emissions. Since the GHG analysis conducted for the DRAFT EIR indicated that expected emissions associated with development under the DRAFT General Plan Update would be below the threshold established by the BAAQMD of 6.6 mtons of CO2e per service population, reduced development anticipated under this alternative would also be expected to be below that threshold for 2020, and would be considered less than significant. When considering longer term projections of emissions through 2035, the Development Trend Growth alternative would have lower absolute emissions (due to less development), but the per service population ratio would change as well at roughly the same value of 6.0 mtons/person as the 2020 emission level, rather than decrease as is the case under the DRAFT General Plan Update. For a long-term 2035 cumulative condition, the Development Trend Growth alternative would have a worse service population performance ratio and result in considerable contribution to global climate change impacts and in a significant and unavoidable impact. Conflicts with plans, polices, or regulations adopted for purposes of reducing the emissions of greenhouse gases threshold do not apply to this alternative.

*Planning Policy Analysis*

All development proposed in areas where protected wetlands or habitats are present would be required to comply with federal regulations applicable to development in those areas under this alternative. Most of the local federally-protected wetlands and habitat areas are located in the western portions of Fremont adjacent to San Francisco Bay. Much of this area is in federal ownership and part of the San Francisco Bay National Wildlife Refuge, where no development would be anticipated under this alternative. Two Interstate Highways pass through Fremont (I-680 and I-880), and any future improvements which may be proposed within those rights-of-way would require coordination with Caltrans. All development taking place within Fremont under this alternative would be required to comply with all federal regulations which apply to all development projects anywhere in the U.S. (e.g., compliance with NPDES permit conditions to reduce the potential for stormwater-related pollution, compliance with all regulations related to the use, storage, transportation and disposal of hazardous materials, etc.).

The DRAFT General Plan Update is intended to promote sustainable development within Fremont, including mixed-use, higher-intensity transit-oriented development in the Priority Development Areas, consistent with the objectives of AB 32 and SB 375. Implementation of this alternative would be consistent with these California measures.

The DRAFT General Plan Update directs the major portion of future development in Fremont toward the local PDAs, which would promote pedestrian-friendly, transit-oriented

development consistent with ABAG objectives for PDAs. Implementation of this alternative would be consistent with these regional directives.

Implementation of this alternative would result in development that would substantially increase the intensity of land uses in those portions of the city (e.g., PDAs, including City Center and the Town Centers) where strategic urbanization is desired beyond what would be permitted under the current General Plan and existing land use regulations. However, this need not be considered a "conflict" with existing local land use plans, policies and regulations, since these would permit additional development in these areas (although not to the extent anticipated under this alternative). Additionally, development of purely residential projects within the CBD would be inconsistent with current General Plan policies for this area.

Implementation of the applicable DRAFT General Plan Update policies would continue to protect Fremont's hill areas and baylands, and would ensure that future development maintain compatibility with existing residential neighborhoods.

## COMPARISON OF ALTERNATIVES

**Table 5-9** presents a comparison of the magnitude of environmental impacts associated with the two alternatives relative to those associated with implementation of the DRAFT General Plan Update. This comparison assumes that the mitigation measures identified in the DRAFT EIR would be implemented for each of the alternatives, and that where identified potentially significant impacts associated with implementation of the DRAFT General Plan Update could be expected to reduced to a level considered less than significant through mitigation, the same measures implemented for the alternatives could also reduce potential impacts to a level considered less than significant.

**TABLE 5-9: COMPARISON OF ALTERNATIVES RELATIVE TO DRAFT GENERAL PLAN UPDATE**

| | No Project Alternative | Development Trend Growth Alternative |
|---|---|---|
| Land Use | Similar | Similar |
| Aesthetics | Less | Similar |
| Population and Housing | Less | Similar |
| Transportation and Circulation | Less | Less |
| Air Quality | Less | Less |
| Noise and Vibration | Similar | Similar |
| Hydrology/Water Quality | Similar | Similar |
| Geology/Soils/Seismicity | Similar | Similar |
| Hazards/Hazardous Materials | Similar | Similar |
| Cultural/Archaeological Resources | Similar | Similar |
| Agricultural Resources | Similar | Similar |
| Biological Resources | Similar | Similar |
| Mineral Resources | Similar | Similar |
| Public Services | Similar | Similar |
| Utilities/Infrastructure | Similar | Similar |
| Global Climate Change | Similar | Worse |

A comparison of the traffic-related impacts associated with implementation of the DRAFT General Plan Update and the Trend Growth alternative is provided in **Table 5-10**, **Table 5-11**, **Table 5-12**, and **Table 5-13**.

**TABLE 5-10: COMPARISON OF ALTERNATIVES - SIGNALIZED INTERSECTION LOS SUMMARY**

| # | Intersection | Peak | Existing | | 2035 General Plan Update | | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS |
| 1. | Alvarado Blvd / Deep Creek Rd | A.M. | 25.3 | C | **76.9** | **E** | **65.4** | **E** |
| | | P.M. | 26.1 | B | 46.3 | D | 45.0 | D |
| 2. | Fremont Blvd / I-880 NB Off-Ramp | A.M. | 17.5 | B | 21.0 | C | 23.4 | C |
| | | P.M. | 21.6 | C | 19.0 | B | 17.7 | B |
| 3. | Fremont Blvd / Paseo Padre Pkwy | A.M. | 40.3 | D | 35.4 | D | 33.7 | C |
| | | P.M. | 42.4 | D | **80.3** | **F** | **60.3** | **E** |
| 4. | Paseo Padre Pkwy / Decoto Rd | A.M. | 44.2 | D | **156.9** | **F** | **146.5** | **F** |
| | | P.M. | 45.3 | D | **123.5** | **F** | **123.8** | **F** |
| 5. | Fremont Blvd / Decoto Rd | A.M. | 43.8 | D | **105.4** | **F** | **101.9** | **F** |
| | | P.M. | 41.7 | D | **107.1** | **F** | **107.6** | **F** |
| 6. | I-880 NB Ramps / Decoto Rd | A.M. | 35.5 | D | **167.1** | **F** | **147.6** | **F** |
| | | P.M. | 19.8 | B | **67.4** | **E** | **60.8** | **E** |
| 7. | I-880 SB Ramps / Decoto Rd | A.M. | 25.5 | C | **94.9** | **F** | **71.9** | **E** |
| | | P.M. | 14.2 | B | 14.7 | B | 14.0 | B |
| 8. | Ardenwood Blvd / WB SR-84 Ramps | A.M. | 23.1 | C | 20.1 | C | 23.9 | C |
| | | P.M. | 17.0 | B | 18.1 | B | 17.9 | B |
| 9. | Paseo Padre Pkwy / SR-84 WB Ramps | A.M. | N/A | N/A | 16.2 | B | 18.4 | B |
| | | P.M. | N/A | N/A | 8.8 | A | 10.3 | B |
| 10. | Thornton Ave / SR-84 EB Ramps | A.M. | N/A | N/A | 38.8 | D | 32.6 | C |
| | | P.M. | N/A | N/A | 28.6 | C | 23.1 | C |
| 11. | Paseo Padre Pkwy / Isherwood Way | A.M. | 31.9 | C | **143.5** | **F** | **121.0** | **F** |
| | | P.M. | 31.3 | C | **152.5** | **F** | **107.7** | **F** |
| 12. | Paseo Padre Pkwy / Thornton Ave | A.M. | 50.3 | D | **217.5** | **F** | **222.8** | **F** |
| | | P.M. | 38.8 | D | **146.0** | **F** | **119.1** | **F** |
| 13. | Fremont Blvd / Thornton Ave | A.M. | 34.3 | C | 28.2 | C | 29.2 | C |
| | | P.M. | 38.0 | D | 32.3 | C | 30.7 | C |
| 14. | I-880 NB off-ramp/Thornton Ave | A.M. | 7.2 | A | 7.9 | A | 7.5 | A |
| | | P.M. | 35.9 | D | 37.1 | D | 33.7 | C |
| 15. | Fremont Blvd / Peralta Blvd | A.M. | 26.6 | C | 23.5 | C | 20.7 | C |
| | | P.M. | 32.4 | C | **72.7** | **E** | **57.4** | **E** |
| 16. | Fremont Blvd / Central Ave | A.M. | 28.9 | C | **121.5** | **F** | **123.9** | **F** |
| | | P.M. | 35.0 | C | **109.9** | **F** | **60.3** | **E** |
| 17. | Central Ave / Blacow Rd | A.M. | 29.1 | C | 36.1 | D | 38.5 | D |
| | | P.M. | 31.8 | C | 32.7 | C | 31.2 | C |
| 18. | Paseo Padre Pkwy / Peralta Blvd | A.M. | 40.3 | D | **68.8** | **E** | **65.0** | **E** |
| | | P.M. | 51.3 | D | **164.7** | **F** | **137.9** | **F** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-10: COMPARISON OF ALTERNATIVES - SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 General Plan Update | | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS |
| 19. | Peralta Blvd / Mowry Ave | A.M. | 15.1 | B | 11.0 | B | 10.8 | B |
| | | P.M. | 15.4 | B | 13.1 | B | 12.8 | B |
| 20. | Civic Center Dr / Mowry Ave | A.M. | 29.2 | C | 21.4 | C | 19.7 | B |
| | | P.M. | 30.0 | C | 26.4 | C | 19.4 | B |
| 21. | Paseo Padre Pkwy / Mowry Ave | A.M. | 40.3 | D | **107.0** | **F** | **79.2** | **E** |
| | | P.M. | 38.4 | D | **94.1** | **F** | **55.3** | **E** |
| 22. | Fremont Blvd / Mowry Ave | A.M. | 38.0 | D | **71.2** | **E** | **60.1** | **E** |
| | | P.M. | 48.3 | D | **123.1** | **F** | **87.7** | **F** |
| 23. | Argonaut Way / Mowry Ave | A.M. | 21.1 | C | 19.3 | B | 18.0 | B |
| | | P.M. | 32.7 | C | 36.5 | D | 27.2 | C |
| 24. | Blacow Rd / Mowry Ave | A.M. | 31.0 | C | **81.7** | **F** | **83.7** | **F** |
| | | P.M. | 33.7 | C | **93.4** | **F** | **71.4** | **E** |
| 25. | Farwell Dr / Mowry Ave | A.M. | 27.2 | C | **59.5** | **E** | **56.0** | **E** |
| | | P.M. | 35.3 | D | 49.1 | D | 34.7 | C |
| 26. | I-880 NB off-ramp / Mowry Ave | A.M. | 12.7 | B | 9.9 | A | 10.7 | B |
| | | P.M. | 15.7 | B | 26.5 | C | 23.8 | C |
| 27. | I-880 SB off ramp / Mowry Ave | A.M. | 12.5 | B | 39.3 | D | 40.3 | D |
| | | P.M. | 16.2 | B | 25.0 | C | 22.6 | C |
| 28. | Mission Blvd / Niles Canyon Rd | A.M. | 50.3 | D | **307.7** | **F** | **298.2** | **F** |
| | | P.M. | **58.3** | **E** | **215.2** | **F** | **247.9** | **F** |
| 29. | Mission Blvd / Mowry Ave | A.M. | **104.7** | **F** | **250.0** | **F** | **254.2** | **F** |
| | | P.M. | **89.5** | **F** | **242.3** | **F** | **210.6** | **F** |
| 30. | Mission Blvd / Walnut Ave | A.M. | 32.7 | C | **107.2** | **F** | **122.4** | **F** |
| | | P.M. | 27.6 | C | **91.1** | **F** | **64.6** | **E** |
| 31. | Civic Center Dr / Walnut Ave | A.M. | 30.2 | C | 21.7 | C | 21.6 | C |
| | | P.M. | 31.8 | C | 31.7 | C | 27.1 | C |
| 32. | Paseo Padre Pkwy / Walnut Ave | A.M. | 33.3 | C | 29.3 | C | 26.5 | C |
| | | P.M. | 42.0 | D | 41.8 | D | 46.7 | D |
| 33. | Fremont Blvd / Walnut Ave | A.M. | 39.2 | D | 21.8 | C | 22.8 | C |
| | | P.M. | 50.8 | D | 33.4 | C | 30.0 | C |
| 34. | Mission Blvd / Stevenson Blvd | A.M. | 30.3 | C | **106.0** | **F** | **101.8** | **F** |
| | | P.M. | 27.4 | C | **130.5** | **F** | **102.0** | **F** |
| 35. | Paseo Padre Pkwy / Stevenson Blvd | A.M. | 43.2 | D | 35.0 | C | 35.0 | C |
| | | P.M. | 43.7 | D | 34.5 | C | 27.6 | C |
| 36. | Fremont Blvd / Stevenson Blvd | A.M. | 37.6 | D | 32.9 | C | 30.3 | C |
| | | P.M. | 39.8 | D | 29.2 | C | 28.5 | C |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-10: COMPARISON OF ALTERNATIVES - SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 General Plan Update | | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS |
| 37. | Blacow Rd / Stevenson Blvd | A.M | **57.9** | **E** | **83.7** | **F** | **79.2** | **E** |
| | | P.M. | **119.9** | **F** | **131.5** | **F** | **141.5** | **F** |
| 38. | I-880 NB Ramps / Stevenson Blvd | A.M | 13.0 | B | 7.7 | A | 7.7 | A |
| | | P.M. | 14.5 | B | 12.6 | B | 13.3 | B |
| 39. | I-880 SB Ramps / Stevenson Blvd | A.M | 13.7 | B | 8.5 | A | 8.9 | A |
| | | P.M. | 14.8 | B | 9.5 | A | 9.0 | A |
| 40. | Albrae St / Stevenson Blvd | A.M | 25.2 | C | 27.9 | C | 23.5 | C |
| | | P.M. | 36.0 | D | 42.3 | D | 40.6 | D |
| 41. | Cherry St - Boyce Rd / Stevenson Blvd | A.M | 39.0 | D | 28.4 | C | 26.4 | C |
| | | P.M. | 26.9 | C | 20.9 | C | 22.3 | C |
| 42. | Fremont Blvd / Grimmer Blvd | A.M | 38.3 | D | 47.0 | D | 32.8 | C |
| | | P.M. | 37.6 | D | **56.7** | **E** | 50.7 | D |
| 43. | Blacow Rd / Grimmer Blvd | A.M | **96.2** | **F** | **157.1** | **F** | **164.0** | **F** |
| | | P.M. | 49.6 | D | **80.1** | **F** | **60.8** | **E** |
| 44. | S. Grimmer Blvd / Auto Mall Pkwy | A.M | 38.8 | D | 47.7 | D | 45.3 | D |
| | | P.M. | 43.1 | D | **103.4** | **F** | **87.6** | **F** |
| 45. | I-880 NB Ramps / Auto Mall Pkwy | A.M | 9.3 | A | 4.9 | A | 4.2 | A |
| | | P.M. | 8.6 | A | 10.9 | B | 9.4 | A |
| 46. | I-880 SB Ramps / Auto Mall Pkwy | A.M | 12.8 | B | 9.4 | A | 7.8 | A |
| | | P.M. | 12.3 | B | 11.8 | B | 11.5 | B |
| 47. | Christy St / Auto Mall Pkwy | A.M | 25.5 | C | 25.4 | C | 24.1 | C |
| | | P.M. | 36.1 | D | 40.3 | D | 36.7 | D |
| 48. | Union St-Fremont Blvd / Washington Blvd | A.M | 25.2 | C | **143.7** | **F** | **143.7** | **F** |
| | | P.M. | 30.8 | C | **204.6** | **F** | **204.6** | **F** |
| 49. | Fremont Blvd / Blacow Rd | A.M | 41.4 | D | 10.8 | B | 10.8 | B |
| | | P.M. | 32.5 | C | 17.5 | B | 17.5 | B |
| 50. | Fremont Blvd / Auto Mall Pkwy | A.M | 40.5 | D | **90.3** | **F** | **99.5** | **F** |
| | | P.M. | **55.8** | **E** | **175.1** | **F** | **161.6** | **F** |
| 51. | Fremont Blvd / S. Grimmer Blvd | A.M | 43.3 | D | **186.8** | **F** | **186.8** | **F** |
| | | P.M. | 38.2 | D | 32.4 | C | 32.4 | C |
| 52. | I-880 NB Ramps / Fremont Blvd (S) | A.M | 19.2 | B | 29.9 | C | 29.9 | C |
| | | P.M. | 8.7 | A | 4.7 | A | 4.7 | A |
| 53. | I-880 SB Ramps / Fremont Blvd (S) | A.M | 10.7 | B | **94.2** | **F** | **94.2** | **F** |
| | | P.M. | 6.6 | A | 7.3 | A | 7.3 | A |
| 54. | Fremont Blvd / Cushing Pkwy | A.M | 21.6 | C | 27.8 | C | 27.8 | C |
| | | P.M. | 18.9 | B | 13.6 | B | 13.6 | B |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-10: COMPARISON OF ALTERNATIVES - SIGNALIZED INTERSECTION LOS SUMMARY (CONTINUED)**

| # | Intersection | Peak | Existing | | 2035 General Plan Update | | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|---|---|
| | | | Delay | LOS | Delay | LOS | Delay | LOS |
| 55. | Paseo Padre Pkwy / Driscoll Rd | A.M. | 34.3 | C | **65.1** | **E** | **68.0** | **E** |
| | | P.M. | 30.6 | C | **61.2** | **E** | 47.7 | D |
| 56. | Osgood Rd / Auto Mall Pkwy | A.M. | **67.2** | **E** | **182.6** | **F** | **182.6** | **F** |
| | | P.M. | **100.1** | **F** | **252.9** | **F** | **252.9** | **F** |
| 57. | I-680 SB Ramps / Durham Rd | A.M. | 31.7 | C | 37.1 | D | 37.1 | D |
| | | P.M. | 11.5 | B | **129.2** | **F** | **129.2** | **F** |
| 58. | I-680 NB Ramps / Durham Rd | A.M. | 17.3 | B | 20.7 | C | 20.7 | C |
| | | P.M. | 16.5 | B | 16.7 | B | 16.7 | B |
| 59. | Mission Blvd (north) / I-680 SB Ramps | A.M. | 12.5 | C | 1.3 | A | 1.3 | A |
| | | P.M. | 10.9 | B | 35.6 | D | 28.2 | C |
| 60. | Mission Blvd (north) / I-680 NB Ramps | A.M. | 21.5 | C | 34.2 | C | 35.6 | D |
| | | P.M. | 23.4 | C | 38.6 | D | 37.1 | D |
| 61. | Osgood Rd - Warm Springs Blvd / S. Grimmer Blvd | A.M. | **83.0** | **F** | **352.3** | **F** | **352.3** | **F** |
| | | P.M. | 34.3 | C | **410.5** | **F** | **410.5** | **F** |
| 62. | Warm Springs Blvd / Mission Blvd (SR-262) | A.M. | **73.3** | **E** | **405.9** | **F** | **405.9** | **F** |
| | | P.M. | 41.3 | D | **395.0** | **F** | **395.0** | **F** |
| 63. | Warm Springs Blvd / E. Warren Ave | A.M. | 26.8 | C | **69.0** | **E** | **69.1** | **E** |
| | | P.M. | 40.0 | D | 45.8 | D | 43.4 | D |
| 64. | Warm Springs Blvd / Kato Rd-Scott Creek Rd | A.M. | 38.9 | D | **167.6** | **F** | **154.3** | **F** |
| | | P.M. | 51.5 | D | **195.8** | **F** | **166.2** | **F** |
| 67. | Ardenwood Blvd / Paseo Padre Pkwy | A.M. | 23.1 | C | 23.2 | C | 24.4 | C |
| | | P.M. | 25.9 | C | 20.5 | C | 19.9 | B |
| 68. | Fremont Blvd-McCarthy Blvd / Dixon Landing Rd | A.M. | 11.6 | B | **62.5** | **E** | **62.4** | **E** |
| | | P.M. | 15.4 | B | **68.3** | **E** | **77.1** | **E** |

Notes: Delay: in average seconds per vehicle LOS: Level of Service E/F Intersections operating below acceptable LOS D are in bold na: not applicable

**TABLE 5-11: COMPARISON OF ALTERNATIVES - ALAMEDA COUNTY FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Peak Period | Existing | | 2035 General Plan Update | | 2035 Trend Growth Alternative | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | V/C | LOS | V/C | LOS | V/C | LOS |
| 1. | I-680 - NB | Scott Creek Rd | Mission Blvd (SR-262) | A.M. | 0.65 | C | 0.70 | C | 0.68 | C |
| | | | | P.M. | **1.10** | **F** | **1.24** | **F** | **1.23** | **F** |
| 2. | I-680 - NB | Mission Blvd (SR-262) | Durham Road | A.M. | 0.71 | C | 0.69 | C | 0.70 | C |
| | | | | P.M. | **1.03** | **F** | **1.24** | **F** | **1.22** | **F** |
| 3. | I-680 - NB | Durham Rd | Washington Blvd | A.M. | 0.62 | C | 0.60 | C | 0.59 | C |
| | | | | P.M. | **1.08** | **F** | **1.23** | **F** | **1.21** | **F** |
| 4. | I-680 - NB | Washington Blvd | Mission Blvd (SR-238) | A.M. | 0.65 | C | 0.60 | C | 0.59 | C |
| | | | | P.M. | **1.04** | **F** | **1.21** | **F** | **1.20** | **F** |
| 5. | I-680 - SB | Mission Blvd (SR-238) | Washington Blvd | A.M. | **1.06** | **F** | **1.50** | **F** | **1.50** | **F** |
| | | | | P.M. | 0.48 | B | 0.76 | D | 0.76 | D |
| 6. | I-680 - SB | Washington Blvd | Durham Rd | A.M. | **1.06** | **F** | **1.23** | **F** | **1.23** | **F** |
| | | | | P.M. | 0.48 | B | 0.63 | C | 0.62 | C |
| 7. | I-680 - SB | Durham Rd | Mission Blvd (SR-262) | A.M. | **1.06** | **F** | **1.25** | **F** | **1.25** | **F** |
| | | | | P.M. | 0.57 | B | 0.72 | C | 0.71 | C |
| 8. | I-680 - SB | Mission Blvd (SR-262) | Scott Creek Rd | A.M. | **1.06** | **F** | **1.34** | **F** | **1.36** | **F** |
| | | | | P.M. | 0.48 | B | 0.73 | C | 0.71 | C |
| 9. | I-880 - NB | Dixon Landing Rd | Mission Blvd (SR-262) | A.M. | 0.49 | B | 0.70 | C | 0.67 | C |
| | | | | P.M. | 0.79 | D | **1.13** | **F** | **1.12** | **F** |
| 10. | I-880 - NB | Mission Blvd (SR-262) | Auto Mall Pkwy | A.M. | 0.55 | B | 0.77 | D | 0.75 | C |
| | | | | P.M. | **1.02** | **F** | **1.45** | **F** | **1.42** | **F** |
| 11. | I-880 - NB | Auto Mall Pkwy | Stevenson Blvd | A.M. | 0.59 | C | 0.87 | D | 0.86 | D |
| | | | | P.M. | **1.05** | **F** | **1.50** | **F** | **1.47** | **F** |
| 12. | I-880 - NB | Stevenson Blvd | Decoto Rd | A.M. | 0.67 | C | 0.83 | D | 0.83 | D |
| | | | | P.M. | 0.98 | E | **1.02** | **F** | **0.99** | **E** |
| 13. | I-880 - NB | Decoto Rd | Alvarado Blvd | A.M. | 0.55 | B | 0.84 | D | 0.85 | D |
| | | | | P.M. | **0.92** | **E** | **1.12** | **F** | **1.10** | **F** |
| 14. | I-880 - SB | Alvarado Blvd | Decoto Rd | A.M. | **1.03** | **F** | **1.36** | **F** | **1.34** | **F** |
| | | | | P.M. | 0.70 | C | 0.90 | D | **0.91** | **E** |
| 15. | I-880 - NB | Alvarado Blvd | Alvarado-Niles Blvd | A.M. | 0.86 | D | **0.94** | **E** | **0.94** | **E** |
| | | | | P.M. | **1.14** | **F** | **1.12** | **F** | **1.10** | **F** |
| 16. | I-880 - SB | Decoto Rd | Stevenson Blvd | A.M. | 0.90 | D | **1.08** | **F** | **1.07** | **F** |
| | | | | P.M. | 0.69 | C | 0.88 | D | 0.86 | D |
| 17. | I-880 - SB | Stevenson Blvd | Auto Mall Parkway | A.M. | **0.98** | **E** | **1.36** | **F** | **1.35** | **F** |
| | | | | P.M. | 0.62 | C | 0.72 | C | 0.73 | C |
| 18. | I-880 - SB | Auto Mall Pkwy | Mission Blvd (SR-262) | A.M. | **0.96** | **E** | **1.32** | **F** | **1.33** | **F** |
| | | | | P.M. | 0.51 | B | 0.56 | B | 0.57 | B |
| 19. | I-880 - SB | Mission Blvd (SR-262) | Dixon Landing Rd off-ramp | A.M. | 0.76 | D | 0.87 | D | 0.88 | D |
| | | | | P.M. | 0.49 | B | 0.45 | B | 0.43 | B |
| 20. | SR 84 - EB | Thornton Ave | Ardenwood Blvd | A.M. | 0.18 | A | 0.40 | B | 0.38 | B |
| | | | | P.M. | 0.86 | D | **1.11** | **F** | **1.10** | **F** |
| 21. | SR 84 - EB | Toll Plaza | Thornton Ave | A.M. | 0.24 | A | 0.50 | B | 0.48 | B |
| | | | | P.M. | **1.09** | **F** | **1.35** | **F** | **1.35** | **F** |
| 22. | SR 84 - WB | Thornton Ave | Toll Plaza | A.M. | 0.82 | D | **1.17** | **F** | **1.18** | **F** |
| | | | | P.M. | 0.27 | A | 0.49 | B | 0.47 | B |

Notes: V/C: Volume:Capacity Ratio LOS: Level of Service Segments operating at capacity are in bold. V/C based Link Volumes directly from Travel Demand Models.

**TABLE 5-12: COMPARISON OF ALTERNATIVES - SANTA CLARA FREEWAY SEGMENTS LOS SUMMARY**

| # | Freeway Segment | From | To | Lane Type | Peak Period | Existing | | 2035 General Plan | | 2035 Growth Trend Alternative | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Density | LOS | Density | LOS | Density | LOS |
| 1. | I-680 - NB | Calaveras Blvd/SR-237 | Jacklin Rd | Mixed | A.M. | 23.0 | C | 30.0 | D | 28.5 | D |
| | | | | | P.M. | 26.0 | D | 31.7 | D | 32.0 | D |
| 2. | I-680 - SB | Jacklin Rd | Calaveras Blvd/SR-237 | Mixed | A.M. | 24.0 | C | **76.2** | **F** | **81.8** | **F** |
| | | | | | P.M. | 32.0 | D | 27.4 | D | 27.1 | D |
| | | | | HOV | A.M. | 20.0 | C | 43.5 | D | 43.2 | D |
| | | | | | P.M. | 11.0 | A | 2.4 | A | 2.4 | A |
| 3. | I-680 - NB | Jacklin Rd | Scott Creek Rd | Mixed | A.M. | 27.8 | D | 23.8 | C | 22.7 | C |
| | | | | | P.M. | 25.0 | C | 35.6 | D | 35.9 | D |
| 4. | I-680 - SB | Scott Creek Rd | Jacklin Rd | Mixed | A.M. | 26.0 | D | **46.3** | **E** | **47.7** | **E** |
| | | | | | P.M. | 24.0 | C | 27.5 | D | 27.1 | D |
| | | | | HOV | A.M. | 18.1 | C | 43.2 | D | 42.2 | D |
| | | | | | P.M. | 8.0 | A | 2.1 | A | 2.1 | A |
| 5. | SR-237 - WB | I-880 | McCarthy Blvd | Mixed | A.M. | **126.3** | **F** | 24.7 | C | 25.5 | C |
| | | | | | P.M. | 27.8 | D | 11.1 | B | 10.5 | A |
| 6. | SR-237 - EB | McCarthy Blvd | I-880 | Mixed | A.M. | 20.9 | C | 17.6 | B | 17.1 | B |
| | | | | | P.M. | **225.0** | **F** | 31.7 | D | 32.2 | D |
| | | | | HOV | A.M. | N/A | N/A | N/A | N/A | N/A | N/A |
| | | | | | P.M. | N/A | N/A | N/A | N/A | N/A | N/A |
| 7. | SR-237 - WB | McCarthy Blvd | Zanker Rd | Mixed | A.M. | **114.0** | **F** | 35.4 | D | 35.8 | D |
| | | | | | P.M. | 31.2 | D | 18.6 | C | 17.8 | B |
| | | | | HOV | A.M. | 25.0 | C | 31.3 | D | 33.0 | D |
| | | | | | P.M. | 8.0 | A | 9.0 | A | 8.5 | A |
| 8. | SR-237 - EB | Zanker Rd | McCarthy Blvd | Mixed | A.M. | 23.0 | C | 29.1 | D | 28.3 | D |
| | | | | | P.M. | **73.0** | **F** | **72.7** | **F** | **75.1** | **F** |
| | | | | HOV | A.M. | 9.1 | A | 8.6 | A | 7.8 | A |
| | | | | | P.M. | 30.0 | D | **46.1** | **E** | **48.9** | **E** |
| 9. | SR-237 - WB | Zanker Rd | N. First St | Mixed | A.M. | **55.0** | **E** | 39.9 | D | 41.1 | D |
| | | | | | P.M. | **49.1** | **E** | 21.4 | C | 20.9 | C |
| | | | | HOV | A.M. | 39.1 | D | 37.0 | D | 38.2 | D |
| | | | | | P.M. | 16.0 | B | 8.8 | A | 8.5 | A |
| 10. | SR-237 - EB | N. First St | Zanker Rd | Mixed | A.M. | 32.0 | D | 14.7 | B | 14.4 | B |
| | | | | | P.M. | **75.0** | **F** | 31.3 | D | 32.3 | D |
| | | | | HOV | A.M. | 20.0 | C | 8.8 | A | 8.0 | A |
| | | | | | P.M. | 35.0 | D | 32.4 | D | 32.9 | D |
| 11. | I-880 - NB | SR-237 | Dixon Landing Rd | Mixed | A.M. | 16.2 | B | 19.4 | C | 18.4 | C |
| | | | | | P.M. | 39.1 | D | **46.6** | **E** | **47.3** | **E** |
| | | | | HOV | A.M. | 12.1 | B | 20.5 | C | 19.6 | C |
| | | | | | P.M. | 18.0 | B | 31.4 | D | 31.6 | D |
| 12. | I-880 - SB | Dixon Landing Rd | SR-237 | Mixed | A.M. | 42.5 | D | 38.6 | D | 39.7 | D |
| | | | | | P.M. | 18.7 | C | 11.8 | B | 11.4 | B |
| | | | | HOV | A.M. | 44.0 | D | 33.5 | D | 32.5 | D |
| | | | | | P.M. | 11.0 | A | 15.0 | B | 14.9 | B |

Notes: LOS: Level of Service Segments operating below acceptable LOS D are in bold. Existing LOS based on 2009 VTA CMP Published results

**TABLE 5-13: COMPARISON OF ALTERNATIVES - CITY OF FREMONT STUDY ARTERIAL SEGMENTS**

| # | Roadway Segment | From | To | Peak Period | Existing | | 2035 General Plan | | 2035 Growth Trend Alternative | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Speed | LOS | Speed | LOS | Speed | LOS |
| 1. | Mowry Ave - EB | I-880 | Farwell Dr | A.M. | 35 | A | 35 | A | 35 | A |
| | | | | P.M. | 31 | A | 12 | E | 13 | E |
| 2. | Mowry Ave - EB | Farwell Dr | SR-84 | A.M. | 35 | A | 34 | A | 35 | A |
| | | | | P.M. | 32 | A | **5** | **F** | **10** | **E** |
| 3. | Mowry Ave - WB | SR-84 | Farwell Dr | A.M. | 35 | A | 23 | C | 30 | A |
| | | | | P.M. | 34 | A | 33 | A | 34 | A |
| 4. | Mowry Ave - WB | Farwell Dr | I-880 | A.M. | 35 | A | 11 | E | **7** | **F** |
| | | | | P.M. | 35 | A | 33 | A | 34 | A |
| 5. | SR 84 / Mowry Ave (Fre) - WB | SR-238 | Peralta Blvd | A.M. | 39 | A | 25 | C | 37 | A |
| | | | | P.M. | 40 | A | 28 | C | 23 | C |
| 6. | SR 84 / Peralta Blvd (Fre) - WB | Mowry Ave | Fremont Blvd | A.M. | 33 | B | 40 | A | 40 | A |
| | | | | P.M. | 37 | A | 39 | A | 40 | A |
| 7. | SR 84 / Fremont Blvd (Fre) - WB | Peralta Blvd | Thornton Ave | A.M. | 34 | A | 35 | A | 35 | A |
| | | | | P.M. | 12 | E | 34 | A | 34 | A |
| 8. | SR 84 / Thornton Ave - WB | Fremont Blvd | I-880 SB | A.M. | 34 | A | 35 | A | 32 | A |
| | | | | P.M. | 35 | A | 31 | A | 35 | A |
| 9. | SR 84 / Thornton Ave - EB | I-880 SB Ramps | Fremont Blvd | A.M. | 35 | A | 34 | A | 26 | B |
| | | | | P.M. | 33 | A | 34 | A | 34 | A |
| 10. | SR 84 / Fremont Blvd (Fre) - EB | Thornton Ave | Peralta Blvd | A.M. | 35 | A | 34 | A | 35 | A |
| | | | | P.M. | 24 | C | 35 | A | 35 | A |
| 11. | SR 84 / Peralta Blvd (Fre) - EB | Fremont Blvd | Mowry Ave | A.M. | 40 | A | 40 | A | 40 | A |
| | | | | P.M. | 40 | A | 39 | A | 39 | A |
| 12. | SR 84 / Mowry Ave (Fre) - EB | Peralta Blvd | SR-238 | A.M. | 40 | A | 37 | A | 28 | B |
| | | | | P.M. | 39 | A | 18 | D | 20 | D |
| 13. | SR 238 (Mission Blvd ) - SB | Nursery Ave | Stevenson Blvd | A.M. | 31 | B | 18 | D | 19 | D |
| | | | | P.M. | 39 | A | **12** | **F** | **1** | **F** |
| 14. | SR 238 (Mission Blvd ) - SB | Stevenson Blvd | I-680 NB Ramp | A.M. | 23 | C | **6** | **F** | **7** | **F** |
| | | | | P.M. | 39 | A | 13 | E | 18 | D |
| 15. | SR 262 (Mission Blvd ) - EB | I-880 NB Ramps | I-680 NB Ramps | A.M. | 32 | B | 23 | C | 22 | D |
| | | | | P.M. | 26 | C | **8** | **F** | **8** | **F** |
| 16. | SR 262 (Mission Blvd ) - WB | I-680 NB Ramps | I-880 SB Ramps | A.M. | **10** | **F** | 22 | D | 23 | C |
| | | | | P.M. | 32 | B | 39 | A | 39 | A |
| 17. | Decoto Rd – WB | Fremont City Limits | I-880 NB Ramps | A.M. | 38 | A | 34 | B | 34 | B |
| | | | | P.M. | 39 | A | 39 | A | 38 | A |
| 18. | Decoto Rd – EB | I-880 NB Ramps | Fremont City Limits | A.M. | 40 | A | 38 | A | 36 | A |
| | | | | P.M. | 21 | D | 19 | D | 20 | D |
| 19. | SR 238 (Mission Blvd) – NB | I-680 NB Ramps | Stevenson Blvd | A.M. | 42 | A | **2** | **F** | **2** | **F** |
| | | | | P.M. | 44 | A | **9** | **F** | **11** | **F** |
| 20. | SR 238 (Mission Blvd) – NB | Stevenson Blvd | Nursery Ave | A.M. | 44 | A | **1** | **F** | **1** | **F** |
| | | | | P.M. | 35 | A | **8** | **F** | **10** | **F** |

Notes: Speed: MPH LOS: Level of Service Segments operating at capacity are in bold. V/C based Link Volumes directly from Travel Demand Models.

Under the 2035 General Plan Update Condition, 34 of the 68 study intersections would operate below LOS D. Of these 34 intersections, 29 would experience significant and unavoidable impacts. Under the 2035 Trend Growth Alternative Condition, 31 of the 68 study intersections would operate below LOS D. Of these 31 intersections, 19 would experience significant and unavoidable impacts.

Estimated vehicle miles traveled (VMT) would be lowest under the No Project alternative (9,365,265) and highest under the DRAFT General Plan Update (10,758,080). Estimated VMT under the Development Trend Growth alternative would be approximately three percent lower than anticipated under the DRAFT General Plan Update (10,457,627). The simple per capita ratio of dividing population by VMT would result in 40.7 miles/person/day for the No Project alternative, 42.68 miles/person/day for the Development Trend Growth alternative, and 41.3 miles/person/day for the DRAFT General Plan Update. This simple per capita metric does not account for the significant variable of employment levels in the three scenarios. If employment projections are incorporated, the DRAFT General Plan Update results in the highest miles/person/day, since it includes projections for greater job growth than the two alternatives. More modest job growth projections consistent with the other alternatives with the same population increase would result in roughly a 5 percent reduction in estimated VMT and reduce per capita VMT below the no project condition.

Development under the DRAFT General Plan Update, the Development Trend Growth alternative or the No Project alternative could be expected to entail potentially significant and unavoidable environmental impacts were existing historic structures to be demolished or lands currently in agricultural use converted to non-agricultural uses.

## ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Development anticipated under the DRAFT General Plan Update, the existing General Plan (No Project alternative) or the Development Trend Growth alternative would result in a significant increase in the number of people living and working in Fremont, as well as a related increase in the amount of vehicle traffic on local roadways. Most of the types of potential development-related impacts associated with the DRAFT General Plan Update and both alternatives can generally be reduced to a level considered less than significant through the implementation of mitigation measures identified in the DRAFT EIR, although some potentially significant and unavoidable impacts associated with implementation of the DRAFT General Plan Update (e.g., potential demolition of historic structures, potential conversion of agricultural land) would be anticipated under any alternative as well. The major difference in the impacts associated with implementing the DRAFT General Plan Update or either of the two alternatives evaluated relates to the VMT which would result from anticipated development, and the related air quality and noise effects associated with those vehicle trips. Development under the Development Trend Growth alternative would generate less VMT than would development under the DRAFT General Plan Update, although the similar focus on transit-oriented development could be expected to result in

some reduction in vehicle trips in both instances. The much lower level of development anticipated under the No Project alternative, however, would result in a lower VMT value (approximately 90 percent of the VMT associated with the Development Trend Growth alternative, and approximately 87 percent of the VMT associated with the DRAFT General Plan Update), and as a result, this alternative would result in less congestion on local roadways (although a number of intersections would still be subject to significant and unavoidable impacts related to level of service), and a proportional reduction in the volume of air pollutants and noise generated by vehicles. For this reason, the No Project alternative would be considered the "environmentally superior" alternative, although development under the existing General Plan would not be consistent with the vision, guiding principles and goals of the DRAFT General Plan Update.

CEQA Guidelines require that where the No Project alternative is also identified as the "environmentally superior" alternative, another alternative which would represent the "environmentally superior" in the absence of the No Project alternative should then be identified. In this case, given the smaller number of daily vehicle trips relative to those anticipated under the DRAFT General Plan Update, the Development Trend Growth alternative would be considered the "environmentally superior" alternative in the absence of the No Project alternative. Development under this alternative would result in less traffic, a lower VMT, less roadway congestion (and less related air pollution and noise) than would be the case under the DRAFT General Plan Update, but more than would be anticipated with development under the No Project alternative.

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# 6

# OTHER CEQA CONSIDERATIONS

## SIGNIFICANT UNAVOIDABLE IMPACTS

As discussed in **Chapter 4: Environmental Analysis**, implementation of the DRAFT General Plan Update would result in the following significant unavoidable impacts:

**Impact TRA-1: Unacceptable Level of Service at Alvarado Boulevard/Deep Creek Road Intersection (#1).** During the A.M. peak hour, the addition of Draft General Plan Update-related traffic would result in a significant impact at the intersection of Alvarado Boulevard/Deep Creek Road. The intersection of Alvarado Boulevard/Deep Creek Road is LOS C under the Existing Condition, and would deteriorate to LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**.

**Mitigation TRA-1: Modification of Alvarado Boulevard/Deep Creek Road Intersection (#1).** By modifying the intersection as shown in **Figure 4.3**, the intersection average delay for the A.M. peak hour would improve from 76.9 seconds to 66.4 seconds. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the LOS would remain at LOS E. Further modifications to the intersection cannot be recommended due to the fact that improvements would be made by another agency, and due to the proximity of private homes or the adjacent I-880 overpass structure. Therefore, this would remain a ***significant and unavoidable*** impact following implementation of **Mitigation TRA-1**.

**Impact TRA-3: Unacceptable Level of Service at Paseo Padre Parkway/Decoto Road Intersection (#4).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Decoto Road. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Decoto Road is LOS D under the Existing Condition, and would

deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B(C)**.

**Mitigation TRA-3: Modification of Paseo Padre Parkway/Decoto Road Intersection (#4).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 156.9 seconds to 82.9 seconds. Similarly, the P.M. peak would improve from 123.5 to 82.1 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along each of the quadrants of the intersection.

With this mitigation in place, the intersection average delay would improve. However, the LOS would remain at LOS F for both the A.M. and P.M. peak hours. Therefore, this mitigation would be ***significant and unavoidable***.

**Impact TRA-5: Unacceptable Level of Service at I-880 NB Ramps/Decoto Road Intersection (#6).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 NB Ramps/Decoto Road. For the A.M. and P.M. peak hours, the intersection of I-880 NB Ramps/Decoto Road is LOS D and B, respectively, under the Existing Condition, and would deteriorate to LOS F and E, respectively, in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-5: Modification of I-880 NB Ramps/Decoto Road Intersection (#6).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 167.1 seconds to 73.4 seconds. Similarly, the P.M. peak would improve from 67.4 to 27.2 seconds. This mitigation may require acquisition of additional right-of-way, reconstruction of the overpass at I-880 and utility relocations. This location is also under the jurisdiction of Caltrans.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and LOS C in the P.M. Because of the LOS E condition, the potential reconstruction of the overpass at I-880, and the fact that improvements would be made by another agency, this would be a ***significant and unavoidable*** impact.

**Impact TRA-7: Unacceptable Level of Service at Paseo Padre Parkway/Isherwood Way Intersection (#11).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Isherwood Way. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Isherwood Way is LOS C under the Existing Condition, but would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-7: Modification of Paseo Padre Parkway/Isherwood Way Intersection (#11).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 143.5 seconds to 118.6 seconds. Similarly, the P.M. peak would improve from 152.5 to 113.9 seconds. This mitigation would require modification of existing traffic signal hardware, travel lane re-striping and the modification of raised concrete medians on northbound approaches to Paseo Padre Parkway.

With this mitigation in place, the intersection average delay would improve. However, the level of service for the A.M. and P.M. peak hours would remain at LOS F. Therefore, this impact would be ***significant and unavoidable***.

**Impact TRA-8: Unacceptable Level of Service at Paseo Padre Parkway/Thornton Avenue Intersection (#12).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Thornton Avenue. For the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Thornton Avenue is LOS D under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-8: Modification of Paseo Padre Parkway/Thornton Avenue Intersection (#12).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 217.5 seconds to 39.8 seconds. Similarly, the P.M. peak would improve from 146.0 to 87.1 seconds.

This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner of the intersection.

With this mitigation in place, the intersection LOS would improve to LOS C in the A.M., but remain LOS F in the P.M. The A.M. impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure. The P.M. impact, however, would be ***significant and unavoidable***.

**Impact TRA-10: Unacceptable Level of Service at Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Peralta Boulevard. For the P.M. peak hour, the intersection of Paseo Padre Parkway/Peralta Boulevard is LOS D, under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located along select Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-10: Modification of Paseo Padre Parkway/Peralta Boulevard Intersection (#18).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the P.M. peak hour would improve from 164.7 seconds to 133.7 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southeast corner.

With this mitigation in place, the P.M. peak hour would remain at an LOS worse than LOS E and, therefore, this would be a ***significant and unavoidable*** impact.

**Impact TRA-11: Unacceptable Level of Service at Paseo Padre Parkway/Mowry Avenue Intersection (#21).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Paseo Padre Parkway/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Paseo Padre Parkway/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-11: Modification of Paseo Padre Parkway/Mowry Avenue Intersection (#21).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 107.0 seconds to 94.8 seconds. Similarly, the P.M. peak would improve from 94.1 to 63.6 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along both Paseo Padre Parkway approaches.

With this mitigation in place, the intersection LOS would remain LOS F in the A.M. and improve to LOS E in the P.M. The A.M. operation would remain at an LOS F worse than LOS E and, therefore, would be a ***significant and unavoidable*** impact. The P.M. impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-12: Unacceptable Level of Service at Fremont Boulevard/Mowry Avenue Intersection (#22).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Mowry Avenue. For the P.M. peak hour, the intersection of Fremont Boulevard/Mowry Avenue is LOS D under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-12: Modification of Fremont Boulevard/Mowry Avenue Intersection (#22).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 123.1 seconds to 87.4 seconds. This mitigation would entail minor restriping along the eastbound Mowry Avenue approach, but would not require acquisition of additional right-of-way or utility relocations along the southwest corner.

With this mitigation in place, the intersection LOS would remain LOS F in the P.M. peak hour. The P.M. impact would remain at an LOS worse than LOS E and therefore would be a ***significant and unavoidable*** impact.

**Impact TRA-13: Unacceptable Level of Service at Blacow Road/Mowry Avenue Intersection (#24).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Blacow

Road/Mowry Avenue is LOS C under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

The improvements necessary to mitigate this intersection would require the narrowing or closing of the frontage road along Blacow Road. However, current Fire Code regulations will not permit the magnitude of modifications that are required. Therefore, this intersection is considered "built-out" and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to existing structures. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

If the intersection were modified to include an additional northbound right turn lane, then the average delay would then improve to 77.8 seconds (LOS E) in the A.M. peak hour and 68.0 seconds (LOS E) in the P.M. peak hour.

**Impact TRA-14: Unacceptable Level of Service at Mission Boulevard/Niles Canyon Road Intersection (#28).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Niles Canyon Road. For the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Niles Canyon Road is LOS D and E, respectively under the Existing Condition, and would both deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-14: Modification of Mission Boulevard/Niles Canyon Road Intersection (#28).** By modifying the intersection as shown in **Figure 4.3**, changing the traffic signal to protected phasing operation and optimizing signal timing, the intersection average delay for the A.M. peak hour would improve from 307.7 seconds to 195.6 seconds. Similarly, the P.M. peak hour would improve from 215.2 seconds to 183.6 seconds. This mitigation would entail minor restriping along eastbound Niles Canyon Road, but would not require acquisition of additional right-of-way or utility relocations.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS F worse than LOS E and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-15: Unacceptable Level of Service at Mission Boulevard/Mowry Avenue Intersection (#29).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Mowry Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Mowry Avenue is LOS F under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 74.5 seconds during the A.M. peak hours and 63.5 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-15: Modification of Mission Boulevard/Mowry Avenue Intersection (#29).** By modifying the intersection as shown in **Figure 4.3** and optimizing signal timing, the intersection (which is under Caltrans jurisdiction), average delay for the A.M. peak hour would improve from 250.0 seconds to 120.9 seconds. Similarly, the P.M. peak hour would improve from 242.3 seconds to 108.3 seconds. This mitigation would entail minor restriping along the southbound Mission Boulevard approach and would not require acquisition of additional right-of-way or utility relocations.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS E allowed for regionally influenced intersections and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-16: Unacceptable Level of Service at Mission Boulevard/Walnut Avenue Intersection (#30).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Walnut Avenue. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Walnut Avenue is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The

project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on the close proximity to single family homes and railroad tracks. Acquisition of additional right-of-way and utility relocation may not be feasible at this intersection. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-17: Unacceptable Level of Service at Mission Boulevard/Stevenson Boulevard Intersection (#34).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Mission Boulevard/Stevenson Boulevard. For both the A.M. and P.M. peak hours, the intersection of Mission Boulevard/Stevenson Boulevard is LOS C under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on a review of adjacent right-of-way and existing structures. Significant modifications to the tunnel underneath the railroad toward the south would be required to widen Mission Boulevard and improve this location. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-18: Unacceptable Level of Service at Blacow Road/Stevenson Boulevard Intersection (#37).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Blacow Road/Stevenson Boulevard. For the A.M. and P.M. peak hours, the intersection of Blacow Road/Stevenson Boulevard is LOS E and F, respectively under the Existing Condition, and would be LOS F in the 2035 General Plan Update Condition. The addition of traffic under 2035 conditions would cause an increase in average delay of 25.8 seconds during the A.M. peak hour and 11.6 during the P.M. peak hour. This increase in average delay exceeds the 4.0 second threshold for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-18: Modification of Blacow Road/Stevenson Boulevard Intersection (#37).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 83.7 seconds to 78.1 seconds. Similarly, the P.M. peak would improve from 131.5 to 89.2 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the southwest corner adjacent to the ARCO fuel station.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and remain LOS F in the P.M. The A.M. would still have an increase in intersection average delay greater than 4.0 seconds and, therefore, this would be a ***significant and unavoidable*** impact. The P.M. would have an increase in intersection average delay less than 4.0 seconds and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-20: Unacceptable Level of Service at Grimmer Boulevard/Blacow Road Intersection (#43).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Grimmer Boulevard/Blacow Road. For both the A.M. and P.M. peak hours, the intersection of Grimmer Boulevard/Blacow Road is LOS F and D, respectively under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-20: Modification of Grimmer Boulevard/Blacow Road Intersection (#43).** By modifying the intersection as shown in **Figure 4.3** and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 157.1 seconds to 70.6 seconds. Similarly, the P.M. peak would improve from 80.1 to 51.5 seconds. This mitigation may require acquisition of significant additional right-of-way and utility relocations at every corner.

With this mitigation in place, the intersection LOS would improve to LOS E in the A.M. and LOS D in the P.M. The A.M. would still have an LOS worse than LOS D and, therefore, this would be a ***significant and unavoidable*** impact. The P.M. would have an LOS D, and the impact would be reduced to a level considered ***less than significant*** with implementation of the mitigation measure.

**Impact TRA-22: Unacceptable Level of Service at Union Street-Fremont Boulevard/Washington Boulevard Intersection (#48).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Union Street - Fremont Boulevard/Washington Boulevard. For both the A.M. and P.M. peak hours, the intersection of Union Street - Fremont Boulevard/Washington Boulevard is LOS D under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for intersections located in Priority Development Areas for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This five-legged intersection at five corners in Irvington is "built-out", and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to existing buildings and historic resources. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-23: Unacceptable Level of Service at Fremont Boulevard/Auto Mall Parkway Intersection (#50).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Auto Mall Parkway is LOS D and E, respectively under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection is "built-out", and additional modifications beyond those already planned are not feasible based on a review of available right-of-way or the close proximity to the existing overhead power structures, adjacent drainage canal and railroad overpass. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-25: Unacceptable Level of Service at I-880 SB Ramps/Fremont Boulevard Intersection (#53).** During the A.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-880 SB Ramps/Fremont Boulevard. For the A.M. peak hour, the intersection of I-880 SB Ramps/Fremont Boulevard is LOS B under the Existing Condition, and

would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out" and additional modifications beyond those already planned are not feasible based on a review of adjacent topography and the close proximity to the overpass at I-880. Roadway reconstruction and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-27: Unacceptable Level of Service at Osgood Road/Auto Mall Parkway Intersection (#56).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Osgood Road/Auto Mall Parkway. For the A.M. and P.M. peak hours, the intersection of Osgood Road/Auto Mall Parkway is LOS E and F, respectively, under the Existing Condition and would be LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection is "built-out" and additional modifications beyond those already planned beyond the planned widening of Auto Mall Parkway to six lanes are not likely feasible. Expansion of the roadway on its northern edge toward Fry's, and relocation of the overhead utility structure would create additional capacity to improve the intersection. This intersection is bounded by bridge structures directly to the east and the west, and overhead power lines to the north. Acquisition of additional right-of-way and utility relocation may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-28: Unacceptable Level of Service at I-680 SB Ramps/Durham Road Intersection (#57).** During the P.M. peak hour, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of I-680 SB Ramps/Durham Road. For the P.M. peak hour, the intersection of I-680 SB Ramps/Durham Road is LOS B under the Existing Condition, and would deteriorate to LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

This intersection, which is under Caltrans jurisdiction, is "built-out", and additional modifications beyond those already planned are not feasible based on a review of adjacent topography and close proximity to the overpass at I-680. Significant roadway modifications may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact TRA-30: Unacceptable Level of Service at Warm Springs Boulevard/ Mission Boulevard (SR–262) Intersection (#62).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262). For the A.M. and P.M. peak hours, the intersection of Warm Springs Boulevard/Mission Boulevard (SR-262) is LOS E and D, respectively, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS E for regionally influenced intersections for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-30: Modification of Warm Springs Boulevard/Mission Boulevard (SR-262) Intersection (#62).** By modifying the intersection to include a southbound right-turn free movement and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 405.9 seconds to 154.6 seconds. Similarly, the P.M. peak would improve from 395.0 to 174.4 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations at the northwest corner of the intersection. Alternatively the City, in cooperation with Caltrans, will consider grade separation options for the intersection to improve the cross connection ability of the highway between I-680 and I-880. In the event that this becomes a reality, then this location will need to be re-evaluated with revised geometric considerations. Construction of an "urban interchange" would improve operations, but have considerable right-of-way acquisition issues on existing businesses.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS E and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-32: Unacceptable Level of Service at Warm Springs Boulevard/Kato Road – Scott Creek Road Intersection (#64).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road. For both the A.M. and

P.M. peak hours, the intersection of Warm Springs Boulevard/Kato Road - Scott Creek Road is LOS D, under the Existing Condition and would both have an LOS F in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

**Mitigation TRA-32: Modification of Warm Springs Boulevard/East Warren Avenue Intersection (#64).** By modifying the intersection as shown in **Figure 4.3,** converting the westbound right turn to overlap operation and optimizing the signal timing, the intersection average delay for the A.M. peak hour would improve from 167.6 seconds to 138.8 seconds. Similarly, the P.M. peak hour would improve from 195.8 seconds to 137.3 seconds. This mitigation may require acquisition of additional right-of-way and utility relocations along the north-east corner of the intersection.

With this mitigation in place, the intersection LOS would remain LOS F in both the A.M. and P.M. peak hours. These peak hours would still have an LOS worse than LOS D and, therefore, would be ***significant and unavoidable*** impacts.

**Impact TRA-33: Unacceptable Level of Service at Fremont Boulevard/Dixon Landing Road Intersection (#68).** During the A.M. and P.M. peak hours, the addition of DRAFT General Plan Update-related traffic would result in a significant impact at the intersection of Fremont Boulevard/Dixon Landing Road. For both the A.M. and P.M. peak hours, the intersection of Fremont Boulevard/Dixon Landing Road is LOS B, under the Existing Condition and would be LOS E in the 2035 General Plan Update Condition. This deterioration in LOS exceeds the acceptable threshold of LOS D for the City of Fremont. Therefore, this would be considered a ***significant*** project impact. The project's relative contribution to the impact is shown in **Appendix B (C)**.

Additional modifications at this intersection are not feasible beyond those already assumed as part of the approved Creekside Landing Development Project, based on a review of available right-of-way or the close proximity to existing bridge over Coyote Creek and overhead power utilities. Significant roadway modifications may not be feasible. Therefore, this would remain a ***significant and unavoidable*** impact.

**Impact AIR-1: Conflict with CAP Assumptions.** Development anticipated following adoption of the DRAFT General Plan Update would increase population and employment in the City, leading to additional air pollutant emissions.

City-wide vehicle miles traveled (VMT) is projected to increase at a faster rate than the city's population, which conflicts with Clean Air Plan (CAP) assumptions. This is a ***significant*** impact.

A key element in air quality planning is to make reasonably accurate projections of future human activities that are related to air pollutant emissions. When the 1991 CAP was updated (Bay Area 2010 Clean Air Plan), it utilized the most recent projections developed by ABAG and vehicle activity projected by the MTC. These projections were based on the most recent projections at the time using land use designators developed by cities and counties through the General Plan process. Planning assumptions are constantly being updated, so the 2010 BAAQMD CEQA Air Quality Guidelines recommend that growth be planned such that vehicle travel does not increase at a rate greater than population growth. This alleviates the need to evaluate impacts against a moving target (i.e., ABAG projections that are constantly updated).

According to the California Department of Finance, Fremont's estimated population was 218,128 on January 1, 2010. The Association of Bay Area Governments (ABAG) projects that Fremont population will grow to 256,200 persons by 2035, a growth rate of about 0.6 percent per year. Because of the City's vision for "strategically urban" development (described in more detail in Chapter 3, Project Description), the City is estimating for purposes of evaluating DRAFT General Plan Update potential environmental impacts that Fremont's population will grow to 263,585 in 2035. This is considered by the City as the highest level of potential growth that could be reasonably accommodated under the DRAFT General Plan Update.

Traffic modeling conducted in support of the DRAFT General Plan Update forecasts vehicle miles traveled in Fremont (as well as the entire Alameda County) for existing conditions and future conditions with the DRAFT General Plan Update. With development anticipated under the DRAFT General Plan Update, vehicles miles traveled (VMT) in both Fremont and Alameda County would increase by 61 percent over existing or baseline conditions. This would equate to a 2.0 percent per year increase in VMT, which would far exceed the projected rate of population growth. It should be noted that the VMT forecasting is based on traffic models that are prone to over-predicting vehicle activity due to the inability of the models to properly internalize trips or double-counting of trips. Since the rate of projected VMT growth would exceed the rate of projected population growth, this would be considered a significant impact.

Beyond the implementation of the DRAFT General Plan Update programs and policies, there are no feasible measures that would reduce this impact to a level considered less than significant. While policies and other BAAQMD regulations or programs would reduce impacts to air quality, the growth in VMT could disrupt or hinder the effectiveness of the CAP that relies on reductions in traffic-related emissions resulting from land use decisions. This would be considered a ***significant and unavoidable*** impact.

**Impact AIR-3: Construction Period Dust, Emissions and Odors.** Construction of development projects under the DRAFT General Plan Update would result in temporary emissions of dust, diesel exhaust and odors that may result in both nuisance and health impacts. Without appropriate measures to control these emissions, these impacts would be considered ***significant***.

Construction of development projects under the DRAFT General Plan Update would involve demolition, site preparation and grading, building erection, paving and use of paints or solvents. Two primary types of emissions would occur: dust from ground disturbances and exhaust emissions.

*Dust Emissions*

Dust would be generated during demolition, grading and construction activities. Most of the dust would result during demolition activities and site preparation. The amount of dust generated would be highly variable, and is dependent on the size of the area disturbed, amount of activity, soil conditions and meteorological conditions. Typical winds during late spring through summer are from the northwest. Afternoon winds in late spring and summer can be gusty when conditions are dry. Sensitive land uses will be near some of the construction projects. Dust emissions from construction could contribute to regional $PM_{10}$ emissions.

Although construction activities would be temporary and local, they would have the potential to cause both nuisance and health-related air quality impacts. $PM_{10}$ is the pollutant of greatest concern associated with dust. If uncontrolled, $PM_{10}$ levels downwind of actively disturbed areas could possibly exceed State standards. In addition, dust fall on adjacent properties could be a nuisance. If uncontrolled, dust generated by grading and construction activities represents a significant impact associated with DRAFT General Plan Update-related development. Policy 7-7.2: Reduce Air Contaminant Levels and Implementation 7-7.2.A: Construction Practices, would require construction practices that reduce dust and other particulate emissions and require watering of exposed areas at construction sites. The BAAQMD CEQA Air Quality Guidelines have identified "Best Management Practices" to reduce dust and $PM_{10}$ emissions during construction. Implementation of these measures would reduce dust and $PM_{10}$ emissions to a level considered less than significant. Without implementation of these measures for construction projects that involve grading or large site disturbances, significant emissions of $PM_{10}$ are possible.

*Construction Exhaust Emissions*

Construction impacts would be a source of exhaust emissions from construction vehicles. Exhaust from construction equipment and associated heavy-duty truck traffic emits diesel particulate matter, which is a known Toxic Air Contaminant. In the current CEQA Guidelines, the BAAQMD has developed procedures or guidelines for identifying impacts

from temporary construction activities where emissions are transient. These thresholds, however, do not apply to Plan-level impacts.

Diesel exhaust in the form of diesel particulate matter or DPM is a TAC. Use of heavy-duty equipment in close proximity to sensitive receptors may cause significant exposures of persons to TACs or $PM_{2.5}$. In general, exposures are expected to be less than significant given the relatively short duration of construction activities. Currently, the BAAQMD recommends that exposure to TACs from construction activity should be based on cancer risks, chronic non-cancer risks and $PM_{2.5}$ exposures. BAAQMD commissioned a screening level construction heath risk assessment that found projects that involve more than 6 months of heavy construction with sensitive receptors located within 330 feet (100 meters) may have significant exposures[1]. Use of newer construction equipment along with mitigation measures can greatly reduce exposures to sensitive receptors near construction sites. However, the construction exhaust emissions would be considered significant if measures to reduce NOx and DPM emission are not included during construction for larger projects.

*Hazardous Emissions from Construction*

Given the age of some buildings in Fremont that could be demolished or renovated as part of construction under the DRAFT General Plan Update, asbestos-containing materials may be present. Investigations would be required to identify these materials prior to any construction activities. Demolition activities would require permits from the BAAQMD if removal or disturbance of hazardous materials were to occur. For instance, the handling of asbestos containing materials is subject to BAAQMD Regulation 11 – Hazardous Pollutants, Rule 2 – Asbestos Demolition, Renovation and Manufacturing. Asbestos is a TAC that has been known to cause a number of disabling and fatal diseases such as asbestosis, lung cancer, and mesothelioma. There is no identified safe level of exposure to asbestos; therefore, all exposure to asbestos should be avoided. Project applicants would be required to consult with the BAAQMD's Enforcement Division prior to handling materials that may contain asbestos. Adherence to this requirement on a project-by-project basis ensures that asbestos-related impacts would be less than significant. The regulation is designed to employ the best available dust mitigation measures in order to reduce and control dust emissions for both onsite workers and the public.

The BAAQMD CEQA Air Quality Guidelines do not identify Plan-level thresholds that apply to construction. Although construction activities at individual project sites are expected to occur during a relatively short time periods, the combination of temporary dust from activities and diesel exhaust from construction equipment poses both a health and nuisance impact to nearby receptors. In addition, NOx emissions during grading and soil import/export

[1] BAAQMD. 2010. Screening Tables for Air Toxics Evaluation During Construction, Version 1.0. May.

for large projects may exceed the BAAQMD NOx emission thresholds. Without application of appropriate control measures to reduce construction dust and exhaust, construction period impacts would be considered a ***potentially significant impact***.

**Mitigation AIR-3:** **Implement BAAQMD-Recommended Measures to Control Particulate Matter Emissions during Construction.** Measures to reduce diesel particulate matter and PM10 from construction are recommended to ensure that short-term health impacts to nearby sensitive receptors are avoided.

Dust ($PM_{10}$) Control Measures:

- Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.
- Cover all hauling trucks or maintain at least two feet of freeboard.
- Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.
- Limit traffic speeds on any unpaved roads to 15 mph.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend construction activities that cause visible dust plumes to extend beyond the construction site.
- Post a publicly-visible sign(s) with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Additional Measures to Reduce Diesel Particulate Matter and $PM_{2.5}$ and other construction emissions:

- The developer or contractor shall provide a plan for approval by the City or BAAQMD demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the year 2011
- Clear signage at all construction sites will be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site.
- The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).
- Properly tune and maintain equipment for low emissions.

Implementation of **Mitigation AIR-3** would be sufficient to reduce exhaust emissions from most construction projects to a level considered ***less than significant***, but larger projects, due to their size and construction schedule, might have exhaust emissions that exceed the BAAQMD significance thresholds for construction exhaust emissions. Therefore, it is possible that in some circumstances, the impact would remain ***significant and unavoidable***.

**Impact NOI-2: Traffic-Related Increase in Existing Noise Levels.** Development anticipated under the DRAFT General Plan Update would result in increased traffic, with increased traffic-related noise levels. Along roadways where this increase in noise levels above existing levels would exceed 3 dBA $L_{dn}$, this would represent a ***significant*** impact.

Development facilitated by the DRAFT General Plan Update would increase traffic within the City. Projected changes to traffic noise levels from existing levels were calculated by comparing SoundPlan model runs utilizing existing and future traffic scenarios. A substantial noise level increase is considered to be 3 dBA $L_{dn,}$ since noise levels were modeled along major roadways where existing levels approach or exceed "Acceptable" levels. Along most roadways, noise level changes would be 3 dBA $L_{dn}$ or less. The changes in noise levels along all modeled roadway sections are shown in **Table 4-37**, above. Roadways experiencing a substantial increase in noise include portions of Auto Mall Parkway, Central Avenue, Fremont Boulevard, Mission Boulevard, Paseo Padre Parkway, Peralta Boulevard, Thornton Avenue, Warm Springs Boulevard, and Washington Boulevard. Most of these roadway

segments include land uses which are noise sensitive such as residences. This is considered a ***significant*** impact.

Methods available to mitigate project-generated noise level increases would need to be studied on a case-by-case basis. Noise reduction methods could include the following:

- New or larger noise barriers or other noise reduction techniques could be constructed to protect sensitive outdoor use areas and existing residential land uses where reasonable and feasible. Final design of such barriers should be completed during project level review.

- Alternative noise reduction techniques could be implemented, such as re-paving streets with "quieter" pavement types such as Open-Grade or Rubberized Asphalt Concrete. The use of "quiet" pavement can reduce noise levels by 2 to 5 dBA depending on the existing pavement type, traffic speed, traffic volumes, and other factors.

- Installing traffic calming measures to slow traffic.

- Affected residences could be provided building sound insulation such as sound rated windows and doors on a case-by-case basis as a method of reducing noise levels in interior spaces.

Given the scope of the DRAFT General Plan Update and expected noise level increases resulting from project traffic, it may not be reasonable or feasible to reduce project-generated traffic noise for all affected receivers. The increase in development density would increase noise levels noticeably. Measures available to reduce the project noise level increases would not likely be reasonable or feasible in all areas, therefore, the impact would be considered ***significant and unavoidable***.

**Impact NOI-3:** **Noise Impacts Associated with Incompatible Land Uses.** The proposed high density mixed-use and transit-oriented development would introduce commercial uses adjacent to residential land uses. Commercial uses have not been identified, but such uses would probably include retail stores, restaurants, or cafes. New commercial development proposed along with, or next to, residential development could result in noise levels exceeding City standards. Typical noise levels generated by loading and unloading would be similar to noise levels generated by truck movements on local roadways. Mechanical equipment would also have the potential to generate noise, and would represent be a ***potentially significant*** noise impact.

New commercial, office, or other non-residential development could produce noise (HVAC, loading docks, etc.) that could affect existing residences or other noise-sensitive land uses. New projects developed under the DRAFT General Plan Update would be subject to the

City's noise limits for stationary sources established in the Safety Element of the General Plan and the zoning ordinance, which set limits for permissible noise levels during the day and night according to the land use zoning of the area. This would be the City's tool to ensure that existing residences and other noise-sensitive land uses would not be exposed to excessive noise from these types of noise sources.

**Mitigation NOI-3:** **Project-Specific Noise Analysis.** Noise levels at residential property lines from commercial development should be maintained not in excess of the noise limits in revised Table 10-12 (Action 8.1.3) – see Mitigation 1. The approvals of the commercial development should require a noise study demonstrating how the business, including loading docks, refuse areas, and ventilation systems, would meet these standards and would be consistent with the City's noise standards.

The implementation of the above measure would reduce the impact to a level considered ***less than significant*** in most circumstances. However, the temporary transitional nature of some commercial areas transitioning into mixed use neighborhoods will result in conflicts with existing development and new development. Due to the desired transition, there will be potential conflicts between land uses that cannot be effectively mitigated in the short term. This would be a ***significant and unavoidable*** impact under those circumstances.

**Impact NOI-4:** **Construction Noise.** Businesses and residences would be intermittently exposed to high levels of noise throughout the DRAFT General Plan Update planning horizon. Construction would temporarily elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more, which would represent a ***potentially significant*** impact.

Residences and businesses would be affected by construction noise. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction lasts over extended periods of time. Major noise generating construction activities include removal of existing pavement and structures, site grading and excavation, building erections, paving and landscaping. Urban development forms include a wider variety of construction equipment types and phases than typical low-scale suburban development. In some cases, residences would be directly adjacent or in close proximity to construction activities of both residential and commercial development sites.

The highest construction noise levels would be generated during grading and excavation, with lower noise levels occurring during building construction. Large pieces of earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 to 85 dBA measured at a distance of 50 feet from the site during busy

construction periods. In addition, pile-driving may occur at some of the project sites. This type of construction activity can produce very high noise levels of approximately 105 dBA at 50 feet, which are difficult to control. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor. Intervening structures or terrain would result in lower noise levels.

Although construction noise would be localized to the individual site location, businesses and residences would be intermittently exposed to high levels of noise throughout the planning horizon. Construction would elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or higher. Such a large increase in the noise level, although short-term in duration, would be a ***potentially significant*** impact.

**Mitigation NOI-4:** **Modification, Placement and Operation of Construction Equipment.** Construction equipment should be well maintained and used judiciously to be as quiet as practical. The following measures, when applicable, are recommended best practices to reduce noise from construction activities near sensitive uses:

Standard Development

- Ensure that construction activities (including the loading and unloading of materials and truck movements) are limited to the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.

- Ensure that excavating, grading and filling activities (including warming of equipment motors) are limited to between the hours of 7:00 AM to 7:00 PM on weekdays and between the hours of 9:00 AM and 8:00 PM on weekends or holidays.

- Contractors equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment.

- Contractors utilize “quiet” models of air compressors and other stationary noise sources where technology exists.

- Site plan for large sites loading, staging areas, stationary noise-generating equipment, etc. as far as feasible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.

- Comply with Air Resource Board idling prohibitions of uneasy idling of internal combustion engines.

Additional measures that may be applicable to significant or prolonged construction projects:

Extended Projects with High-Intensity Construction Equipment (this would apply to projects with extended periods of concentrated construction with heavy equipment such as pile drivers):

- Pre-drill foundation pile holes to minimize the number of impacts required to seat the pile.
- Construct solid plywood fences around construction sites adjacent to operational business, residences or noise-sensitive land uses.
- A temporary noise control blanket barrier could be erected, if necessary, along building facades facing construction sites. This mitigation would only be necessary if conflicts occurred which were irresolvable by proper scheduling.
- Route construction related traffic along major roadways and as far as feasible from sensitive receptors.
- Businesses, residences or noise-sensitive land uses adjacent to construction sites should be notified of the construction schedule in writing. Designate a "construction liaison" that would be responsible for responding to any local complaints about construction noise. The liaison would determine the cause of the noise complaints (e.g., starting too early, bad muffler, etc.) and institute reasonable measures to correct the problem. Conspicuously post a telephone number for the liaison at the construction site.

The City applies a construction hours ordinance to new development to limit exposure to noise in the most noise sensitive of time periods, nighttime and weekends. Applying construction hours mitigates most noise impacts of new development in Fremont. Application of the above best practice techniques to manage noise, as applicable to the site specific situation, would further reduce noise exposure and result in a ***less than significant*** impact to temporary noise exposure from construction of individual new development. Although the above measures would reduce noise generated by the construction of individual development projects, the impact would remain ***significant and unavoidable*** where planned development is concentrated and includes phased construction with residential development, such as the Downtown Area of the City Center and urban development in PDAs, as a result of the extended period of time that adjacent occupants would be exposed to construction noise.

**Impact NOI-5:** **Construction Vibration.** Residences, businesses, and historic structures could be exposed to construction-related vibration resulting in cosmetic cracking (non-structural) during the excavation and foundation work of buildings associated with development anticipated under the DRAFT General Plan Update, a ***potentially significant*** impact.

There are no applicable state plans, policies, regulations or laws related to ground-borne vibration from construction activities, but guidance developed by the California Department of Transportation (Caltrans) has been used in past construction vibration impact assessments. Caltrans uses a vibration limit of 12.7 mm/sec (0.5 inches/sec), PPV for buildings structurally sound and designed to modern engineering standards. A conservative vibration limit of 5 mm/sec (0.2 inches/sec), PPV has been used for buildings that are found to be structurally sound but structural damage is a major concern. For historic buildings or buildings that are documented to be structurally weakened, a conservative limit of 2 mm/sec (0.08 inches/sec), PPV is often used to provide the highest level of protection. All of these limits have been used successfully, and compliance to these limits has not been known to result in appreciable structural damage. All vibration limits referred to herein apply on the ground level and take into account the response of structural elements (i.e. walls and floors) to ground-borne vibration.

Construction of projects within Fremont may, in some cases, be located directly adjacent to existing structures, including historic structures. Construction activities may include demolition of existing structures, site preparation work, excavation of below grade levels, foundation work, pile driving, and new building erection. Demolition for an individual site may last several weeks, and at times may produce substantial vibration. Excavation for underground levels would also occur on some project sites, and vibratory pile-driving could be used to stabilize the walls of the excavated area. Piles or drilled caissons may also be used to support building foundations.

Pile-driving has the potential of generating the highest ground vibration levels and is of primary concern to architectural damage, particularly when it occurs within 100 to 200 feet of sensitive structures. Vibration levels generated by pile-driving activities would vary depending on project conditions such as soil conditions, construction methods, and equipment used but could exceed the recommended PPV thresholds to avoid architectural damage. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may also potentially generate substantial vibration in the immediate vicinity.

Depending on the proximity of existing structures to each construction site, the structural soundness of the existing buildings, and the methods of construction used, vibration levels may be high enough to damage existing structures. Given the scope of the DRAFT General

Plan Update and the proximity of many existing structures, groundborne vibration impacts would be considered ***potentially significant***.

As with any type of construction, vibration levels may at times be perceptible. However, construction phases that have the highest potential of producing vibration (pile-driving and use of jackhammers and other high power tools) would be intermittent and would only occur for short periods of time for any individual project site. By use of administrative controls such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with least potential to affect nearby businesses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception.

**Mitigation NOI-5: Limitations on Construction Activities Generating Excessive Vibration.** The following best practice measures when applicable are recommended to reduce vibration from construction activities:

- Comply with construction hours ordinance to limit hours of exposure.
- Avoid impact pile-driving where possible. Drilled piles causes lower vibration levels where geological conditions permit their use.
- Minimize or avoid using vibratory rollers and tampers near sensitive areas.
- When vibration sensitive structures are adjacent to a subject site, survey condition of existing structures and when necessary perform site specific vibration studies to direct construction activities. Contractors shall continue to monitor effects of construction activities on surveyed sensitive structures and offer repair or compensation for damage.
- Construction management plans for substantial construction projects shall include predefined vibration reduction measures, notification requirements for properties within 200 feet of construction schedule, and contact information for on-site coordination and complaints.

It may not be possible to avoid using pile-drivers, vibratory rollers and tampers entirely during construction associated with high density development anticipated under the DRAFT General Plan Update. Due to the density of development anticipated in Fremont, notably in the Downtown of City Center and PDAs, some of these activities may take place near sensitive areas. In these cases, the mitigation measures listed above may not be sufficient to

reduce groundborne vibrations below to a level considered less than significant. Therefore, this impact would be ***significant and unavoidable***.

**Impact CUL-1: Possible Demolition/Degradation of Historic Resources.** Despite the many safeguards and substantial protections in place in City policies, ordinances and regulations, it is theoretically possible that development under the DRAFT General Plan Update could result in the material impairment of historic resources that are unknown to the City and likely to have gained significance subsequent to 1955. The limited possibility of such an adverse change to a CEQA-defined historic resource would constitute a ***potentially significant*** impact (see criteria No. 1, listed above in "Significance Criteria.)"

**Mitigation CUL-1:** **Compliance with City of Fremont Historical Resource Protection Policies, Design Guidelines, Regulations and Programs.** Required compliance with the City's extensive set of applicable historical resources protection policies, design guidelines, regulations and programs set forth in the DRAFT General Plan Update, Irvington Concept Plan, Niles Concept Plan, Centerville Specific Plan, Fremont Historic Resources Ordinance, Fremont Register of Historic Resources, and City Zoning Code Historic Overlay District in Niles serves to substantially reduce this potential impact. The policies and implementing measures set forth in DRAFT General Plan Update Goal 4-6, Historic Preservation, also serve to mitigate this impact. In those instances where development projects are proposed which could result in the demolition or material impairment of any structure, building or object constructed prior to 1955, the City must evaluate the application to determine if there is sufficient significance and integrity to merit classification as a Potential Fremont Register Resource or formal designation as a Register Resource (DRAFT General Plan Update Implementation 4-6.1A). Where a structure, building or object has been classified as a Potential Fremont Register Resource or formally identified as a Register Resource, the development proposal must be modified to ensure protection/preservation of those historic resources, consistent with applicable guidelines. Despite these protections, it remains possible that a future project, after going through all applicable processes could result in the demolition of an historical resource, or otherwise cause the significance of the resource to be "materially impaired" (as defined in CEQA Guidelines section 15064.5(b)(2)). This possibility constitutes a ***significant and unavoidable*** impact for CEQA purposes.

As indicated above, although implementation of this mitigation measure would reduce potential impacts to historic resources to a level considered less than significant in most instances, there remains a limited possibility that demolition or substantial material alteration of historic resources could occur, which would represent a ***significant and unavoidable*** impact.

**Impact AG-1:** **Conversion of Agricultural Land to Urban Uses.** Implementation of the DRAFT General Plan Update could result in the irrevocable conversion of existing agricultural land currently designated by the California Department of Conservation as "Prime Farmland" (the Guardino parcel) or "Unique Farmland" (I-680/Palm properties) to urban uses. This would represent a ***potentially significant and unavoidable*** impact.

The Guardino parcel is the only site in Fremont which has been identified by the Department of Conservation as "Prime Farmland" that is designated for urban uses under existing land use regulations and under the DRAFT General Plan Update. This parcel is located within a TOD overlay identified in the DRAFT General Plan Update, and the City has longstanding plans for its ultimate residential development, given its location in central Fremont and proximity to public transit. The I-680/Palm properties are the only site in Fremont which has been identified by the Department of Conservation as "Unique Farmland" that is designated for urban uses under existing land use regulations and under the DRAFT General Plan Update.

Potential mitigation for conversion of farmland would include rezoning of the properties to open space to limit the development potential of property and ensure its continued availability for use in agricultural production. A second mitigation measure option would be to extract an impact fee for conversion of the land for the purpose or restoring or conserving other lands in the City related to agricultural production. Both of these measures are unlikely to be feasible as the limiting of their development as infill sites within the City would not be consistent with the DRAFT General Plan Update vision and goals for infill development. Additionally, there is no commercial agricultural production in and around Fremont to support the conservation of land through the collection of impact fees. Impact fees would not serve to restore or protect additional lands in the City related to agricultural production.

When residential development of the Guardino parcel actually takes place in the future (resulting in the loss of "Prime Farmland") and when development of the I-680/Palm properties actually takes place in the future (resulting in the loss of "Unique Farmland"), this would represent a ***significant and unavoidable*** impact associated with implementation of the DRAFT General Plan Update.

**Impact GCC-1:** **Potential Exceedance of Future BAAQMD Regulatory Thresholds for Greenhouse Gas Emissions.** While the GHG emission analysis conducted for the DRAFT EIR shows that the DRAFT General Plan Update conforms

to BAAQMD-established performance levels standards for emissions through 2020, there are no established BAAQMD regulatory thresholds through 2035. In the absence of BAAQMD guidelines, the operative standard is AB32, which requires an 80 percent reduction from 1990 levels by 2050. Although it is likely that the per-service-population GHG emissions from new development in Fremont in the years subsequent to 2020 will continue to decrease, it is difficult to estimate the magnitude of the decrease. Much depends on actions of the Federal and State governments, as these entities have a much greater ability to effect emission reductions than do local governments. It is, therefore, possible (absent sufficiently aggressive action at the State and Federal levels) that development in Fremont between 2020 and 2035 will result in a ***cumulatively significant and unavoidable*** impact.

# EFFECTS FOUND NOT TO BE SIGNIFICANT

## LAND USE AND PLANNING

Implementation of Policy 4-1.11, above, would be expected to effectively limit the potential for future physical division of existing neighborhoods, and development under the DRAFT General Plan Update would have ***no impact*** in terms of physically dividing any existing community. Implementation of the applicable DRAFT General Plan Update policies would continue to protect Fremont's hill areas and baylands, and would ensure that future development maintain compatibility with existing residential neighborhoods, reducing potential conflicts with current land use plans, policies and regulations to a level considered ***less than significant***. There are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, and implementation of the DRAFT General Plan Update would not conflict with any such plans (***no impact***).

## AESTHETICS

Under the DRAFT General Plan Update, the implementation of several policies would be expected to reduce potential development-related impacts on scenic vistas to a level considered ***less than significant***.

Some new structures that may be built within Fremont under the DRAFT General Plan Update could be expected to be taller than existing structures in the surrounding areas. However, compliance with Policy 4-1.7 (which would protect Fremont's open space "frame"), Policy 4-3.8 (which would require appropriate massing and scale for proposed structures), and Policy 4-5.5 (which would provide protection for scenic routes) could be expected to result in the placement of taller buildings in such a way as to avoid potential interference with any formally-identified scenic routes within Fremont, reducing potential impacts on to a level considered ***less than significant***.

In some portions of Fremont, development under the DRAFT General Plan Update would be of higher intensity than that currently present there, and higher density development would represent a change in the existing visual character of those areas. However, development anticipated under the DRAFT General Plan Update would not degrade the existing visual character of these areas, and the resulting change in the existing visual character of the area would be considered a ***less than significant*** environmental effect.

Development under the DRAFT General Plan Update would result in the construction of new structures on land that is currently vacant. Future structures, the lighting of future parking facilities, and the lights from vehicles that would be parked in those facilities would represent new sources of light and glare within the community. However, effective implementation of Policy 4-4.6 (which is intended to protect dark skies and reduce glare) would reduce potential lighting-related impacts associated with future development to a level considered ***less than significant***.

## POPULATION, EMPLOYMENT AND HOUSING

Implementation of the DRAFT General Plan Update would not induce population growth, since new residential development under the DRAFT General Plan Update would instead be intended to accommodate a the City's portion of the region's anticipated population growth, and would not involve the extension of infrastructure or public services to undeveloped areas to support new residential development (***less than significant***).

Much of development anticipated under the DRAFT General Plan Update would involve redeveloping parcels that already support urban uses (e.g., near the Fremont BART station, the Centerville Amtrak/ACE station and the Irvington BART station) in high-density residential or mixed-use projects. In other areas where land may currently be considered underutilized, existing uses may be displaced by new development. In some instances, future development under the DRAFT General Plan Update could involve the loss of some existing housing units. However, following anticipated development in these areas under the DRAFT General Plan Update there would be a net increase in the total number of housing units in these locations due to the increased residential densities, which would reduce the impact associated with the loss of some existing housing units to a level of ***less than significant***.

The loss of existing housing units could also mean the displacement of those currently living in those housing units, even though there would be a net increase in the total number of housing units in these areas. However, the total number of people that might ultimately be displaced from existing housing units as a result of development anticipated under the DRAFT General Plan Update is not considered by the City of Fremont to be substantial, with the potential displacement impacts associated with implementation of the DRAFT General Plan Update considered ***less than significant***. There would be no need or requirement to construct replacement housing elsewhere.

## TRANSPORTATION AND CIRCULATION

Development anticipated under the DRAFT General Plan Update could be expected to increase congestion at a number of intersections within Fremont, and in some cases, mitigation measures identified in the DRAFT EIR could be expected to reduce potential impacts to a level considered ***less than significant***.

Implementation of the DRAFT General Plan Update would not be expected to affect current air traffic patterns in any way (***no impact***).

Implementation of DRAFT General Plan Policy 3-3.6 would minimize road hazards associated with overgrown vegetation, structures blocking sight lines, and other visual obstructions, and requires that new development is reviewed to ensure that ingress and egress locations, driveways, crosswalks, and other circulation features, are sited to minimize accident hazards, reducing potential design hazards to a level considered ***less than significant***.

All development proposed following adoption of the DRAFT General Plan Update would be subject to review by the City of Fremont (including the Fremont Fire Department and the Fremont Police Department) prior to approval to ensure that individual development projects do not impede emergency access, reducing potential impacts to a level considered ***less than significant***.

Parking relates both to land use and transportation. The design and location of parking lots and the provision of off-street parking is primarily related to land use. The provision of parking becomes a transportation issue when parking and transportation needs conflict and when the availability of parking influences transportation choices. For example, providing on-street parking could affect traffic flow, bicycle routes and access. Similarly, the availability and cost of parking can influence a traveler's decision to use transit or to drive.

Among the parking challenges faced by the City are:

- *Conflicts between on-street parking and moving traffic.* On-street parking on major streets reduces the amount of roadway available for vehicles and bicycles. Conflicts between parking and travel currently occur mostly in older commercial areas of the City. On-street parking is perceived to be an important business advantage and also provides a buffer between moving traffic and pedestrians.

- *Conflicts between bike lanes/bike routes and parking lanes:* Parked cars can reduce space for bike-lanes and be a potential safety hazard for bicyclists where a bicycle lane is adjacent to the parking lane.

- *Access to off-street parking:* The location of driveways and parking entrances can have a significant impact on the safety and efficiency of a street. Inappropriate driveway locations can also lead to traffic in areas where it is not desired.

- *Areas of high parking demand:* In some Fremont neighborhoods, parking demand for uses such as schools, religious facilities, offices, and BART may spill over onto residential side streets. Parking problems may also occur in older parts of the city, where homes were designed for one or two car households but now accommodate three or four cars per household.

Parking strategies can be a means to manage traffic congestion. For example, Fremont's three "Park-and-Ride" facilities provide a means to reduce road congestion. Similarly, the Fremont BART station provides a large amount of parking to make BART use more convenient for commuters, although it does charge a daily fee. The City also has a policy to provide free on-street parking, particularly in commercial districts. There are currently no parking meters within in the City. The downside of this policy is that residents may feel less inclined to walk, bike, or use transit, since parking is convenient and inexpensive.

The City's parking requirements are comparable with other suburban cities in the Bay Area and vary based on land use. Generally, residential uses require one and a half to two spaces per unit; office and commercial uses require one space per 300 square feet of floor area and shopping centers require one space per 250 square feet of floor area. However, the standards vary according to the specific type of employment-generating use. They are more restrictive for restaurants and other uses which generate high demand, and less restrictive for warehouse or industrial uses which generate less demand. The City also allows in-lieu parking to substitute for up to 50 percent of the required on-site spaces for non-residential development located within 500 feet of a BART Station.

The DRAFT General Plan Update incorporates policies and implementation actions intended to manage on-street parking to ensure the efficient use of curbside space, to provide adequate customer parking for local businesses, and to encourage shared parking. Effective implementation of Policy 3-7.2 (which would apply parking requirements and standards for residential and commercial development which adequately respond to demand and minimize adverse effects on neighboring properties) would reduce potential impacts associated with increased demand for adequate parking capacity to a level considered ***less than significant***.

Implementation of the DRAFT General Plan Update would promote the use of alternative modes of transportation, and would not conflict with any existing policies which support the use of alternative transportation (***no impact***).

## AIR QUALITY

Possible exposure of sensitive receptors to TACs and PM2.5 could be reduced to a level considered less than significant through implementation of **Mitigation AIR-2**, which would incorporate TAC overlay zones as part of the DRAFT General Plan Update.

Implementation of the DRAFT General Plan Update would not cause or contribute to a violation of the ambient air quality standard for carbon monoxide, and the impact is considered ***less than significant***.

## NOISE AND VIBRATION

New land uses anticipated under the DRAFT General Plan Update could result in exposure of those living and working at the sites of future development projects to excessive noise levels. However, this potential impact could be reduced to a level considered ***less than significant*** through implementation of **Mitigation NOI-1A** (which would require project-specific noise evaluation), and by **Mitigation NOI-1B** (which would revise DRAFT General Plan Update Noise/Land Use Compatibility Policies).

Effective implementation of the Implementation Measures identified in the DRAFT General Plan Update under *Policy 10-8.10: Vibration Environment* would reduce potential vibration impacts to new development to a level considered ***less than significant***.

Potential noise impacts associated with incompatible land uses associated with development anticipated under the DRAFT General Plan Update could be reduced to a level considered ***less than significant*** through implementation of **Mitigation NOI-3A** (which would require project-specific noise analysis) and **Mitigation NOI-3B** (which would limit maintenance, loading and unloading activities),

## HYDROLOGY AND WATER QUALITY

Residential, commercial, industrial, and public uses consistent with the DRAFT General Plan Update could introduce additional non-point source pollutants to downstream surface waters. However, existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce this potential source of water pollution to a level considered ***less than significant***.

Land uses and development consistent with the DRAFT General Plan Update could result in increased soil erosion and sedimentation during construction activities, thereby degrading water quality in downstream waterways. However, existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce the potential for water pollution from these activities to a level considered ***less than significant***.

Residential, commercial, industrial, and public uses consistent with the DRAFT General Plan Update could allow additional non-point source pollutants to contaminate groundwater

recharge supplies. However, existing regulations and water quality policies and programs contained in the DRAFT General Plan Update would reduce the potential for groundwater contamination to a considered ***less than significant***.

Current practices utilized in the review of flood control, drainage, and grading permits, stormwater runoff controls under the Phase I and II NPDES programs, as well as policies contained in the DRAFT General Plan Update, would mitigate potential impacts associated with increased runoff and other surface drainage modifications, including potential impacts to channel stability, and stream bank erosion. The DRAFT General Plan Update policies would ensure that drainage impacts to streambank erosion would be ***less than significant***.

Land uses and development anticipated under the DRAFT General Plan Update would result in increases in stormwater runoff and peak discharge. Existing storm drain systems, including urban creeks and rivers, may be incapable of accommodating increased flows, potentially resulting in on- or off-site flooding. However, policies and programs contained in the DRAFT General Plan Update would generally reduce such impacts to a level considered ***less than significant*** (except in the Laguna Creek Drainage Facility - see **Impact HYD-1** and **Mitigation HYD-1**, above).

Land uses and development anticipated under the DRAFT General Plan Update would allow continued development in 100-Year Flood Hazard Areas with sufficient mitigation. Policies contained in the DRAFT General Plan Update would reduce potential impacts to a level considered ***less than significant***.

The proposed Policies of the DRAFT General Plan Update, together with other existing flood prevention strategies and policies, would reduce potential inundation hazards from dam and levee failure to existing and future development to a level considered ***less than significant***.

The proposed Policies of the DRAFT General Plan Update, together with other existing flood prevention strategies and policies, would reduce potential inundation hazards from sea-level rise to existing and future development to a level considered ***less than significant***.

## GEOLOGY, SOILS AND SEISMICITY

DRAFT General Plan Update implementations, including 10-2.1.A, 10-2.2.A, 10-2.2.B, 10-2.4.B, described above, would reduce the potential impacts associated with surface fault rupture to a level considered ***less than significant***.

Implementation of DRAFT General Plan Update implementations, including 10-2.1.A, 10-2.1.B, 10-2.2.A, 10-2.2.B, 10-2.4.A, 10-2.5.A, described above, would reduce the impact of strong to very violent seismic ground shaking to a level considered ***less than significant***.

Implementation of proposed DRAFT General Plan Update actions, including 10-2.1.A, 10-2.1.B, 10-2.1.C, 10-2.3.A, 10-2.4.A, 10-2.4.C, described above, will reduce the potential

impacts associated with seismically-related ground failure to a level considered ***less than significant***.

Implementation of DRAFT General Plan Update actions, including 10-1.1.A, 10-1.1.B, 10-1.1.C, 10-1.1.D, 10-1.2.A, 10-1.2.B, 10-1.3.A, 10-1.3.B, 10-2.1.A, 10-2.1.B, 10-2.1.C, 10-2.3.A, 10-2.4.A, and 10-2.4.C, described above, would reduce the potential impacts associated with landslides and seismically-induced landslides to a level considered ***less than significant***.

Implementation of the Local Hazard Mitigation Plan, in conjunction with federal and state laws related to ensuring dam safety, would minimize the risk of exposing people and structures to the failure of dams in Fremont, reducing related potential impacts to a level considered ***less than significant***.

Implementation of DRAFT General Plan Update actions, including 10-1.3.A, described above, would reduce the impact of soil erosion and loss of topsoil to a level considered ***less than significant***.

Relevant DRAFT General Plan Update Policies identified in the discussion of potential impacts associated with seismic ground shaking, seismically-related ground failure, landslides and soil erosion, above, will reduce the potential impacts associated with possible construction on unstable geologic units to a level considered ***less than significant***.

As all development anticipated under the DRAFT General Plan Update would be required to comply with the 2007 California Building Code, potential impacts related to construction on expansive soils would be considered ***less than significant***.

Development anticipated following adoption of the DRAFT General Plan Update would be required to be connected to the Union Sanitary District sanitary sewer facilities. Therefore, there is ***no impact*** related to future development on soils incapable of supporting septic systems.

## HAZARDS AND HAZARDOUS MATERIALS

Implementation of DRAFT General Plan Update actions, including 10-6.1.A, 10-6.2.A, 10-6.4.A, 10-6.5.A, 10-6.5.B, and 10-6.5.C, described above, in combination with California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential impacts associated with the routine use, transport, or disposal of hazardous material to a level considered ***less than significant***.

The DRAFT General Plan Update identifies objectives and policies designed to reduce the hazard to the population due to a hazardous material release. These actions, including 10-6.1.A, 10-6.2.A, 10-6.4.A, 10-6.5.A, 10-6.5.B, 10-6.5.C, 10-6.6.A, 10-6.7.A, and 10-6.7.B,

described above, in combination with emergency response from the City of Fremont Fire Department would reduce the potential impact of a reasonably foreseeable accidental release of hazardous material to a level considered ***less than significant***.

Implementation of the DRAFT General Plan Update would include development in the vicinity of existing and/or planned schools; however, state regulations on siting of hazardous materials facilities and schools limit the facilities' proximity to schools. Additionally, the DRAFT General Plan Update includes Policy 10-6.2, described above, would reduce the potential impact to a level considered ***less than significant***.

There are a number of sites within Fremont listed on government databases. These generally consist of leaking underground storage tanks (LUSTs), many of which have impacted soil and groundwater with petroleum. Public and environmental hazards are reduced by federal and state remediation regulations. Additionally, DRAFT General Plan Update actions 10-6.3.A, 10-6.3.B, and 10-6.3.C, described above, would reduce the potential impact of the inclusion of listed hazardous material sites in the DRAFT General Plan Update to a level considered ***less than significant***.

There are no airports within 2 miles of the Fremont city limits, therefore, ***no impact***. There are no private airstrips in the vicinity, therefore, ***no impact.***

Implementation of the DRAFT General Plan Update would result in denser development within Fremont and would have the potential to change circulation patterns which could impact emergency evacuation or response plans. However, the DRAFT General Plan Update includes policies, and implementation actions designed to provide for sufficient emergency response in Fremont. These actions include the following implementation measures, described above: 10-5.1.A, 10-5.1.B, 10-5.2.A, 10-5.2.B, 10-5.2.A, 10-5.2.B, 10-5.3.A, 10-5.3.B, 10-5.3.C, 10-5.4.A, and 10-5.5.A. Therefore, potential interference with an adopted emergency response or emergency evacuation plan would be considered a ***less than significant*** impact.

The Land Use Element of the DRAFT General Plan Update would allow limited development in areas of high wildland fire risk. Fremont has cool, wet winters and warm, dry summers, a pattern that results in significant fuel (dry vegetation) load in the summer and fall. Additionally, the eastern portions of the City consist of moderately to steeply sloping hills, indicating an even higher fire risk. DRAFT General Plan Update implementation measures 10-4.1A, 10-4.1.C, 10-4.1.D, 10-4.2.A, 10-4.3.A, 10-4.3.C, and 10-4.3.C, described above, would reduce potential risks associated with wildland fires to a level considered ***less than significant***.

## CULTURAL AND ARCHAEOLOGICAL RESOURCES

DRAFT General Plan Update Policy 4-6.2 and Implementation 4-6.2.A (which requires review of any proposed alterations to Register Resources and Potential Register Resources

associated with proposed development projects are consistent with the recommended procedures and best practices provided in *The Secretary of Interior Standards for the Treatment of Historic Properties*) would reduce potential impacts associated with alteration of historic resources a level considered ***less than significant***.

Implementation of **Mitigation CUL-2** would reduce potential impacts to unidentified archaeological resources to a level considered ***less than significant***.

Implementation of **Mitigation CUL-3** would reduce potential impacts to unidentified paleontological resources to a level considered ***less than significant***.

Implementation of **Mitigation CUL-4** would reduce potential impacts associated with the discovery of unidentified human remains to a level considered ***less than significant***.

## AGRICULTURAL RESOURCES

Implementation of the DRAFT General Plan Update would not result in any conflict with existing agricultural zoning, since agricultural zoning designations would still be allowed in areas designated Open Space under the DRAFT General Plan Update (***no impact***).

Significant acreage in Fremont (largely in the "Hill Face" and "Hill" area east of SR 238, although there is also an isolated parcel located north of SR 84) is currently under Williamson Act contracts as "Non-Prime" agricultural land. Under the DRAFT General Plan Update, these areas are designated "Open Space - Hill Face", "Open Space - Hill", and "Open Space - Resource Conservation/Public" where future urban development is not anticipated. For this reason, it is unlikely that future development in these areas would conflict with any current Williamson Act contracts, and the impact would be considered ***less than significant***.

## BIOLOGICAL RESOURCES

Project-specific environmental review will ensure that adequate mitigation measures will be identified for future projects that will help to further reduce/minimize impacts to special-status species and loss of sensitive habitats supporting these species. Therefore, implementation of the DRAFT General Plan Update would reduce potential impacts to special-status species to a level considered ***less than significant.***

Implementation of DRAFT General Plan Update policies would partially reduce and/or avoid direct and indirect impacts to riparian habitat or other sensitive natural communities, and environmental review as described above would ensure that adequate mitigation measures will be identified for future projects that will help to further reduce/minimize impacts to sensitive habitat acreage, values, and function. Therefore, implementation of the DRAFT General Plan Update would reduce impacts to riparian habitat or other sensitive natural

communities, including waters of the U.S. and the State, to a level considered ***less than significant***.

DRAFT General Plan Update policies and implementation measures would mitigate impacts to wildlife movement corridors and would, therefore, reduce potential impacts to wildlife travel corridors to a level considered ***less than significant***. No additional mitigation is required.

The policies and implementation measures contained within the DRAFT General Plan Update would not conflict with existing City policies and ordinances (***no impact***).

DRAFT General Plan Update policies and implementation measures would specifically reduce or avoid conflicts with any future habitat or natural community conservation plans, reducing potential impacts to a level considered ***less than significant.***

## MINERAL RESOURCES

Development under the General Plan Update would not be expected to result in the loss of availability of known mineral resources. Effective implementation of Policy 7-5.1 would reduce the potential for substantive loss of availability of known mineral resources in Fremont to a level considered ***less than significant***.

Development under the General Plan Update would not be expected to result in the loss of availability of any locally-known mineral resource recovery site. Effective implementation of Policy 7-5.1 would reduce the potential for substantive loss of availability of locally-known mineral resource recovery sites in Fremont to a level considered ***less than significant***.

## PUBLIC SERVICES

Implementation of the DRAFT General Plan Update would not require the provision of new or physically altered fire stations (the construction of which could cause significant environmental impacts), in order to maintain acceptable response times (***less than significant***).

With the development anticipated under the DRAFT General Plan Update, there would be considerably more people living and working in the Fremont than at present, creating an increased demand for police protection in the area. While this may require an increase in police staffing and support equipment, it would not be expected to require the construction of a new police station or the expansion of the existing police station, and the impact would be considered ***less than significant***. An expansion of the existing Department Headquarters building to 80,000 square feet may be anticipated during the twenty-year planning period, with or without implementation of the DRAFT General Plan Update.

Under California law, the payment by a developer of all current school impact fees associated with a proposed development effectively mitigates any impact that such development may have on the facilities of the local school district. Under the DRAFT General Plan Update, all developers would continue to be required to make such payments to the Fremont Unified School District prior to the City's issuance of any certificate of occupancy, in effect reducing all development-related impacts to local schools to a level considered ***less than significant***.

The development of future parks and recreational facilities could be expected to entail construction-related impacts similar to those associated with other development projects (e.g., temporary air quality and noise effects during the actual construction activity at the two sites), but with implementation of the applicable mitigation measures identified in the corresponding sections of the DRAFT EIR above, these temporary impacts could be reduced to a level considered ***less than significant***.

As long as the established standard of five acres of developed parkland per one thousand Fremont residents is met during the operational life of the DRAFT General Plan Update, existing parks and recreational facilities would not be expected to become overused or subject to premature deterioration as the local population grows, and implementation of the DRAFT General Plan Update would have a ***less than significant*** impact on the operation of existing park and recreational facilities.

Development anticipated under the DRAFT General Plan Update would be expected to increase the number of residents and workers within Fremont, which could be expected to place an increase demand on the public library system, result in increased use of existing community and senior centers, and expand demand for child care. However, these increased demands are unlikely to necessitate expansion of existing library facilities, community or senior centers, or child care facilities, or the construction of new facilities and centers, and the impact would be considered ***less than significant***.

## INFRASTRUCTURE AND UTILITIES

Implementation of the **Mitigation UTIL-1A** and **Mitigation UTIL-1B** would be expected to reduce the impact associated with increased development-related demand for water to a level considered ***less than significant***.

Land uses and development anticipated under the DRAFT General Plan Update would also result in increases in stormwater runoff and peak discharge. Existing storm drain systems, including urban creeks and rivers, may be incapable of accommodating increased flows, potentially resulting in on- or off-site flooding. However, policies and programs contained in the DRAFT General Plan Update would generally reduce such impacts to a level considered ***less than significant*** (except in the Laguna Creek Drainage Facility - see **Impact HYD-1** and **Mitigation HYD-1**, above).

Although flooding would continue to occur in flood prone areas, this is considered an existing condition for purposes of CEQA review, and the policies and programs of the DRAFT General Plan Update would ensure that flooding in these areas would not worsen. Adoption and implementation of the policies and programs contained in the DRAFT General Plan Update as discussed above would ensure that potential impacts of future development of on- and off-site flooding and drainage infrastructure would be reduced to a level considered ***less than significant***.

Effective implementation of **Mitigation UTIL-2** would reduce potential development-related impacts to the existing sanitary sewer conveyance system to a level of ***less than significant***.

Increased development anticipated under the DRAFT General Plan Update would be expected to result in an increased demand for solid waste collection and disposal. However the DRAFT General Plan Update includes a number of policies promoting waste diversion, recycling, processing, and the ultimate elimination of landfill waste (e.g., Policy 9-6.1, Policy 9-6.3, Policy 9-6.4, Policy 9-7.1, Policy 9-7.3, and Policy 9-8.3) which, if effectively implemented, could be expected to limit potential Plan-related effects associated with the collection and disposal of solid waste to a level considered ***less than significant***.

Where construction may be required in order to expand natural gas and electrical service to specific sites which may be developed in the future under the DRAFT General Plan Update, any potential construction-related effects (e.g., temporary noise and air quality impacts) could be reduced to a level considered ***less than significant*** through implementation of the construction-related mitigation measures identified in the corresponding sections of the DRAFT EIR, above.

## GLOBAL CLIMATE CHANGE

The DRAFT General Plan Update has the potential to increase the number of future residents and jobs within the City of Fremont, which may both directly and indirectly result in the increase of GHG emissions. However, the expected emissions of the estimated 49,496 new residents and 68,100 new jobs will equate to 5.57 mtons of CO2e per service population, which is below the threshold established by the BAAQMD of 6.6 mtons of CO2e per service population. This increase in GHG emissions associated with implementation of the DRAFT General Plan Update would be considered ***less than significant***.

The DRAFT General Plan Update does not conflict with existing plans, polices or regulations to reduce GHG emissions. The DRAFT General Plan Update expressly states the intent of promoting sustainability, and includes an aspirational goal of reducing greenhouse gas emissions by 25 percent below 2005 levels by 2020. Goal 7.8 and Policy 7.8.1 of the Conservation Element to strive to reduce greenhouse gas emissions and include a measure to update and review the City's greenhouse gas emission inventory and reduction measures every five years. The overall vision of the DRAFT General Plan Update to create a more strategically urban city also supports regional efforts related to SB 375 for Sustainable

Community Strategies that will reduce emissions related to transportation. Overall, the DRAFT General Plan Update promotes consistency with both state- and regional-level initiatives related to greenhouse gas emission reductions. In terms of potential conflicts with plans, policies or regulations adopted to reduce GHG emissions, implementation of the DRAFT General Plan Update would have a ***less than significant*** impact.

## SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Development anticipated under the DRAFT General Plan Update would be expected to result in significantly increased intensity of use in Priority Development Areas which currently support relatively limited commercial and residential development. The DRAFT General Plan Update promotes a shift from low-rise development in these PDAs which is generally considered "suburban" in character to relatively high-rise, urban development would represent a significant irreversible change in the existing visual character of these areas.

As portions of Fremont are developed as anticipated under the DRAFT General Plan Update, additional energy could be required for construction and on-going maintenance/operations. Implementation of the DRAFT General Plan Update would not result in any significant increase in dependence on non-renewable energy resources or in substantial increases in peak or base-period energy use. All new development would be required to incorporate applicable energy conservation features in compliance with California Code of Regulations (CCR) Title 24 (the California Building Standards Code).

## GROWTH-INDUCING IMPACTS

Under CEQA Guidelines, Section 15126.2 (d), a project would be growth-inducing if it would directly or indirectly foster economic or population growth or the construction of additional housing. Some examples of projects likely to induce growth are those that would extend of infrastructure (e.g., roadways, sewer lines, water lines, etc.) beyond that needed to serve the particular project, or the development of residential subdivisions or industrial parks in areas which are either currently sparsely developed or undeveloped.

Based on the level of development anticipated under the DRAFT General Plan Update during the planning period, there would be growth in the local population and an increase in economic activity relative to current conditions. The DRAFT General Plan Update is intended to enable Fremont to evolve into a sustainable, "strategically urban" area, with relatively high-density development anticipated in identified Priority Development Areas. The anticipated increase in the number of new residents and the anticipated development of non-residential floor space in Fremont to support job creation during the planning period would exceed Association of Bay Area Government estimates for such growth. As a result, implementation of the DRAFT General Plan Update could be considered to be growth-inducing.

# CUMULATIVE IMPACTS

As defined in Section 15355 of the CEQA Guidelines, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely-related past, present and reasonably foreseeable probably future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

## LAND USE AND PLANNING

Development anticipated under the DRAFT General Plan Update would result in a more urbanized Fremont, with relatively high-intensity land uses located in the City Center and in Town Centers where residents and workers would have alternatives to the use of private automobiles. This development pattern would not be expected to result in any cumulative physical disruption of existing communities within Fremont. Since there are no Habitat Conservation Plans or Natural Community Conservation Plans currently in effect within the City of Fremont, implementation of the DRAFT General Plan Update would have no related cumulative impacts associated with conflicts with such plans. Implementation of the applicable DRAFT General Plan Update policies related to land use compatibility would limit potential cumulative impacts associated with anticipated development to a level considered ***less than significant***.

## AESTHETICS

Development anticipated under the DRAFT General Plan Update would contribute to a cumulative change in the visual character of the region that may be associated with all future development in the San Francisco Bay Area. However, as indicated above, development in Fremont would not be expected to degrade the existing visual character of Fremont, and, by extension, would not degrade the existing visual character of the region. Implementation of the DRAFT General Plan Update would not result in any substantive adverse effects to scenic vistas or scenic resources, and would not contribute to any cumulative loss of scenic vistas or resources within the region. Although additional development under the DRAFT General Plan Update would have the potential to increase light and glare locally and cumulatively within the region (particularly as it might adversely affect the night sky), effective implementation of Policy 4-4.6 would reduce potential cumulative lighting-related impacts associated with future development in Fremont to a level considered ***less than significant***.

## POPULATION, EMPLOYMENT AND HOUSING

Under the DRAFT General Plan Update, higher density residential and mixed-use development would be directed toward those areas best served by public transit, in an effort to reduce reliance on private automobiles (with a corresponding reduction in traffic, air pollutants and greenhouse gases generated per person).

## TRANSPORTATION AND CIRCULATION

As indicated in the discussion of Impacts, above, development anticipated under the DRAFT General Plan Update would be expected to contribute a portion of the cumulative traffic anticipated on local roadways in 2035 (see **Appendix B [C]**), and would, therefore, make a cumulative considerable contribution to traffic congestion at numerous intersections. In some instances, these impacts could be reduced to a level of less than significant through effective implementation of the Mitigations identified above, but in most instances, these measures will be unlikely to be feasible due to constraints, and not all intersections have identified mitigation measures. As a result, traffic congestion at impacted intersections would represent a ***significant and unavoidable*** cumulative impact associated with implementation of the DRAFT General Plan Update.

## AIR QUALITY

According to the BAAQMD CEQA Air Quality Guidelines, additional analysis to determine cumulative impacts of a plan is not necessary. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels at which a project or plan's individual emissions would be cumulatively considerable. Impacts to local air quality, which were found to be less than significant, have already included cumulative traffic conditions. However, implementation of the DRAFT General Plan Update was considered to conflict with the regional Clean Air Plan, because it could increase VMT to a greater rate than population growth. This was identified above as a ***significant and unavoidable*** impact.

While the DRAFT General Plan Update includes a policies and implementing measures to reduce TAC exposures, it also allows for development of land in a manner that could potentially exceed an increase of 10 or 100 chances of cancer risk in a million. Implementation of **Mitigation AIR-3** would minimize potential TAC impacts to reduce the impact to a level considered ***less than significant***.

Implementation of **Mitigation AIR-3** would be sufficient to reduce exhaust emissions from most construction projects to a level considered ***less than significant***, but larger projects, due to their size and construction schedule, might have exhaust emissions that exceed the BAAQMD significance thresholds for construction exhaust emissions. Therefore, it is possible that in some circumstances, the impact would remain ***significant and unavoidable***.

## NOISE AND VIBRATION

As indicated in the discussion of traffic-related noise effects in **Impact NOI-2**, above, development anticipated under the DRAFT General Plan Update would result in traffic increases that could be expected to result in an increase in noise levels in excess of existing noise levels along some local roadways, which would represent a ***significant and unavoidable*** cumulative noise impact from its incremental increase in already degraded areas. There are several major construction projects that may take place during the planning period under the auspices of other agencies which could be expected to result in noise and vibration impacts similar to those identified in **Impact NOI-4** and **Impact NOI-5**, above. These include work on the BART extension to San Jose, and possible grade separation projects, which, when taken together with development anticipated under the DRAFT General Plan Update, could be considered contributors to a ***significant and unavoidable*** cumulative increase in construction noise and vibration within adjacent portions of Fremont during the planning period.

## HYDROLOGY AND WATER QUALITY

The analysis of cumulative surface water quality and hydrology impacts includes future growth and development within the local drainage area for surface water and the Niles Cone subbasin for groundwater quality impacts. Those issues for which implementation of the DRAFT General Plan Update would have no impact are not analyzed, because Plan implementation would have no potential to contribute to cumulative impacts.

Development anticipated under the DRAFT General Plan Update, in combination with other development in the region, would contribute to an increase in impervious surface in the watershed area that could increase the quantity and velocity of stormwater runoff and reduce groundwater recharge. Any additional impervious areas would decrease the amount of rainfall expected to infiltrate into the ground and would result in higher peak flows in area drainages. Increased peak flows could exacerbate flooding problems along the drainage lines that experience flooding under existing conditions. If post-construction flows were not controlled, existing flooding problems could be exacerbated, and additional flooding and channel bank scouring could take place, resulting in an adverse impact on drainage and flooding.

However, all future and planned projects in the region would be required to comply with the requirements of the State Water Resource Control Board C.3 regulations and coordinate with City and County construction and flooding regulations, including (for projects located within Fremont) City of Fremont Conservation and Safety Policies. The SWRCB regulations require the incorporation of post-construction stormwater controls, which include measures to reduce stormwater pollutants, or otherwise minimize the change in rate and flow of stormwater runoff. Each project would convey its stormwater runoff via different drainage systems, which would be required to have adequate capacity for any increased runoff. Therefore, the

implementation of the DRAFT General Plan Update, in combination with other planned projects, would have a ***less than significant*** cumulative impact to drainage or flooding.

## GEOLOGY, SOILS AND SEISMICITY

Geologic and soil-related impacts associated with future development in the Fremont would involve potential hazards associated with site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each development site would be specific to that site, and its users and would not be common or contribute to (or be shared with, in an additive sense) the impacts associated with other sites. In addition, development on each site would be subject to uniform site development and construction standards designed to protect public safety. Therefore, provided the policies and implementation measures included in the Safety Element of the DRAFT General Plan Update are carried out, potential cumulative impacts related to geology and soils would be considered ***less than significant***.

## HAZARDS AND HAZARDOUS MATERIALS

Implementation of the DRAFT General Plan Update would result in increased population and a commensurate increase in the number of sites handling hazardous materials in the City. However, the cumulative impact is expected to be slight, and identified DRAFT General Plan Update policies, as well as California Department of Transportation, California Department of Toxic Substance Control, and California State Water Resource Control Board regulations, would reduce the potential cumulative hazardous materials impacts of Plan implementation. Implementation of the DRAFT General Plan Update would also result in new construction in areas that are subject to wildland fire hazards. However, implementation of the DRAFT General Plan Update would not result in a cumulative impact on wildland fire hazards in surrounding areas. Cumulative hazards and hazardous materials impacts are considered ***less than significant***.

## CULTURAL AND ARCHAEOLOGICAL RESOURCES

Any demolition of historic resources to occur within Fremont following adoption of the DRAFT General Plan Update could be regarded as a cumulative contribution to the on-going loss of historic resources within the Bay Area, which would be considered a ***significant and unavoidable*** cumulative impact associated with development under the Plan. Effective implementation of the applicable DRAFT General Plan Update policies, implementation actions and mitigation measures identified above would be expected to reduce any potential development-related impacts associated with alteration of historic structures or disturbance of undiscovered archaeological resources, paleontological resources or human remains to a level considered less than significant, which would also reduce any corresponding potential cumulative impact to a level considered ***less than significant***.

## AGRICULTURAL RESOURCES

Any conversion of land which is currently in agricultural use to non-agricultural uses would contribute to an on-going cumulative loss of agricultural land in Alameda County, which could be considered a ***significant and unavoidable*** cumulative impact associated with implementation of the DRAFT General Plan Update.

## BIOLOGICAL RESOURCES

The City of Fremont has urban development (e.g., residential, commercial and industrial uses) to the north and south in the cities of Union City and Milpitas. It also has urban development to the west in the City of Newark, an enclave along the west central side of the City. Open space and grazing areas are present in the East Bay Hills to the east, and extensive wetlands are present along the margins of San Francisco Bay to the west. The DRAFT General Plan Update continues the open space preservation policies of two voter-approved hill initiatives known as Measures "A" and Measure "T."

Approved, planned, proposed, and reasonably foreseeable projects, existing land use conditions and planned development under the DRAFT General Plan Update, and planned and proposed land uses and development patterns in communities near the City have the potential to adversely affect the biological resources in the region and could contribute to the loss of potential habitat within the region. Future developments would require on- and off-site improvements to provide water, wastewater, storm drainage, solid waste disposal, and other such services at the City's required level of service. Anticipated development, public projects, and related improvements could contribute to the loss of potential habitat within the region.

On a cumulative level, the land uses may contribute to a loss of potential habitat for special-status species that currently inhabit the area or could inhabit the area in the future. In addition to potential direct impacts on biological resources from project implementation, the increased human presence would be anticipated to cause potential indirect impacts. These could disturb breeding and foraging behavior of wildlife, and if so may result in a significant and unavoidable cumulative impact. Another indirect impact would be stormwater runoff. Each project is required to participate in the NPDES permit program for stormwater runoff, which effectively reduces water quality impacts to below a level of significance. Planned urbanization of the Fremont area would create new sources of light and glare. While project-specific measures would be undertaken to orient or shield lights to minimize illumination of adjacent lands, the combined effect of all new developments approved or planned in the area may create a significant and unavoidable cumulative impact associated with increased human presence.

Planned, proposed and foreseeable projects covered under the DRAFT General Plan Update, in combination with other reasonably foreseeable projects in adjacent cities and unincorporated County areas, could result in direct mortality and loss of habitat for special-

status species and waters of the U.S and State, including wetlands. This would be a ***potentially significant cumulative*** impact.

Many biological communities within the Fremont area and the region are critically important for the protection of several sensitive species. Development under the DRAFT General Plan Update may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development within surrounding areas, may result in significant cumulative impacts. Future development within the City of Fremont and the surrounding vicinity would have an unknown and unquantifiable impact on special-status species, biologically sensitive habitats, and potentially jurisdictional features (wetlands and waters of the U.S. and State). The loss of wetlands and other waters within Fremont would result in a decline in water quality condition, which may result in adverse effects to downstream aquatic resources and riparian habitat. Furthermore, increased development and disturbance created by human activities (e.g., fires, increased nighttime lighting) would result in direct mortality, habitat loss, and deterioration of habitat suitability. These impacts are considered cumulatively considerable.

Implementation of the DRAFT General Plan Update policies will reduce the development-related impacts to these resources to a level considered ***less than significant*** through either resource avoidance or replacement measures. Therefore, the cumulative contribution to impacts on these resources associated with implementation of the DRAFT General Plan Update would be considered ***less than cumulatively considerable***.

## MINERAL RESOURCES

As DRAFT General Plan Update Policy 7-5.1 would be expected to protect existing mineral resources and locally-important mineral recovery sites from incompatible uses, development anticipated within Fremont would not be expected to add to any cumulative loss of access to existing mineral resources or mineral recovery sites within the region, and any related cumulative impacts would be considered ***less than significant***.

## PUBLIC SERVICES

Increased population and employment under the DRAFT General Plan Update would place increased demands on all public services, not just within Fremont, but within the region as well. However, these increases would not necessarily be expected to result in a corresponding need to build new public facilities or to expand existing public facilities in order to maintain existing levels of public service within Fremont or the region. In the absence of such a need, cumulative impacts related to the provision of public services would be considered ***less than significant***. As individual development projects are proposed following adoption of the DRAFT General Plan Update, specific project-related effects related to the provision of public services will need to be evaluated within the context of maintaining existing levels of service, budgetary constraints, and the long-term plans of

service providers to adjust to anticipated population and employment growth within Fremont and the region.

## INFRASTRUCTURE AND UTILITIES

Development under the DRAFT General Plan Update would be expected to result in an increase in the total population and in the number of businesses within Fremont, with a corresponding increase in the demand for utility services. Additional growth is anticipated during the planning period within the region as well, so development anticipated within Fremont would contribute to a cumulative increase in the demand for water, wastewater treatment, solid waste disposal, energy and communications service throughout the region. Implementation of the mitigation measures identified above, and the relevant polices of the DRAFT General Plan Update, would be expected to reduce the local contribution to the cumulative increase in regional utility demand to a level considered ***less than significant***.

## GLOBAL CLIMATE CHANGE

While the GHG emission analysis presented above shows that the DRAFT General Plan Update conforms to BAAQMD-established performance levels standards for emissions through 2020, there are no established BAAQMD regulatory thresholds through 2035. In the absence of BAAQMD guidelines, the operative standard is AB32, which requires an 80 percent reduction from 1990 levels by 2050. Although it is likely that the per-service-population GHG emissions from new development in Fremont in the years subsequent to 2020 will continue to decrease, it is difficult to estimate the magnitude of the decrease. Much depends on actions of the Federal and State governments, as these entities have a much greater ability to effect emission reductions than do local governments. It is, therefore, possible (absent sufficiently aggressive action at the State and Federal levels) that development in Fremont between 2020 and 2035 will result in a ***cumulatively significant and unavoidable*** impact.

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# REFERENCES

## REFERENCES


Alameda County Congestion Management Agency, 2010 Congestion Management Program.

Alameda County Flood Control & Water Conservation District: Fiscal Year 2005, <www.acgov.org/pwa/acfcdweb/web/acfcd.annual06.pdf>.

Alameda County Household Hazardous Waste webpage at http://stopwaste.org/home/index.asp?page=583

Alameda County Transportation Authority, Final Environmental Impact Report - East-West Connector Project, April 2009.

Alameda County Water District, 2007. (http://www.acwd.org/)

Alameda County Water District, 2007. (http://www.acwd.org/ sources_of_supply.php5#acw).

Alameda County Water District, Alameda County Water District Groundwater Management Policy, 2001.

Alameda County Water District, Urban Water Management Plan 2010-2015 (Public Review Draft), 2011.

Allied Sysco Food Services of San Francisco website http://www.syscosf.com/

Amgen website http://www.amgen.com/

Andrews. D. J., Oppenheimer, D.H., and Lienkaemper, J.J., "The Mission link between the Hayward and Calaveras faults": in Borcherdt and others, eds., Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area: CDMG Special Publication 113, p. 217-223, 1992.

Association of Bay Area Governments and Bay Area Air Quality Management District, Design Strategies for Encouraging Alternatives to Auto Use through Local Development Review, April 1994.

Association of Bay Area Governments and Bay Area Air Quality Management District, Improving Air Quality through Local Plans and Programs - A Guidebook for City and County Governments, April 1994.

Association of Bay Area Governments Multi-Jurisdictional Local Hazard Mitigation Plan obtained from http://quake.abag.ca.gov/mitigation/plan.html

Balance Hydrologics, Review of Historical and Recent Ground-water Levels Affecting the Ardenwood 2000 Site, City of Fremont. 2002.

Bay Area Air Quality Management District, Bay Area Air Pollution Summaries (http://www.baaqmd.gov/pio/aq_summaries/index.htm)

Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, June 2010.

Bay Area Air Quality Management District, BAAQMD CEQA Guidelines - Assessing the Air Quality Impacts of Projects and Plans, April 1996 (revised December 1999).

Bay Area Air Quality Management District, 2005 Bay Area Ozone Strategy, Adopted by Board of Directors January 2006.

Bay Area Air Quality Management District, Toxic Contaminant Control Program - Annual Report 2003. Volume I and II, 2004.

Bay Area Rapid Transit, Draft Supplemental Environmental Impact Report – BART Warm Springs Extension, March 25. 2003.

Bay Area Rapid Transit, Final Environmental Impact Statement and 4(f)/6(f) Evaluation– BART Warm Springs Extension, April 2009.

Bay Area Rapid Transit, Noise and Vibration Assessment for the BART Warm Springs Extension (February 2003), Table 10, p. 46.

Bonneville, David, "New Building Code Provisions and Their Implications for Design and Construction in California" (abstract), 2007, obtained from http://www.consrv.ca.gov/cgs/smip/docs/seminar/SMIP07/Pages/Paper12_Bonneville.aspx

http://www.bcdc.ca.gov/planning/climate_change/climate_change.shtml

California Air Resources Board, 2007 Almanac of Emissions and Air Quality, June 2007.

California Air Resources Board, Fact Sheet - California's Plan to Reduce Diesel Particulate Matter Emissions, October 2000.

California Air Resources Board. http://www.arb.ca.gov/aqd/aqd.htm Air Quality Data 1995-2005.

California Air Resources Board, Air Quality and Land Use Handbook, April 2005.
California Building Standards Code, California Code of Regulations, Title 24, Chapter 18, section 1802, International Code Council, 2007.

California Building Standards Commission website at
http://www.bsc.ca.gov/title_24/default.htm

California Code of Regulations Airport Noise Standards, Title 21, Public Works Division 2.5, Division of Aeronautics (Department of Transportation), Chapter 6 Noise Standards, Article 1.General.

California Division of Mines and Geology, A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos, August 2000.

California Division of Mines and Geology, "Modified from Earthquake Planning Scenario for a Magnitude 7.5 Earthquake on the Hayward Fault", Special Publication 78, 1987.

California Division of Mines and Geology and United States Geological Survey, Probabilistic Seismic Hazards Assessment for the State of California, 1996, http://www.consrv.ca.gov/CGS/rghm/pshamap/pshamap.asp
California Division of Mines and Geology. Fault Evaluation Report 88 Prepared Under the Alquist-Priolo Earthquake Fault Zoning Act. March 19, 1979.

California Environmental Protection Agency, Regional Water Quality Control Board San Francisco Bay Region, A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins, May 2003.

California Geological Survey, 2007 available at http://quake.abag.ca.gov

California Historical Earthquake Online Database, California Geological Survey, 2007, obtained from http://www.consrv.ca.gov/CGS/rghm/quakes/historical/index.htm

California Regional Water Quality Control Board San Francisco Bay Region. Revised Table 2-1: Beneficial Uses of Water Bodies in the SF Bay Region. Basin Plan

Amendment July 14, 2010, San Francisco Bay Basin (Region 2) Water Quality Control Plan. http://www.swrcb.ca.gov/rwqcb2/basin_planning.shtml#amendments

California Seismic Safety Commission, California Geological Survey, California Office of Emergency Services, and U.S. Geological Survey, Probabilistic Seismic Hazard Map, 2003. Available at http://quake.abag.ca.gov

California State Water Resource Control Board's GeoTracker website http://geotracker.swrcb.ca.gov/about.htm

Caltrans, Division of Environmental Analysis, Traffic Noise Analysis Protocol, August 2006.

Caltrans, Technical Noise Supplement (TeNS), November 2009.

Caltrans, Transportation Related Earthborne Vibrations - Technical Advisory, TAV-02-01-R9601, February 2002.

City of Fremont, Bicycle Master Plan, September 27, 2005.

City of Fremont, Fremont General Plan, 1991.

City of Fremont, Fremont General Pan 2001 Update Environmental Impact Report, Geology, Soils and Seismicity Section.

City of Fremont, DRAFT Housing Element, February 2009.

City of Fremont, Fremont Municipal Code, Sec. 8-4100. Purpose and Intent of chapter, 2007.

City of Fremont, Ordinance No. 950 on June 26, 1973, as amended by Ordinance No. 963 on October 16, 1973; City of Newark Ordinance No. 136 on July 12, 1973; and City of Union City Ordinance No. 109-73 on June 18, 1973 (ACWD, 2001).

City of Fremont, Pedestrian Master Plan (adopted by City Council December 4th, 2007), Prepared by Alta Planning + Design. http://www.fremont.gov/index.aspx?NID=649

City of Fremont, Fremont Planning Commission Meeting Agenda and Minutes, February 12, 2004, Obtained from http://www.ci.fremont.ca.us/CityHall/PlanningMeetings/040212PlanningAgendas.htm

City of Fremont, Fremont Planning Commission Meeting Agenda and Minutes, December 8, 2005. Obtained from http://www.ci.fremont.ca.us/CityHall/PlanningMeetings/051208PlanningAgenda.htm#clayprod

EDAW, South Bay Salt Pond Restoration Project Environmental Impact Statement/Report – Executive Summary, December, 2007, obtained from http://www.southbayrestoration.org/EIR/

EnviroStor fact sheet at Department of Toxic Substance Control's website http://www.envirostor.dtsc.ca.gov/public/EnviroStor%20Fact%20Sheet.pdf

Genitope website http://www.genitope.com/

Geological Survey, California Office of Emergency Services, and U.S. Geological Survey, 2003. Available at http://quake.abag.ca.gov

Glacier Ice Company website http://www.glacierice.com/

Graymer, R.W., Jones, D.L., and Brabb, E.E., Preliminary Geologic Map Emphasizing Bedrock Formations in Alameda County, California: A Digital Database, USGS Open File Report 96-252.

Harris, Handbook of Acoustical Measurements and Noise Control, 1998.

Hexion website http://www.Hexion.com

Illingworth & Rodkin, Inc., *Noise Evaluation of the Pavement Rehabilitation on the 4th Street "Miracle Mile"*, Paul R. Donavan, Sc.D., December 2003.

Lam Research website http://www.lamrc.com/index.htm

Lienkaemper, J., Galehouse, J., and Simpson, R., "Long-Term Monitoring of Creep Rates on the Hayward Fault and Evidence for a Lasting Creep Response to the 1989 Loma Prieta Earthquake", United States Geological Survey, obtained from http://quake.usgs.gov/research/geology/docs/HFcrpGRL01a.pdf

Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13,1918; 40 Stat. 755) as amended by Chapter 634; June 20,1936; 49 Stat. 1556; P.L. 86-732; September 8, 1960; 74 Stat. 866; P.L. 90-578; October 17,1968; 82 Stat. 1118; P.L. 91-135; December 5,1969; 83 Stat. 282; P.L. 93-300; June 1,1974; 88 Stat. 190; P.L. 95-616; November 8, 1978; 92 Stat. 3111; P.L. 99-645; November 10,1986; 100 Stat. 3590 and P.L. 105-312; October30, 1998; 112 Stat. 2956.

McCarthy, J and Tiemann, M, Congressional Research Service Report RL30032 – Solid Waste Disposal Act/Resource Conservation and Recovery Act, National Council for Science and the Environment, obtained from
http://www.cnie.org/NLE/CRSreports/BriefingBooks/Laws/h.cfm
http://www.abag.ca.gov/bayarea/bayarea_info/eqmaps/mitigation/plan.html

NUMMI website http://www.nummi.com/vehicles.php

Personal Communication with J. Swardenski, Fremont Fire Marshall on Monday, January 7, 2008.

Regional Water Quality Control Board, Order No. R2-2007-0025 NPDES Permit No. CAS0029831, 2007.

Roberts, S., Roberts, M., Brennan, E., USGS Open File Report 99-504, "Landslides in Alameda County, California, A Digital Database Extracted from Preliminary Photointerpretation maps of Surficial Deposits by T.H. Nilson" in USGS Open File Report 75-277.

Rogers, J.D., & Drumm, P.L., "Overview of the 1998 Mission Peak Landslide" UM-Rolla Department of Geological Engineering, obtained from http://web.umr.edu/~rogersda/hazard_mitigation_techniques/landslides/fremont/MP.htm San Francisco Water District, 2007.

Solyndra website http://www.solyndra.com/index.php

South Bay Salt Pond Restoration Project Description, obtained from http://www.southbayrestoration.org/Project_Description.html

U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

U.S. Environmental Protection Agency, 2007.
http://www.epa.gov/owow/tmdl/ tmdl0103/text.html#intro

United States Geological Survey, "Earthquake Probabilities in the San Francisco Bay Region: 2002-2030", Working Group on California Earthquake Probabilities, Open-File Report 03-214. Obtained from http://pubs.usgs.gov/of/2003/of03-214/

2007 Working Group on California Earthquake Probabilities (WGCEP), Uniform California Earthquake Rupture Forecast, Version 2, USGS Open File Report 2007-1437, CGS Special Report 20, 2008.

William Lettis and Associates & The United States Geological Survey, USGS open file report 00-444, obtained from http://quake.abag.ca.gov

Western Digital website http://www.wdc.com/en/