SAN FRANCISCO
PLANNING DEPARTMENT

TRANSIT EFFECTIVENESS PROJECT
Final Environmental Impact Report

Volume 1A – Chapters 1 to 3

City and County of San Francisco Planning Department
Case No. 2011.0558E

State Clearinghouse No. 2011112030

Draft EIR Publication Date: July 10, 2013
Draft EIR Public Hearing Date: August 15, 2013
Draft EIR Public Review Period: July 11, 2013 – September 17, 2013
Final EIR Certification Hearing Date: March 27, 2014

SAN FRANCISCO
PLANNING DEPARTMENT

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Planning Commission Motion 19105

HEARING DATE: March 27, 2014

Hearing Date:	March 27, 2014
Date:	March 13, 2014
Case No.:	**2011.0558E**
Project Address:	**Transit Effectiveness Project (TEP), Citywide**
Zoning:	Not applicable
Block/Lot:	Not applicable
Project Sponsor:	Sean Kennedy, TEP Manager San Francisco Municipal Transportation Agency (the SFMTA) One South Van Ness Avenue, 7th Floor San Francisco, CA 94103
Staff Contact:	Debra Dwyer – (415) 575-9031 Debra.Dwyer@sfgov.org

ADOPTING FINDINGS RELATED TO THE CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT FOR THE TRANSIT EFFECTIVENESS PROJECT AND SERVICE POLICY FRAMEWORK.

MOVED, that the San Francisco Planning Commission (hereinafter "Commission") hereby CERTIFIES the Final Environmental Impact Report identified as Case No. 2011.0558E, the Transit Effectiveness Project, a citywide transit infrastructure project (hereinafter "Project"), based upon the following findings:

1. The City and County of San Francisco, acting through the Planning Department (hereinafter "Department") fulfilled all procedural requirements of the California Environmental Quality Act (Cal. Pub. Res. Code Section 21000 *et seq.*, hereinafter "CEQA"), the State CEQA Guidelines (Cal. Admin. Code Title 14, Section 15000 *et seq.*, (hereinafter "CEQA Guidelines") and Chapter 31 of the San Francisco Administrative Code (hereinafter "Chapter 31").

   A. The Department determined that an Environmental Impact Report (hereinafter "EIR") was required and provided public notice of that determination by publication in a newspaper of general circulation on November 9, 2011.

   B. On July 10, 2013, the Department published the Draft Environmental Impact Report (hereinafter "DEIR") and provided public notice in a newspaper of general circulation of the availability of the DEIR for public review and comment and of the date and time of the Planning Commission public hearing on the DEIR; this notice was mailed to the Department's list of persons requesting such notice and to people that commented on the Initial Study, published January 23, 2013.

   C. Notices of availability of the DEIR and of the date and time of the public hearing were posted at the San Francisco County Clerk's Office, on transit vehicles, and on the Planning Department's

web site by Department staff on July 10, 2013. In addition, copies of the NOA were provided to all public libraries within San Francisco.

D. On July 10, 2013, copies of the DEIR were mailed or otherwise delivered to a list of persons requesting it, to those noted on the distribution list in the DEIR, and to government agencies, the latter both directly and through the State Clearinghouse.

E. Notice of Completion was filed with the State Secretary of Resources via the State Clearinghouse on July 10, 2013.

2. The Commission held a duly advertised public hearing on said DEIR on August 15, 2013 at which opportunity for public comment was given, and public comment was received on the DEIR. The period for acceptance of written comments ended on September 17, 2013.

3. The Department prepared responses to comments on environmental issues received at the public hearing and in writing during the 67-day public review period for the DEIR, prepared revisions to the text of the DEIR in response to comments received or based on additional information that became available during the public review period, and corrected errors in the DEIR. This material was presented in a Responses to Comments document, published on March 13, 2014, distributed to the Commission and all parties who commented on the DEIR, and made available to others upon request at the Department.

4. A Final Environmental Impact Report (hereinafter "FEIR") has been prepared by the Department, consisting of the DEIR, any consultations and comments received during the review process, any additional information that became available, the Responses to Comments document, and any Errata to the FEIR, all as required by law.

5. Project EIR files have been made available for review by the Commission and the public. These files are available for public review at the Department at 1650 Mission Street, Suite 400, and are part of the record before the Commission.

6. On March 27, 2014, the Commission reviewed and considered the FEIR and hereby does find that the contents of said report and the procedures through which the FEIR was prepared, publicized, and reviewed comply with the provisions of CEQA, the CEQA Guidelines, and Chapter 31 of the San Francisco Administrative Code.

7. The Planning Commission hereby does find that the FEIR concerning File No. 2011.0558E reflects the independent judgment and analysis of the City and County of San Francisco, is adequate, accurate and objective, and that the Responses to Comments document contains no significant revisions to the DEIR, and hereby does CERTIFY THE COMPLETION of said FEIR in compliance with CEQA and the CEQA Guidelines.

8. The Commission, in certifying the completion of said FEIR, hereby does find that the project described in the EIR:

A. will have the following unavoidable significant project-specific effects on the environment:

Program Level Components

Service Policy Framework: Objectives A and C

- **Impact TR-3:** Implementation of the Policy Framework Objective A, Action A.3, and Objective C, Actions C.3 through C.5 may result in significant traffic impacts;
- **Impact TR-5:** Implementation of the Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5 may result in significant loading impacts;

TPS Toolkit Categories and Program level TTRPs:

- **Impact TR-8:** Implementation of the following TPS Toolkit categories: Lane Modifications and Pedestrian Improvements may result in significant traffic impacts;
- **Impact TR-10:** Implementation of the following TPS Toolkit categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements, may result in significant loading impacts;
- **Impact TR-14:** Implementation of TPS Toolkit elements within the following categories: Lane Modifications and Pedestrian Improvements, along the program-level TTRP corridors may result in significant traffic impacts;

  Affected Intersections by program-level TTRP corridor

  - TTRP.1, at the intersections of: California/Arguello and California/Park Presidio, California/Cherry, California/Locust, California/Presidio, and California/Divisadero
  - TTRP.22_2, at the intersection of: Fillmore/Lombard
  - TTRP.K, at the intersections of: Ocean/Junipero Serra, Ocean/Geneva/Phelan, Ocean/Lee, Ocean/Miramar, Ocean/Brighton

- **Impact TR-16:** Implementation of the following TPS Toolkit categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements, along the program-level TTRP corridors may result in significant loading impacts;

Project Level Components:

TTRP.14 Moderate Alternative Variant 1

- **Impact TR-48:** Implementation of project-level TTRP.14 Moderate Alternative Variant 1 would result in a reduction in on-street commercial loading supply on Mission Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians;

TTRP.14 Moderate Alternative Variant 2

- **Impact TR-49:** Implementation of project-level TTRP.14 Moderate Alternative Variant 2 would result in a reduction in on-street commercial loading supply on Mission Street such

that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians;

TTRP.14 Expanded Alternative

- **Impact TR-24:** Implementation of the project-level TTRP.14 Expanded Alternative would result in a significant traffic impact at the intersection of Randall Street/San Jose Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.14 Expanded Alternative conditions;
- **Impact TR-50:** Implementation of project-level TTRP.14 Expanded Alternative would result in a reduction in on-street commercial loading supply on Mission Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians;

TTRP.22_1 Expanded Alternative

- **Impact TR-26:** Implementation of the project-level TTRP.22_1 Expanded Alternative would result in a significant traffic impact at the intersection of 16th/Bryant streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions;
- **Impact TR-27:** Implementation of the project-level TTRP.22_1 Expanded Alternative would result in a significant traffic impact at the intersection of 16th Street/Potrero Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions;
- **Impact TR-28:** Implementation of the project-level TTRP.22_1 Expanded Alternative would result in a significant traffic impact at the intersection of 16th/Seventh streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions;

TTRP.22_1 Expanded Alternative Variant 1

- **Impact TR-30:** Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of 16th/Bryant streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 conditions;
- **Impact TR-31:** Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of 16th Street/Potrero Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 conditions;
- **Impact TR-32:** Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of 16th/Seventh streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions;

TTRP.22_1 Expanded Alternative Variant 2

- **Impact TR-34:** Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of 16th/Bryant streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions;
- **Impact TR-35:** Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of 16th Street/Potrero Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions;
- **Impact TR-36:** Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of 16th/Seventh streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions;

TTRP.30_1 Moderate Alternative

- **Impact TR-51:** Implementation of project-level TTRP.30_1 Moderate Alternative would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians;

TTRP.30_1 Expanded Alternative

- **Impact TR-38:** Implementation of the project-level TTRP.30_1 Expanded Alternative would result in a significant traffic impact at the intersection of Columbus Avenue/Green Street/Stockton Street that would operate at LOS E conditions under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative conditions;
- **Impact TR-52:** Implementation of project-level TTRP.30_1 Expanded Alternative would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians;

TTRP.30_1 Expanded Alternative Variant 1

- **Impact TR-40:** Implementation of the project-level TTRP.30_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of Columbus Avenue/Green Street/Stockton Street that would operate at LOS E conditions under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 1 conditions;

- **Impact TR-53:** Implementation of project-level TTRP.30_1 Expanded Alternative Variant 1 would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be

accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians;

TTRP.30_1 Expanded Alternative Variant 2

- **Impact TR-42:** Implementation of the project-level TTRP.30_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of Columbus Avenue/Green Street/Stockton Street that would operate at LOS E conditions under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 2 conditions;
- **Impact TR-54:** Implementation of project-level TTRP.30_1 Expanded Alternative Variant 2 would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians; and

B. will have the following significant cumulative effects on the environment:

- **Impact C-TR-1:** The Service Policy Framework and Service Improvements or Service Variants, in combination with past, present and reasonably foreseeable development in San Francisco, would contribute considerably to a significant cumulative impact on transit, resulting in an exceedance of Muni's capacity utilization standard on the Mission corridor within the Southeast screenline of the Downtown screenlines under 2035 Cumulative plus Service Improvements only conditions;
- **Impact C-TR-2:** The Service Policy Framework, TPS Toolkit elements as applied in the program-level TTRP corridors, and the Service Improvements with the TTRP Moderate Alternative, in combination with past, present and reasonably foreseeable development in San Francisco, would contribute considerably to significant cumulative impacts on transit, resulting in exceedances of Muni's capacity utilization standard on the Fulton/Hayes corridor within the Northwest screenline and on the Mission corridor within the Southeast screenline of the Downtown screenlines under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions;
- **Impact C-TR-3:** The Service Policy Framework, the TPS Toolkit elements as applied in the program-level TTRP corridors, and the Service Improvements with the TTRP Expanded Alternative, in combination with past, present and reasonably foreseeable development in San Francisco, would contribute considerably to significant cumulative impacts on transit, resulting in exceedances of Muni's capacity utilization standard on the Fulton/Hayes corridor within the Northwest screenline and on the Mission corridor within the Southeast screenline of the Downtown screenlines under 2035 Cumulative conditions plus Service Improvements and the TTRP Expanded Alternative conditions;
- **Impact C-TR-7:** Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5 and TPS Toolkit categories: Lane Modifications and Pedestrian Improvements as applied in program-level TTRP corridors, in combination with past, present and reasonably foreseeable development in San Francisco, would result

in cumulative traffic impacts at intersections along the corridors under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions;

- **Impact C-TR-9:** Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5 and TPS Toolkit categories: Lane Modifications and Pedestrian Improvements as applied in program-level TTRP corridors would result in cumulative traffic impacts at intersections along the corridors under 2035 Cumulative plus Service Improvements and the TTRP Expanded Alternative conditions;

- **Impact C-TR-43:** Implementation of the Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5, and TPS Toolkit Categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements as applied to the program-level TTRP corridors in combination with past, present and reasonably foreseeable development in San Francisco, would result in cumulative loading impacts;

- **Impact C-TR-49:** Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3, C.4 and C.5, and the TPS Toolkit categories: Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements as applied in program-level TTRP corridors, in combination with past, present and reasonably foreseeable development in San Francisco, may result in significant cumulative parking impacts;

TTRP.J Expanded Alternative

- **Impact C-TR-13:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.J Expanded Alternative would contribute considerably to cumulative traffic impacts at the intersection of Market/Church/14th streets during the p.m. peak hour;

TTRP.5 Expanded Alternative

- **Impact C-TR-14:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.5 Expanded Alternative would result in cumulative traffic impacts at the intersection of Fulton Street/Masonic Avenue during the p.m. peak hour;

TTRP.8X Expanded Alternative

- **Impact C-TR-15:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.8X Expanded Alternative would result in cumulative traffic impacts at the intersection of Geneva Avenue/Carter Street during the p.m. peak hour;
- **Impact C-TR-16:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.8X Expanded Alternative would result in cumulative traffic impacts at the intersection of Geneva Avenue/Moscow Street during the p.m. peak hour;

TTRP.14 Variant 1 Moderate Alternative

- **Impact C-TR-44:** Implementation of the project-level TTRP Moderate Alternative including the TTRP.14 Variant 1, TTRP.14 Variant 2, and TTRP.30_1 in combination with past, present

and other reasonably foreseeable development in San Francisco, would result in cumulative loading impacts;

- **Impact C-TR-52:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.14 Variant 1 or the TTRP.14 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts;

TTRP.14 Variant 2 Moderate Alternative

- **Impact C-TR-44:** Implementation of the project-level TTRP Moderate Alternative including the TTRP.14 Variant 1, TTRP.14 Variant 2, and TTRP.30_1 in combination with past, present and other reasonably foreseeable development in San Francisco, would result in cumulative loading impacts;
- **Impact C-TR-52:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.14 Variant 1 or the TTRP.14 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts;

TTRP.14 Expanded Alternative

- **Impact C-TR-17:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.14 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of Randall Street/San Jose Avenue during the a.m. peak hour;
- **Impact C-TR-18:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.14 Expanded Alternative would result in cumulative traffic impacts at the intersection of Mission/Fifth streets during the a.m. peak hour;
- **Impact C-TR-19:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.14 Expanded Alternative would result in cumulative impacts at the intersection of Mission/16th streets during the p.m. peak hour;
- **Impact C-TR-45:** Implementation of the project-level TTRP Expanded Alternative including the TTRP.14, TTRP.30_1, TTRP.30_1 Variant 1, and TTRP.30_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in project and cumulative loading impacts;

TTRP.22_1 Expanded Alternative

- **Impact C-TR-20:** Implementation of the 2035 Cumulative plus Service Improvements and TTRP.22_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of 16th/Bryant streets during the p.m. peak hour;
- **Impact C-TR-23:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of 16th/Potrero streets during the p.m. peak hour;

- **Impact C-TR-26:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative would result in cumulative traffic impacts at the intersection of 16th/Owens streets during the p.m. peak hour;
- **Impact C-TR-29:** Implementation of the 2035 Cumulative plus Service Improvements plus the TTRP.22_1 Expanded Alternative would result in cumulative traffic impacts at the intersection of 16th/Fourth streets during the a.m. and p.m. peak hours;
- **Impact C-TR-32:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of 16th/Seventh streets during the a.m. and p.m. peak hours;
- **Impact C-TR-54:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.22_1, TTRP.22_1 Variant 1, or TTRP.22_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts;

TTRP.22_1 Expanded Alternative Variant 1

- **Impact C-TR-21:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in project and traffic cumulative impacts at the intersection of 16th/Bryant streets during the p.m. peak hour;
- **Impact C-TR-24:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in project and cumulative traffic impacts at the intersection of 16th/Potrero streets during the p.m. peak hour;
- **Impact C-TR-27:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in cumulative traffic impacts at the intersection of 16th/Owens streets during the p.m. peak hour;
- **Impact C-TR-30:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in cumulative traffic impacts at the intersection of 16th/Fourth streets during the a.m. and p.m. peak hours;
- **Impact C-TR-33:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in project and cumulative traffic impacts at the intersection of 16th/Seventh streets during the a.m. and p.m. peak hours;
- **Impact C-TR-54:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.22_1, TTRP.22_1 Variant 1, or TTRP.22_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts;

TTRP.22_1 Expanded Alternative Variant 2

- **Impact C-TR-22:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of 16th/Bryant streets during the p.m. peak hour;

- **Impact C-TR-25:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of 16th/Potrero streets during the p.m. peak hour;
- **Impact C-TR-28:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in cumulative traffic impacts at the intersection of 16th/Owens streets during the p.m. peak hour;
- **Impact C-TR-31:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in cumulative traffic impacts at the intersection of 16th/Fourth streets during the a.m. and p.m. peak hours;
- **Impact C-TR-34:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of 16th/Seventh streets during the a.m. and p.m. peak hours;
- **Impact C-TR-54:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.22_1, TTRP.22_1 Variant 1, or TTRP.22_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts;

TTRP.30_1 Moderate Alternative

- **Impact C-TR-44:** Implementation of the project-level TTRP Moderate Alternative including the TTRP.14 Variant 1, TTRP.14 Variant 2, and TTRP.30_1 in combination with past, present and other reasonably foreseeable development in San Francisco, would result in cumulative loading impacts;

TTRP.30_1 Expanded Alternative

- **Impact C-TR-35:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.30_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of Columbus Avenue/Green Street/Stockton Street;
- **Impact C-TR-45:** Implementation of the project-level TTRP Expanded Alternative including the TTRP.14, TTRP.30_1, TTRP.30_1 Variant 1, and TTRP.30_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in project and cumulative loading impacts;

TTRP.30_1 Expanded Alternative Variant 1

- **Impact C-TR-36:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 1 would result in project and cumulative traffic impacts at the intersection of Columbus Avenue/Green Street/Stockton Street; and
- **Impact C-TR-45:** Implementation of the project-level TTRP Expanded Alternative including the TTRP.14, TTRP.30_1, TTRP.30_1 Variant 1, and TTRP.30_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in project and cumulative loading impacts; and

TTRP.30_1 Expanded Alternative Variant 2

- **Impact C-TR-37:** Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of Columbus Avenue/Green Street/Stockton Street; and
- **Impact C-TR-45:** Implementation of the project-level TTRP Expanded Alternative including the TTRP.14, TTRP.30_1, TTRP.30_1 Variant 1, and TTRP.30_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in project and cumulative loading impacts.

I hereby certify that the foregoing Motion was ADOPTED by the Planning Commission at its regular meeting of March 27, 2014.

Jonas Ionin
Commission Secretary

AYES: Wu, Fong, Hillis, Borden, Sugaya, and Moore

NOES: Antonini

ABSENT: None

ADOPTED: March 27, 2014

SAN FRANCISCO
PLANNING DEPARTMENT

Transit Effectiveness Project

Final Environmental Impact Report

Volume 1A – Chapters 1 to 3

City and County of San Francisco Planning Department
Case No. 2011.0558E

State Clearinghouse No. 2011112030

Draft EIR Publication Date: July 10, 2013

Draft EIR Public Hearing Date: August 15, 2013

Draft EIR Public Review Period: July 11, 2013 – September 17, 2013

Final EIR Certification Hearing Date: March 27, 2014

Changes from the DEIR text are indicated by a dot (●) in the left margin.

FINAL ENVIRONMENTAL IMPACT REPORT
TRANSIT EFFECTIVENESS PROJECT
PLANNING DEPARTMENT CASE NO. 2011.0558E

TABLE OF CONTENTS

VOLUME 1A – CHAPTERS 1 to 3

- Supplemental Service Variants for the Transit Effectiveness Project EIR, Memorandum to the San Francisco Planning Commission, March 13, 2014

- Additional Service Variant and Errata for the Transit Effectiveness Project EIR, Memorandum to the San Francisco Planning Commission, March 27, 2014

LIST OF TABLES

Volume 1A

Volume 1B

Volume 2

LIST OF FIGURES

Volume 1A

Volume 1B

Volume 2

VOLUME 3 – RESPONSES TO COMMENTS ATTACHMENTS

VOLUME 4 – APPENDICES

Appendices (included on enclosed CD)

List of Acronyms and Abbreviations

Acronym or Abbreviation	Definition
ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities Act
ADRP	archeological data recovery plan
AMP	archeological monitoring program
AQTR	Air Quality Technical Report
ARB	California Air Resources Board
B20	20 percent biodiesel blend
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BCDC	Bay Conservation and Development Commission
bgs	below ground surface
BMPs	best management practices
BRT	Bus Rapid Transit
BSM	DPW Bureau of Street Use and Mapping
CAA	Clean Air Act
CAAQS	California ambient air quality standards
Caltrans	California Department of Transportation
CAS	Climate Action Strategies
CCSF	City College of San Francisco
CEQA	California Environmental Quality Act
CH_4	methane
CMUTCD	California Manual of Uniform Traffic Control Devices
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CTCDC	California Traffic Control Devices Committee
CUPA	Certified Unified Program Agency
dB	decibel
dBA	A weighted decibel
DBI	Department of Building Inspection

Acronym or Abbreviation	Definition
DPH	San Francisco Department of Public Health
DPM	diesel particulate matter
DPW	San Francisco Department of Public Works
ERO	Environmental Review Officer
FTA	Federal Transportation Administration
FY	fiscal year
HCM 2000	Highway Capacity Manual 2000
Hz	hertz
Ldn	day-night sound level
Leq	hourly equivalent sound level
LID	low-impact design
Lmax	maximum noise level
LRV	light rail vehicle
MEI	maximally exposed individual sensitive receptor
MLP	maximum load point
MTC	Metropolitan Transportation Commission
MUTCD	Manual on Uniform Traffic Control Devices
Muni	San Francisco Municipal Railway
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NOP	Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping
NOx	nitrogen oxides
NSR	New Source Review program
OPR	Governor's Office of Planning and Research
OWE	Overhead Wire Expansion
PDF	Portable Document Format
PDR	paleontological discovery report
PM_{10}	particulate matter less than 10 microns in diameter

Acronym or Abbreviation	Definition
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
POP	Proof of Payment Group in the Security Operations Unit of SFMTA
PPV	peak particle velocity
PSD	Prevention of Significant Deterioration
RMS	root mean square
ROG	reactive organic gases
RPD	San Francisco Recreation and Park Department
RTPs	regional transportation plans
SCI	Systemwide Capital Infrastructure
SEIR	Subsequent Environmental Impact Report
SEL	Sound Exposure Level
SFBAAB	San Francisco Bay Area Air Basin
SF-CHAMP	San Francisco County Transportation Authority Chain Activity Modeling Process (the official travel forecasting tool for San Francisco)
SFFD	San Francisco Fire Department
SFMTA	San Francisco Municipal Transportation Agency
SFPD	San Francisco Police Department
SFPUC	San Francisco Public Utilities Commission
SO_2	sulfur dioxide
SoMa	South of Market Area
TACs	toxic air contaminants
TASC	Transportation Advisory Staff Committee
TDM	Travel Demand Management
TEP	Transit Effectiveness Project
TIS	Transportation Impact Study
TOG	total organic gases
TPS	Transit Preferential Streets
TSP	Transit Signal Priority
TTPI	Terminal and Transfer Point Improvements
TTRP	Travel Time Reduction Proposals
UB	urban bus

Acronym or Abbreviation	Definition
UCSF	University of California, San Francisco
US EPA	United States Environmental Protection Agency
v/c	volume to capacity ratio
VdB	vibration decibel
WHO	World Health Organization
ZEB	zero-emission bus

GLOSSARY

Term	Definition
Alignment	The ground plan of a roadway, rail line, transit route, or other facility, showing the alignment or direction as distinguished from a profile, which shows the vertical element.
All Way Stop	An intersection for which every approach is controlled by stop signs.
All-door boarding	When passenger boarding is permitted at multiple doors and not just the front door of the transit vehicle.
a.m. peak	The morning commute period in which the greatest movement of passengers occurs, generally from home to work or school; the portion of the morning service period where the greatest level of ridership is experienced and service provided, generally between 7 a.m. and 9 a.m.
Biodiesel fuel	Biodiesel refers to a vegetable oil- or animal fat-based diesel fuel. Biodiesel is typically made by chemically reacting lipids (e.g., vegetable oil, animal fat (tallow) with an alcohol producing fatty acid esters). Biodiesel is meant to be used in standard diesel engines and is thus distinct from the vegetable and waste oils used to fuel *converted* diesel engines. Biodiesel can be used alone, or blended with petrodiesel.
Boarding and alighting	To get on and off a transit vehicle.
Bypass lane	A lane that allows transit vehicles to bypass general traffic congestion approaching an intersection. Applications at signalized intersections may include an exclusive traffic signal phase to allow transit vehicles to move through the intersection ahead of general traffic. See also “queue jump.”
Bypass wires	Overhead wires used by a trolley coach to bypass a second trolley coach.
California Traffic Control Devices Committee (CTCDC)	This committee advises the California Department of Transportation (Caltrans) about standards and polices for official traffic control devices in California. Through this committee, Caltrans fulfills its obligation to consult with local agencies and the public, before adopting rules and regulations prescribing uniform standards and specifications for all official traffic control devices used in California.
Capital improvement project	A project that requires changes to physical infrastructure.
Capital infrastructure	Physical structures or devices that provide long-term support to the operation of transit service.

Term	Definition
Capital investment	One-time change to physical infrastructure for improvement, either to replace worn out infrastructure or to add new infrastructure. Contrasts with operating and maintenance investments and expenses, which are on-going.
Center lane	A travel lane located in the middle of the roadway, beyond the curb lane and, in roadways with two or more travel lanes in each direction, the innermost lane.
Community Connector Van Service	Community Connector service provided by smaller vehicles such as vans or shuttle buses.
Community Connectors	Low-ridership bus routes that circulate through San Francisco's hillside residential neighborhoods and fill in gaps in coverage to connect customers to the core network.
Contraflow lane	A lane in which restricted traffic flows in the opposite direction of the adjacent lanes, limited to certain vehicle types such as transit or carpool vehicles.
Corridor	A broad geographical band that follows a general directional flow or connects major sources of trips. It may contain a number of parallel streets and highways and many transit lines and routes.
Couplet	A pair of parallel streets that operate one-way in opposite directions.
Crosswalk	Legally designated location for pedestrians to cross from one side of a roadway to the other. Present at all intersections that intersect at approximately right angles; may be marked or unmarked.
Curb cut	Location where the sidewalk curb is depressed to the level of the roadway for a curb ramp, driveway, or other feature.
Curb lane	The lane of traffic closest to the curb, which may or may not have parking adjacent to it. (Opposite of center lane).
Curb ramp	Location where the curb is depressed to the level of the roadway to provide a flush transition from the sidewalk to the roadway to enable accessible street crossing or movement.
Curbside	The side nearest to the curb; in a divided 4-lane road, the curbside lane is the right lane.
Customer	A person who rides a transportation vehicle, excluding the driver.
Dedicated turn lane	A lane from which a vehicle is required to turn left or right.

Term	Definition
Diesel hybrid-electric motor coaches	Diesel hybrid-electric buses or motor coaches are electric buses that get their electricity from a small diesel engine. The diesel engine powers a generator that, together with traction batteries that store the energy, supplies the necessary electrical energy to move the bus through the streets of San Francisco. A diesel hybrid-electric bus can also recover and store braking energy. This increases the vehicle's fuel economy and brake life.
Duct bank	A conduit, typically installed underground, used to run power supply and other wired infrastructure from one point to another.
Dwell time	The time when a bus is stopped to load and unload customers at a transit stop.
Expanded alternative	The Expanded Alternative for the TTRP corridors employs TPS Toolkit elements that may have a greater potential to trigger additional physical environmental effects, such as substantial changes to traffic, bicycle, or pedestrian circulation or similar impacts, whereas the Moderate Alternative is expected to have fewer physical environmental effects due to the nature of the TPS Toolkit elements chosen for each TTRP corridor.
Express service	Service operated non-stop over a portion of an arterial in conjunction with other local services. The need for such service arises where customer demand between points on a corridor is high enough to separate demand and support dedicated express trips.
Farside of intersection	The second or furthest side of the intersection encountered when passing through. Contrasts with nearside of intersection.
Flag stop	A transit stop where the bus or LRV stops within a traffic lane without a designated curbside transit zone, often adjacent to parked vehicles. Often marked with a sign or painted marking noting the transit route.
Frequency of service	The amount of time scheduled between consecutive buses or trains on a given route segment; in other words, how often the bus or train comes (also known as Headway)
Headway	The scheduled time interval between any two revenue transit vehicles operating in the same direction on a route.
Implementation schedule	The planned dates and durations of time during which the proposed project would be carried out.

Term	Definition
Inbound direction	Unless otherwise defined, inbound means headed toward Embarcadero Station or Downtown. It is the opposite of outbound direction. Routes that do not go to the Embarcadero Station or Downtown or serve Embarcadero / Downtown mid-route have explicit definitions for inbound and outbound (e.g. 22 Fillmore is defined as heading inbound to the Marina and outbound to Potrero Hill; the F Market & Wharves is defined as heading inbound to Fisherman's wharf and outbound to Castro).
Key Stop	Light Rail Transit Service stops that include high floor boarding platforms for accessibility.
Lane modifications	Lane modification proposals would change the configuration of travel and parking lanes within the existing right-of-way, typically with striping and signage. Proposed lane modifications include creating transit-only lanes, creating transit queue jump/bypass lanes, creating dedicated turn lanes, and widening mixed-flow lanes by reducing the number of mixed-flow lanes. *[see IS, pp. 41-46.]*
Layover	A layover is a period of time included in the schedule at the end of a trip that typically takes place at a transit terminus. It serves two major functions: recovery time for the schedule to ensure on-time departure for the next trip and, in some systems, operator rest or break time between trips. Layover time is often determined by labor agreement, requiring "off-duty" time after a certain amount of driving time.
Light rail vehicle (LRV)	Light rail vehicles are a form of urban rail public transportation that generally has a lower capacity and lower speed than heavy rail and metro systems, but higher capacity and higher speed than traditional street-running tram systems. The SFMTA's fleet of 151 Breda light rail vehicles (LRV) are used in the operation of the six Muni Metro Lines (J, K, L, M, N and T). The vehicles operate in conditions which range from level boarding and exclusive right-of-way in the Muni Metro Subway segments, to high-floor semi-dedicated right-of-way segments on some surface segments, to low-floor, mixed-flow operation on a variety of streets and street types.
Limited Service or Limited Stop Service	Faster train or bus service where designated vehicles stop only at transfer points or major activity centers, usually about every 1/3 to 1/2 mile. Limited stop service is usually provided on major trunk lines operating during a certain part of the day or in a specified area in addition to local service that makes all stops. As opposed to express service, there is not usually a significant stretch of non-stop operation.

Term	Definition
Local Network	Bus routes that complement and connect to the Rapid Network to create the core network, allowing customers to get to most destinations in San Francisco with no more than one transfer.
Local service	A type of operation that involves frequent stops and consequent longer travel times, the purpose of which is to deliver and pick up transit customers as close to their destinations or origins as possible.
Maximum load point	The location along a transit route with the greatest ridership demand.
Midblock Stop	A transit stop where customers may alight or board that is not at an intersection of two streets.
Moderate alternative	The TTRP proposals with the more limited TPS Toolkit elements that are expected to have fewer physical environmental effects than those of the Expanded alternative TTRP corridor proposals due to the nature of the TPS Toolkit elements chosen.
Motor coach	A bus powered by a diesel engine that can typically utilize biodiesel fuel as an energy source.
Nearside of intersection	The first or nearest side of intersection encountered when passing through. Contrasts with farside of intersection.
Network	The configuration of streets or transit routes and stops that constitutes the total transportation system.
Network enhancements	Changes to the transit network which will improve reliability and efficiency. For example, providing transit signal priority.
Network restructuring	Changes made to the network after evaluation to improve reliability and efficiency, including creation of new routes, changes to route alignment, elimination of underutilized existing routes or route segments, changes to the frequency and hours of transit service, changes to transit vehicle type on specific routes, changes to mix of local/limited/express services on specific routes.
Operational improvements	Changes made to procedures and transit operations that do not result in changes to infrastructure.
Optimizing transit stop	Locating the transit stop on one side or the other of an intersection for greater efficiency.

Term	Definition
Outbound direction	Unless otherwise defined, outbound means headed away from Downtown or Embarcadero Station. This is the opposite of inbound direction. Routes that do not go to Downtown or Embarcadero Station have explicit definitions for inbound and outbound (e.g. 22 Fillmore is defined as heading inbound to the Marina and outbound to Potrero Hill).
Overhead wires	Wires suspended over streets and rail tracks to provide electric power to trolley coaches and LRVs.
Owl Service	Service that operates during the late night/early morning hours or all night service, usually between 1:00 a.m. and 6:00 a.m.
Paratransit	Transportation service for individuals with disabilities who are unable to use fixed-route transit service. The service must be comparable to the fixed-route service and is required by the Federal Americans with Disabilities Act.
Parking restriction	Where the ability to park is limited in duration, type of vehicle, type of use, type of driver, or is forbidden.
Peak period	The hours in the morning or evening when most commuters are commuting and the travel system carries the largest number of passengers (transit) or vehicles (traffic). The morning peak period is generally between 7 a.m. and 9 a.m. and the evening peak period is generally between 4 p.m. and 6 p.m., although these hours may change over time. If not specified, evening commute hours are usually meant.
Pedestrian bulb	A sidewalk extension at a non-transit stop that improves pedestrian visibility and minimizes pedestrian exposure to vehicular traffic and minimizes street-crossing distances.
Pedestrian refuge island	Raised median installed in the center of a roadway that provides a safe place for pedestrians to stop while crossing a street.
Platform	Area of pavement raised above a road or railbed where passengers can board or alight from transit vehicles.
Platform Display System	LED (light-emitting diode) electronic display panels on platforms in Metro stations.
p.m. peak	The afternoon commute period in which the greatest movement of transit passengers occurs, generally from work or school to home; the portion of the afternoon service period where the greatest level of ridership is experienced and service provided, generally between 4 p.m. and 6 p.m.

Term	Definition
Project variant	Several options or "project variants" are under consideration by the SFMTA to allow for flexibility in the phasing and implementation of the TEP. Proposed Service Improvement variants would modify portions of routes or change the type of vehicle used on routes. TTRP variants would modify the locations of one or more TPS Toolkit elements along the corridor. For areas where more than one variant is proposed, only one variant would be implemented.
Protected turn	At signalized intersections, where traffic from a dedicated turn lane is shown green arrow to indicate when vehicles may safely complete that turn while being protected from conflicting vehicles and pedestrians.
Queue jump	A type of roadway geometry and striping that allows transit vehicles to move around vehicles stopped at an intersection, could be combined with a special signal phase to allow transit vehicles to proceed through the intersection in advance of general traffic. See also "bypass lane."
Rapid Network	Frequent, heavily used bus routes and rail lines that make up the backbone of the Muni system.
Real-Time arrival signage	LED panels in transit shelters that provide next arrival and emergency messaging; however, these units are also sparingly used to advise customers of service and event-related information and other topics of importance, such as major issues and public input opportunities.
Right-of-way	A right-of-way is a strip of land that is granted, through an easement or other mechanism, for transportation purposes, such as for a pedestrian path, sidewalk, driveway, rail line or highway.
Route	A specified path taken by a transit vehicle usually designated by a number or a name, along which customers are picked up or discharged.
Service Improvements	Network restructuring that includes the creation of new routes, changes to route alignment, elimination of underutilized existing routes or route segments, changes to the frequency and hours of transit service, changes to transit vehicle type on specific routes, changes to mix of local/limited/express services on specific routes.
Service management	Improving service delivery on Muni by vehicle and infrastructure maintenance, operator availability, supervision, and traffic management.
Service Policy Framework	Policies and action items for implementing future transit service changes, including changes proposed as part of the TEP.

Term	Definition
Service reliability	How often transit vehicles meet planned schedules of stops.
Service-related Capital Improvements	Physical improvements to the transit system that support, or are in some cases necessary, to implement the TEP Service Improvements, including Terminal and Transfer Point Improvements (TTPI), Overhead wire expansions (OWE), and Systemwide Capital Infrastructure (SCI).
Sidewalk widening	Where the width of the pedestrian right-of-way is increased at the expense of a street or other transportation right-of-way.
sight distance	The distance from which an object at eye level remains visible to an observer. Stopping sight distance is defined as the distance needed for drivers to see an object on the roadway ahead and bring their vehicles to a safe stop before colliding with the object.
Span of Service	The span of hours over which service is operated (e.g., 6 a.m. to 10 p.m.). Service span often varies by weekday, Saturday, or Sunday.
State of Good Repair	Federal Transportation Agency (FTA) defined program that seeks to improve the condition of transit capital assets in order to improve transit performance and reliability.
State of Good Repair Investment	An SFMTA project that replaces or rehabilitates transportation capital assets in order to improve the condition of capital assets and improve system performance and reliability.
Stop spacing	The distance between consecutive transit stops. If a bus stop occurs on every block, the stop spacing is every block.
Supplemental service	Service provided that is not daily or weekly. Examples of supplemental service include bus service for professional sports games, or school-day only services for middle schools and high schools. [See http://www.sfmta.com/getting-around/transit/schedules-trip-planners/supplemental-services]
Switches	A switch is a mechanical installation enabling LRVs or Trolley Coaches to be guided from one track or set of overhead wires to another, such as at a railway junction or where a spur or siding branches off.
Terminal	The point where a transit route starts or ends, where vehicles stop, turn or reverse, and wait before departing on their return journeys.
Tow-away Zone	A lane in which private vehicles, if stopped or parked, can be removed and the owners fined.

Term	Definition
Traffic calming measure	Roadway devices or practices that encourage drivers to proceed slowly through the use of visual or actual roadway narrowings, horizontal or vertical shifts in the roadway, or other features.
Traffic circle	Generally circular raised areas in the center of an intersection that force vehicles to go slowly around them, provide space for landscaping, and slow traffic by visually narrowing the roadway.
Traffic Control Device	These include markings, signs, and signal devices used to inform, guide and control the orderly, uniform and efficient movement of all roadway users.
Transfer	A point or location where two or more transit routes come together at the same time to allow passengers to efficiently connect between intersecting transit routes. A short layover may be provided at timed transfer points to enhance the connection.
Transit boarding island	Raised area with a transit stop within the roadway that provides a safe place for customers to board and alight, allowing transit vehicles to use center lanes without having to pull over to the side of the roadway for customers to board.
Transit bulb	Curb extension at a transit stop designated for passengers to wait for, board to and alight from transit vehicles. A transit bulb allows transit vehicles to board and alight passengers without pulling in and out of traffic.
Transit service efficiency	A measure of how quickly transit trips are completed, how many transit rides are offered, and the cost to provide transit rides.
Transit signal priority	A name for various techniques to speed up transit at intersections with traffic signals. Transit vehicles signal their impending arrival via radio systems and, on their arrival at the intersection, receive green lights.
Transit stop	Where transit vehicles cease movement to permit customers to alight and board.
Transit stop changes	Transit stop changes adjust the size, location, or type of a transit stop. Transit stop changes reduce travel time by changing the distance between stops, making boarding and alighting easier for customers, reducing transit dwell time, and/or reducing the time it takes for a transit vehicle to move in and out of traffic.
Transit travel time	A measure of the amount of time for transit vehicles to move between two points along a transit route.

Term	Definition
Transit Travel Time Reduction Proposals (TTRP)	The transit corridors along which TPS Toolkit elements are proposed to be applied are 17 of the Rapid Network Corridors.
Transit vehicle	A vehicle used for public mass transit, including Cable Cars, LRVs, Motor Coaches, Hybrid electric/diesel motor coaches, Streetcars, and Trolley Coaches.
Transit zone	A zone along a curb where no vehicles aside from transit vehicles may stop or park, and where the transit vehicle allows passengers to board and alight. A transit zone allows room for a transit vehicle to approach a curb for customer boarding and alighting.
Transit-only lane	A travel lane that is dedicated for the exclusive use of transit vehicles (with some exceptions for taxis).
Travel lane	The right of way in which a vehicle may travel.
Trolley coach	Trolley buses (also known as "trolley coaches" or "trackless trolleys") are rubber-tired vehicles with motors powered by electricity from overhead wires. "Trolley" refers to the trolley poles on the roof of the bus that are used to transmit the electricity from the overhead wires. Thus, "Electric trolley bus" is a redundant term, but must be used occasionally to differentiate real trolley buses from the faux trolley cars and cable cars that are actually small buses.
Turn lane	A secondary lane from which a turn may be made. Contrast with a no-turn lane.
Turn pocket	A short zone carved out of a lane or curb parking, permitting vehicles to make a turn at a given intersection. Most often used to prevent turning vehicles from blocking non-turning vehicles.
Turn Restrictions	Signs limiting vehicles from turning, which reduces the blockage of transit vehicles and other traffic. Turn restrictions can be part-time or full-time.
v/c ratio	The ratio of flow rate to capacity for a transportation facility.
Wayfinding signage	Directional signage located on the sidewalk, used to help pedestrians orient themselves and locate nearby destinations

SUMMARY

S.1 INTRODUCTION

This chapter presents a summary of the proposed Policy Framework and the Transit Effectiveness Project ("TEP") referred to in this section as the "proposed project", and the environmental impacts that could result from its implementation. It includes the following: 1) a synopsis of the proposed project; 2) a summary table listing the impacts identified and discussed in the Draft EIR (DEIR) and mitigation measures that may reduce the significant impacts, and improvement measures to further reduce less-than-significant impacts; 3) a summary table listing the significant impacts identified in the Initial Study for the proposed project and the mitigation measures included in the proposed project to reduce those impacts to a less-than-significant level; 4) a summary of the alternatives analyzed in the DEIR; and 5) areas of known controversy associated with the impacts, mitigation measures, and alternatives and the issues to be resolved by the decision-making bodies.

This summary should not be relied upon for a thorough understanding of the Policy Framework or the TEP or their significant impacts and mitigation measures. For a detailed description of the proposed project, please see Chapter 2, Project Description. For a discussion of the potential transportation and circulation, air quality, noise and vibration impacts, and mitigation measures that have been identified to reduce some of the significant impacts that could result from the proposed project, please see Chapter 4, Environmental Setting, Impacts, and Mitigation. All other environmental topics were fully addressed in the Initial Study, which is presented in Appendix 2 to the EIR and provided on the Appendix CD enclosed with the Draft EIR.

S.2 PURPOSE OF AND APPROACH TO ENVIRONMENTAL ANALYSIS

This EIR for the TEP has been prepared by the San Francisco Planning Department (Planning Department) as the Lead Agency for administering the environmental review of the proposed project, in conformance with the provisions of the California Environmental Quality Act (CEQA),[1] the *CEQA Guidelines*,[2] and Chapter 31 of the San Francisco Administrative Code.

An Initial Study may be prepared to eliminate some areas of potential impact from further review, if the analysis in the Initial Study supports a determination that the impacts in a particular topic would be less than significant or if mitigation measures included in the project would reduce significant impacts to less-than-significant levels. These topics can then be

[1] California Public Resources Code, § 21000 *et seq*.

[2] California Code of Regulations, Title 14, § 15000 *et seq*, (hereinafter "*CEQA Guidelines*").

eliminated from discussion in the EIR. The Initial Study for the TEP, provided in Appendix 2 to the EIR, determined that the only potentially significant impacts of the TEP would be in the areas of transportation and circulation, noise and vibration, and air quality. Therefore, these are the environmental topics addressed in detail in Chapter 4, Environmental Setting, Impacts, and Mitigation.

The TEP has been analyzed at both a program level and a project level in this EIR pursuant to *CEQA Guidelines* §§ 15161 and 15168.[3] As discussed in more detail below in Chapter 1, when portions of a proposed plan or program of phased projects have been defined at different levels of detail, CEQA allows a program-level environmental review of those components for which sufficient detail is not available to prepare a project-specific analysis of impacts. In these cases, further environmental review may be required in the future once project-level details are developed. A program-level EIR is useful in certain cases because it provides the opportunity to evaluate the overall impacts of a proposed project, program, or plan for an area larger than is generally practical or appropriate for an individual site-specific project. It allows an agency to consider policy implications of areawide mitigation measures earlier than with specific development proposals and provides an analysis of cumulative impacts on an areawide basis. Details of some TEP components are known such that a project-level impact analysis for all environmental topics has been conducted; in cases where sufficient level of detail is not known, the TEP components are analyzed at a program level. Further, certain components of the TEP include enough detail such that for some environmental topics a project-level analysis has been conducted, while for the remaining topics a program-level analysis has been conducted.

S.3 PROJECT SYNOPSIS

This EIR analyzes the San Francisco Municipal Transportation Agency's (SFMTA) proposed transit Service Policy Framework (Policy Framework) as well as the physical environmental impacts of a group of projects in the TEP. The TEP is comprised of Service Improvements and variants to some Service Improvements (called "Service Variants"), Service-related Capital Improvements, and Travel Time Reduction Proposals (TTRPs), some of which also have TTRP Variants. Some TEP components have been fully defined and are described and analyzed at a project-level of detail; others, such as some of the TTRPs, have been generally defined but not fully designed and are described at a program-level of detail. Pursuant to

[3] *CEQA Guidelines* § 15168 states that a program EIR may be prepared on a series of actions that can be characterized as one large project and are related either (i) geographically; (ii) as logical parts in the chain of contemplated actions; (iii) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (iv) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

CEQA Guidelines §§ 15161 and 15168, this EIR draws on both program- and project-levels of analysis to assess the physical environmental effects of the proposed project. The proposed project components are described below.

Service Policy Framework

The SFMTA proposes a transit Policy Framework that sets forth transit service delivery objectives and identifies actions needed to fulfill these objectives. The objectives in the Policy Framework support the SFMTA Strategic Plan goals, which set forth the vision, mission, goals and objectives of the Agency, including providing a faster and more reliable transit system in support of the City's Transit First Policy.[4] The Policy Framework is intended to guide the planning and implementation of the TEP and future Muni plans and programs. Its objectives include the effective allocation of transit resources, the efficient delivery of service, the improvement of service reliability and reduction in transit travel time, and an improvement in customer service. A variety of actions are identified to implement these objectives.

The Policy Framework would organize Muni transit service into the following four distinct service types.

- **Rapid Network:** These frequent, heavily used bus routes and rail lines make up the backbone of the Muni system and would be high priorities for service and customer amenity enhancements.

- **Local Network:** These bus routes complement and connect to the Rapid Network to create the core network, allowing passengers to get to most destinations in San Francisco with no more than one transfer.

- **Community Connectors:** This category includes lightly-used bus routes that circulate through San Francisco's hillside residential neighborhoods to fill in gaps in coverage and connect passengers to the core network.

- **Specialized Services:** These routes augment all-day service to address focused transit needs. They include commuter express routes, and connections to Bay Area Rapid Transit (BART) and Caltrain stations, and special weekend football service.

[4] San Francisco Municipal Transportation Agency, *SFMTA Strategic Plan, FY2013-FY2018* January 3, 2012. Available online at: http://www.sfmta.com/about-sfmta/reports/sfmta-strategic-plan-fy-2013-fy-2018. Accessed June 4, 2013.

The Policy Framework would direct citywide allocation of transit resources and is intended to improve system reliability and reduce transit travel time as well as improve customer service.

Service Improvements

The SFMTA conducted a comprehensive evaluation of transit service and extensive outreach with critical stakeholders and policy to assess network restructuring that examined route and line performance, travel time, reliability, and ridership throughout the Muni system. As a result of this process, a final set of Service Improvements was developed; they are analyzed at a project level in this EIR. The SFMTA is proposing to add up to 350,000 service hours on an annual basis to the 2011 baseline service hours (approximately 3,500,000) as part of the proposed Service Improvements. These proposed Service Improvements include the following:

- Creation of new routes.
- Changes to route alignment.
- Elimination of underutilized existing routes or route segments.
- Changes to the frequency and hours of transit service.
- Changes to transit vehicle type on specific routes.
- Changes to mix of local/limited/express services on specific routes.
- Other changes, such as new express service stops, expansion of limited-stop service on weekends, and the expansion of other service on weekends such as an additional day of service.

A number of variants to these service changes, referred to as Service Variants, are proposed to allow for flexibility in the phasing and implementation of the Service Improvements. Proposed Service Variants would modify portions of some routes or change the type of vehicle used on some routes. Both the Service Improvements and Service Variants are being analyzed at a project level.

Service-Related Capital Improvements

Many of the Service Improvements and Service Variants can be implemented without capital infrastructure changes or investments. However, some of the service changes are dependent on or would be enhanced by Service-related Capital Improvements. These projects fall into three categories:

- **Terminal and Transfer Point Improvements (TTPI).** Terminal and transfer points are stops that accommodate substantial passenger interchanges and/or transit vehicle layovers. Some of the TEP route changes would require passengers to transfer at new locations and/or additional buses to layover at existing stops. The TEP proposes four TTPI projects. The TTPI projects would include some or all of the following: the installation of new switches, bypass rails (for the E-Line), transit bulbs, and overhead wiring and poles and associated underground wiring; the expansion of transit zones for bus layovers; the reconfiguration or elimination of on-street parking; and possible sidewalk modifications.

- **Overhead Wire Expansion (OWE).** OWE projects would include the installation of additional overhead wires and related infrastructure (e.g., support poles up to 30-feet in height and conduit) for certain electric trolley coach routes. OWE projects would support service route changes by allowing Muni to use electric trolley coaches on additional streets and would make it possible for trolley coaches to pass one another on existing trolley coach routes.

- **Systemwide Capital Infrastructure (SCI).** The two SCI projects under the TEP would include the installation of new accessible platforms to improve system accessibility across the light rail network and the extension of an existing "transit-commercial" contraflow[5] lane on Sansome Street to optimize bus routing and reduce transit travel time.

The Service-related Capital Improvements are analyzed at either a program level or project level in this EIR. Capital projects for which specific designs and locations have not yet been developed are evaluated at a program-level. Capital projects with sufficiently detailed designs are analyzed at a project level.

Travel Time Reduction Proposals

Research conducted by the SFMTA during the initial planning phase of the TEP identified the following as major causes of transit delay: intersection congestion, traffic congestion on roadways, narrow mixed-flow lanes, and closely spaced transit stops. Other sources of transit delay identified in the research were associated with dwell time,[6] traffic signals, and transit zone operational delays. The SFMTA has identified a set of 18 standard traffic engineering elements that address these issues and can reduce transit travel time when

[5] In this instance, contraflow refers to the reversal of a lane of traffic from what was previously a one-way street; transit and commercial vehicles would be the only vehicles that would travel both ways on the street.

[6] Dwell time is the time a transit vehicle waits at a transit stop while customers board and alight.

applied to streets along a transit corridor. A number of these elements have already been applied by the SFMTA as part of its ongoing Transit Preferential Streets (TPS) Program and would continue to be used on segments of the Muni system for projects other than those included in the TEP. These elements are collectively referred to as the TPS Toolkit. The TPS Toolkit elements are grouped into five categories based on the types of roadway changes involved: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, Traffic Signal and Stop Sign Changes, and Pedestrian Improvements. SFMTA is proposing to apply the TPS Toolkit to 17 Rapid Network corridors throughout the City.

- Using the TPS Toolkit, the SFMTA has developed specific corridor designs for 11 of the 17 proposed TTRP corridors:[7] TTRP.J on the Church and 30th streets and San Jose Avenue corridors; TTRP.L along the Taraval Street corridor between 15th and 46th avenues; TTRP.N along Carl, Irving and Judah streets; TTRP.5 along the Fulton and McAllister streets corridor; TTRP.8X on the southern portion of the 8X Bayshore Express bus route on the San Bruno, Visitacion, and Geneva avenues corridors; TTRP.9 on the 11th and Division streets, Potrero Avenue, and Bayshore Boulevard corridors; TTRP.14 on the Mission Street corridor; TTRP.22_1 along the 16th Street corridor; TTRP.28 along the 19th Avenue corridor; TTRP.30_1 on the Van Ness Avenue, North Point Street, Columbus Avenue, Stockton Street, and Kearny Street corridors for the 30 Stockton bus route, portions of which are also used by the 8X Bayshore Express and 45 Union-Stockton routes; and TTRP.71_1 along the Haight Street corridor. Therefore, the design details to conduct project-level analysis are known and these corridors are being analyzed at a project level in this environmental review. There are variants to the design of three of the project-level TTRPs that change the TPS Toolkit elements applied in some locations along the corridors.

  For each of the project-level TTRPs, a range of treatments is described with different applications TPS Toolkit elements, bracketed by: 1) a moderate option referred to as the TTRP Moderate Alternative; and 2) an expanded option referred to as the TTRP Expanded Alternative. These two alternatives are described and analyzed at an equal level of detail, as described below.

[7] Since publication of the Draft EIR, three TTRPs analyzed at a program level in the Draft EIR have been designed and a project-level analysis has been conducted and incorporated into the EIR in addition to the program-level analysis, which remains; the three TTRPs are TTRP.L, TTRP.9, and TTRP.71.1.

- In addition, the TPS Toolkit will be used to develop the remaining six of the 17 designs for the program-level TTRPs pending further development and public outreach. Therefore, the site-specific placement of the TPS Toolkit elements on these six corridors has not been identified, and these TTRP corridors are generally analyzed at a program level in this environmental review. However, many of the physical environmental impacts of TPS Toolkit elements would be the same regardless of their specific location along a corridor; therefore, the impacts of the TPS Toolkit elements are for the most part analyzed at a project level.

  The TEP project area includes locations throughout the 49-square-mile City and County of San Francisco. The existing Muni system is located primarily within the public right-of-way. The various TEP components would be implemented on public land and within the public

right-of-way throughout the City, which are largely under the jurisdiction of the San Francisco Department of Public Works (DPW) and the SFMTA.

S.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A Notice of Preparation of an EIR and Notice of Public Scoping Meetings was issued by the Planning Department on November 9, 2011. Two public scoping meetings were held on December 5 and 6, 2011 to receive public input as to the scope of the analysis of environmental impacts of the proposed project.

An Initial Study was prepared and a Notice of Availability of the Initial Study was distributed on January 23, 2013. The Initial Study determined that the proposed project would have either no impact, a less-than-significant impact, or a less-than-significant impact with implementation of mitigation measures in the following environmental topic areas: Land Use and Land Use Planning; Aesthetics; Population and Housing; Cultural and Paleontological Resources; Greenhouse Gas Emissions; Wind and Shadow; Recreation; Utilities and Service Systems; Public Services; Biological Resources; Geology and Soils; Hydrology and Water Quality; Hazards and Hazardous Materials; Mineral and Energy Resources; and Agricultural and Forest Resources. These topics require no further environmental analysis. A copy of the Initial Study is provided in Appendix 2 to the EIR (on the Appendix CD that accompanies this EIR).

Based on the analysis in the Initial Study, the following topics are analyzed in detail in the EIR: Transportation and Circulation, Noise and Vibration, and Air Quality. The analysis in each topic section identifies environmental impacts and the level of significance of each impact using the following terms:

- **Less-Than-Significant Impact** – Impact that does not exceed the defined significance criteria or would be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and/or federal laws and regulations.

- **Less-Than-Significant Impact with Mitigation** – Impact that is reduced to a less-than-significant level through implementation of the identified mitigation measure(s).

- **Significant and Unavoidable Impact with Mitigation** – Impact that exceeds the defined significance criteria and can be reduced through compliance with existing local, state, and federal laws and regulations and/or implementation of all feasible mitigation measures, but cannot be reduced to a less-than-significant level.

- **Significant and Unavoidable Impact** – Impact that exceeds the defined significance criteria and cannot be eliminated or reduced to a less-than-significant level through

compliance with existing local, state, and federal laws and regulations and for which there are no feasible mitigation measures.

Cumulative impacts are discussed in a separate subsection of each topic following the complete analysis of the proposed project for that topic.

As described above, the SFMTA proposes a Policy Framework for its transit service. The Policy Framework is a policy document with objectives and actions developed to guide the provision of reliable and efficient transit service throughout the City. As such, the Policy Framework would not result in direct physical changes to the environment for any of the environmental topics analyzed in the environmental review for the TEP. Indirect physical effects of the Policy Framework would result from the implementation of projects developed pursuant to these policies. The TEP projects described in detail in Chapter 2 provide a good representative example of the types of projects, both in size and scope that may be proposed under the Policy Framework. Thus, the analysis of these currently proposed projects informs the analysis of the potential indirect effects of the Policy Framework. Table S-1 presents a summary of the impacts of the Policy Framework and TEP projects and any mitigation measures or improvement measures identified to reduce significant impacts, and provides determinations as to the level of significance before and after mitigation.

Table S-1: Summary of Impacts of Proposed Project Identified in EIR

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Transportation and Circulation			
TR-1: Implementation of the Service Policy Framework and the TEP project components would not result in construction-related transportation impacts because of their temporary and limited duration.	Less than Significant	**Improvement Measure I-TR-1: Construction Measures** During the construction of all TEP projects, the SFMTA shall require the following: 1) Construction contractors shall be prohibited from scheduling any truck trips, such as concrete mixers, heavy construction equipment and materials delivery, etc., to the construction sites during the a.m. (7 to 9 a.m.) and p.m. (4 to 6 p.m.) peak commute periods. 2) All construction activities shall adhere to the provisions in the City of San Francisco's Regulations for Working in San Francisco Streets (Blue Book), including those addressing sidewalk and lane closures. To minimize construction impacts on nearby businesses and residents, the SFMTA shall alert motorists, bicyclists, and nearby property owners of upcoming construction through its existing website and other available means, such as distribution of flyers, emails, and portable message or informational signs. Information provided shall include contact name(s) for the SFMTA project manager, public information officer, and/or the SFMTA General Enforcement Division contact number (311). 3) Construction contractors shall encourage construction workers to use carpooling and transit to the construction site in order to minimize parking demand.	Less than Significant
TR-2: Implementation of the Service Policy Framework Objectives A through D would not result in significant impacts to local or regional transit, traffic operations, pedestrians and bicyclists, loading, emergency vehicle access, or parking.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-3: Implementation of the Policy Framework Objective A, Action A.3, and Objective C, Actions C.3 through C.5 may result in significant traffic impacts.	Significant	Implement **Mitigation Measure M-TR-8: Optimization of Intersection Operations**, described below on p. S-12. Because this measure may not be adequate to mitigate intersection traffic operations to less-than-significant levels, and because the feasibility of providing additional vehicle capacity is unknown, and it is not always possible to optimize the intersection such that level of service falls below LOS E, the impact on traffic operations would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
TR-4: Implementation of the Policy Framework Objective A, Actions A.1, A.2 and A.4, Objective B, Actions B.1 through B.4, Objective C, Actions C.1 and C.2, and Objective D, Actions D.1 through D.4 would not result in significant traffic impacts.	Less than Significant	None required.	
● **TR-5:** Implementation of the Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5 may result in significant loading impacts.	Significant	Implementing **Mitigation Measure M-TR-10: Provision of Replacement Commercial Loading Spaces** and **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described below on p. S-13 and p. S-25, respectively, could reduce the indirect loading impacts of the Policy Framework as represented by theTTRPs to a less-than-significant level. However, in some locations with a high volume of loading demand, and at locations where mitigation is incompatible with the proposed improvement, or where roadway geometry precludes implementation of mitigation, these indirect commercial loading impacts may not be reduced to a less-than-significant level with Mitigation Measure M-TR-10. And because the effectiveness and feasibility of the use of camera video enforcement on the new transit-only lanes is not known, these indirect commercial loading impacts may not be reduced to a less-than-significant level with Mitigation Measure M-TR-48.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-6: Implementation of the Policy Framework Objective A, Actions A.1, A.2 and A.4, Objective B, Actions B.1 through B.4, Objective C, Actions C.1 and C.2, and Objective D, Actions D.1 through D.4 would not result in significant loading impacts.	Less than Significant	None required.	
TR-7: Implementation of all of the TPS Toolkit categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, Traffic Signal and Stop Sign Changes, and Pedestrian Improvements, would not result in significant impacts to local or regional transit, pedestrians and bicycles, emergency vehicle access, or parking.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-8: Implementation of the following TPS Toolkit categories: Lane Modifications and Pedestrian Improvements may result in significant traffic impacts.	Significant	**Mitigation Measure M-TR-8: Optimization of Intersection Operations** The final design of program-level TTRPs that include TPS Toolkit elements from the Lane Modifications and Pedestrian Improvements categories shall integrate design elements from the following intersection geometries and traffic control measures to the greatest extent feasible without compromising the purpose of the project. Potential intersection geometry optimization measures include left or right turn pockets, turn prohibitions, restriping to add additional mixed-flow capacity, lane widening to provide for transit-only or mixed-flow lanes, and parking prohibitions. Potential traffic control measures include signalization, exclusive signal phases, and changes to the signal cycle. The final design shall ensure that transit, pedestrian, and bicycle travel are accommodated, is within the confines of feasible traffic engineering solutions, and does not conflict with overall City policies related to transportation. Because this measure may not be adequate to mitigate intersection traffic operations to less-than-significant levels, and because the feasibility of providing additional vehicle capacity is unknown, and it is not always possible to optimize the intersection such that level of service falls below LOS E, the impact on traffic operations would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
TR-9: Implementation of the following TPS Toolkit categories: Transit Stop Changes, Parking and Turn Restrictions, and Traffic Signal and Stop Sign Changes, would not result in significant traffic impacts.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-10: Implementation of the following TPS Toolkit categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements, may result in significant loading impacts.	Significant	**Mitigation Measure M-TR-10: Provision of Replacement Commercial Loading Spaces** Where feasible, the SFMTA shall install new commercial loading spaces of similar length on the same block and side of the street, or within 250 feet on adjacent side streets, of where commercial loading spaces would be permanently removed, in order to provide equally convenient loading space(s). These loading spaces shall only be replaced on streets with commercial uses. Implementation of this Mitigation Measure could reduce the cumulative loading impacts of these TPS Toolkit categories to a less-than-significant level. However, in some locations with a high volume of loading demand, and at locations where mitigation is incompatible with the proposed improvement, or where roadway geometry precludes implementation of mitigation, these commercial loading impacts may not be reduced to a less-than-significant level.	Significant and Unavoidable with Mitigation
TR-11: Implementation of TPS Toolkit element category Traffic Signal and Stop Sign Changes would not result in significant loading impacts.	Less than Significant	None required.	
TR-12 Implementation of program-level Service-related Capital Improvements projects (TTPI.2, TTPI.3, TTPI.4, OWE.6, and SCI.1) would not result in significant impacts to local or regional transit, traffic operations, pedestrians and bicyclists, loading, emergency vehicle access, or parking.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-13: Implementation of any of the TPS Toolkit categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, Traffic Signal and Stop Sign Changes, and Pedestrian Improvements along the nine program-level TTRP corridors would not result in significant impacts to local or regional transit, pedestrians and bicyclists, emergency vehicle access, or parking.	Less than Significant	None required.	
TR-14: Implementation of TPS Toolkit elements within the following categories: Lane Modifications and Pedestrian Improvements, along the program-level TTRP corridors may result in significant traffic impacts.	Significant	Implement **Mitigation Measure M-TR-8: Optimization of Intersection Operations**, described above on p. S-12. Because this measure may not be adequate to mitigate intersection traffic operations to less-than-significant levels, and because the feasibility of providing additional vehicle capacity is unknown, and it is not always possible to optimize the intersection such that level of service falls below LOS E, the impact on traffic operations would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
TR-15: Implementation of any TPS Toolkit elements within the following categories: Transit Stop Changes, Parking and Turn Restrictions, and Traffic Signal and Stop Sign Changes, along the program-level TTRP corridors would not result in significant impacts on traffic operations.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-16: Implementation of the following TPS Toolkit categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements, along the program-level TTRP corridors may result in significant loading impacts.	Significant	Implementation of **Mitigation Measure M-TR-10: Provision of Replacement Commercial Loading Spaces**, described above on p. S-13, could reduce the loading impacts of these TPS Toolkit categories to a less-than-significant level. However, in some locations with a high volume of loading demand, and at locations where mitigation is incompatible with the proposed improvement, or where roadway geometry precludes implementation of mitigation, these indirect commercial loading impacts may not be reduced to a less-than-significant level.	Significant and Unavoidable with Mitigation
TR-17: Implementation of any of the TPS Toolkit elements within the category Traffic Signal and Stop Sign Changes along the program level TTRP corridors would not result in significant loading impacts.	Less than Significant	None required.	
TR-18: Implementation of the Service Improvements or Service Variants would not result in significant impacts to local or regional transit, traffic operations, pedestrians and bicyclists, loading, emergency vehicle access, or parking.	Less than Significant	None required.	
TR-19: Implementation of the project-level Service-related Capital Improvement projects (TTPI.2, OWE.1, OWE.2, OWE.3, OWE.4, OWE.5, and SCI.2) would not result in significant impacts to local or regional transit, traffic operations, pedestrians and bicyclists, loading, emergency vehicle access, or parking.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-20:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1, TTRP.14 Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1 would not result in significant impacts to local or regional transit.	Less than Significant	None required.	
● **TR-21:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1 would not result in significant impacts to local or regional transit.	Less than Significant	None required.	
● **TR-22:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1, TTRP.14 Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP_71.1 would have less-than-significant traffic impacts at 78 study intersections.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-23:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.28_1, or TTRP.71_1 would have less-than-significant traffic impacts at 40 study intersections.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-24: Implementation of the project-level TTRP.14 Expanded Alternative would result in a significant traffic impact at the intersection of Randall Street/San Jose Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.14 Expanded Alternative conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-25: Implementation of the project-level TTRP.14 Expanded Alternative would have less-than-significant traffic impacts at 19 study intersections under Existing plus Service Improvements and the TTRP.14 Expanded Alternative conditions.	Less than Significant	None required.	
TR-26: Implementation of the project-level TTRP.22_1 Expanded Alternative would result in a significant traffic impact at the intersection of 16th/Bryant streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions.	Significant	**Mitigation Measure M-TR-26: Intersection Restriping at 16th/Bryant streets.** The SFMTA shall reconfigure the proposed changes at the intersection of 16th/Bryant streets converting the westbound approach of 16th Street at Bryant Street from what is proposed to be a shared through-right turn lane to a through lane and a dedicated right-turn pocket adjacent to the through lane, and reconfigure the eastbound approach from what is proposed to be a separate through lane and a dedicated right-turn pocket adjacent to the through lane to a shared through/right lane. Because implementation of Mitigation Measure M-TR-26 would not improve intersection operations to LOS D or better during the p.m. peak hour, traffic impacts at the intersection of 16th/Bryant streets would remain significant and unavoidable even with mitigation.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-27: Implementation of the project-level TTRP.22_1 Expanded Alternative would result in a significant traffic impact at the intersection of 16th Street/Potrero Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-28: Implementation of the project-level TTRP.22_1 Expanded Alternative would result in a significant traffic impact at the intersection of 16th/Seventh streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-29: Implementation of the project-level TTRP.22_1 Expanded Alternative would have less-than-significant traffic impacts at six study intersections that would operate at LOS D or better under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-30: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of 16th/Bryant streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 conditions.	Significant	Implement **Mitigation Measure M-TR-26: Intersection Restriping at 16th/Bryant streets**, described above on p. S-17. Because implementation of Mitigation Measure M-TR-26 would not improve intersection operations to LOS D or better during the p.m. peak hour, traffic impacts at the intersection of 16th/Bryant streets would remain significant and unavoidable even with mitigation.	Significant and Unavoidable with Mitigation
TR-31: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of 16th Street/Potrero Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-32: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of 16th/Seventh streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-33: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 1 would have less-than-significant traffic impacts at six study intersections that would operate at LOS D or better under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 conditions.	Less than Significant	None required.	
TR-34: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of 16th/Bryant streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions.	Significant	Implement **Mitigation Measure M-TR-26: Intersection Restriping at 16th/Bryant streets**, described above on p. S-17. Because implementation of Mitigation Measure M-TR-26 would not improve intersection operations to LOS D or better during the p.m. peak hour, traffic impacts at the intersection of 16th/Bryant streets would remain significant and unavoidable even with mitigation.	Significant and Unavoidable with Mitigation
TR-35: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of 16th Street/Potrero Avenue that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-36: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of 16th/Seventh streets that would operate at LOS E or LOS F conditions under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-37: Implementation of the project-level TTRP.22_1 Expanded Alternative Variant 2 would have less-than-significant traffic impacts at six study intersections that would operate at LOS D or better under Existing plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 conditions.	Less than Significant	None required.	
TR-38: Implementation of the project-level TTRP.30_1 Expanded Alternative would result in a significant traffic impact at the intersection of Columbus Avenue/Green Street/Stockton Street that would operate at LOS E conditions under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-39: Implementation of the project-level TTRP.30_1 Expanded Alternative would have less-than-significant traffic impacts at nine study intersections that would operate at LOS D or better under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative conditions.	Less than Significant	None required.	
TR-40: Implementation of the project-level TTRP.30_1 Expanded Alternative Variant 1 would result in a significant traffic impact at the intersection of Columbus Avenue/Green Street/Stockton Street that would operate at LOS E conditions under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 1 conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-41: Implementation of the project-level TTRP.30_1 Expanded Alternative Variant 1 would have less-than-significant traffic impacts at nine study intersections that would operate at LOS D or better under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 1 conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
TR-42: Implementation of the project-level TTRP.30_1 Expanded Alternative Variant 2 would result in a significant traffic impact at the intersection of Columbus Avenue/Green Street/Stockton Street that would operate at LOS E conditions under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 2 conditions.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
TR-43: Implementation of the project-level TTRP.30_1 Expanded Alternative Variant 2 would have less-than-significant traffic impacts at nine study intersections that would operate at LOS D or better under Existing plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 2 conditions.	Less than Significant	None required.	
● **TR-44:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1, TTRP.14 Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1 would not result in significant impacts to pedestrians and bicyclists.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-45:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1 Expanded Alternative, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1 would not result in significant impacts to pedestrians and bicyclists.	Less than Significant	None required.	
● **TR-46:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.22_1, TTRP.28_1, or TTRP.71_1 would not result in significant loading impacts.	Less than Significant	None required.	
● **TR-47:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, or TTRP.71_1 would not result in significant loading impacts.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-48:** Implementation of project-level TTRP.14 Moderate Alternative Variant 1 would result in a reduction in on-street commercial loading supply on Mission Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	**Mitigation Measure M-TR-48: Enforcement of Parking Violations.** On streets where implementation of project-level TTRPs would result in a net reduction of on-street commercial loading spaces, the SFMTA shall enforce parking regulations in transit-only lanes through the use of video cameras on transit vehicles and/ or other parking enforcement activities. With implementation of this Mitigation Measure, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
● **TR-49:** Implementation of project-level TTRP.14 Moderate Alternative Variant 2 would result in a reduction in on-street commercial loading supply on Mission Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	With implementation of **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described above, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-50:** Implementation of project-level TTRP.14 Expanded Alternative would result in a reduction in on-street commercial loading supply on Mission Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	With implementation of **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described above on p. S-25, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
● **TR-51:** Implementation of project-level TTRP.30_1 Moderate Alternative would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	With iImplementation of **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described above on p. S-25, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-52:** Implementation of project-level TTRP.30_1 Expanded Alternative would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	With implementation of **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described above on p. S-25, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
● **TR-53:** Implementation of project-level TTRP.30_1 Expanded Alternative Variant 1 would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	With implementation of **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described above on p. S-25, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-54:** Implementation of project-level TTRP.30_1 Expanded Alternative Variant 2 would result in a reduction in on-street commercial loading supply on Stockton Street such that the existing loading demand during the peak hour of loading activities could not be accommodated within on-street loading supply and may create a potentially hazardous condition or significant delay that may affect traffic, transit, bicycles, or pedestrians.	Significant	With implementation of **Mitigation Measure M-TR-48: Enforcement of Parking Violations**, described above on p. S-25, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, impacts on this corridor would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
● **TR-55:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1, TTRP.14 Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1 would not result in significant impacts on emergency vehicle access.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **TR-56:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1 would not result in significant impacts on emergency vehicle access.	Less than Significant	None required.	
● **TR-57:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1, TTRP.14 Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1 would not result in a significant parking impact.	Less than Significant	None required.	
● **TR-58:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1 would not result in a significant parking impact.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-1: The Service Policy Framework and Service Improvements or Service Variants, in combination with past, present and reasonably foreseeable development in San Francisco, would contribute considerably to a significant cumulative impact on transit, resulting in an exceedance of Muni's capacity utilization standard on the Mission corridor within the Southeast screenline of the Downtown screenlines under 2035 Cumulative plus Service Improvements only conditions.	Significant	**Mitigation Measure M-C-TR-1: SFMTA Monitoring of Muni Service** The SFMTA, shall, to the extent feasible and consistent with annual budget appropriations, continue to monitor Muni service citywide, reporting as required on service goals, including the capacity utilization standard, and where needed, and as approved by decision makers and under budgetary appropriations, strive to improve upon Muni operations, including peak hour transit capacity on screenlines and corridors. Implementation of this Mitigation Measure would reduce the cumulative impact on the affected corridor to a less-than-significant level. However, because the SFMTA cannot commit to future funding appropriations nor be certain of its ability to provide additional service citywide to maintain the capacity utilization standard, among other service goals, the feasibility of this mitigation measure is uncertain, and the cumulative impact on transit would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-2: The Service Policy Framework, TPS Toolkit elements as applied in the program-level TTRP corridors, and the Service Improvements with the TTRP Moderate Alternative, in combination with past, present and reasonably foreseeable development in San Francisco, would contribute considerably to significant cumulative impacts on transit, resulting in exceedances of Muni's capacity utilization standard on the Fulton/Hayes corridor within the Northwest screenline and on the Mission corridor within the Southeast screenline of the Downtown screenlines under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions.	Significant	Implement **Mitigation Measure M-C-TR-1: SFMTA Monitoring of Muni Service**, described above on p. S-30. Implementation of this Mitigation Measure would reduce the cumulative impact on the affected corridor to a less-than-significant level. However, because the SFMTA cannot commit to future funding appropriations nor be certain of its ability to provide additional service citywide to maintain the capacity utilization standard, among other service goals, the feasibility of this mitigation measure is uncertain, and the cumulative impact on transit would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-3: The Service Policy Framework, the TPS Toolkit elements as applied in the program-level TTRP corridors, and the Service Improvements with the TTRP Expanded Alternative, in combination with past, present and reasonably foreseeable development in San Francisco, would contribute considerably to significant cumulative impacts on transit, resulting in exceedances of Muni's capacity utilization standard on the Fulton/Hayes corridor within the Northwest screenline and on the Mission corridor within the Southeast screenline of the Downtown screenlines under 2035 Cumulative conditions plus Service Improvements and the TTRP Expanded Alternative conditions.	Significant	Implement **Mitigation Measure M-C-TR-1: SFMTA Monitoring of Muni Service**, described above on p. S-30. Implementation of this Mitigation Measure would reduce the cumulative impact on the affected corridor to a less-than-significant level. However, because the SFMTA cannot commit to future funding appropriations nor be certain of its ability to provide additional service citywide to maintain the capacity utilization standard, among other service goals, the feasibility of this mitigation measure is uncertain, and the cumulative impact on transit would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-4: Implementation of the Service Improvements or Service Variants, in combination with past, present and reasonably foreseeable development in San Francisco, would not contribute considerably to ridership at the regional transit screenlines on AC Transit, Caltrain, Golden Gate Transit, SamTrans, and other regional ferry service under 2035 Cumulative plus Service Improvements only conditions.	Less than Significant	None required.	
C-TR-5: The TPS Toolkit elements as applied in the program-level TTRP corridors, and Service Improvements with the TTRP Moderate Alternative would not contribute considerably to ridership at the regional transit screenlines on AC Transit, Caltrain, Golden Gate Transit, SamTrans, and other regional ferry service under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-6: The TPS Toolkit elements as applied in program-level TTRP corridors, and Service Improvements with the TTRP Expanded Alternative, in combination with past, present and reasonably foreseeable development in San Francisco, would not contribute considerably to ridership at the regional transit screenlines on AC Transit, Caltrain, Golden Gate Transit, SamTrans, and other regional ferry service under 2035 Cumulative plus Service Improvements and the TTRP Expanded Alternative conditions.	Less than Significant	None required.	
C-TR-7: Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5 and TPS Toolkit categories: Lane Modifications and Pedestrian Improvements as applied in program-level TTRP corridors, in combination with past, present and reasonably foreseeable development in San Francisco, would result in cumulative traffic impacts at intersections along the corridors under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions.	Significant	Implement **Mitigation Measure M-TR-8: Optimization of Intersection Operations**, described above on p. S-12. Because this measure may not be adequate to mitigate intersection traffic operations to less-than-significant levels, and because the feasibility of providing additional vehicle capacity is unknown, and it is not always possible to optimize the intersection such that level of service falls below LOS E, the impact on traffic operations would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-8: Implementation of the Service Policy Framework Objective A, Actions A.1, A.2 and A.4, Objective B, Actions B.1 through B.4, Objective C, Actions C.1 and C.2, and Objective D, Actions D.1 through D.4 and any of the TPS Toolkit elements within categories: Transit Stop Changes, Parking and Turn Restrictions, and Traffic Signal and Stop Sign Changes, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant traffic impacts under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions, and therefore would not contribute to any significant cumulative traffic impacts.	Less than Significant	None required.	
C-TR-9: Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5 and TPS Toolkit categories: Lane Modifications and Pedestrian Improvements as applied in program-level TTRP corridors would result in cumulative traffic impacts at intersections along the corridors under 2035 Cumulative plus Service Improvements and the TTRP Expanded Alternative conditions.	Significant	Implement **Mitigation Measure M-TR-8: Optimization of Intersection Operations**, described above on p. S-12. Because this measure may not be adequate to mitigate intersection traffic operations to less-than-significant levels, and because the feasibility of providing additional vehicle capacity is unknown, and it is not always possible to optimize the intersection such that level of service falls below LOS E, the impact on traffic operations would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-10: Implementation of the Service Policy Framework Objective A, Actions A.1, A.2 and A.4, Objective B, Actions B.1 through B.4, Objective C, Actions C.1 and C.2, and Objective D, Actions D.1 through D.4 and any of the TPS Toolkit elements within categories: Transit Stop Changes, Parking and Turn Restrictions, and Traffic Signal and Stop Sign Changes, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant traffic impacts under 2035 Cumulative plus Service Improvements and the TTRP Expanded Alternative conditions, and therefore would not contribute to any significant cumulative traffic impacts.	Less than Significant	None required.	
C-TR-11: Implementation of the Service Improvements or Service Variants, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant traffic impacts under 2035 Cumulative plus Service Improvements only conditions, and therefore would not contribute to any significant cumulative traffic impacts.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **C-TR-12:** Implementation of the TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1, TTRP.14 Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1 would have less-than-significant traffic impacts under 2035 Cumulative plus Service Improvements and the TTRP Moderate Alternative conditions, and therefore would not contribute to any significant cumulative traffic impacts.	Less than Significant	None required.	
C-TR-13: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.J Expanded Alternative would contribute considerably to cumulative traffic impacts at the intersection of Market/Church/14th streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-14: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.5 Expanded Alternative would result in cumulative traffic impacts at the intersection of Fulton Street/Masonic Avenue during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-15: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.8X Expanded Alternative would result in cumulative traffic impacts at the intersection of Geneva Avenue/Carter Street during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-16: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.8X Expanded Alternative would result in cumulative traffic impacts at the intersection of Geneva Avenue/Moscow Street during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-17: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.14 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of Randall Street/San Jose Avenue during the a.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-18: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.14 Expanded Alternative would result in cumulative traffic impacts at the intersection of Mission/Fifth streets during the a.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-19: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.14 Expanded Alternative would result in cumulative impacts at the intersection of Mission/16th streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-20: Implementation of the 2035 Cumulative plus Service Improvements and TTRP.22_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of 16th/Bryant streets during the p.m. peak hour.	Significant	Implement **Mitigation Measure M-TR-26: Intersection Restriping at 16th/Bryant streets**, described above on p. S-17. Because implementation of Mitigation Measure M-TR-26 would not improve intersection operations to LOS D or better during the p.m. peak hour, traffic impacts at the intersection of 16th/Bryant streets would remain significant and unavoidable even with mitigation.	Significant and Unavoidable with Mitigation
C-TR-21: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in project and traffic cumulative impacts at the intersection of 16th/Bryant streets during the p.m. peak hour.	Significant	Implement **Mitigation Measure M-TR-26: Intersection Restriping at 16th/Bryant streets**, described above on p. S-17. Because implementation of Mitigation Measure M-TR-26 would not improve intersection operations to LOS D or better during the p.m. peak hour, traffic impacts at the intersection of 16th/Bryant streets would remain significant and unavoidable even with mitigation.	Significant and Unavoidable with Mitigation
C-TR-22: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of 16th/Bryant streets during the p.m. peak hour.	Significant	Implement **Mitigation Measure M-TR-26: Intersection Restriping at 16th/Bryant streets**, described above on p. S-17. Because implementation of Mitigation Measure M-TR-26 would not improve intersection operations to LOS D or better during the p.m. peak hour, traffic impacts at the intersection of 16th/Bryant streets would remain significant and unavoidable even with mitigation.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-23: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of 16th/Potrero streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-24: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in project and cumulative traffic impacts at the intersection of 16th/Potrero streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-25: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of 16th/Potrero streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-26: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative would result in cumulative traffic impacts at the intersection of 16th/Owens streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-27: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in cumulative traffic impacts at the intersection of 16th/Owens streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-28: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in cumulative traffic impacts at the intersection of 16th/Owens streets during the p.m. peak hour.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-29: Implementation of the 2035 Cumulative plus Service Improvements plus the TTRP.22_1 Expanded Alternative would result in cumulative traffic impacts at the intersection of 16th/Fourth streets during the a.m. and p.m. peak hours.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-30: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in cumulative traffic impacts at the intersection of 16th/Fourth streets during the a.m. and p.m. peak hours.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-31: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in cumulative traffic impacts at the intersection of 16th/Fourth streets during the a.m. and p.m. peak hours.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-32: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of 16th/Seventh streets during the a.m. and p.m. peak hours.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-33: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 1 would result in project and cumulative traffic impacts at the intersection of 16th/Seventh streets during the a.m. and p.m. peak hours.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-34: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.22_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of 16th/Seventh streets during the a.m. and p.m. peak hours.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-35: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.30_1 Expanded Alternative would result in project and cumulative traffic impacts at the intersection of Columbus Avenue/Green Street/Stockton Street.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-36: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 1 would result in project and cumulative traffic impacts at the intersection of Columbus Avenue/Green Street/Stockton Street.	Significant	No feasible mitigation measures available.	Significant and Unavoidable
C-TR-37: Implementation of the 2035 Cumulative plus Service Improvements and the TTRP.30_1 Expanded Alternative Variant 2 would result in project and cumulative traffic impacts at the intersection of Columbus Avenue/Green Street/Stockton Street.	Significant	No feasible mitigation measures available.	Significant and Unavoidable

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **C-TR-38:** Implementation of the TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1 in combination with past, present and reasonably foreseeable development in San Francisco, would not contribute considerably to significant cumulative traffic impacts at 16 study intersections that would operate at LOS E or LOS F under 2035 Cumulative plus Service Improvements and the TTRP Expanded Alternative conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **C-TR-39:** Implementation of the TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1,in combination with past, present and reasonably foreseeable development in San Francisco, would not result in significant cumulative traffic impacts at 48 study intersections that would operate at LOS D or better under 2035 Cumulative plus Service Improvements and the TTRP Expanded Alternative conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-40: Implementation of the Service Policy Framework and any of the TPS Toolkit elements within categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Traffic Signal and Stop Sign Changes, and Pedestrian Improvements as applied in program-level TTRP corridors, Service Improvements or Service Variants, and Service-related Capital Improvements, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative pedestrian and bicycle impacts.	Less than Significant	None required.	
● **C-TR-41**: Implementation of the Service Improvements or Service Variants and the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14 Variant 1 and TTRP Variant 2, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative pedestrian and bicycle impacts.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **C-TR-42:** Implementation of the Service Improvements or Service Variants and the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative pedestrian and bicycle impacts.	Less than Significant	None required.	
C-TR-43: Implementation of the Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5, and TPS Toolkit Categories: Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements as applied to the program-level TTRP corridors in combination with past, present and reasonably foreseeable development in San Francisco, would result in cumulative loading impacts.	Significant	Implementation of **Mitigation Measure M-TR-10: Provision of Replacement Commercial Loading Spaces** could reduce the indirect cumulative loading impacts of the Policy Framework as represented by theTTRPs to a less-than-significant level. However, in some locations with a high volume of loading demand, and at locations where mitigation is incompatible with the proposed improvement, or where roadway geometry precludes implementation of mitigation, these indirect cumulative commercial loading impacts may not be reduced to a less-than-significant level.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **C-TR-44:** Implementation of the project-level TTRP Moderate Alternative including the TTRP.14 Variant 1, TTRP.14 Variant 2, and TTRP.30_1 in combination with past, present and other reasonably foreseeable development in San Francisco, would result in cumulative loading impacts.	Significant	With implementation of **Mitigation Measure M-TR-48: Enorcement of Parking Violations**, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, cumulative impacts on these corridors would remain significant and unavoidable.	Significant and Unavoidable with Mitigation
● **C-TR-45:** Implementation of the project-level TTRP Expanded Alternative including the TTRP.14, TTRP.30_1, TTRP.30_1 Variant 1, and TTRP.30_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in project and cumulative loading impacts.	Significant	With implementation of **Mitigation Measure M-TR-48: Enorcement of Parking Violations**, the impacts related to loss of commercial loading spaces on transit and traffic operations would be reduced. However, because the effectiveness of the use of camera video enforcement on the new transit-only lanes is not known, and because the implementation of video equipment is dependent on annual budget appropriations, cumulative impacts on these corridors would remain significant and unavoidable.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-46: Implementation of the Policy Framework Objective A, Actions A.1, A.2 and A.4, Objective B, Actions B.1 through B.4, Objective C, Actions C.1 and C.2, and Objective D, Actions D.1 through D.4, TPS Toolkit Category Traffic Signal and Stop Sign Changes as applied in program-level TTRP corridors, Service Improvements or Service Variants, and Service-related Capital Improvements, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative loading impacts.	Less than Significant	None required.	
● **C-TR-47:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.22_1, TTRP.28_1, or TTRP.71_1, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative loading impacts.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
● **C-TR-48:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.22_1, TTRP.22_1 Variant 1, TTRP.22_1 Variant 2, TTRP.28_1, or TTRP.71_1, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative loading impacts.	Less than Significant	None required.	
C-TR-49: Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3, C.4 and C.5, and the TPS Toolkit categories: Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements as applied in program-level TTRP corridors, in combination with past, present and reasonably foreseeable development in San Francisco, may result in significant cumulative parking impacts.	Significant	**Mitigation Measure M-C-TR-49 Explore the Implementation of Parking Management Strategies.** SFMTA shall explore whether implementation of parking management strategies would be appropriate and effective in this and other parts of the City to more efficiently manage the supply of on-street parking over time. It is uncertain if these strategies, such as SFpark, would mitigate this significant cumulative parking impact to less-than-significant levels.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-50: Implementation of the Service Policy Framework Objective A, Actions A.1, A.2, and A.4, Objective B all actions, Objective C, Actions C.1 and C.2, and Objective D all actions, and any of the TPS Toolkit elements within categories: Transit Stop Changes and Traffic Signal and Stop Sign Changes, and Pedestrian Improvements as applied in program-level TTRP corridors, Service Improvements, and Service-related Capital Improvements, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative parking impacts.	Less than Significant	None required.	
● **C-TR-51:** Implementation of the project-level TTRP Moderate Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.22_1, TTRP.28_1, TTRP.30_1, or TTRP.71_1, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative parking impacts.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-TR-52: Implementation of the project-level TTRP Moderate Alternative for the TTRP.14 Variant 1 or the TTRP.14 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts.	Significant	**Mitigation Measure M-C-TR-49 to Explore Implementation of Parking Management Strategies** in the project area may address some of the issues related to parking. It is uncertain if these strategies, such as SFpark, would mitigate this significant cumulative parking impact to less-than-significant levels.	Significant and Unavoidable with Mitigation
● **C-TR-53:** Implementation of the project-level TTRP Expanded Alternative for the TTRP.J, TTRP.L, TTRP.N, TTRP.5, TTRP.8X, TTRP.9, TTRP.14, TTRP.28_1, TTRP.30_1, TTRP.30_1 Variant 1, TTRP.30_1 Variant 2, or TTRP.71_1, in combination with past, present and reasonably foreseeable development in San Francisco, would have less-than-significant cumulative parking impacts.	Less than Significant	None required.	
C-TR-54: Implementation of the project-level TTRP Expanded Alternative for the TTRP.22_1, TTRP.22_1 Variant 1, or TTRP.22_1 Variant 2, in combination with past, present and reasonably foreseeable development in San Francisco, would result in significant cumulative parking impacts.	Significant	**Mitigation Measure M-C-TR-49 to Explore Implementation of Parking Management Strategies** in the project area may address some of the issues related to parking. It is uncertain if these strategies, such as SFpark, would mitigate this significant cumulative parking impact to less-than-significant levels.	Significant and Unavoidable with Mitigation

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Noise and Vibration			
NO-1: Construction activities, occurring indirectly as a result of the proposed Service Policy Framework, and as proposed under the TEP for the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants would not result in a substantial temporary or periodic increase in noise levels above existing ambient conditions.	Less than Significant	None required.	
NO-2: Construction activities, occurring indirectly as a result of the proposed Service Policy Framework, and as proposed under the TEP for the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants would not expose persons and structures to excessive temporary ground-borne vibration or ground-borne noise levels.	Less than Significant	None required.	
NO-3: The proposed Service Policy Framework and operation of the Service Improvements and Service Variants would not result in a substantial increase in permanent noise levels along affected transit routes above existing ambient conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
NO-4: The proposed Service Policy Framework and the Service Improvements and Service Variants proposed by the TEP would not expose people to or generate excessive ground-borne vibration or noise levels along affected transit routes.	Less than Significant	None required.	
C-NO-1: The Service Policy Framework and the construction and operation of the proposed TEP project, including Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants, in combination with other past, present, and reasonably foreseeable future projects, would not increase construction noise and vibration or operational noise and vibration levels along affected transit routes substantially above existing ambient conditions.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
Air Quality			
AQ-1: The Service Policy Framework and construction activities proposed under the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants would not result in a violation of air quality standards or contribute substantially to an existing or projected air quality violation; nor would it result in a cumulatively considerable net increase of criteria air pollutants, for which the project region is in nonattainment under an applicable ambient air quality standard.	Less than Significant	None required.	
AQ-2: The Service Policy Framework and construction activities proposed under the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants would not generate emissions of $PM_{2.5}$ and toxic air contaminants, including diesel particulate matter, at levels that would expose sensitive receptors to substantial pollutant concentrations.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
AQ-3: The Service Policy Framework and the proposed project-level Service Improvements and Service Variants in combination with the TTRPs and TTRP Variants would not result in a violation of air quality standards or contribute substantially to an existing or projected air quality violation nor result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable ambient air quality standard.	Less than Significant	None required.	
AQ-4: The Service Policy Framework and proposed project-level Service Improvements and Service Variants would not generate emissions of $PM_{2.5}$ and toxic air contaminants, including diesel particulate matter, at levels that would expose sensitive receptors to substantial pollutant concentrations.	Less than Significant	None required.	
AQ-5: The Service Policy Framework, and construction and operation of the proposed TEP, including the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants, would not conflict with or obstruct implementation of the 2010 Clean Air Plan, the Bay Area's applicable air quality plan.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
C-AQ-1: The Service Policy Framework, and construction and operation of the proposed TEP, including the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants, in combination with other past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under applicable ambient air quality standards.	Less than Significant	None required.	
C-AQ-2: The Service Policy Framework, and construction and operation of the proposed TEP, including the Service Improvements and Service Variants, Service-related Capital Improvements, and TTRPs and TTRP Variants, in combination with other past, present, and reasonably foreseeable future projects, would not generate emissions of $PM_{2.5}$ and toxic air contaminants, including diesel particulate matter, at levels that would expose sensitive receptors to substantial pollutant concentrations.	Less than Significant	None required.	

Table S-1: Summary of Impacts of Proposed Project Identified in EIR (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
GR-1: Implementation of the Service Policy Framework and the TEP project components would not result in growth inducing impacts.	Less than Significant	None required.	

Table S-2 summarizes the significant impacts identified in the Initial Study and the mitigation measures that are included in the proposed project to reduce these impacts to less-than-significant levels. All topics in the Initial Study not listed in Table S-2 were determined to have less-than-significant impacts, requiring no mitigation measures, or the proposed project would result in no impact.

Table S-2: Summary of Significant Impacts and Mitigation Measures Identified in the Initial Study

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
CP-2: The proposed project could cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* § 15064.5.	**Significant**	**Mitigation Measure M-CP-2a: Accidental Discovery of Archeological Resources** The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines §15064.5(a)(c). The project sponsor shall distribute the Planning Department archaeological and paleontological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); and to any utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken, each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, supervisory personnel, etc. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet. Should any indication of an archaeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken. If the ERO determines that an archaeological resource may be present within the project site, the project sponsor shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archaeological consultant shall advise the ERO as to whether the discovery is an archaeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archaeological resource is present, the archaeological consultant shall identify and evaluate the archaeological resource. The archaeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor. Measures might include: preservation in situ of the archaeological resource, an archaeological monitoring program, or an archaeological testing program. If an	Less than Significant with Mitigation

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		archaeological monitoring program or archaeological testing program is required, it shall be consistent with the Environmental Planning division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archaeological resource is at risk from vandalism, looting, or other damaging actions. The project archaeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archaeological resource and describing the archaeological and historical research methods employed in the archaeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the final report. Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy, and one unlocked searchable Portable Document Format (PDF) copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the NRHP/CRHR. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.	

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
●		**Mitigation Measure M-CP-2b: Archaeological Monitoring** Based on the reasonable potential that archaeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. Once engineering design details for the identified projects (OWE.1, OWE.1 Variant, SCI.2, TTRP.9 and TTRP.22_2) and other projects in archaeologically sensitive areas, as identified by the Environmental Review Officer, are known, the project sponsor shall consult with the Planning Department archeologist regarding the specific aspects of these proposals that would require monitoring. If required by the Planning Department archeologist, the project sponsor shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by	

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		the Planning Department archaeologist. The archaeological consultant shall undertake an archaeological monitoring program. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the Environmental Review Officer (ERO) for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archaeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of *construction* can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archaeological resource as defined in *CEQA Guidelines* § 15064.5 (a)(c). *Archaeological monitoring program* (AMP). The archaeological monitoring program shall minimally include the following provisions: ▪ The archaeological consultant, project sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The ERO, in consultation with the project archaeologist, shall determine what project activities shall be archaeologically monitored. In most cases, any soils disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archaeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context. ▪ The archaeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archaeological resource. ▪ The archaeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archaeological consultant and the ERO until the ERO has, in consultation with the archaeological consultant, determined that project construction activities could have no effects on significant archaeological deposits. ▪ The archaeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis.	

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		If an intact archaeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archaeological monitor shall be empowered to temporarily redirect demolition/excavation/ pile driving/construction crews and heavy equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archaeological monitor has cause to believe that the pile driving activity may affect an archaeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the ERO. The archaeological consultant shall immediately notify the ERO of the encountered archaeological deposit. The archaeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, present the findings of this assessment to the ERO. *Consultation with Descendant Communities*: On discovery of an archaeological site[8] associated with descendant Native Americans or the Overseas Chinese, an appropriate representative[9] of the descendant group and the ERO shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archaeological field investigations of the site and to consult with ERO regarding appropriate archaeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archaeological site. A copy of the Final Archaeological Resources Report shall be provided to the representative of the descendant group. If the ERO, in consultation with the archaeological consultant, determines that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor, either: A) The proposed project shall be re-designed so as to avoid any adverse effect on the	

[8] The term "archaeological site" is intended here to minimally include any archaeological deposit, feature, burial, or evidence of burial.

[9] An "appropriate representative" of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission, and in the case of the Overseas Chinese, the Chinese Historical Society of America.

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		significant archaeological resource; or B) An archaeological data recovery program shall be implemented, unless the ERO determines that the archaeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible. If an archaeological data recovery program is required by the ERO, the archaeological data recovery program shall be conducted in accord with an archaeological data recovery plan (ADRP). The project archaeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP. The archaeological consultant shall prepare a draft ADRP that shall be submitted to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archaeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. The scope of the ADRP shall include the following elements: ▪ *Field Methods and Procedures*. Descriptions of proposed field strategies, procedures, and operations. ▪ *Cataloguing and Laboratory Analysis*. Description of selected cataloguing system and artifact analysis procedures. ▪ *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies. ▪ *Interpretive Program*. Consideration of an on-site/off-site public interpretive program during the course of the archaeological data recovery program. ▪ *Security Measures*. Recommended security measures to protect the archaeological resource from vandalism, looting, and non-intentionally damaging activities. *Final Report*. Description of proposed report format and distribution of results.	

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		▪ *Curation*. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities. *Human Remains, Associated or Unassociated Funerary Objects*. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and federal Laws, including immediate notification of the Coroner of the City and County of San Francisco and, in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code § 5097.98). The archaeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (*CEQA Guidelines* § 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects. *Final Archaeological Resources Report*. The archaeological consultant shall submit a Draft Final Archaeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods employed in the archaeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the draft final report. Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound, one unbound, and one unlocked searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the NRHP/CRHR. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.	

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
CP-3: The proposed project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**Significant**	**Mitigation Measure M-CP-3: Paleontological Resources Accidental Discovery** In order to avoid any potential adverse effect in the event of accidental discovery of a paleontological resource during construction of the project, the project sponsor shall be responsible for ensuring that all project contractors and subcontractors involved in soil-disturbing activities associated with the project comply with the following procedures in the event of discovery of a paleontological resource. Paleontological remains, or resource, can take the form of whole or portions of marine shell, bones, tusk, horn and teeth from fish, reptiles, mammals, and lower order animals. In the case of Megafauna, the remains, although partial, may be large in scale. Also paleontological resources include petrified wood and rock impressions of plant or animal parts. Should any indication of a paleontological resource be encountered during any soil-disturbing activity of the project, the project foreman and/or project sponsor shall immediately notify the City Planning Department's Environmental Review Officer (ERO) and one of its designated paleontologists (currently, Dr. Jean De Mouthe/Dr. Peter Roopnarine in the Geology Department of the California Academy of Sciences) and immediately suspend any soil-disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures are needed. If the ERO determines that a potentially-significant paleontological resource may be present within the project site, the project sponsor shall retain the services of a qualified paleontological consultant with expertise in California paleontology to design and implement a Paleontological Resources Mitigation Plan (PRMMP). The PRMMP shall include a description of discovery procedures; sampling and data recovery procedures; procedures for the preparation, identification, analysis, and curation of fossil specimens and data recovered; and procedures for the preparation and distribution of a final paleontological discovery report (PDR) documenting the paleontological find. The PRMMP shall be consistent with the Society for Vertebrate Paleontology Standard Guidelines for the mitigation of construction-related adverse impacts to paleontological resources and the requirements of the designated repository for any fossils collected. In the event of a verified paleontological discovery, the remaining construction and soil-disturbing activities within those geological units specified as paleontologically sensitive in the PRMMP	Less than Significant with Mitigation

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		shall be monitored by the project paleontological consultant. The consultant's work shall be conducted in accordance with this mitigation measure and at the direction of the City's ERO. Plans and reports prepared by the consultant shall be submitted for review and approval by the ERO.	
HZ-1: Implementation of the proposed project would not create a significant hazard through routine transport, use, disposal, handling, or emission of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	**Significant**	**Mitigation Measure M-HZ-1: Hazardous Materials Soil Testing** In order to protect both construction workers and the public from exposure to hazardous materials in soils encountered during construction of the proposed project, the project sponsor agrees to adhere to the following requirements. 1) Any soil excavated and then, encapsulated under concrete and/or asphalt covering within the same area as its excavation shall not require testing for the presence of hazardous materials in levels exceeding those acceptable to government agencies unless the TEP project or construction manager determines any extenuating circumstances exist, such as odors, unusual color or presence of foreign material. The reuse, remediation, or disposal of any soil tested and found to contain hazardous materials under these circumstances shall be in compliance with the requirements of the San Francisco Department of Public Health (DPH) and other agencies. The project sponsor shall be responsible for reporting the test results of any soil with hazardous material content to DPH within 21 days of the completion of testing, accompanied with a map showing the excavation location. 2) Any excavated soil not reused and encapsulated under concrete and/or asphalt covering within the same area as its excavation, shall be tested for the presence of hazardous materials in levels exceeding those acceptable to government agencies, before it is moved from the area of excavation. The transportation and disposal of the soil shall be in compliance with DPH, state, and federal requirements. The project sponsor shall be responsible for reporting the test results of any soil with hazardous material content to DPH within 21 days of the completion of testing, accompanied with a map showing the excavation location. 3) If the proposed excavation activities encounter groundwater, the groundwater shall be tested for hazardous materials. Copies of the test results shall be submitted to DPH within 21 days of the completion of testing. Any dewatering shall adhere to DPH, SFPUC,	Less than Significant with Mitigation

Table S-2: Summary of Significant Impacts Identified in the Initial Study (continued)

Impact	Level of Significance before Mitigation	Mitigation and Improvement Measures	Level of Significance after Mitigation
		and state requirements. In the event that a subsequent ordinance or regulations are adopted by DPH governing the handling and testing of hazardous materials encountered during construction within the public right-of-way, DPH shall be given the option to require the project sponsor to adhere to the implementation of the new ordinance or regulations in lieu of the above requirements if they provide similar safety protection for both construction workers and the public.	
HZ-2: Implementation of the proposed project would not substantially emit hazardous emissions or acutely hazardous materials near schools.	**Significant**	Implement **Mitigation Measure M-HZ-1: Hazardous Materials Soil Testing**.	Less than Significant with Mitigation

S.5 SUMMARY OF ALTERNATIVES

CEQA Guidelines § 15126.6(a) requires that an EIR evaluate a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives. A No Project Alternative is evaluated in the EIR, as required by *CEQA Guidelines* § 15126.6(e).

In addition to the No Project Alternative, this EIR evaluates two alternatives for the project-level TTRP corridors: the TTRP Moderate Alternative and the TTRP Expanded Alternative. The proposed Policy Framework, Service Improvements and Service Variants, and the Service-related Capital Improvements are the same in both of these Alternatives and would be implemented in combination with either project alternative. The two alternatives bracket a range of TPS Toolkit elements implemented along the same set of Rapid Network corridors. The difference between the two alternatives is the degree of physical environmental impacts anticipated to be generated: the TTRP Moderate Alternative includes TPS Toolkit elements that are anticipated to have less environmental impacts than the TTRP Expanded Alternative. For example, the TTRP Moderate Alternative was designed using TPS Toolkit elements that would generally have little or no effect on roadway capacity; therefore, lane modifications such as transit-only lanes, transit queue-jump/bypass lanes, or travel lane reductions are generally not proposed for the TTRP Moderate Alternative, while these elements are included in the TTRP Expanded Alternative. The choice of TPS Toolkit elements utilized for the two alternatives also results in differences in the magnitude of travel time reduction, and therefore, greater travel time savings would be achieved as a result of the TTRP Expanded Alternative.

The TTRP Moderate Alternative and TTRP Expanded Alternative are analyzed at an equal level of detail in Chapter 4, Environmental Setting, Impacts, and Mitigation; the results of the analysis are also presented in summary in Chapter 6, Alternatives.

Key features of the No Project Alternative, TTRP Moderate Alternative and TTRP Expanded Alternative are briefly summarized below, and Table S-3 presents a summary of the significant Transportation and Circulation impacts that would occur with one or more of the three alternatives. No other significant impacts were identified for any of the other topics in the EIR; therefore, these topics are not presented in Table S-3. The significant impacts related to Cultural Resources and Hazardous Materials identified for the proposed project alternatives in the Initial Study would be reduced to less-than-significant with mitigation, and these mitigation measures are presented in Table S-2.

The TTRP Moderate Alternative and TTRP Expanded Alternative will be considered equally by the decision-makers during the project approval process. Decision-makers may not

necessarily adopt either alternative in its entirety, but rather could choose to implement a combination of TPS Toolkit elements from both alternatives on individual TTRP corridors.

DESCRIPTION OF ALTERNATIVE A, NO PROJECT ALTERNATIVE

Under the No Project Alternative the SFMTA Board of Directors would not adopt the Policy Framework or the comprehensive program of TEP transit improvements. The SFMTA would not implement as a comprehensive package the service changes included in the Service Improvements or any Service Variants. In addition, the SFMTA would not construct the Service-related Capital Improvements or construct the TTRPs along the identified Rapid Network corridors.

The proposed increase of approximately 350,000 service hours would not occur under the No Project Alternative. With the No Project Alternative, the transit system would be expected to become more crowded, particularly on heavily-used routes, as growth and development occur throughout the City and transit ridership increases in the future. Some Service Improvements and Service-related Capital improvements, such as the 22 Fillmore extension along 16th Street to the Mission Bay area on Third Street; and the M Ocean View rerouting into Parkmerced, have already received independent environmental review, apart from the Policy Framework and TEP. If approved by the SFMTA Board of Directors, these projects would be implemented regardless of whether the proposed Policy Framework and the TEP are approved. The Van Ness Avenue Bus Rapid Transit (BRT) project and the Geary Boulevard BRT projects are presently undergoing separate environmental review; once completed these projects will also be considered for approval by decision-makers separate from the TEP.

Under the No Project Alternative, the SFMTA would continue to monitor performance on the City's transit system, and make adjustments to improve service when funding and other resources are available. For example, the SFMTA would continue to construct transit bulbs, accessible boarding islands, and other TPS Toolkit elements, as it does now, at locations where transit usage information indicates that these features are needed. However, without adoption of the TEP, these physical changes would not be made as part of a coordinated, systemwide program of improvements as proposed under the TEP. Further, with the No Project Alternative, transit travel time savings and mode shift from cars to buses would not be realized.

Similarly, pedestrian improvements would continue to be constructed on a location-by-location basis, as occurs now, as part of existing City programs when the need is identified and budget and resources are available. However, these pedestrian improvements would not likely be completed as part of a comprehensive corridor design to improve access to transit, as planned under the TEP.

Proposed Project Alternatives

As stated previously, the TEP EIR does not contain the traditional alternatives analysis in a separate chapter with a comparison to the project sponsor's preferred project, the "proposed project." Rather, the TEP brackets a range of feasible options that would accomplish the project sponsor's objectives. The options are Alternative B, the TTRP Moderate Alternative, and Alternative C, the TTRP Expanded Alternative. Two alternative TTRP designs have been provided for each of the eight project-level TTRP corridors. Also, it should be noted that the proposed Policy Framework, Service Improvements and Service Variants, the Service-related Capital Improvements, and the program-level TTRPs would be the same under either of these project alternatives. Therefore, the term 'the TTRP Moderate Alternative' includes the TTRP Moderate Alternative designs for the eight project-level TTRP corridors as well as the proposed Policy Framework, Service Improvements and Service Variants, the Service-related Capital Improvements, and the program-level TTRPs. Similarly, the term 'the TTRP Expanded Alternative' includes the TTRP Expanded Alternative designs for the eight project-level TTRP corridors as well as the same proposed Policy Framework, Service Improvements and Service Variants, the Service-related Capital Improvements, and the program-level TTRPs as under the TTRP Moderate Alternative.

DESCRIPTION OF ALTERNATIVE B, TTRP MODERATE ALTERNATIVE

- The TTRP Moderate Alternative for all 11 project-level TTRPs primarily would include transit stop changes, pedestrian improvements, parking and turn restrictions, and new traffic signals. New traffic signals would replace existing stop signs at the following locations on seven of the 11 corridors: on Church Street (five intersections) for the TTRP.J; on Taraval and Ulloa streets (six intersections) for the TTRP.L; on Judah Street (seven intersections) and Irving Street (one intersection) for the TTRP.N; on McAllister Street (six intersections) and Fulton Street (two intersections) for the TTRP.5, on Geneva Avenue (one intersection) for the TTRP.8X; on Mission Street (one intersection) for the TTRP.14; and on Haight Street (10 intersections) for the TTRP.71_1.

- In addition, lane modifications are proposed for the TTRP.8X Moderate Alternative, the TTRP.9 Moderate Alternative, and the TTRP.14 Moderate Alternative. The TTRP.8X Bayshore Express Moderate Alternative would include side-running westbound transit-only lanes on Geneva Avenue between Delano Street and the I-280 eastbound ramps; bicycle lanes would be established on Geneva Avenue westbound between Paris and London streets; and bicycle lanes would be established on Geneva Avenue eastbound between Mission and Paris streets.

- The TTRP.9 San Bruno and 9L San Bruno Limited Moderate Alternative would add buffers to the existing bicycle lanes along Potrero Avenue between 22nd and 24th street. The TTRP.9 Moderate Alternative would also establish side-running transit-only lanes in the outbound (southbound) direction on Potrero Avenue between 18th Street and the farside of 24th Street, and would remove the existing transit-only lane from the inbound (northbound) direction on Potrero Avenue between 200 feet north of 24th Street and 21st Street.

  The TTRP.14 Mission Moderate Alternative Variants 1 and 2 both propose lane modifications to provide for side-running transit-only lanes in both directions on Mission Street between 13th and Cesar Chavez streets (Variant 1 would limit the transit-only lanes to peak periods only, while Variant 2 would operate the transit-only lanes 24 hours/day).

DESCRIPTION OF ALTERNATIVE C, TTRP EXPANDED ALTERNATIVE

- The TTRP Expanded Alternative for the 11 project-level TTRPs generally would include the same transit stop changes, pedestrian improvements, and parking and turn restrictions as the TTRP Moderate Alternative; however, alternate traffic signal and stop sign changes and additional improvements would be implemented.

- The TTRP.J Expanded Alternative, the TTRP.L Expanded Alternative, the TTRP.N Expanded Alternative, the TTRP.5 Expanded Alternative, and the TTRP.71_1 Expanded Alternative would replace stop signs at intersections on Church, Taraval, Judah, McAllister, and Haight streets with traffic calming measures, rather than traffic signals. These traffic calming measures would include traffic circles at the intersections of McAllister Street with Steiner, Scott, Broderick, Laguna, Pierce, and Lyon streets for the TTRP.5. New signals would be installed on Mission Street for the TTRP.14 Expanded Alternative (two intersections), 16th Street for the TTRP.22_1 Expanded Alternative (four intersections), San Bruno Avenue for the TTRP.8X Expanded Alternative (one intersection), and Taraval Street for the TTRP.L Expanded Alternative (five intersections). All-way stop-controlled intersections at four locations along Visitacion Avenue would be converted to 2-way stop-controlled with additional traffic calming measures for the TTRP.8X Expanded Alternative.

- The TTRP Expanded Alternative would also establish transit-only lanes on Church Street between Duboce Avenue and 16th Street (for the TTRP.J Expanded Alternative); on Taraval Street between 15th and 46th avenues (for the TTRP.L Expanded Alternative); on Geneva Avenue between Santos Street and Moscow Avenue (for the TTRP.8X Expanded Alternative); on Potrero Avenue in the southbound direction between 18th and 24th streets (TTRP.9 Expanded Alternative); on 16th Street between Third and Bryant streets and between Bryant and Church streets as variants (TTRP.22_1 Expanded Alternative Variants 1 and 2); and on Van Ness Avenue between Lombard and Bay streets, on Columbus Avenue between Filbert and Green streets, and on Kearny Street between Market and Sutter streets (for the TTRP.30_1 Expanded Alternative). The TTRP.9 Expanded Alternative would remove the existing southbound transit-only lane on Potrero Avenue between 200 feet north of 24th Street and 21st Street.

  The TTRP.14 Expanded Alternative would relocate the existing side-running transit-only lanes into center-running transit-only lanes from First to Fifth streets outbound and from Sixth to First streets inbound; transition the outbound transit-only lane back to its existing curbside configuration; and rescind the inbound transit-only lane from Seventh to Sixth streets; and then would establish a new outbound transit-only lane extending from 11th to Cesar Chavez

streets. Between 11th and 13th streets, this would be achieved by converting a southbound mixed-flow lane into a transit-only lane. Between 13th and Cesar Chavez streets the transit-only lane would be achieved by reducing the roadway from four lanes to three, with a transit-only lane and a mixed-flow lane in the southbound direction and single mixed-flow lane in the northbound direction. Between Cesar Chavez Street and Randall Avenue and between Silver and Geneva avenues, a mixed-flow lane in both directions would be converted to an all-day side-running transit-only lane.

- As part of the TTRP.5 Expanded Alternative, the number of lanes on Fulton Street between Stanyan Street and Central Avenue would be reduced from four lanes to three lanes to provide a center left-turn lane. In addition, as part of the TTRP.5 Expanded Alternative, the number of lanes on westbound Fulton Street between Central Avenue and Baker Street would be reduced from two to one lane, and parking on the north side of the street would be converted from parallel to perpendicular parking. As part of the TTRP.28_1 Expanded Alternative, one of the two northbound left turn lanes on 19th Avenue at Winston Drive would be shortened. The TTRP.30_1 Expanded Alternative would include a transit-only lane in the outbound direction on Kearny Street between Market and Sutter streets, and TTRP.30_1 Expanded Alternative Variants 1 and 2 would widen the mixed-flow lanes on Stockton Street between Columbus Avenue and Broadway.

COMPARISON OF PROJECT ALTERNATIVES

The TTRP Moderate Alternative would include implementation of the same Policy Framework, Service Improvements, Service Variants, Service-related Capital Improvements, and application of TPS Toolkit elements to the program-level TTRP corridors as the TTRP Expanded Alternative. References to the TTRP Moderate Alternative or the TTRP Expanded Alternative include as part of the alternative the components described above that are common to both (i.e. Policy Framework, Service Improvements, Service Variants, Service-related Capital Improvements, and application of TPS Toolkit elements to the program-level TTRP corridors). Therefore, the significant indirect and direct impacts related to transit, traffic, commercial loading, and parking identified in Table S-1 for any of these components would equally occur under either the TTRP Moderate Alternative or the TTRP Expanded Alternative. Neither project alternative would result in significant impacts related to Noise and Vibration or Air Quality. In addition, neither project alternative would result in significant impacts that could not be mitigated to a less than significant level for any of the topics addressed in the TEP Initial Study attached as Appendix 2 on the CD enclosed with the draft EIR.

Both the TTRP Moderate Alternative and the TTRP Expanded Alternative would result in significant unavoidable cumulative impacts on transit service in the same two corridors/screenlines (Fulton/Hayes and Mission of the Downtown Screenlines).

The TTRP Expanded Alternative would result in significant and unavoidable traffic impacts at five intersections under Existing plus Project conditions and 13 intersections (Columbus/Green/Stockton, 16th/Bryant, 16th/Potrero, 16th/Seventh, Randall/San Jose, Mission/Fifth, Mission/16th, Geneva/Carter, Geneva/Moscow, Fulton/Masonic, 16th/Owens, and 16th/Fourth and Market/Church/14th) under the 2035 Cumulative conditions. The TTRP

Moderate Alternative, on the other hand, would not result in traffic impacts under Existing plus Project or Cumulative conditions. Implementation of certain TPS Toolkit elements would result in traffic impacts at intersections along the program-level TTRP corridors under Existing and Cumulative conditions. This would be true irrespective of the alternative implemented.

Like the TTRP Expanded Alternative, the TTRP Moderate Alternative would result in significant and unavoidable transportation impacts on the availability of on-street commercial loading spaces along the same two TTRP corridors – along Mission Street and Stockton Street under Existing plus Project alternative and future 2035 Cumulative conditions. Implementation of certain TPS Toolkit elements would, likewise, result in commercial loading impacts under Existing and Cumulative conditions.

While both the TTRP Moderate and Expanded Alternatives would not have significant project-level impacts on parking, the TTRP Moderate Alternative would result in a cumulatively considerable contribution to significant cumulative parking impacts along the Mission corridor between 13th and Cesar Chavez streets as a result of TTRP.14 Moderate Alternative Variants. While the TTRP.22_1 Expanded Alternative and Variants 1 and 2 would result in a cumulatively considerable contribution to significant cumulative parking impacts along 16th between Bryant and Third streets. Implementation of certain TPS Toolkit elements may result in significant cumulative parking impacts along the program-level TTRP corridors.

Noise and vibration impacts from construction and operation of both the TTRP Moderate and TTRP Expanded alternatives would be less than significant. Air quality impacts from construction and operation of both of the proposed project alternatives would also be less than significant, although there would be less shift in travel mode from private automobile to transit in the TTRP Moderate Alternative, resulting in slightly higher emissions than in the TTRP Expanded Alternative,

In summary, the TTRP Expanded Alternative would result in more traffic impacts under the Existing and Cumulative conditions than the Moderate Alternative. With respect to the remaining impacts identified in this DEIR, the impacts of the two alternatives would generally be very similar but in some cases would vary by location, depending on which alternative or the variant thereof is being implemented.

The TTRP Moderate Alternative and Service Improvements would meet all of the project sponsor's objectives, listed in Section 2.3 on pp. 2-2 to 2-7 in Chapter 2, Project Description. The TTRP Moderate Alternative would provide somewhat less speed and reliability for transit service than under the TTRP Expanded Alternative and may provide a somewhat less efficient transit network than the TTRP Expanded Alternative. Therefore, while all project sponsor objectives would be met with both alternatives, the SFMTA's objectives for the TEP would be met to a lesser degree with the TTRP Moderate Alternative than with the TTRP Expanded Alternative.

Table S-3: Comparison of Significant Transportation Impacts of TTRP Alternatives and Variants

Type and Location of Impact	TTRP Moderate Alternative (contributing TEP component identified for SU impacts)	TTRP Expanded Alternative (contributing TEP component identified for SU impacts)
Existing plus Project		
Traffic		
Program-Level		
Implementation of Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 to C.5.	SU Service Policy Framework (TR-3)	SU Service Policy Framework (TR-3)
Implementation of TPS Toolkit categories – Lane Modifications and Pedestrian Improvements – along Rapid Network.	SU TPS Toolkit elements within Lane Modifications and Pedestrian Improvements categories (TR-8)	SU TPS Toolkit elements within Lane Modifications and Pedestrian Improvements categories (TR-8)
Implementation of Lane Modifications and Pedestrian Improvements elements along program-level TTRP corridors.	SU TTRPs (TR-14)	SU TTRPs (TR-14)
Project-Level		
Randall/San Jose	LTS	SU TTRP.14 Expanded (TR-24)
16th/Bryant	LTS	SU TTRP.22_1 Expanded (TR-26), TTRP.22_1 Expanded Variant 1 (TR-30), or TTRP.22_1 Expanded Variant 2 (TR-34)
16th/Potrero	LTS	SU TTRP.22_1 Expanded (TR-27), TTRP.22_1 Expanded Variant 1 (TR-31), or TTRP.22_1 Expanded Variant 2 (TR-35)
16th/Seventh	LTS	SU TTRP.22_1 Expanded (TR-28), TTRP.22_1 Expanded Variant 1 (TR-32), or TTRP.22_1 Expanded Variant 2 (TR-36)

Table S-3: Comparison of Significant Transportation Impacts of TTRP Alternatives and Variants (continued)

Type and Location of Impact	TTRP Moderate Alternative (contributing TEP component identified for SU impacts)	TTRP Expanded Alternative (contributing TEP component identified for SU impacts)
Columbus/Green/Stockton	LTS	SU TTRP.30_1 Expanded (TR-38), TTRP.30_1 Expanded Variant 1 (TR-40), or TTRP.30_1 Expanded Variant 2 (TR-42)
Loading		
Program-Level		
Implementation of Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 to C.5TPS	SU Service Policy Framework (TR-5)	SU Service Policy Framework (TR-5)
Implementation of TPS Toolkit categories – Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements.	SU TPS Toolkit elements within Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements categories (TR-10)	SU TPS Toolkit elements within Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements categories (TR-10)
Implementation of Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements elements along program-level TTRP corridors.	SU TTRPs (TR-16)	SU TTRPs (TR-16)
Project-Level		
Mission Street	SU TTRP.14 Moderate Variant 1 (TR-48) or TTRP.14 Moderate Variant 2 (TR-49)	SU TTRP.14 Expanded (TR-50)
Stockton Street	SU TTRP.30_1 Moderate (TR-51)	SU TTRP.30_1 Expanded (TR-52), TTRP.30_1 Expanded Variant 1 (TR-53), or TTRP.30_1 Expanded Variant 2 (TR-54)

Table S-3: Comparison of Significant Transportation Impacts of TTRP Alternatives and Variants (continued)

Type and Location of Impact	TTRP Moderate Alternative (contributing TEP component identified for SU impacts)	TTRP Expanded Alternative (contributing TEP component identified for SU impacts)
Cumulative		
Cumulative Transit		
Mission Corridor – Downtown Screenlines	SU – Service Policy Framework and Service Improvements or Service Variants (C-TR-1)	SU – Service Policy Framework and Service Improvements or Service Variants (C-TR-1)
Fulton/Hayes Corridor and Mission Corridor – Downtown Screenlines	SU all TTRP Moderate Alternatives and Variants (C-TR-2)	SU all TTRP Expanded Alternatives and Variants (C-TR-3)
Implementation of Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5, and Lane Modifications and Pedestrian Improvements elements along program-level TTRP corridors.	SU –TTRP Moderate Alternatives (C-TR-7)	SU –TTRP Expanded Alternatives (C-TR-9)
Cumulative Traffic		
Market/Church/14th	LTS	SU TTRP.J Expanded (C-TR-13)
Fulton/Masonic	LTS	SU TTRP.5 Expanded (C-TR-14)
Geneva/Carter	LTS	SU TTRP.8X Expanded (C-TR-15)
Geneva/Moscow	LTS	SU TTRP.8X Expanded (C-TR-16)
Randall/San Jose	LTS	SU TTRP.14 Expanded (C-TR-17)
Mission/Fifth	LTS	SU TTRP.14 Expanded (C-TR-18)
Mission/16th	LTS	SU TTRP.14 Expanded (C-TR-19)
16th/Bryant	LTS	SU TTRP.22_1 Expanded (C-TR-20), TTRP.22_1 Expanded Variant 1 (C-TR-21), or TTRP.22_1 Expanded Variant 2 (C-TR-22)

Table S-3: Comparison of Significant Transportation Impacts of TTRP Alternatives and Variants (continued)

Type and Location of Impact	TTRP Moderate Alternative (contributing TEP component identified for SU impacts)	TTRP Expanded Alternative (contributing TEP component identified for SU impacts)
16th/Potrero	LTS	SU TTRP.22_1 Expanded (C-TR-23), TTRP.22_1 Expanded Variant 1 (C-TR-24), or TTRP.22_1 Expanded Variant 2 (C-TR-25)
16th/Owens	LTS	SU TTRP.22_1 Expanded (C-TR-26), TTRP.22_1 Expanded Variant 1 (C-TR-27), or TTRP.22_1 Expanded Variant 2 (C-TR-28)
16th/Fourth	LTS	SU TTRP.22_1 Expanded (C-TR-29), TTRP.22_1 Expanded Variant 1 (C-TR-30), or TTRP.22_1 Expanded Variant 2 (C-TR-31)
16th/Seventh	LTS	SU TTRP.22_1 Expanded (C-TR-32), TTRP.22_1 Expanded Variant 1 (C-TR-33), or TTRP.22_1 Expanded Variant 2 (C-TR-34)
Columbus/Green/Stockton	LTS	SU TTRP.30_1 Expanded (C-TR-35), TTRP.30_1 Expanded Variant 1 (C-TR-36), or TTRP.30_1 Expanded Variant 2 (C-TR-37)
Cumulative Loading		
Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5, and Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements elements along program-level TTRP corridors.	SU Service Policy Framework and TTRPs (C-TR-43)	SU Service Policy Framework and TTRPs (C-TR-43)
Mission Street and Stockton Street	SU TTRP.14 Moderate Variant 1 or TTRP.14 Moderate Variant 2, and TTRP.30_1 Moderate (C-TR-44)	SU TTRP.14 Expanded, TTRP.30 Expanded, TTRP.30_1 Expanded Variant 1, or TTRP.30_1 Expanded Variant 2 (C-TR-45)

Table S-3: Comparison of Significant Transportation Impacts of TTRP Alternatives and Variants (continued)

Type and Location of Impact	TTRP Moderate Alternative (contributing TEP component identified for SU impacts)	TTRP Expanded Alternative (contributing TEP component identified for SU impacts)
Cumulative Parking		
Implementation of the Service Policy Framework Objective A, Action A.3 and Objective C, Actions C.3 through C.5, and Lane Modifications, Parking and Turn Restrictions, and Pedestrian Improvements elements along program-level TTRP corridors.	SU Service Policy Framework and program-level TTRPs (C-TR-49)	SU Service Policy Framework and program-level TTRPs (C-TR-49)
Mission Street	SU TTRP.14 Moderate Variant 1 or TTRP.14 Moderate Variant 2 (C-TR-52)	LTS
16th Street	LTS	TTRP.22_1 Expanded, TTRP.22_1 Expanded Variant 1, or TTRP.22_1 Expanded Variant 2 (C-TR-54)

Source: Fehr & Peers/LCW Consulting, 2013.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The TTRP Moderate Alternative is the environmentally superior alternative compared to the TTRP Expanded Alternative from among the alternative analyzed other than the No Project Alternative. The TTRP Moderate Alternative would result in significant project-specific and cumulative commercial loading impacts as well as a significant and unavoidable transit impact on two corridors in the Downtown Muni screenlines under 2035 Cumulative plus Project alternative conditions, like the TTRP Expanded Alternative. Like the TTRP Expanded Alternative, the TTRP Moderate Alternative would result in significant cumulative parking impacts on one of the eight corridors (TTRP.14 Variants 1 and 2 for the Moderate, and TTRP.22 and Variants for the Expanded Alternative). However, the TTRP Moderate Alternative would result in fewer significant and unavoidable project-specific and cumulative impacts than the TTRP Expanded Alternative. Specifically, the TTRP Expanded Alternative would result in traffic impacts at five study intersections under Existing plus Project conditions and at 13 study intersections under the 2035 Cumulative conditions. The TTRP Moderate Alternative, on the other hand, would not adversely affect any of the study intersections. For these reasons, the TTRP Moderate Alternative is the environmentally superior alternative.

S.6 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

There have been two public comment periods for the proposed project during the CEQA environmental review process to date: a Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meetings in November and December 2011, and an Initial Study circulated for public comment from January 24 to February 22, 2013. During the public scoping period in 2011, 21 people provided oral comments at the public meetings and 29 people provided written comments. During the public comment period on the Initial Study in 2013, 83 written comments were received from public agencies, organizations and individuals.

There are no areas of known controversy regarding physical environmental issues related to the Policy Framework and TEP projects based on public comments received during the two CEQA-related public comment periods.[10] Many of the comments received related to the merits of the proposed project and express either support for or opposition to proposed components of the TEP. These are not issues concerning environmental impacts of the proposed project. Public concerns related to relocation and removal of transit stops as part

[10] San Francisco Planning Department, *TEP NOP Public Scoping Report – Written Comments and TEP NOP Public Scoping Report – Oral Comments*, September 27, 2012; and *TEP Initial Study Public Scoping Report*, July 8, 2013. Copies of these reports are available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2011.0558E.

of stop consolidation, and elimination of specific routes and rerouting of others were raised in many of the public comments. Others made similar comments regarding accessibility of transit service for senior and disabled riders who may need to travel further to access a transit stop. A subset of comments focused on current and future transit service in the Rincon Hill/South of Market/Mission Bay areas. Many comments made very specific suggestions related to the Muni routes that that are located in their area of the City and expressed either support for or opposition to route changes and/or stop consolidations. While these issues are not physical environmental issues, they raise project-specific issues that decision makers will need to consider as part of their actions on the proposed project.

Physical environmental issues raised during the public comment periods relate to the following issues:

- aesthetics of various transit facilities and the potential for impacts on archeological resources (addressed in the Initial Study, Appendix 2 to this EIR);
- issues related to both beneficial and adverse air quality impacts with implementation of the proposed project, including additional air emissions due to increased operation of private passenger vehicles as a result of lack of transit service in the Rincon Hill and South of Market areas;
- transportation impacts in general;
- assessment of the potential effects of the proposed project on regional transit operations;
- loss of on-street parking and loading space on commercial streets such as Stockton, Mission, and 16th streets, and
- pedestrian safety.

Aesthetics issues were addressed in the Initial Study (Appendix 2 to this EIR, provided on the Appendix CD), and no new issues were raised about this or other topics fully addressed in the Initial Study during the Initial Study public comment period. Air quality and transportation impacts, including potential traffic congestion, loss of on-street parking and on-street commercial loading spaces, are analyzed in the EIR in Chapter 4, Environmental Setting, Impacts, and Mitigation.

Decision-makers will be required to decide whether mitigation measures are feasible to implement, and whether to require that they be implemented. As explained in Chapter 6, Alternatives, the EIR analyzes at an equal level of detail a range of feasible options in the Travel Time Reduction Proposals – the TTRP Moderate Alternative and the TTRP Expanded Alternative – that decision-makers will need to choose from as individual projects are brought forward for implementation.

CHAPTER 1: INTRODUCTION

The San Francisco Municipal Transportation Agency (the SFMTA), in partnership with the San Francisco Office of the Controller (Controller's Office), is proposing to implement the Transit Effectiveness Project (TEP). The objectives of the TEP are to improve service reliability, reduce transit travel time, improve transit customer experiences, and improve transit service effectiveness and efficiency. The TEP is comprised of a group of proposals to assure a coordinated and efficient approach to delivering transit improvements. This Environmental Impact Report (EIR) for the TEP assesses the potentially significant environmental impacts of the TEP projects including, but not limited to, those related to the topics of Transportation and Circulation, Air Quality, and Noise. Implementation of the TEP would be guided by the proposed transit Service Policy Framework, described in detail in Chapter 2, Project Description, which would establish objectives and actions for implementing transit service in San Francisco.

Chapter 1, Introduction, explains how the TEP projects are evaluated in the EIR. This chapter identifies the purpose of the EIR, provides the project background, summarizes the environmental review process, outlines the organization of this EIR, and explains how to comment on the EIR.

1.1 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

This EIR for the TEP has been prepared by the San Francisco Planning Department (Planning Department) as the Lead Agency for administering the environmental review of the proposed project, in conformance with the provisions of the California Environmental Quality Act (CEQA),[1] the *CEQA Guidelines*,[2] and Chapter 31 of the San Francisco Administrative Code.

CEQA requires that an EIR identify significant impacts on the physical environment that would result from implementation of a proposed project. As defined in *CEQA Guidelines* § 15382, a "significant effect on the environment" is:

> . . . 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. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

---

[1] California Public Resources Code, § 21000 *et seq*.

[2] California Code of Regulations, Title 14, § 15000 *et seq*, (hereinafter "*CEQA Guidelines*").

An Initial Study may be prepared to eliminate some areas of potential impact from further review, if the analysis in the Initial Study supports a determination that the impacts in a particular topic would be less than significant or if mitigation measures included in the project would reduce significant impacts to less-than-significant levels. These topics can then be eliminated from discussion in the EIR. The Initial Study for the TEP, provided in Appendix 2 to the EIR, determined that the only potentially significant impacts of the TEP would be in the areas of transportation and circulation, noise and vibration, and air quality. Therefore, these are the environmental topics addressed in detail in Chapter 4, Environmental Setting, Impacts, and Mitigation.

The TEP has been analyzed at both a program level and a project level in this EIR pursuant to *CEQA Guidelines* §§ 15161 and 15168.[3] As discussed in more detail below in Subsection 1.5, when portions of a proposed plan or program of phased projects have been defined at different levels of detail, CEQA allows a program-level environmental review of those components for which sufficient detail is not available to prepare a project-specific analysis of impacts. In these cases, further environmental review may be required in the future once project-level details are developed. A program-level EIR is useful in certain cases because it provides the opportunity to evaluate the overall impacts of a proposed project, program, or plan for an area larger than is generally practical or appropriate for an individual site-specific project. It allows an agency to consider policy implications of areawide mitigation measures earlier than with specific development proposals and provides an analysis of cumulative impacts on an areawide basis. Details of some TEP components are known such that a project-level impact analysis for all environmental topics has been conducted; in cases where sufficient level of detail is not known, the TEP components are analyzed at a program level. Further, certain components of the TEP include enough detail such that for some environmental topics a project-level analysis has been conducted, while for the remaining topics a program-level analysis has been conducted.

As stated in the *CEQA Guidelines*, an EIR is an informational document intended to inform public agency decision-makers and the public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to a project. CEQA provides that public agencies should not approve projects until all feasible means available have been employed to substantially lessen the significant

[3] *CEQA Guidelines* Section 15168 states that a program EIR may be prepared on a series of actions that can be characterized as one large project and are related either (i) geographically; (ii) as logical parts in the chain of contemplated actions; (iii) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (iv) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

environmental effects of such projects.[4] Before any discretionary project approvals may be granted for a project, the San Francisco Planning Commission (Planning Commission) must certify the EIR as adequate, accurate, and objective. City decision-makers will use the certified EIR, along with other information and public processes, to determine whether to approve, modify, or disapprove a proposed project, and to specify any applicable conditions of project approval.

1.2 PROJECT BACKGROUND

Starting in 2006, the SFMTA and the Controller's Office undertook a detailed evaluation of the existing San Francisco Municipal Railway (Muni) system to identify ways to improve service, attract more passengers, and increase efficiency. During the initial planning phase, from October 2006 to November 2007, the SFMTA collected and analyzed extensive data, including market research on customer preferences and priorities for Muni service, changing travel patterns within the City and through the region, and route-by-route ridership data. Based on this technical research, best practices from other cities, and input from community stakeholders, policy-makers and SFMTA employees, the SFMTA developed a set of preliminary recommendations to improve transit service reliability, improve transit travel times, and update the transit network to better reflect changing travel patterns. In 2008, the SFMTA conducted extensive outreach efforts to solicit public input on the proposed TEP changes, and subsequently used this input to refine and develop a set of draft TEP recommendations.[5] The SFMTA Board of Directors (SFMTA Board) endorsed the draft TEP recommendations for purposes of environmental review in October 2008.

In April of 2009, the SFMTA Board declared a fiscal emergency. To address this issue, the SFMTA Board approved an amended 2009-2010 Operating Budget and related actions, which were statutorily exempt from environmental review under CEQA § 21080.32.[6] The transit service changes (service changes) associated with the budget deficit were implemented on December 5, 2009, with an additional series of service changes made on May 8, 2010. Service changes implemented in December 2009 and May 2010 included the elimination of some routes and changes to the route alignment, vehicle type, frequency, or

[4] "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time taking into account economic, environmental, social, and technological factors (Public Resources Code Section 21061.1).

[5] As part of the public participation process, in the spring of 2008 the SFMTA presented its draft recommendations to a broad cross-section of stakeholders through a series of 11 citywide workshops and over 100 stakeholder briefings. Available online at: http://www.sfmta.com/projects-planning/projects/transit-effectiveness-project-tep/detail. Accessed June 4, 2013.

[6] San Francisco Planning Department, 2009 and 2010. Statutory exemptions for SFMTA Fiscal Emergency. These documents are available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case Files 2009.0310E and 2010.0060E.

hours of service for others. On September 4, 2010, approximately 60 percent of the transit service eliminated in May 2010 was restored, focusing primarily on evening and owl (night time) service frequencies and the last scheduled trips for evening services. Some of the service changes implemented in 2009 and 2010 to address the fiscal emergency were informed by and reflected the 2008 draft TEP recommendations.

Based upon the events in 2009 and 2010 described above, the TEP proposals currently undergoing environmental review reflect an update to the 2008 draft TEP recommendations. In addition, certain proposals, discussed below in Section 1.4 on p. 1-6, that were initially associated with the TEP may have independent utility, and thus are not considered part of this project, and/or may not be subject to CEQA. Therefore, they could be implemented independently, and, in some cases, prior to the completion of the TEP environmental review. These proposals have been or will be environmentally assessed separately by the Planning Department, if required. For purposes of this environmental review, such proposals will not be further considered as components of the TEP.

In April 2011, the SFMTA published a discussion draft of the *TEP Implementation Strategy* (draft *Implementation Strategy*),[7] which outlines project priorities, funding needs, and a preliminary implementation schedule for the 2008 draft TEP recommendations. The draft *Implementation Strategy* builds on the recommendations developed during the initial planning phase of the TEP and reflects an update to the 2008 draft TEP recommendations to account for the budget-related Muni service changes that occurred in 2009 and 2010. It also sets forth the physical changes that are the focus of the proposals analyzed in this EIR. Since publication of the draft *Implementation Strategy*,[8] the SFMTA has been developing the details of the proposals that comprise the TEP. These refined proposals are described in detail in Chapter 2, Project Description, and are briefly summarized below.

1.3 SERVICE POLICY FRAMEWORK AND TEP

The SFMTA proposes a transit Service Policy Framework (Policy Framework), which is evaluated in this EIR. The Policy Framework is a policy document that sets forth transit service delivery objectives and identifies actions to fulfill these objectives. The objectives in the Policy Framework support the SFMTA Strategic Plan goals, which set forth the vision, mission, goals and objectives of the SFMTA, including providing a faster and more reliable

[7] SFMTA, Transit Effectiveness Project (TEP) Implementation Strategy (discussion draft), April 5, 2011. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E.

[8] The *TEP Implementation Strategy* (discussion draft) will be updated periodically as the project moves forward to reflect evolving funding scenarios and project refinements.

transit system in support of the City's Transit First Policy.[9] The Policy Framework is intended to enable the SFMTA to effectively allocate transit resources, efficiently deliver service, improve service reliability, reduce transit travel time, and improve customer service. It is intended to guide the planning and implementation of the TEP, and to guide future Muni plans and programs. The Policy Framework proposes to organize the existing and proposed Muni transit service into the following four distinct service types and levels of transit priority infrastructure: Rapid Network, Local Network, Community Connectors, and Specialized Services.

The proposed TEP includes a series of transit service improvements and concurrent necessary transit capital investments and is comprised of the following components: the Service Improvements, Service-related Capital Improvements, and transit Travel Time Reduction Proposals (TTRPs). The Service Improvements would include the creation of new routes, changes in the alignment of some existing routes, elimination of underused routes or route segments, changes to headways[10] and hours of service, and changes to the mix of local/limited/express service on several routes. The Service-related Capital Improvements would include the following categories of improvements to support the Service Improvements: a) Terminal and Transfer Point Improvements (TTPIs), with installation of overhead wiring and poles, new switches, bypass rails, and/or transit bulbs; expansion of transit zones; and modification of sidewalks at stops to accommodate substantial passenger interchanges and/or to provide transit vehicle layovers; b) Overhead Wire Expansion (OWE) capital improvements that support service route changes for electric trolley routes and provide bypass wires to allow trolley coaches to pass one another on existing routes; and c) Systemwide Capital Infrastructure (SCI) projects that include the installation of new accessible platforms to improve system accessibility across the light rail network and the extension of an existing "transit-commercial" contraflow lane[11] on Sansome Street from Washington Street to Broadway. The TTRPs would implement roadway and transit stop changes to reduce delays on the most heavily used routes that make up the backbone of the

---

[9] San Francisco Municipal Transportation Agency, *SFMTA Strategic Plan, FY2013-FY2018,* January 3, 2012. Available online at: http://www.sfmta.com/about-sfmta/reports/sfmta-strategic-plan-fy-2013-fy-2018. Accessed June 4, 2013. The Transit First Policy is codified in the City's Charter Article 8A, § 8A.115. Available online at: http://www.amlegal.com/nxt/gateway.dll/California/charter_sf/1996charter?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$sync=1. Accessed June 14, 2013.

[10] Headway is the scheduled time interval between any two revenue transit vehicles operating in the same direction on a route.

[11] In this instance, contraflow refers to the reversal of a lane of traffic from what was previously a one-way street. Transit-commercial refers to the fact that transit and commercial vehicles would be the only vehicles that would travel both ways on the street following implementation of the project. A portion of Sansome Street, from Market Street to Washington Street, currently operates as transit-commercial contraflow lane.

Muni system, which is referred to as the Rapid Network. The SFMTA has identified a set of 18 standard roadway and traffic engineering elements that can be used to reduce transit travel time along a transit corridor. These elements include adding transit bulbs/boarding islands; transit stop changes including relocating, adding, or eliminating stops; the addition of turn lanes, turn restrictions, and transit-only lanes; pedestrian improvements such as curb extensions and other crosswalk treatments; and the removal of stop signs and installation of traffic signals or other traffic calming measures at intersections. Collectively, these elements are called the Transit Preferential Streets Toolkit (TPS Toolkit). The TPS Toolkit elements would be applied to 17 of the 23 Rapid Network corridors in the City, making up the 17 TTRPs analyzed in this EIR.

The TEP projects would be implemented based on funding and resource availability. It is anticipated that Service Improvements would be rolled out in phases, with the first group implemented in Fiscal Year 2015 and the second group in a subsequent phase. The first group of Service-related Capital Improvements would also be constructed in FY 2015 and the second group in a subsequent phase. The TTRPs would be constructed in groups. The anticipated implementation schedule includes constructing TTRP.5 and TTRP.30_1 in FY 2015; TTRP.N, TTRP.8X, and TTRP.28_1 in FY 2016; and TTRP.J and TTRP.14 in FY 2017.[12] Construction of TTRP.22_1 is currently not anticipated to begin until after FY 2017. This implementation schedule is subject to change as specific funding sources and resources are identified.

1.4 RELATIONSHIP TO OTHER PROJECTS

The TEP is a specific set of projects that aim to achieve broad outcomes for the City's transit system. The SFMTA is also pursuing other projects and programs that would support transit system improvements. These include major capital initiatives such as the construction of the Central Subway; state of good repair investments; operational improvements such as systemwide all-door boarding policies, enforcement of transit-only lanes, service management; and traffic signal priority network enhancements for transit. These projects are not part of the TEP and are not being analyzed as part of the environmental review for the TEP. Rather they are ongoing independent SFMTA initiatives that are underway to improve Muni service, and would be in place to complement implementation of the TEP. Additional detail regarding these ongoing SFMTA programs to complement the TEP is provided below.

The SFMTA is continuing to enhance the existing transit network to make transit more readily identifiable and easy to use. These enhancements include applying red paint to the

[12] The TTRPs are named for the primary route/line running on the corridor; for example, TTRP.J refers to the J Church line, TTRP.8X to the 8X Bayshore Express route, and TTRP.14 refers to the 14 Mission route, etc.

pavement of existing transit-only lanes, adding and upgrading bus shelters, installing real-time arrival signage, and fare pre-payment on Muni corridors.

Transit Signal Priority Program (TSP) is an ongoing Muni program to reduce transit travel time and improve transit reliability. TSP requires coordination between bus equipment, traffic signal hardware and the Muni radio operations to turn or hold the traffic signal green as a transit vehicle approaches an intersection. The SFMTA currently has transit signal priority at 150 intersections and is working to expand transit signal priority to 600 intersections in the next three years. TSP expansion will rely on wireless communications between an on-board radio and a computer in the traffic signal. This program is integral to the implementation of a number of programs, such as SF*go*[13] and the Radio Communications Systems and Computer Aided Dispatch Replacement project.[14]

The City and County of San Francisco adopted the *Transit First* policy in 1973. Since the mid-1970s, traffic engineering treatments have been applied at specific locations throughout the transit system under the Transit Preferential Streets (TPS) Program to support this policy. These treatments have included standalone projects, such as the installation of transit-only lanes on the Mission Street corridor in the Downtown area, as well as the incorporation of treatments into larger projects, such as transit bulb installation in the Divisadero Great Streets project. For the purposes of this environmental review, some of these treatments have been designated as the elements that form the TPS Toolkit with the intent of applying them to the 17 TTRPs, in order to reduce transit travel time. The environmental review for the Policy Framework and the TEP will assess the impacts of implementing the TPS Toolkit on these transit corridors at a project level as well as at a program level, depending on the availability of design details for each corridor. The SFMTA anticipates continuing to implement the traffic engineering treatments that comprise the TPS Toolkit, as well as other traffic engineering solutions, on a citywide basis independent of the TEP and as part of its routine operations to provide Muni service. It is expected that any such implementation not explicitly included in the TEP proposals would be considered its own project and would be subject to separate environmental review, as required.

The TEP project-level Service Improvements and project-level TTRPs are being planned and coordinated with other ongoing projects, which are undergoing or have completed their own

[13] SF*go* is the City's Integrated Transportation Management System led by the SFMTA. The system includes signals that respond to the actual volume of traffic on a roadway, and real-time information on travel conditions and improved coordination between all modes.

[14] Radio Communications Systems and CAD Replacement project would upgrade Muni's antiquated radio communications system for both revenue and non-revenue fleets with a modern radio and data communications system that can carry data traffic generated by "smart" vehicle applications such as Automatic Passenger Counters, Vehicle Health Monitors, Automatic Vehicle Location data, and Closed Circuit TV.

respective design refinement and environmental review processes, including the Better Streets Plan, the Better Market Street project, the West South of Market (SoMa) Community Plan, the Balboa Park Station Pedestrian and Bicycle Connection Project, the Tenderloin-Little Saigon Community Transportation Study, the Two-way Haight Street Project, the Central Corridor Plan, and four major transit projects: the Van Ness Corridor and Geary Corridor Bus Rapid Transit (BRT) projects, the Transit Center District Plan, and the Central Subway Project. Although these projects are being or have been evaluated under separate environmental review processes, they are included in the cumulative analysis for the TEP.

1.5 PROJECT-LEVEL AND PROGRAM-LEVEL ANALYSIS

The environmental analysis of the TEP is unique and challenging in that the project is not a typical land use development proposal located on a single parcel or within a small geographic area with a relatively limited set of features. Nor is it a transportation proposal that spans a single travel corridor. The TEP spans most of the City and represents a program comprised of a group of varied projects. Closely related to the TEP is the SFMTA's Service Policy Framework, which is intended to guide the TEP and other future transit improvement proposals. Additionally, the proposals comprising the TEP have been developed at varying levels of detail to allow for phased project implementation commensurate with the resources available to the SFMTA. As such, it is useful to set forth a framework that allows for a clear project definition and an organized and logical environmental review analysis.

CEQA allows different elements of phased projects, such as the TEP, to be analyzed at either a program-level (a more conceptual level) or a project-level (a more specific level) of analysis, depending on the extent of the details known about a particular element or phase of a project at the time environmental review is conducted.[15] In addition, program-level review is appropriate for the environmental review of the issuance of rules, plans, or other general criteria to govern the conduct of a continuing program, such as the role of the Policy Framework for SFMTA's transit service. Because this environmental review includes a Policy Framework as well as detailed and conceptual TEP proposals, this environmental review draws on both program and project levels of analysis to assess the physical environmental effects of the proposed project. Specifically, the Policy Framework, five of the 12 Service-related Capital Improvements, and the application of the TPS Toolkit along nine of the 17 proposed TTRPs are analyzed at a program level. The remainder of the TEP proposals will receive project-level CEQA clearance through this environmental review. However, for some topics, including Noise and Vibration as well as Air Quality in the EIR, there is sufficient detail and information about the program-level components of the TEP and

[15] *CEQA Guidelines, § 15168.*

the Policy Framework for the analyses to be prepared at a project level. All of the environmental topics that were fully analyzed in the Initial Study (provided in Appendix 2 to this EIR, and enclosed on the Appendices CD) analyze the indirect effects of the Policy Framework as well as all aspects of the TEP at a project level.

In accordance with *CEQA Guidelines* § 15003(h), this EIR evaluates the combined effects of individual TEP program components as well as the cumulative effects of the TEP in combination with other reasonably foreseeable projects that would occur within the analysis year of 2035, the time frame within which cumulative impacts are analyzed.[16] This approach provides decision-makers with the opportunity to evaluate the overall impacts of the TEP on an areawide basis and to consider the broad policy alternatives and program-wide mitigation measures.[17]

1.6 ENVIRONMENTAL REVIEW PROCESS

The TEP environmental review process includes a number of steps: publication of a Notice of Preparation of an EIR (NOP) and Notice of Public Scoping Meetings, circulation of an Initial Study for public review and comment, publication and circulation of a Draft EIR for public review and comment, publication of responses to public and agency comments on the Draft EIR, and certification of the Final EIR.

The environmental review process is initiated when a project sponsor files an Environmental Evaluation application. The SFMTA submitted an Environmental Evaluation application to the Planning Department on June 25, 2011. The Planning Department issued an NOP and Notice of Public Scoping Meetings on November 9, 2011. Two public scoping meetings were held on December 6 and 7, 2011. A copy of the NOP is provided in Appendix 1 to the EIR.

Based on the comments received during public scoping (see Subsection 1.7 below for a summary of the environmental issues raised through public comment), the Planning Department determined that preparation of an Initial Study would be appropriate to focus the scope of the EIR.

The Planning Department distributed a Notice of Availability and an Initial Study on January 23, 2013. The Initial Study determined that the proposed project would have either no impact, a less-than-significant impact, or a less-than-significant impact with implementation of mitigation measures in the following environmental topic areas: Land Use and Land Use Planning; Aesthetics; Population and Housing; Cultural and Paleontological Resources; Greenhouse Gas Emissions; Wind and Shadow; Recreation; Utilities and Service Systems;

[16] *CEQA Guidelines, § 15130.*
[17] *CEQA Guidelines, § 15168.*

Public Services; Biological Resources; Geology and Soils; Hydrology and Water Quality; Hazards and Hazardous Materials; Mineral and Energy Resources; and Agricultural and Forest Resources. Therefore, these topics require no further environmental analysis. A copy of the Initial Study is provided in Appendix 2 to the EIR (on the Appendices CD that accompanies this EIR) and is incorporated here by reference. Table 1 lists the Initial Study Checklist topics that were fully analyzed in that document and shows the level of impact determined in the Initial Study for each topic.

The Initial Study also determined that the proposed project may have a potentially significant effect on Transportation and Circulation, Noise and Vibration, and Air Quality. In light of the potential for the proposed project to result in significant effects on the environment, the Initial Study concluded that an EIR would be required.

Since publication and circulation of the Initial Study, some revisions and clarifications have occurred to the proposed project. The revisions and clarifications are minor and do not affect the analyses or conclusions reached for any of the topics analyzed in the Initial Study. Chapter 2, Project Description, in this EIR, contains updated text where appropriate to account for the revisions and clarifications. They include an updated description of the southern terminal for the 10 Sansome route, to be located at the former 33 Stanyan terminal on 25th Street; a new boarding island would be constructed at the outbound stop on San Jose and Santa Rosa avenues for the TTRP.J; special striping would be added on Judah Street at 10th Avenue in advance of the crosswalk for the TTRP.N Expanded Alternative; new transit bulbs would be longer, and stops would be lengthened along portions of the 5 Fulton route to accommodate longer, 60-foot articulated buses; and two existing flag stops would be converted to a bus zone and a transit bulb at 30th and 33rd avenues on the 5 Fulton route. Appendix A in the Initial Study included a series of route maps showing the proposed changes for each Muni route or line for the Service Improvements and Service Variants component of the TEP; corrections and clarifications have been made to those maps as they are presented in Appendix 2 to this EIR for the following six routes/lines: 8BX Bayshore Express, 10 Sansome, 22 Fillmore, 27 Folsom, 33 Stanyan, and 35 Eureka. These corrections and clarifications do not change the analysis or conclusions in the Initial Study.

The significant environmental effects of implementing the proposed project are analyzed in this EIR for the three major topics of Transportation and Circulation, Air Quality, and Noise and Vibration in accordance with CEQA, the *CEQA Guidelines,* and Chapter 31 of the San Francisco Administrative Code.

Table 1: Initial Study Environmental Checklist Topics Fully Analyzed at a Project Level

Environmental Checklist Topic	Impact Level
Land Use and Land Use Planning [a]	Less Than Significant
Aesthetics [a]	Less Than Significant
Population and Housing [a]	Less Than Significant
Cultural and Paleontological Resources [a]	Less Than Significant with Mitigation Incorporated
Transportation and Circulation [b]	
c) Result in a change in air traffic patterns, including either an increase in traffic levels, obstructions to flight, or a change in location, that results in substantial safety risks?	Not Applicable
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	Less Than Significant
Noise [b]	
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	Not Applicable
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	Not Applicable
g) Be substantially affected by existing noise levels?	Less Than Significant
Air Quality [b]	
e) Create objectionable odors affecting a substantial number of people?	No Impact
Greenhouse Gas Emissions [a]	Less Than Significant
Wind and Shadow [a]	Less Than Significant
Recreation [a]	Less Than Significant
Utilities and Service Systems [a]	Less Than Significant
Public Services [a]	Less Than Significant
Biological Resources [a]	Less Than Significant
Geology and Soils [a]	Less Than Significant
Hydrology and Water Quality [a]	Less Than Significant
Hazards/Hazardous Materials [a]	Less Than Significant with Mitigation Incorporated
Mineral/Energy Resources [a]	Less Than Significant
Agricultural and Forest Resources [a]	Less Than Significant

Notes:

[a] All subtopics are fully addressed in the Initial Study for both Program- and Project-Level TEP components.

[b] All Initial Study subtopics not listed here are identified in the Initial Study as having potentially significant environmental impacts and are addressed in the Draft EIR.

The EIR is a public informational document intended to disclose to public agency decision-makers and the general public the significant environmental effects of a project and to present mitigation measures and feasible alternatives to avoid or reduce the significant environmental effects of that project. Following a detailed description of the proposed project, this Draft EIR provides an analysis of physical impacts of construction and operation of the proposed project in the topic areas of transportation and circulation, air quality, and noise. Where significant impacts are identified, mitigation measures are included, when feasible, to reduce or eliminate these impacts. In some cases, no feasible mitigation measures are available, or available mitigation measures would not reduce significant impacts to less-than-significant levels. In these cases, the significant impact would remain significant and unavoidable if the proposed project is approved and implemented as described. The organization of the information in this EIR is presented below in Subsection 1.8.

The Draft EIR will be circulated for public comment during a public review period of at least 45 days. A public hearing on the Draft EIR will be held before the Planning Commission during the public review period. Following the close of the public review period, the Planning Department will prepare and publish a document entitled "Responses to Comments," containing the Planning Department's responses to all comments received on the environmental analysis in the Draft EIR, along with copies of the written comments received and a transcript of the Planning Commission public hearing. The Responses to Comments document will also identify any revisions to the Draft EIR, resulting from responses to public comments on the Draft EIR. This Draft EIR, together with the Responses to Comments document, constitute the Final EIR. The Planning Commission will consider the adequacy of the Final EIR in an advertised public meeting. If the Planning Commission finds that the Final EIR complies with the requirements of CEQA, the CEQA Guidelines, and Chapter 31 of the San Francisco Administrative Code, it will certify the Final EIR.

After Final EIR certification, project decision-makers will use information in the Final EIR in their deliberations on the proposed project. Where a certified Final EIR identifies significant environmental effects, according to § 21081 of the California Public Resources Code, the lead agency must make specific findings of fact (Findings) before approving a project.[18] The Findings identify significant effects of the project; adopt feasible mitigation measures or alternatives to reduce significant impacts; determine whether mitigation measures or alternatives are within the jurisdiction of other public agencies and therefore must be rejected; and present reasons for rejecting mitigation measures or alternatives if infeasible. If the City were to approve the project despite significant impacts identified in the Final EIR that

[18] See also *CEQA Guidelines* §§ 15091 and 15092 for discussion of adoption of findings before approval of a project.

cannot be mitigated (if any), the Findings would include the reasons for its actions. Those reasons, called a statement of overriding considerations, must be supported by substantial evidence in the administrative record, and are used to explain why the benefits of a project make its unavoidable environmental effects acceptable. The purpose of the Findings is to establish the connection between the contents of the Final EIR and the action of the lead agency with regard to project approval, if the lead agency were to approve the project.

A mitigation monitoring and reporting plan (MMRP) must be adopted as part of the approval action for the project, identifying the mitigation measures included in the project, the entities responsible for carrying out the measures, and timing of implementation.

1.7 PUBLIC SCOPING AND SUMMARY OF PUBLIC COMMENTS

Two public scoping meetings were held on December 6 and 7, 2011, following publication of the Notice of Preparation of an EIR (NOP) and Notice of Public Scoping on November 9, 2011. These scoping meetings provided the public and affected governmental agencies with an opportunity to present their environmental concerns regarding the proposed project. A majority of comments received during the NOP public comment period related to the proposed project and its components. CEQA-related concerns raised at the public scoping meetings and in written comments addressed the aesthetics of various transit facilities, including overhead wires; the potential for impacts on archeological resources; the effects on traffic flow and potential for diversions due to new transit and pedestrian bulbs; the potential for shifts in travel modes; concern about loss of parking and loading; pedestrian safety concerns; and the environmental review process. Public comments suggested the use of different approaches to the transportation impact analysis such as providing estimates of time saved, and requested alternative service improvements.

Following public scoping, an Initial Study was prepared and circulated for public comment from January 24, 2013 to February 22, 2013. Approximately 66 individuals and 17 public agencies and community organizations submitted comment letters or emails to the Planning Department on the Initial Study. The majority of comments were related to the proposed project itself, including comments on the proposed route changes; the elimination of specific routes, route segments, and /or transit stops; and the need to consider mobility-challenged citizens as well as senior citizens as part of the TEP. A subset of comments focused on current and future transit service in the Rincon Hill/South of Market/Mission Bay areas. Another group of comments suggested different alternatives to features of the proposed project that SFMTA should consider, such as Mission Street center-running bus transit only lanes. Comments on environmental issues were related to current air quality conditions and changes to air quality due to the proposed changes in transit service and cumulative development; the negative and beneficial effects of the TEP on traffic circulation, transit service, pedestrian safety and movement, commercial loading, and parking along heavily-

used corridors such as San Bruno Avenue,16th Street, and Stockton Street; and identified the need to assess the potential effects of Muni operational changes on regional transit operations.

Comments on environmental issues are addressed in Section 4.2, Transportation and Circulation and Section 4.4, Air Quality. Comments on the TEP components as proposed by the SFMTA are not comments on the environmental analysis conducted as part of the Initial Study; however, comments that indicated that the project description would benefit from clarification have been addressed and readers are directed to Chapter 2, Project Description, in this EIR document. There were no specific comments on the adequacy of the analysis of environmental topics addressed in the Initial Study.

1.8 ORGANIZATION OF THIS EIR

This EIR is organized into seven chapters plus appendices, as described below.

The Summary chapter provides a concise overview of the Service Policy Framework, the proposed TEP projects, and the necessary approvals; the environmental impacts that would result from the proposed projects; mitigation measures identified to reduce or eliminate these impacts; improvement measures to reduce less-than-significant impacts; project alternatives; and areas of known controversy and issues to be resolved.

Chapter 1, Introduction, describes the type, purpose, and function of the EIR, the environmental review process, the comments received during the public scoping process and during circulation of the Initial Study, the organization of the Draft EIR, information on how to obtain copies of the Draft EIR, and instructions on how to comment on the Draft EIR.

Chapter 2, Project Description, presents details about the proposed project and its variants as well as the approvals required for implementation.

Chapter 3, Plans and Policies, discusses any conflicts with Federal, State, regional, and local plans and policies applicable to the proposed project, and lists the various plans and policies reviewed to make determinations as to the existence of any conflicts.

Chapter 4, Environmental Setting, Impacts, and Mitigation, addresses the following topics: Transportation and Circulation, Noise, and Air Quality. Each topical section includes the environmental setting, regulatory framework, approach to analysis, project-specific and cumulative impacts, and mitigation measures and improvement measures, when appropriate.

Chapter 5, Other CEQA Considerations, addresses potential growth-inducing impacts of the proposed project and identifies significant effects that cannot be avoided if the proposed project is implemented, as well as significant irreversible changes that would occur as a

result of implementing the proposed project, and areas of known public controversy and any issues to be resolved by decision-makers.

Chapter 6, Alternatives, presents a range of alternatives to the proposed project. Three alternatives are discussed: Alternative A: No Project Alternative; Alternative B: TTRP Moderate Alternative; and Alternative C: TTRP Expanded Alternative. This chapter identifies the environmentally superior alternative. It also discusses alternatives considered but rejected, and gives the reasons for rejection.

Chapter 7, Report Preparers, identifies the EIR authors and the agencies, organizations, and individuals who were consulted during preparation of the Draft EIR. In addition, the project sponsor agencies and their staff for the TEP are listed.

The Appendices to the EIR are: Appendix 1, Notice of Preparation of an EIR and Notice of Public Scoping Meetings; Appendix 2, Initial Study and Service Improvement Maps; Appendix 3, List of Streets From Which Muni Service would be Eliminated; and Appendix 4, Backup Documents for Noise Analysis.

- The Final EIR adds Chapter 8, Responses to Comments, and a Volume 3 with Attachments to the Responses to Comments. Dots placed in the left margin of the text throughout Volume 1 indicate revisions to the Draft EIR text from either responses to public comments or staff-initiated text changes making minor corrections; dots placed adjacent to a table or figure title indicate that the table or figure has been revised. Minor changes also have been made to correct typographical errors.

1.9 HOW TO COMMENT ON THE DRAFT EIR

Copies of the Draft EIR are available at the Planning Information Counter, San Francisco Planning Department, 1660 Mission Street, 1st Floor, San Francisco, CA 94103. The Draft EIR is also available for viewing or downloading at the Planning Department website, http://tepeir.sfplanning.org. You may also request that a copy be sent to you by calling (415) 575-9031 or emailing the EIR Coordinator Debra Dwyer at debra.dwyer@sfgov.org. All documents referenced in this EIR are available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, 94103, as part of Case File No. 2011.0558E. The distribution list for the Draft EIR is also available for review at the Planning Department by contacting Debra Dwyer at the information above.

Following publication of this Draft EIR, there will be a public hearing before the San Francisco Planning Commission during a 45-day public review and comment period to solicit public comment on the adequacy and accuracy of information presented in this Draft EIR.

The public comment period for this EIR is July 11, 2013 through August 26, 2013. The public hearing on this Draft EIR has been scheduled by the San Francisco Planning Commission for August 15, 2013 in Room 400 City Hall, Dr. Carlton B. Goodlett Place, beginning at 12:00 p.m. (call 558-6422 the week of the hearing for a recorded message giving a more specific time).

In addition, readers are invited to submit written comments on the adequacy of the document, that is, whether this Draft EIR identifies and analyzes the possible environmental impacts of the proposed project and identifies appropriate mitigation measures. *CEQA*

Guidelines § 15096(d) calls for public agencies to provide comments on those project activities within those agencies' areas of expertise and to support those comments with either oral or written documentation.

Written comments should be submitted to:

Sarah B. Jones, Acting Environmental Review Officer
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

Comments may also be submitted by e-mail to sarah.b.jones@sfgov.org or debra.dwyer@sfgov.org.

This page intentionally left blank.

CHAPTER 2: PROJECT DESCRIPTION

2.1 INTRODUCTION

This EIR analyzes the physical environmental impacts of the San Francisco Municipal Transportation Agency's (SFMTA) proposed transit Service Policy Framework (Policy Framework) as well as a set of projects in the Transit Effectiveness Project (TEP). The TEP is comprised of Service Improvements, Service-related Capital Improvements, and Travel Time Reduction Projects (TTRPs). As explained in Chapter 1, Introduction, some portions of the TEP are well-defined and are analyzed at a project level, while others are less well defined and are analyzed at a program level. Further, certain components of the TEP include enough detail such that for some environmental topics a project-level analysis has been conducted, while for the remaining topics a program-level analysis has been conducted.

This chapter of the EIR provides a detailed description of the proposed project and identifies the program-level and project-level components. It presents the project location in Subsection 2.2; provides an overview of the proposed project and lists the project sponsor's objectives in Subsection 2.3; summarizes the main features of the Service Policy Framework and the Transit Effectiveness Project in Subsection 2.4; describes the project characteristics in Subsection 2.5, presenting program-level and then project-level components in Subsections 2.5.1 and 2.5.2; describes the construction techniques expected to be used for the proposed project in Subsection 2.5.3; summarizes the expected project implementation schedule in Subsection 2.5.4; and describes the intended uses of the EIR in Subsection 2.6, presenting the list of required project approvals in Subsection 2.6.1. Subsection 2.5.2.1, which describes the project-level Service Improvements component of the TEP, also describes "variants" to the proposed project that would involve different improvements on

- some segments of a route, and Subsection 2.5.2.3, which describes the 11 project-level TTRPs, also describes variants with different designs on one or more segments of three of these TTRP corridors.

- For each of the 11 project-level TTRPs being analyzed, two alternatives have been developed by the SFMTA, and these alternatives are described and analyzed at an equal level of detail in this EIR. The two alternatives are referred to as the TTRP Moderate Alternative and the TTRP Expanded Alternative. Both alternatives are comprised of traffic engineering changes or treatments that the SFMTA has identified collectively as the Transit Preferential Streets Toolkit (TPS Toolkit). The TTRP Moderate Alternative and the TTRP Expanded Alternative provide a range of possible roadway treatments to achieve the SFMTA's objectives. In general, the TTRP Moderate Alternative has been designed and is expected to result in less substantial environmental effects, compared to under the TTRP

Expanded Alternative. The same Service Improvements or Service Variants, and the Service-related Capital Improvements are included with both Alternatives.

No major revisions have been made to the proposed project since the Initial Study was published on January 23, 2013. Therefore, this Project Description Chapter is substantially the same as in Section A of the Initial Study, other than a few minor corrections and clarifications and excluding Initial Study Project Description subsection A.1, most of which has been placed in Chapter 1, Introduction, in this EIR. The minor corrections and clarifications are summarized in EIR Chapter 1, Introduction, in Section 1.6 on p. 1-9. As noted there, these corrections and clarifications do not change the analyses or conclusions reached in the Initial Study. The Initial Study is provided as Appendix 2, on the CD with EIR Appendices that accompanies this EIR.

2.2 PROJECT LOCATION

The TEP project area includes locations throughout the 49-square-mile City and County of San Francisco. Figures 1a–d show the existing Muni transit routes by City quadrant (northeast, southeast, northwest, and southwest, respectively). The existing Muni system is located primarily within the public right-of-way. The various TEP components would be implemented on public land and within the public right-of-way throughout the City, which are largely under the jurisdiction of the San Francisco Department of Public Works (DPW) and the SFMTA. DPW maintains authority over regulations regarding excavation in the right- of-way, street design, and the official grade of streets within the City. Section 8A.102 of the San Francisco Charter grants the SFMTA the exclusive authority to adopt regulations that control the flow and direction of motor vehicle (including transit vehicles), bicycle and pedestrian traffic and to design, select, locate, install, operate, maintain and remove all official traffic control devices, signs, roadway features and pavement markings that control the flow of traffic with respect to streets and highways within the City's jurisdiction.

2.3 PROJECT SPONSOR'S OBJECTIVES

The overall purpose of the proposed Service Policy Framework and the TEP is to address the key challenge of providing a more effective public transportation service. The objectives of the Service Policy Framework and the TEP are:

- To improve, to the greatest extent possible, transit speed, reliability and safety by redesigning routes; to reduce travel time along high-ridership corridors by optimizing transit stop locations, implementing traffic engineering changes, and constructing capital infrastructure projects; and to improve safety for pedestrians, bicyclists, and riders at intersections by introducing infrastructure changes (e.g. pedestrian bulbs, transit bulbs, etc.) that lead to safer transit operation.

To and From Downtown
Crosstown Service
Community Service
Limited-Stop Service
Cable Car
Historic Streetcar
Express Service To and From Downtown
Express Area (and stop)

Muni Metro (surface)
Muni Metro (subway)
Accessible Wayside Platforms
Station
BART/Caltrain
Line Number
Peak Hours Only
Line Terminal

Other Transit Systems
AC Transit
SamTrans
GG Transit
Ferry Service
Presidio Shuttle (with stop)
Pedestrian Overcrossing
Stairway or path
Library
School
School with supplemental service (refer to chart on reverse)
Hospital
Buildings and Landmarks

* Service may vary with time of day or day of week. Refer to Route

N

0 0.1 0.2 0.3 0.4 0.5 1 MILE
0 0.2 0.4 0.6 0.8 1 KILOMETER

TRANSIT EFFECTIVENESS PROJECT

FIGURE 1a - PROJECT LOCATION (NORTHEAST QUADRANT)

TRANSIT EFFECTIVENESS PROJECT

FIGURE 1b - PROJECT LOCATION (SOUTHEAST QUADRANT)

TRANSIT EFFECTIVENESS PROJECT

FIGURE 1c - PROJECT LOCATION (NORTHWEST QUADRANT)

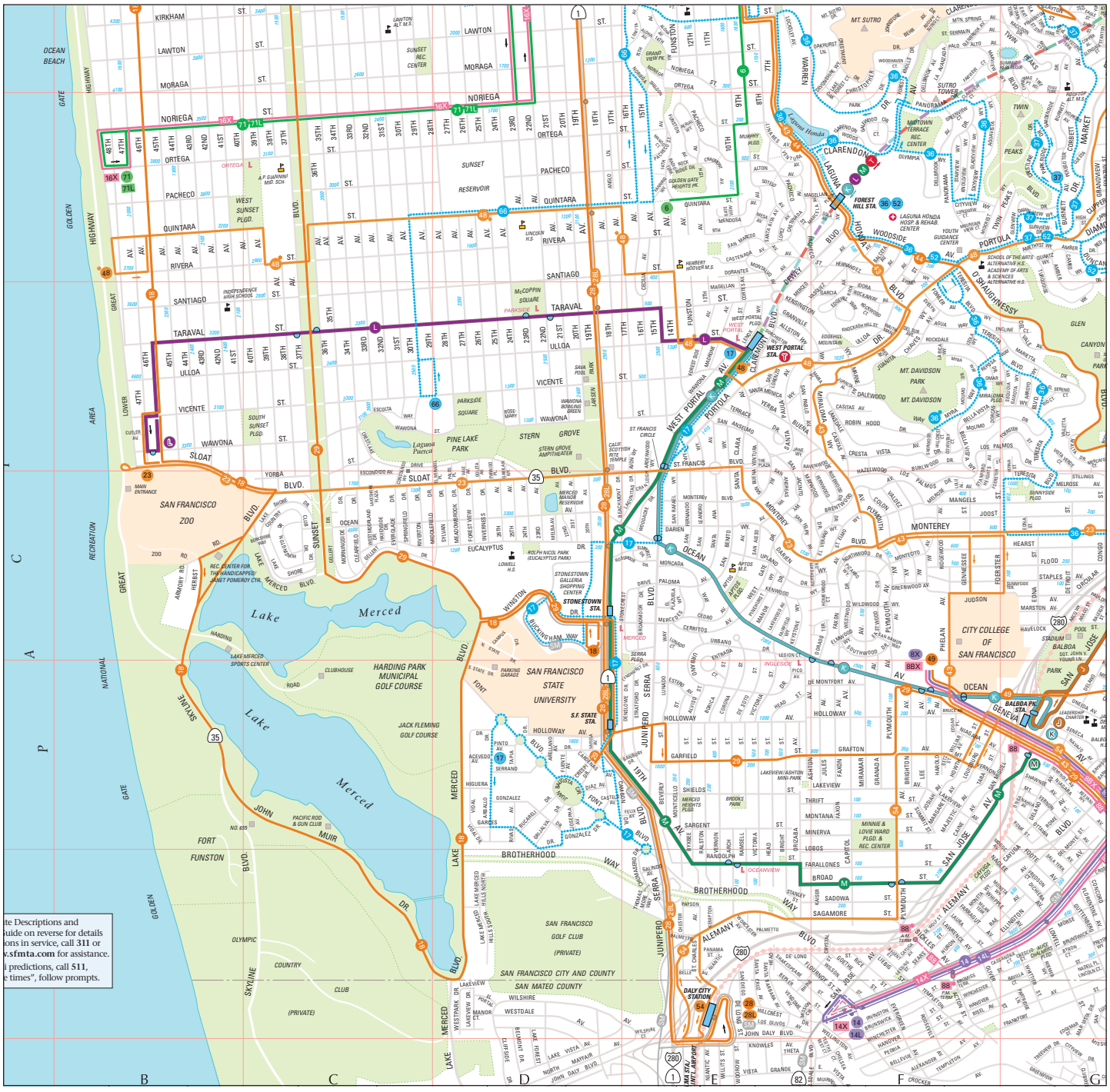


FIGURE 1d - PROJECT LOCATION (SOUTHWEST QUADRANT)

- To make Muni a more attractive transportation mode and increase transit ridership through both attracting new riders and increasing use by current riders by: serving major origin-destination patterns, such as between regional transit connections and major employment sites; providing direct and efficient service through reduction or elimination of circuitous route segments; reducing crowding through shifting resources to improve customer comfort and decreasing pass-ups; and redesigning routes to maximize ridership.
- To improve the cost-effectiveness and productivity of transit operations by improving network efficiency and reducing system redundancy by implementing service modifications that include route restructuring, frequency improvements, vehicle-type changes, and hours of service adjustments.
- To implement more fully the City's Transit First Policy by providing clear direction for managing transportation in San Francisco with the goals of providing service to all residents within a quarter mile of 95 percent of the Muni service area and prioritizing transit operations in high-ridership corridors over automobile delay and on-street parking.

2.4 PROJECT OVERVIEW

The key findings from the TEP existing conditions analysis and community outreach have informed the SFMTA's development of a Service Policy Framework (Policy Framework) to guide the planning and implementation of the TEP, and to guide future Muni plans and programs. Although the proposed project is called the Transit Effectiveness Project, the TEP is a program developed by the SFMTA that is comprised of a number of individual projects or categories of projects proposed for the Muni transit system. As a result of the research, outreach, and planning undertaken for the TEP, the TEP program includes a series of transit service improvements and concurrent necessary transit capital investments. TEP is comprised of the following components: the Service Improvements, Service-related Capital Improvements, and TTRPs. The proposed project components are described below.

2.4.1 SERVICE POLICY FRAMEWORK

The SFMTA proposes a transit Policy Framework, which sets forth transit service delivery objectives and identifies actions needed to fulfill these objectives. The objectives in the Policy Framework support the SFMTA Strategic Plan goals, which set forth the vision, mission, goals and objectives of the SFMTA, including providing a faster and more reliable

transit system in support of the City's Transit First Policy.[1] As stated above, the Policy Framework is informed by the key findings from the TEP existing conditions analysis and community outreach. It is intended to guide the planning and implementation of the TEP, and to guide future Muni plans and programs. Its objectives include the effective allocation of transit resources, the efficient delivery of service, the improvement of service reliability and reduction in transit travel time, and an improvement in customer service. A variety of actions are identified to implement these objectives.

The Policy Framework defines the transit network and proposes to organize Muni transit service into the following four distinct service types and levels of transit priority infrastructure.

- Rapid Network: These frequent, heavily used bus routes and rail lines make up the backbone of the Muni system and would be high priorities for service and customer amenity enhancements.
- Local Network: These bus routes complement and connect to the Rapid Network to create the core network, allowing passengers to get to most destinations in San Francisco with no more than one transfer.
- Community Connectors: This category includes lightly-used bus routes that circulate through San Francisco's hillside residential neighborhoods to fill in gaps in coverage and connect passengers to the core network.
- Specialized Services: These routes augment all-day service to address focused transit needs. They include commuter express routes, and connections to Bay Area Rapid Transit (BART) and Caltrain stations, and special weekend football service.

The Policy Framework's four Objectives would direct the SFMTA to allocate transit resources to serve the entire City effectively, using the tiered system of service types; manage the system to deliver consistent service that fits customer demands; improve system reliability and reduce transit travel time; and improve customer service by maximizing passenger comfort, providing stop amenities such as shelters and maps, and integrating Muni service with the regional transit system. The Policy Framework is presented in detail in Section 2.5.1.1 on pp. 2-19 to 2-23.

2.4.2 SERVICE IMPROVEMENTS

As part of the TEP development, the SFMTA conducted a comprehensive evaluation of transit service to assess network restructuring that examined route and line performance,

[1] San Francisco Municipal Transportation Agency (SFMTA), *SFMTA Strategic Plan FY2013-FY2018,* January 3, 2012. Available online at: http://www.sfmta.com/about-sfmta/reports/sfmta-strategic-plan-fy-2013-fy-2018. Accessed June 4, 2013.

travel time, reliability, and ridership throughout the Muni system. Staff then developed a set of transit Service Improvement proposals that were vetted through dozens of community meetings with critical stakeholders and policy makers.[2] As a result of this process, a final set of Service Improvements was developed. These proposed Service Improvements include the following:

- Creation of new routes.
- Changes to route alignment.
- Elimination of underutilized existing routes or route segments.
- Changes to the frequency and hours of transit service.
- Changes to the transit vehicle type on specific routes.
- Changes to the mix of local/limited/express services on specific routes.
- Other changes, such as new express service stops, expansion of limited service on weekends, and expansion of other service on weekends such as an additional day of service.

All Service Improvements are analyzed at a project level. The Service Improvements are discussed in detail in Section 2.5.2.1 on pp. 2-57 to 2-102.

2.4.2.1 Service Variants

A number of project variants are under consideration by the SFMTA to allow for flexibility in the phasing and implementation of the Service Improvements component of the TEP. These variations on some of the Service Improvements are called "Service Variants." Proposed Service Variants would modify portions of some routes, modify the frequency of transit service on some routes, or change the type of vehicle used on some routes. Service Variants are being considered for the following Service Improvements routes: 2 Clement, 5 Fulton, 8X/8BX/8AX Bayshore Express Routes, 11 Downtown Connector, 16X Noriega Express, 17 Parkmerced, 22 Fillmore, 27 Folsom, 28/28L 19th Avenue, 32 Roosevelt, 33 Stanyan, 35 Eureka, 37 Corbett, 43 Masonic, and 71L Haight-Noriega Limited. The proposed Service Variants are described in detail as part of the descriptions of their routes in Table 8, beginning on p. 2-64, and are listed separately in Table 9 on p. 2-103, below. All variants to the Service Improvements are being analyzed at a project-level.

[2] Information on the TEP public outreach process is available from the SFMTA. Available online at: http://www.sfmta.com/projects-planning/projects/transit-effectiveness-project-tep/detail. Accessed June 4, 2013.

2.4.3 SERVICE-RELATED CAPITAL IMPROVEMENTS

Many of the Service Improvements could be implemented without capital infrastructure changes. However, some of the service changes would be dependent on or enhanced by Service-related Capital Improvements. These projects fall into three categories:

- Terminal and Transfer Point Improvements (TTPI). Terminal and transfer points are stops that accommodate substantial passenger interchanges and/or transit vehicle layovers. Some of the TEP route changes would require passengers to transfer at new locations and/or additional buses to layover at existing stops. The TEP proposes four TTPI projects. The TTPI projects would include some or all of the following: the installation of new switches; bypass rails (for the E-Line); transit bulbs; overhead wiring, poles, and associated underground wiring; the expansion of transit zones for bus layovers; the reconfiguration or elimination of on-street parking; and possible sidewalk modifications.

- Overhead Wire Expansion (OWE). OWE projects would include the installation of additional overhead wires and related infrastructure (e.g., support poles up to 30-feet in height, conduit, and duct banks[3]) for certain electric trolley coach routes. The TEP proposes six OWE projects. OWE projects would support service route changes by allowing Muni to use electric trolley coaches on additional streets and would make it possible for trolley coaches to pass one another on existing trolley coach routes.

- Systemwide Capital Infrastructure (SCI). The two SCI projects in the TEP would include the installation of new accessible platforms to improve system accessibility across the light rail network and the extension of an existing "transit-commercial" contraflow[4] lane on Sansome Street to optimize bus routing and reduce transit travel time.

The Service-related Capital Improvements are analyzed at either a program level or project level in this EIR. Capital projects for which specific designs and locations have not yet been developed are evaluated at a program level. Capital projects with sufficiently detailed designs are analyzed at a project level. Table 2 lists the Service-related Capital Improvements with their anticipated level of environmental review. Figure 2 on p. 2-12

[3] A duct bank refers to underground electrical wiring in groups of conduits.

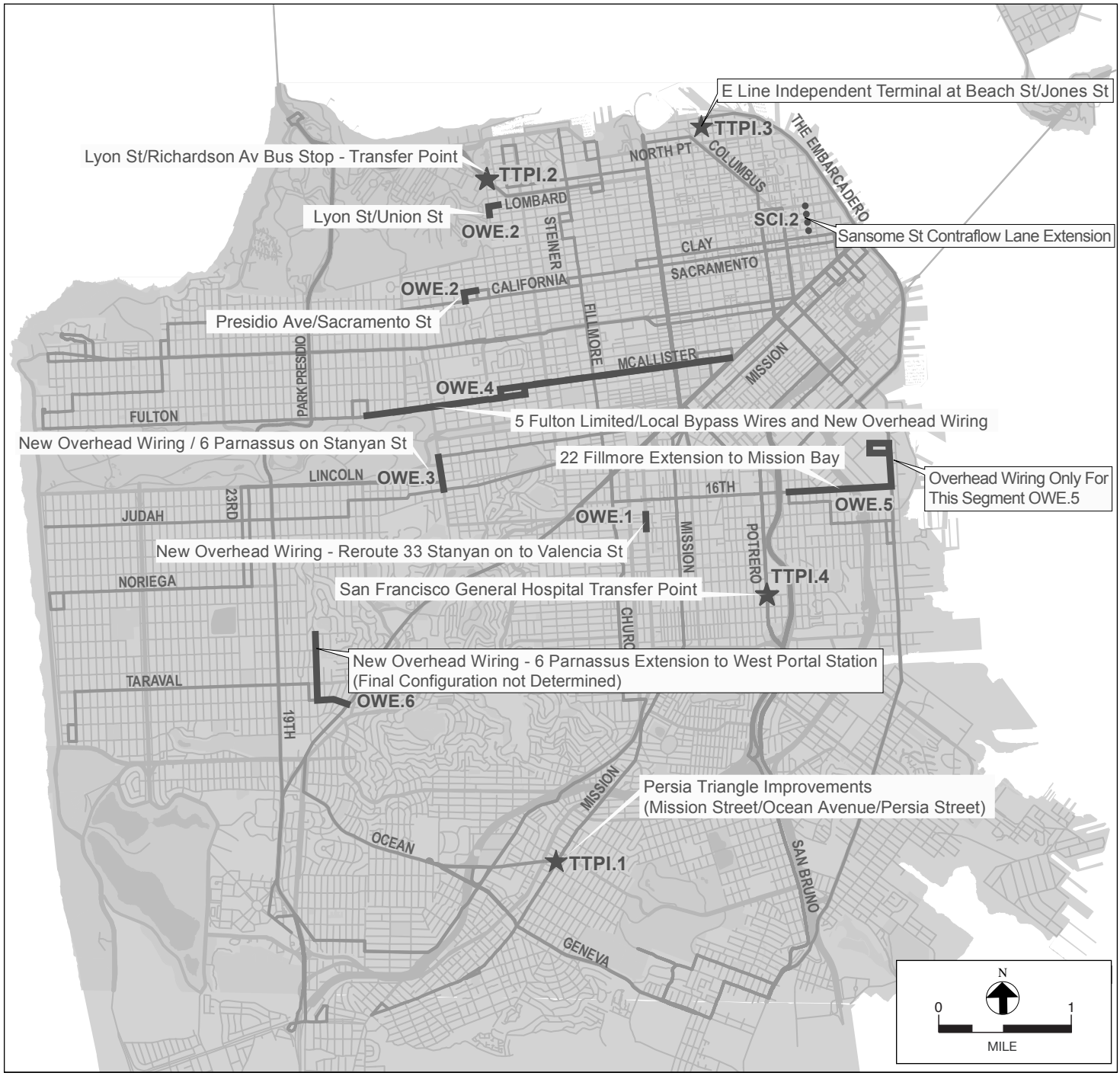
[4] In this instance, contraflow refers to the reversal of a lane of traffic from what was previously a one-way street. Transit-commercial refers to the fact that transit and commercial vehicles would be the only vehicles that would travel both ways on the street following implementation of the project. A portion of Sansome Street, from Market Street to Washington Street, currently operates as transit-commercial contraflow lane.

Table 2: Service-related Capital Improvement Projects

Program Level	Project Location/Type
Terminal and Transfer Point Improvements	
TTPI.2	Lyon Street/Richardson Avenue Bus Stop/Transfer Point
TTPI.3	E Line Independent Terminal at Beach Street/Jones Street
TTPI.4	San Francisco General Hospital Transfer Point
Overhead Wire Expansion	
OWE.6	New Overhead Wiring – 6 Parnassus Extension to West Portal Station
Systemwide Capital Infrastructure Project	
SCI.1	Accessible Platforms

Project Level	Project Location/Type
Terminal and Transfer Point Improvements	
TTPI.1	Persia Triangle Improvements (Mission Street/Ocean Avenue/Persia Street)
Overhead Wire Expansion Projects	
OWE.1	New Overhead Wiring – Reroute 33 Stanyan on to Valencia Street
OWE.2	Bypass Wires at Various Terminal Locations Lyon and Union streets (Routes 41 Union and 45 Union-Stockton) Presidio Avenue and Sacramento Street (Routes 1 California and 2 Clement)
OWE.3	New Overhead Wiring – 6 Parnassus on Stanyan Street
OWE.4	5 Fulton Limited/Local Bypass Wires
OWE.5	22 Fillmore Extension to Mission Bay
Systemwide Capital Infrastructure	
SCI.2	Sansome Contraflow Lane Extension

shows the locations of improvements that are analyzed at a program and project level. The Service-related Capital Improvements are described in detail in Section 2.5.2.2 on pp. 2-102 to 2-110.



SOURCE: SFMTA, Turnstone Consulting

Legend

TTPI: Terminal and Transfer Point Improvements (★)

SCI: Systemwide Capital Infrastructure (•••••••)

OWE: Overhead Wire Expansion (▬▬)

Muni Rapid Network (——)

Note: The specific locations for the program-level SCI.1 Accessible Rail Platforms have not yet been determined.

TRANSIT EFFECTIVENESS PROJECT

FIGURE 2 - PROPOSED SERVICE-RELATED PROGRAM- AND PROJECT-LEVEL CAPITAL IMPROVEMENTS

2.4.4 TRAVEL TIME REDUCTION PROPOSALS

Research conducted by the SFMTA during the initial planning phase of the TEP identified the following as major causes of transit delay: intersection congestion, traffic congestion on roadways, narrow mixed-flow lanes, and closely spaced transit stops.[5] Other sources of transit delay identified in the research were associated with dwell time,[6] traffic signals, and transit zone operational delays[7]). The SFMTA has identified a set of 18 standard traffic engineering elements that address these issues and can reduce transit travel time when applied to streets along a transit corridor. As described above, a number of these elements have already been applied by the SFMTA as part of its ongoing Transit Preferential Streets (TPS) Program and would continue to be used on segments of the Muni system for projects other than those included in the TEP. These 18 elements are collectively referred to as the TPS Toolkit. The TPS Toolkit elements are grouped into five categories based on the types of roadway changes involved: transit stop changes, lane modifications, parking and turn restrictions, traffic signal and stop sign changes, and pedestrian improvements. A list of the TPS Toolkit elements is presented by category in Table 3, and the elements are described in detail under Section 2.5.1.3 beginning on p. 2-23.

Through the initial planning, research, and outreach phase of the TEP, the SFMTA has determined which frequently and heavily used bus routes and rail lines make up the backbone of the Muni system, and has designated these routes and lines as the Rapid Network. The Rapid Network has been identified as high priority for transit service. In addition, it has been determined that implementation of the TPS Toolkit elements would be of particular benefit along these routes to improve transit reliability and reduce transit travel time. Application of the TPS Toolkit on the Rapid Network would support the role of these routes as transit priority corridors. As part of the TEP the TPS Toolkit elements would be applied along 17 of the 23 Rapid Network corridors. These 17 proposed TEP projects are referred to as transit TTRPs. The TTRPs are named for the primary route/line using the corridor, for example, TTRP.J for the J Church line, TTRP.8X for the 8X Bayshore Express route, and TTRP.14 for the 14 Mission route.

---

[5] SFMTA, San Francisco Transit Effectiveness Project: Service Evaluation Report, December 2008, pp. 42-43. A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E.

[6] Dwell time is the time a transit vehicle waits at a transit stop while customers board and alight.

[7] Transit zone operational delay is the delay that occurs during the time when transit vehicles pull into a stop or merge back into traffic after a stop.

Table 3: Transit Preferential Streets Toolkit

Description of Toolkit Categories	Toolkit Elements
Transit Stop Changes: Transit stop changes adjust the size, location, or type of a transit stop. Transit stop changes reduce travel time by changing the distance between stops, making boarding and alighting easier for passengers, reducing transit dwell time, and/or reducing the time it takes for a transit vehicle to move in and out of traffic.	1. Remove or Consolidate Transit Stops. 2. Optimize Transit Stop Locations at Intersections. 3. Install Transit Bulbs. 4. Install Transit Boarding Islands. 5. Optimize Transit Stop Lengths. 6. Convert Flag Stops to Transit Zones.
Lane Modifications: Lane modifications change the roadway striping. These tools are proposed to separate transit vehicles from vehicle congestion, enhance safety by widening existing travel lanes, or improve transit speed and reliability by improving traffic flow. These changes are generally implemented by modifying an existing travel lane or by removing a parking lane.	7. Establish Transit-Only Lanes. 8. Establish Transit Queue Jump/Bypass Lanes. 9. Establish Dedicated Turn Lanes. 10. Widen Travel Lanes through Lane Reductions.
Parking and Turn Restrictions: Parking and turn measures are primarily legislative changes and enacted by signage, striping and parking restrictions. In some cases, they could also include roadway striping changes. Turn restrictions and tow-away zones are proposed to reduce travel delay caused by turning vehicles and to increase the number of travel lanes or the width of travel lanes on a street for some or all times of day.	11. Implement Turn Restrictions. 12. Widen Travel Lanes through Parking Restrictions.
Traffic Signal and Stop Sign Changes: Intersections are typically controlled by yield signs, stop signs and traffic signals. Signalizing an intersection or removing the stop sign(s) on the street with transit would reduce delay from stop signs. Traffic calming measures could be added to intersections with stop sign removals to help pedestrians cross the street.	13. Install Traffic Signals at Uncontrolled and Two-way Stop-controlled Intersections. 14. Install Traffic Signals at All-way Stop-Controlled Intersections. 15. Replace All-way Stop-controls with Traffic Calming Measures at Intersections
Pedestrian Improvements: Pedestrian improvements enhance access to transit, and enable transit to move with less delay and more reliability through a corridor.	16. Install Pedestrian Refuge Islands. 17. Install Pedestrian Bulbs. 18. Widen Sidewalks.

- Using the TPS Toolkit, the SFMTA has developed specific corridor designs for 11 of the 17 TTRPs. Therefore, the design details to conduct project-level analysis are known and these are being analyzed at a project level in this environmental review. There are variants to the design of three of the project-level TTRPs that involve a change in the TPS Toolkit elements applied in some locations. The project-level TTRPs and their variants are described in detail in Section 2.5.2.3, beginning on p. 2-110. In addition, the TPS Toolkit would be used to develop the remaining six of the 17 designs for the program-level TTRPs pending further development and public outreach. Therefore, the site-specific placement of the TPS Toolkit elements on these six corridors has not been identified, and they are analyzed at a program level in this environmental review[8] unless the specific locations for applying the TPS Toolkit elements along the corridors are not needed for project-level evaluation in a particular CEQA topic. In such cases, the program-level TTRP may be analyzed at a project level for that specific CEQA topic. Subsequent environmental review may be required in the future for the TTRPs analyzed at a program level, once site-specific designs have been developed.

  The transit corridors for which TTRPs are proposed, at both the project level and program level, are shown on Figure 3 on p. 2-16 and listed in Table 4 on pp. 2-17 to 2-18. Table 4 lists the level of environmental review analysis for each corridor.

  The segments of the Rapid Network that are not being considered for TTRP improvements include: Market Street, Muni Metro subway tunnel, West Portal Avenue; Junipero Serra Boulevard; The Embarcadero (including Jefferson, Jones and Beach streets), Third Street, Fourth Street, Van Ness Avenue, Townsend Street and Geary Boulevard. Travel time reduction strategies have already been implemented on these segments (e.g., Third Street light rail project) or they are part of other transportation studies that will address transit delay and reliability challenges (e.g., Van Ness BRT).

  Each of the proposed TTRPs would include a different combination of the TPS Toolkit elements applied along the length of the corridor, based on the needs of the individual corridor, in order to reduce transit travel time and increase transit service efficiency.

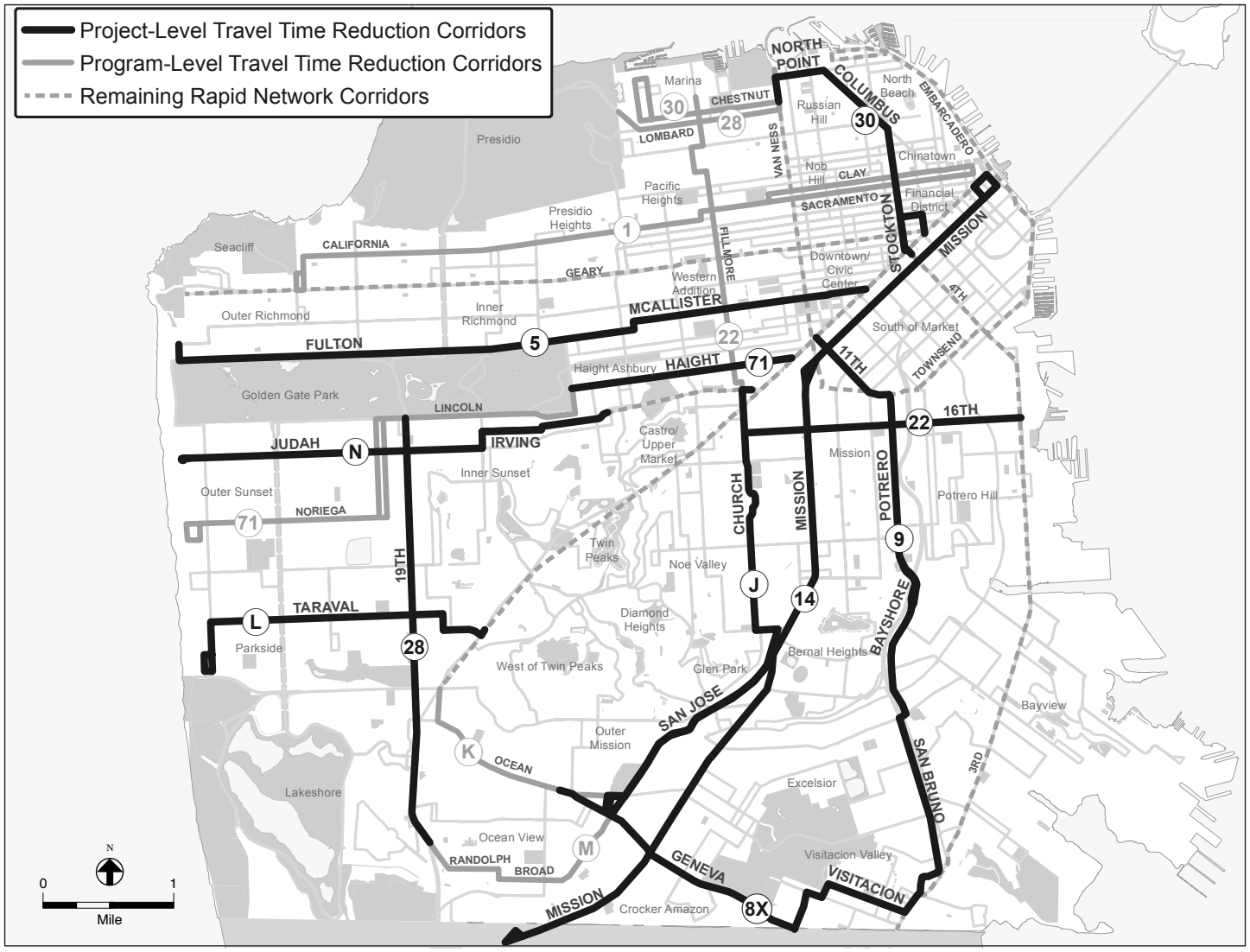
---

[8] Three of the TTRPs that are analyzed at a program level – the TTRP.L, TTRP.9, and TTRP.71_1 – are supplemented with project-level analyses because their detailed designs were developed after the Draft EIR was published on July 10, 2013. The program-level descriptions and analyses of these three TTRPs have not been removed from the EIR, but the project-level analyses and descriptions have been added where appropriate. Thus, while there are 11 project-level TTRP's, the EIR also includes 9 program-level TTRPs, with three appearing under both discussions/analyses.

2.5 PROJECT CHARACTERISTICS

2.5.1 DESCRIPTION OF PROGRAM-LEVEL COMPONENTS

Program-level environmental review is used in connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program. Therefore, program-level review is appropriate for the proposed Policy Framework. Program-level review is also used in environmental analyses for a series of actions, including phased projects like the TEP that can be characterized as one large project because they



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

● FIGURE 3 - PROPOSED PROGRAM-AND PROJECT-LEVEL TTRP RAPID NETWORK CORRIDORS

Table 4: TEP Travel Time Reduction Proposals for the Rapid Network Corridors

TEP Reference No.	Affected Routes: Corridor Description
Program Level *	
TTRP.1	1 California: along Drumm, Sacramento, Steiner, and California streets, 32nd Avenue and Geary Boulevard (outbound), and along Geary Boulevard, 33rd Avenue, Clement Street, 32nd Avenue, California, Steiner, Sacramento, Gough and Clay streets (inbound), from the intersection of Geary Boulevard and 33rd Avenue to the intersection of Clay and Drumm streets.
TTRP.22_2	22 Fillmore: along Church, Hermann, and Fillmore streets, Broadway, and Steiner, Union, and Fillmore streets, from the intersection of 16th and Church streets to the intersection of Bay and Fillmore streets.
TTRP.28_2	28L 19th Avenue Limited: along Van Ness Avenue, Lombard Street and Richardson Avenue from Beach Street and Van Ness Avenue intersection to Lyon Street and Richardson Avenue (US 101 N) intersection.
TTRP.30_2	30 Stockton: along Chestnut, Broderick, Divisadero and Jefferson streets, from the intersection of Van Ness Avenue and Chestnut Street to the intersection of Jefferson/Broderick streets.
TTRP.K	K Ingleside: along Junipero Serra Boulevard and Ocean Avenue, from the intersection of Ocean Avenue and San Jose Avenue and Oneida Street (Balboa Park Station) to the intersection of Sloat/Junipero Serra boulevards.
TTRP.M	M Ocean View: along 19th Avenue, Parkmerced local streets, 19th Avenue, Randolph Street, Orizaba Avenue, Broad Street and San Jose Avenue, from and the intersection of 19th and Holloway avenues to the intersection of Geneva and San Jose avenues (Balboa Park Station).

TEP Reference No.	Affected Routes: Corridor Description
Project Level	
TTRP.5	5 Fulton/5L Fulton Limited: along La Playa Street, Fulton Street, Central Avenue, and McAllister Street, from La Playa/Cabrillo streets intersection to Market/McAllister streets intersection.
TTRP.8X	8X Bayshore Express: along Geneva Avenue, Santos Street, Sunnydale Avenue, Hahn Street, Visitacíon Avenue, Bayshore Boulevard, and San Bruno Avenue from the intersection of Ocean/ Silver avenues to Silver/San Bruno avenues.
● TTRP.9**	9 San Bruno/9L San Bruno Limited, along the following streets in two segments: Segment 1 - along 11th Street, Division Street, Potrero Avenue, Bayshore Boulevard, and Silver and San Bruno avenues. This part of the corridor extends from the intersection of Market and 11th streets to the intersection of San Bruno and Silver avenues. Segment 2 - Bayshore Boulevard, Sunnydale Avenue, Schwerin Street, Geneva Avenue, Santos Street and Sunnydale Avenue. This part of the corridor extends from the intersection of Visitacíon Avenue and Bayshore Boulevard to the existing terminus at 2070 Sunnydale Avenue, adjacent to the Gleneagles Golf Course in McLaren Park.
TTRP.14	14 Mission/14L Mission Limited: inbound along Mission Street, Main Street, Market Street and Steuart Street and outbound along Steuart Street, Mission Street, Otis Street, Mission Street, Flournoy Street, San Jose Avenue, and John Daly Boulevard, from the intersection of Steuart/ Mission streets to Daly City BART Station.
TTRP.22_1	22 Fillmore: along 16th Street from the intersection of Church/16th streets to the intersection of Third/ 16th streets.
TTRP.28_1	28 19th Avenue/28L 19th Avenue Limited: along 19th Avenue from Lincoln Way and 19th Avenue intersection to Junipero Serra Boulevard and 19th Avenue intersection.
TTRP.30_1	8X Bayshore Express, 30 Stockton and 45 Union: along Van Ness Avenue, North Point Street, Columbus Avenue, then along Stockton Street (inbound) and Sutter Street and Kearny Street (outbound), from Van Ness Avenue and Chestnut Street intersection to the intersection of Market/ Stockton streets (inbound) and the intersection of Market/ Kearny streets (outbound).
● TTRP.71_1**	71L Haight-Noriega Limited and the 6 Parnassus: along Ortega Street, 47th Avenue, Noriega Street, 22nd Avenue, Lincoln Way, Frederick, Stanyan, and Haight streets (inbound), and along Haight, Stanyan, and Frederick streets, Lincoln Way, 23rd Avenue, Noriega Street, the Great Highway and Ortega Street (outbound), from the intersection of Ortega Street/48th Avenue to the intersection of Market/Gough streets.
TTRP.J	J Church: along Church Street, right-of-way, Church Street, 30th Street and San Jose Avenue, from Church Street and Duboce Avenue intersection to Geneva/San Jose avenues intersection [Balboa Park Station (Muni Metro and BART)].
● TTRP.L**	L Taraval: along Ulloa Street, 15th Avenue, Taraval Street, 46th Avenue, Vicente Street, 47th Avenue, Wawona Street and 46th Avenue, from West Portal Avenue and Ulloa Street intersection (West Portal Station) to Wawona and 47th Avenue intersection.

TEP Reference No.	Affected Routes: Corridor Description
TTRP.N	N Judah: along Judah Street, Ninth Avenue, Irving Street, Arguello Boulevard, and Carl Street, from the intersection of La Playa/ Judah streets to the intersection of Carl/Cole streets.

Note:

* The TTRPs listed as "Program Level" in this table are analyzed at a program level unless the specific locations of the TPS Toolkit elements along the corridors are not needed to evaluate a particular CEQA topic, in which case the program-level TTRPs are cleared at a project level for that specific topic.

● ** The TTRP.9, TTRP.71_1, and TTRP.L were analyzed at a program level in the Draft EIR. Subsequently, they were designed in detail in Fall 2013, and analyzed at a project level for the Final EIR; therefore, they are analyzed at both a program level and a project level, but are not listed and described twice in this table.

are related either geographically or as logical parts in a chain of contemplated actions (*CEQA Guidelines*, §15168(a)). Certain components of the TEP such as some of the Service-related Capital Improvements and TTRPs for which specific detailed designs have not yet been developed are generally analyzed in this environmental review at a program level. However, for a number of environmental topics (e.g., Land Use and Land Use Planning, Population and Housing, Aesthetics, and Wind and Shadow among others), sufficient level of detail is available to perform a thorough environmental review assessment of the Policy Framework and the entirety of the TEP at a project level such that additional

environmental review for these topics may not be necessary in the future. A summary of the environmental topics for which this has been determined to be the case is provided in Table 1 in Chapter 1, Introduction, on p. 1-11.

Each of the program-level TEP components is described below.

2.5.1.1 Policy Framework

Introduction

The Policy Framework is a policy document that consists of objectives and actions to enable the SFMTA to effectively allocate transit resources, efficiently deliver service, improve service reliability, reduce transit travel time, and improve customer service. The Policy Framework would not result in direct physical changes to the environment. Rather, the Policy Framework would have the potential to result in indirect physical changes due to the construction and operation of physical projects implementing its objectives and actions. The TEP components (e.g., Service Improvements, Service-related Capital Improvements, and TTRPs) are representative of the type and scope of projects that would be implemented to meet the objectives and actions of the Policy Framework. Therefore, potential indirect effects of the Policy Framework would be represented by the environmental impacts identified for TEP components.

Any non-TEP SFMTA projects resulting from the Policy Framework would be subject to their own environmental review, as applicable under CEQA. While these future SFMTA projects would be subject to a future environmental review process, this document's analysis of the TEP components sets forth the type and severity of indirect physical environmental effects that could be expected to occur as a result of the Policy Framework.

Policy Framework

The Transit Effectiveness Project represents the first opportunity to holistically review the Muni network and service delivery since the 1970s. This review focused on extensive data collection and analysis, evaluation of best practices from other transit systems in North America, and extensive outreach to Muni customers and other stakeholders. Out of this work emerged a new approach to designing and delivering Muni service to better align with San Francisco's Transit First Policy and the SFMTA's strategic goals. The Policy Framework sets forth transit service delivery objectives that support SFMTA Strategic Plan goals and identifies actions that would be taken to fulfill these objectives. This Policy Framework is informed by the key findings from the TEP existing conditions analysis and community outreach and is intended to guide the planning and implementation of the TEP, as well as future Muni plans and programs. As such, the objectives are designed to support SFMTA Strategic Plan goals including Goal 2: Make transit, walking, bicycling, taxi, ridesharing and

car sharing the most attractive and preferred means of travel, and Goal 3: Improve the environment and quality of life in San Francisco. The Policy Framework's objectives and recommended actions are set forth below.

A. Objective: Allocate transit resources effectively, while maintaining citywide coverage

Creating a tiered-service system of Muni routes will establish a foundation for allocating transit resources and transit management practices. The tiered-service system will guide the type of capital improvements and operating dollars to be delivered by transit corridor or route. It will also serve to inform existing and new customers about the level of service provided by the transit system, set expectations for service delivery by classification and help to inform customer route choices. The tiered-service system will preserve San Francisco's long and rich history of providing equitable public transit options for residents, employees and visitors to travel to a broad range of destinations and will maximize the effectiveness of scarce resources.

Action A.1: Continue to provide strong geographic coverage by ensuring that all residents are within a quarter mile of transit and that most trips can be made with no more than one transfer.

Action A.2: Define a tiered-service network that will be aligned with service improvements and capital investment expectations. Routes will be assigned to tiers based on existing performance but may be reclassified as usage and travel patterns change.

- Rapid Network: These frequent, heavily used bus routes and rail lines make up the backbone of the Muni system and would be high priorities for service and customer amenity enhancements.

- Local Network: These bus routes complement and connect to the Rapid Network to create the core network, allowing passengers to get to most destinations in San Francisco with no more than one transfer.

- Community Connectors: This category includes lightly-used bus routes that circulate through San Francisco's hillside residential neighborhoods to fill in gaps in coverage and connect passengers to the core network.

- Specialized Services: These routes augment all-day service to address focused transit needs. They include commuter express routes, and connections to BART and Caltrain stations, and special weekend football service.

Action A.3: Revise service standards and policies to integrate the tiered-service network concept and include frequency of service, span of service, and customer stop amenities. These standards and policies must address how service is distributed across the transit system and must ensure that the manner of the distribution affords all users access to these assets, regardless of race, color, national origin or low-income status.

Action A.4: Better inform customers about relative service levels by incorporating the tiered-service strategy into customer service information such as system maps, transit stop and vehicle signage.

B. Objective: Deliver efficient transit service

Measuring the efficiency of the service by tier classification and assigning resources to best fit the customer demands will ensure that service continues to improve and quality transit is consistently delivered.

Action B.1: Use service performance standards to provide a quantitative assessment of the quality and productivity of the service.

Action B.2: Use right-of-way performance standards to provide a quantitative assessment of the physical performance of streets where transit operates and to help prioritize traffic operation changes and capital investments to improve transit reliability and travel time.

Action B.3: Develop and implement an annual qualitative and quantitative evaluation process that measures performance for routes within a given service tier and develop strategies to enhance top performers and strengthen low performers. As part of this process consider the need to re-classify routes to respond to changing customer patterns or service demand.

Action B.4: Align transit vehicle capacity with route demand and roadway geometric constraints. Assess customer demand and assign vehicles by tier level and by priority and demand within those tiers to minimize crowding. Consider larger vehicles on a route if they can meet demand at equal or lower operating costs while still maintaining minimum policy frequencies.

C. Objective: Improve transit service reliability and reduce transit travel time

Providing reliable transit service depends on operator availability, well designed schedules, infrastructure in a state of good repair, strong supervision and transit priority on city streets. Providing quick transit service depends on reducing exposure to auto congestion and delays

at intersections, maximizing protective rights-of-way, speeding up boarding time and optimizing stop spacing. These improvements limit delay for transit vehicles while traveling and at transit stops.

Action C.1: Implement SFMTA's Strategic Plan actions as they relate to systemwide reliability initiatives such as dynamic supervision and vehicle replacement.

Action C2: Give transit the highest priority when evaluating multimodal tradeoffs on the Rapid Network and avoid strategies that reduce transit reliability and/or increase transit travel times.

Action C.3: Implement transportation network changes that reduce transit exposure to automobile congestion with traffic engineering tools including, but not limited to lane modifications, traffic signal and stop sign changes, transit stop changes, and parking and turn restrictions.

Action C.4: Enhance transit supportive infrastructure such as transit bulbs, pedestrian crossing paths, and accessible platforms at light rail stops that will provide efficient and safe passenger boarding and reduce delay.

Action C.5: Review existing stop spacing standards that optimize access to the system while minimizing travel time delay. Standards take into consideration street and sidewalk grades, adjacent land-use, neighborhood street grid distances as well as mode of travel (e.g., bus or rail).

D. Objective: Improve customer experience

Delivering high quality service, including appropriate frequency, span of service, and stop amenities, will improve the customer experience of Muni.

Action D.1: Apply frequency and crowding standards by tier level to maximize passenger comfort and establishing minimum service level expectations for each classification.

Action D.2: Apply span of service (hours of day) standards by tier level to provide minimum hours of service for each classification.

Action D.3: Apply stop amenities that result in an informed transit experience and improve customer access to transit. Stop amenity standards will include minimum levels of amenities by tier for installation of shelters, maps, stop Identification Numbers, real time arrival displays and bicycle connectivity enhancements.

Action D.4: Integrate Muni service with the regional transit system to facilitate a seamless customer experience through convenient transfers and integrated Clipper fare media.

2.5.1.2 Program-Level Service-Related Capital Improvements

Program-level Service-related Capital Improvements include three TTPI projects (TTPI.2, TTPI.3, and TTPI.4), one OWE project (OWE.6), and one SCI project (SCI.1), described below in Table 5. While the general locations and description of the Service-related Capital Improvements are known, the specific designs are not. Therefore, a general description of the projects and potential construction requirements is provided. As explained above for the program-level TTRPs in Section 2.4.4, on p. 2-13, when the specific locations and designs are not needed to evaluate a particular CEQA topic, the program-level Service-related Capital Improvements have been cleared at a project level for that topic.

2.5.1.3 Program-Level Travel Time Reduction Proposals

As previously described on pp. 2-13 to 2-15, the SFMTA has identified a set of 18 traffic engineering changes, referred to as the TPS Toolkit elements, which are elements that it routinely uses elsewhere in the City in order to facilitate transit service. A number of these elements have already been applied by the SFMTA as part of its ongoing TPS Program for other projects, such as the installation of transit-only lanes on the Mission Street corridor in the Downtown area, as well as the incorporation of treatments into larger projects, such as transit bulb installation in the Divisadero Great Streets project. Elements of the TPS Toolkit would be implemented as part of the 17 TTRPs planned for the Rapid Network. The TTRPs are comprised of combinations of TPS Toolkit elements that would improve transit travel times by minimizing sources of transit delay such as traffic congestion, unnecessary stops at intersections, closely-spaced transit stops, and slow boarding times. The TEP project-level and program-level TTRPs are all on the Rapid Network.

Description of TPS Toolkit Elements [9]

TPS Toolkit elements that would be applied to the TTRPs are described in detail below. Each of the 18 TPS Toolkit elements has been grouped in one of five categories: transit stop changes, lane modifications, parking and turn restrictions, traffic signal and stop sign

[9] Unless noted otherwise, descriptions of the Transit Preferential Streets Toolkit Elements are based on the following report: *Travel Time Reduction Proposals: Transit Preferential Toolkit*, December 6, 2012, prepared by SFMTA Transportation Engineering. A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E.

Table 5: Description of Program-Level Service-related Capital Improvements

TEP Reference No.	Project Name	Project Description
Terminal and Transfer Point Improvements		
TTPI.2	Lyon Street / Richardson Avenue Bus Stop – Transfer Point	This project would install a bus stop/transfer point at Lyon Street and Richardson Avenue to facilitate connections between the Rapid Network 28L 19th Avenue Limited and regional transit service provided by Golden Gate Transit. The new transfer point would replace the 28L 19th Avenue Limited transfer point currently located at the Golden Gate Bridge toll plaza, which would no longer be served by the 28L with implementation of the TEP. The 28 19th Avenue (local service) customers would continue to transfer at the Golden Gate Bridge toll plaza. Potential improvements may include changes to pedestrian access and the construction of a transit bulb.
TTPI.3	E Embarcadero Line Independent Terminal at Jones Street/Beach Street Reconfigured F Market & Wharves terminal to facilitate E Embarcadero operation	This project would involve development of a new independent terminal stop for the E Embarcadero Line at the north end of the route near Jones and Beach streets. A separate stop would facilitate independent movements of E Embarcadero and F Market & Wharves streetcars at its northern terminus, which would improve reliability for both routes by allowing for independent terminal departures and preventing trains on one route from getting delayed behind trains from the other route. Development of the new terminal would require the installation of new bypass rails, track turnouts, track switches, and overhead wires and poles, and possibly sidewalk modifications.
TTPI.4	San Francisco General Hospital Transfer Point	This project would design and implement a new transfer hub in the vicinity of San Francisco General Hospital on Potrero Avenue between 23rd and 24th streets. The proposed transfer point improvements would facilitate transfers between Routes 9 San Bruno Local/9L San Bruno Limited, 10 Sansome, 19 Polk, 48 Quintara-24th Street and the proposed new 58 24th Street. Improvements may include rerouting bus service on several lines to a shared transit stop, parking removal to accommodate longer transit zones, and the construction of transit bulbs.
Overhead Wire Expansion Project		
OWE.6	New Overhead Wiring – 6 Parnassus Extension to West Portal Station	This project would provide a direct connection to Muni Metro light rail service at the West Portal Station for customers on the west side of Twin Peaks and in the western portions of the Haight and Cole Valley neighborhoods. The 6 Parnassus currently terminates at 14th Avenue and Quintara Street. Construction of two-way overhead wiring would extend the 6 Parnassus from the existing terminal to the West Portal Station, looping into the station along one-way overhead wiring on nearby streets. The specific route has not yet been determined. Construction of overhead wiring and overhead infrastructure (e.g., pole foundations and duct banks) would be required. A terminal near the West Portal Station would also have to be established.

TEP Reference No.	Project Name	Project Description
Systemwide Capital Infrastructure		
SCI.1	Accessible Platforms	This project would include the construction of additional accessible platforms along the surface portions of the light rail system to expand the number of accessible stops, which would reduce the distance between accessible platforms and allow Muni customers with mobility impairments to better utilize the light rail system. Accessible platforms could be standalone structures or integrated into low level boarding platforms. In both instances, a ramp would lead to an elevated platform with Americans with Disabilities Act-compliant (ADA-compliant) tactile warning surfaces along the edge of the elevated section to identify the raised curb for people with visual impairments. Factors such as roadway width and grade, driveways, and community preference would dictate the final design. The typical dimensions of an accessible surface platform are 60 inches by 90 inches, including 24 inches of detectable warning at the platform edge. Ramps have a minimum width of 48 inches with the length dependent on the roadway grade. The height of platforms varies by location but in general the platform is approximately three and one half feet tall with an additional height of three feet for the open railing. A technical study would be required to determine the total number and locations of additional platforms.

changes, and pedestrian improvements. In some instances, the implementation of TPS Toolkit elements would result in the removal or creation of parking or commercial loading spaces. The removal or the creation of parking or loading spaces could result in the related removal or installation of parking meters, street signs, or curb paint, which would be completed in accordance with standard procedures for street work within the City. Other physical changes, such as right-of-way striping changes (paint application and removal), lane color changes (through paint application), curb ramp installations or relocations, and signage modifications may be necessary to install these elements. While the TPS Toolkit elements are program-level components of the TEP, in some cases the specific locations of the TPS Toolkit elements along corridors are not needed for project-level evaluation in a particular CEQA topic. In these cases, the program-level TPS Toolkit elements may be analyzed at a project-level for that specific topic.

Transit Stop Changes

Proposed transit stop changes include removing or consolidating transit stops, optimizing transit stop locations at intersections, installing transit bulbs or transit boarding islands,

optimizing transit stop lengths and converting flag stops to bus zones.[10] Each of these elements is described in detail below.

1. Remove or Consolidate Transit Stops. Removing closely spaced transit stops can decrease transit travel times by reducing the frequency that transit vehicles must stop to pick-up and drop-off passengers. As described on p. 2-22, existing stop-spacing standards would be reassessed as part of the actions identified in the Policy Framework. Consolidating transit stops involves removing two consecutive transit stops along a transit route and establishing a new transit stop at an intermediate location (see Figure 4a).

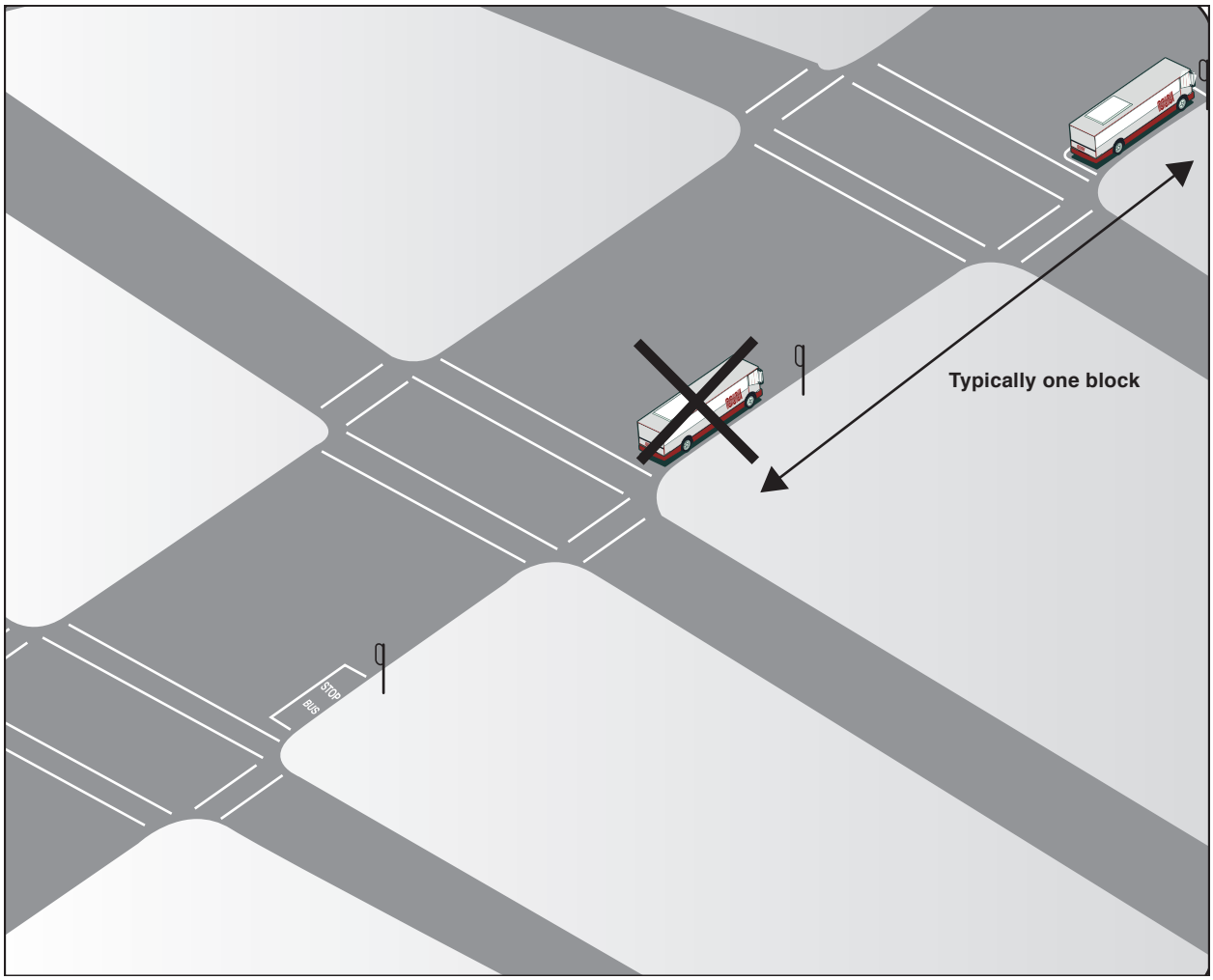
When selecting stop locations to be consolidated or removed, street grades and surrounding land uses, transfers to intersecting routes, the volume of boardings and alightings at the transit stop, along with distances between stops, are considered. Removing or consolidating stops with existing transit zones may result in the availability of additional curb space that could be used for new on-street parking, bicycle parking, parklets, or parking restrictions at intersection approaches to improve pedestrian visibility and sight distance. New transit stops may require parking removal; typically two to five parking spaces are removed for a new stop. The City installs accessible curb ramps that eliminate the curb step-up and provide access for persons in wheelchairs or with other mobility impairments at many intersections in the City. Should a new or relocated stop be constructed adjacent to an inaccessible sidewalk, a curb ramp would also be constructed. Construction of curb ramps could include excavation in those areas of up to two feet below ground surface (bgs).

2. Optimize Transit Stop Locations at Intersections. Optimizing transit stop locations at intersections can decrease transit travel times by reducing the number of times transit vehicles stop at intersections. Figure 4b shows how optimizing transit stop locations at intersections would be applied in the case of a traffic signal-controlled intersection.

At stop sign-controlled intersections,[11] it is generally recommended that transit stops be located on the nearside of the intersection to enable transit vehicles to conduct customer pick-up and drop-off while stopped at the stop sign, rather than needing to stop a second time to conduct customer pick-up and drop-off on the farside of the intersection. At traffic signal-controlled intersections, it is generally recommended that transit stops be located on

[10] A flag stop is a bus stop without a designated curbside bus zone. A bus zone is a striped, signed curbside bus stop where vehicle parking is prohibited. Zones vary in length depending on the type and number of buses serving the stop.

[11] Intersections could be signalized where all approaches are controlled by a traffic signal, stop-controlled where either all approaches have a stop sign or two of the approaches have a stop sign, yield-controlled where one or more approach yields the right-of-way to the other approaches, or uncontrolled where traffic generally does not need to stop.



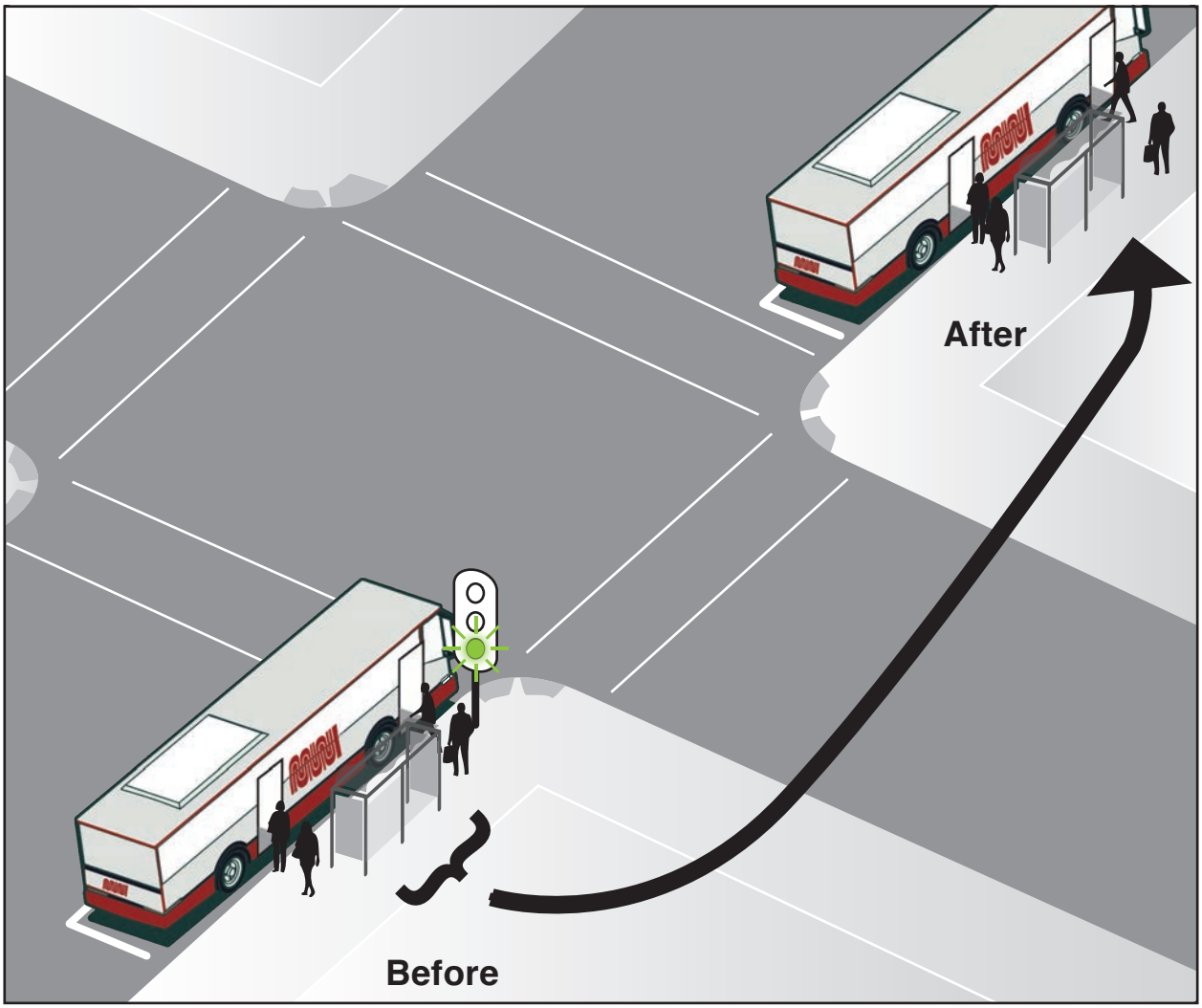
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Remove or Consolidate Transit Stops. Removing closely spaced transit stops can decrease transit travel times by reducing the frequency that transit vehicles must stop to pick up and drop off passengers. Consolidating transit stops involves removing two adjacent transit stops and establishing a new transit stop at an intermediate location. Removing or consolidating stops with existing transit zones may result in the availability of additional curb space that could be used for new on-street parking, bicycle parking, parklets, or parking restrictions at intersection approaches to improve pedestrian visibility and sight distance.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4a - REMOVE OR CONSOLIDATE TRANSIT STOPS



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Optimize Transit Stop Locations at Intersections. Optimizing transit stop locations at intersections can decrease transit travel times by reducing the number of times transit vehicles stop at intersections. At stop sign-controlled intersections, it is generally recommended that transit stops be located on the nearside of the intersection to enable transit vehicles to pick-up and drop-off passengers while stopped at the stop sign, rather than needing to stop a second time to conduct passenger pick-up and drop-off on the farside of the intersection. At traffic signal-controlled intersections, it is generally recommended that transit stops be located on the farside of the intersection, as depicted above, to allow transit vehicles to take advantage of existing and planned transit signal priority improvements that could allow traffic signals to hold green signals for approaching transit vehicles.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

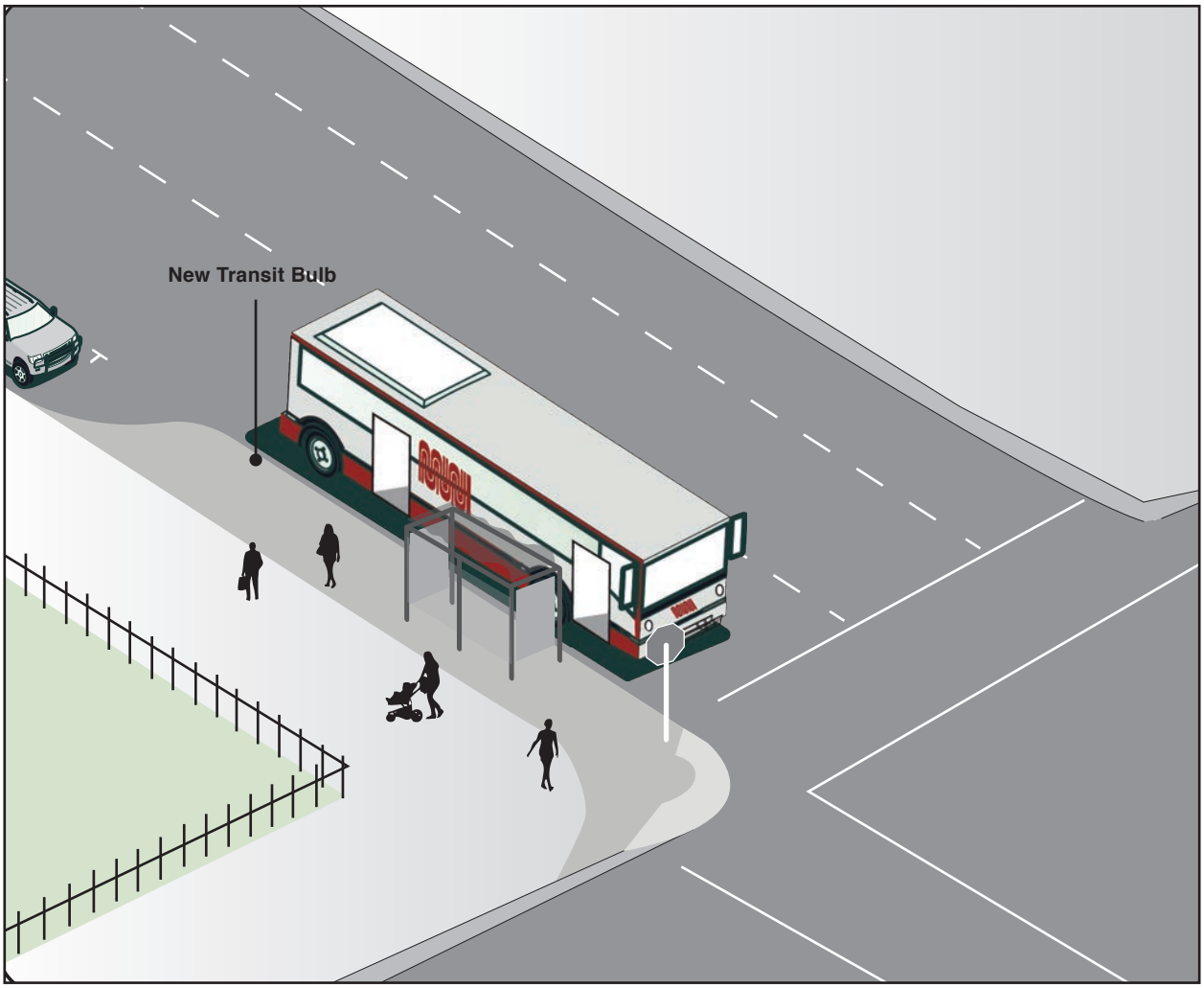
FIGURE 4b - OPTIMIZE TRANSIT STOP LOCATIONS AT INTERSECTIONS

the farside of the intersection to allow transit vehicles to take advantage of existing and planned transit signal priority improvements that could allow traffic signals to be programmed to hold green signals for approaching transit vehicles.

Relocating transit stops from the nearside to the farside of an intersection or vice versa could require removing curbside parking from the new stop location; in most cases, some or all of the parking could be replaced at the former stop location. In addition, the City has installed accessible curb ramps at many intersections. Should a relocated stop be built adjacent to an inaccessible sidewalk, a curb ramp would also need to be constructed. Construction of curb ramps could include excavation in those areas of up to two feet bgs.

3. Install Transit Bulbs. Transit bulbs are sidewalk extensions at the location of a transit stop, typically about the same width as the adjoining parking lane. Transit bulbs can reduce transit travel times on bus routes by eliminating the need for buses to exit and re-enter the flow of traffic to access curbside transit stops. Transit bulbs can reduce transit travel times on rail lines by providing a place for boarding passengers to wait directly adjacent to a stopped light rail vehicle (LRV), thereby eliminating the time needed for passengers to walk from the curb across a parking lane to the LRV. Figure 4c shows an example of a transit bulb that is the entire length of a transit vehicle. Transit bulbs also provide added space for customer amenities, such as shelters. Additionally, transit bulbs can improve pedestrian safety by shortening the street crossing distance, improving the visibility of pedestrians, reducing the speed of turning traffic and reducing sidewalk crowding at transit stop locations (refer also to the discussion of pedestrian bulbs on p. 2-51). Where physical limitations exist, transit bulbs could be designed to facilitate boarding and alighting from the front door only (rear door boarding and alighting along the street would still be available).

Transit bulbs would typically be approximately six feet wide and would range in length from 35 to 65 feet (one bus) to 80 to 130 feet (two buses) with an additional transition area of approximately 20 feet, depending on the location. Along light rail lines, transit bulbs would be up to 18 feet wide to enable passengers to board the train directly from the transit bulb on streets with wider parking lanes. In many locations, installation of transit bulbs may require subsurface construction to relocate catch basins and storm sewers that capture and direct stormwater runoff into the combined sewer or stormwater system. Catch basins are usually located at or near street corners. In most instances, transit bulbs would be built at existing transit zones and would not require removal of additional parking. In some instances, parking would need to be removed. Transit bulbs may require that a curb ramp be rebuilt, or in places where none exists, a curb ramp may be added. Construction of curb ramps and other utility relocation, as well as the installation of the concrete base for the transit bulb could include excavation of up to two feet bgs.



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Install Transit Bulbs. Transit bulbs are sidewalk extensions at the location of a transit stop, typically about the same width as the adjoining parking lane. They can reduce transit travel times on bus routes by eliminating the need for buses to exit and re-enter the flow of traffic to access curbside transit stops and on rail lines by providing a place for boarding passengers to wait directly adjacent to a stopped light rail vehicle (LRV), thereby eliminating the time needed for passengers to walk from the curb across a parking lane to the LRV. Transit bulbs also provide added space for customer amenities such as shelters, improve pedestrian safety by shortening the street crossing distance, and reduce the speed of turning traffic, as well as reducing sidewalk crowding at transit stop locations.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

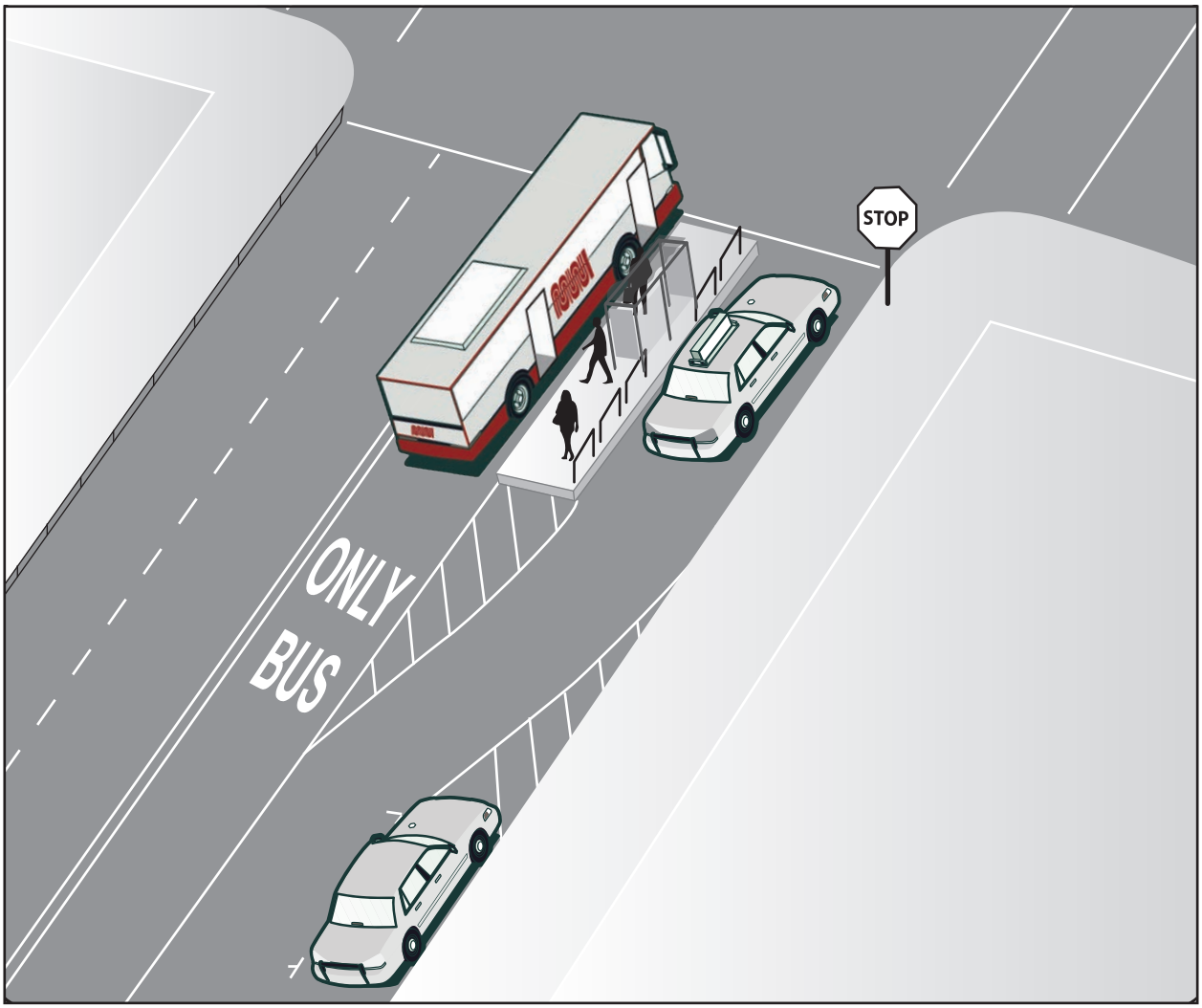
FIGURE 4c - INSTALL TRANSIT BULBS

4. Install Transit Boarding Islands. Transit boarding islands are raised islands within the street that allow transit vehicles to use a center lane within the roadway to pick up and drop off passengers at transit stops. As shown in Figure 4d, transit boarding islands can reduce transit travel times on bus routes by eliminating the need for buses to exit and re-enter the flow of traffic to access curbside transit stops. Transit boarding islands also allow the bus to avoid the curb lane, which is generally slower as a result of parking maneuvers, right turns and illegal double parking. Transit boarding islands can reduce transit travel times on rail lines that operate on fixed guideways in the center of the street by providing a place for boarding passengers to wait directly adjacent to a stopped LRV, thereby eliminating the time needed for passengers to walk from the curb to the LRV.

New transit boarding islands would require curb ramps. Boarding islands are typically up to nine feet in width and vary in length depending on the vehicles using the island. A transit island anticipated to be used by two buses would typically be 80 to 130 feet long and a minimum of eight feet wide to allow for wheelchair lift deployment. A transit island that serves LRVs is typically 80 to 160 feet long. In most instances, boarding islands would be built at existing transit zones and would require the removal of parking to accommodate shifting mixed-flow lanes into the parking lane to accommodate the boarding island. In some instances, parking would not need to be removed as part of constructing a transit boarding island. Curb ramps may be needed to provide access to boarding islands. Construction of curb ramps and any ancillary utility relocation, as well as the installation of the concrete base for the transit island could include excavation of up to two feet bgs.

5. Optimize Transit Stop Lengths. Optimizing transit stop lengths can reduce transit travel times by providing space for all doors of a transit vehicle to align with the curb or boarding island or by providing space for multiple buses to pick-up and drop-off passengers at a bus stop concurrently (see Figure 4e). Most transit stops are designed to accommodate the arrival and departure of one bus at a time; however, where transit stops serve multiple bus routes and/or bus routes with frequent service, transit stops would be designed to accommodate multiple buses at the same time, thereby reducing the delay associated with a second bus waiting to access a transit stop to pick up and drop off passengers.

Optimal transit stop length depends on multiple factors, including service frequency, number of boardings and alightings, vehicle type and location of stop. Transit stops are generally 80 to 165 feet in length at farside stops, 100 to 185 feet in length at nearside stops, and 140 to 210 feet in length at mid-block stops, depending on the type and frequency of buses the transit stop serves. These transit stops may be longer than 210 feet at transit stops with very frequent service and/or multiple routes. In addition, transit stops located at the farside of intersections where buses make right turns are designed to be 135 to 220 feet in length to



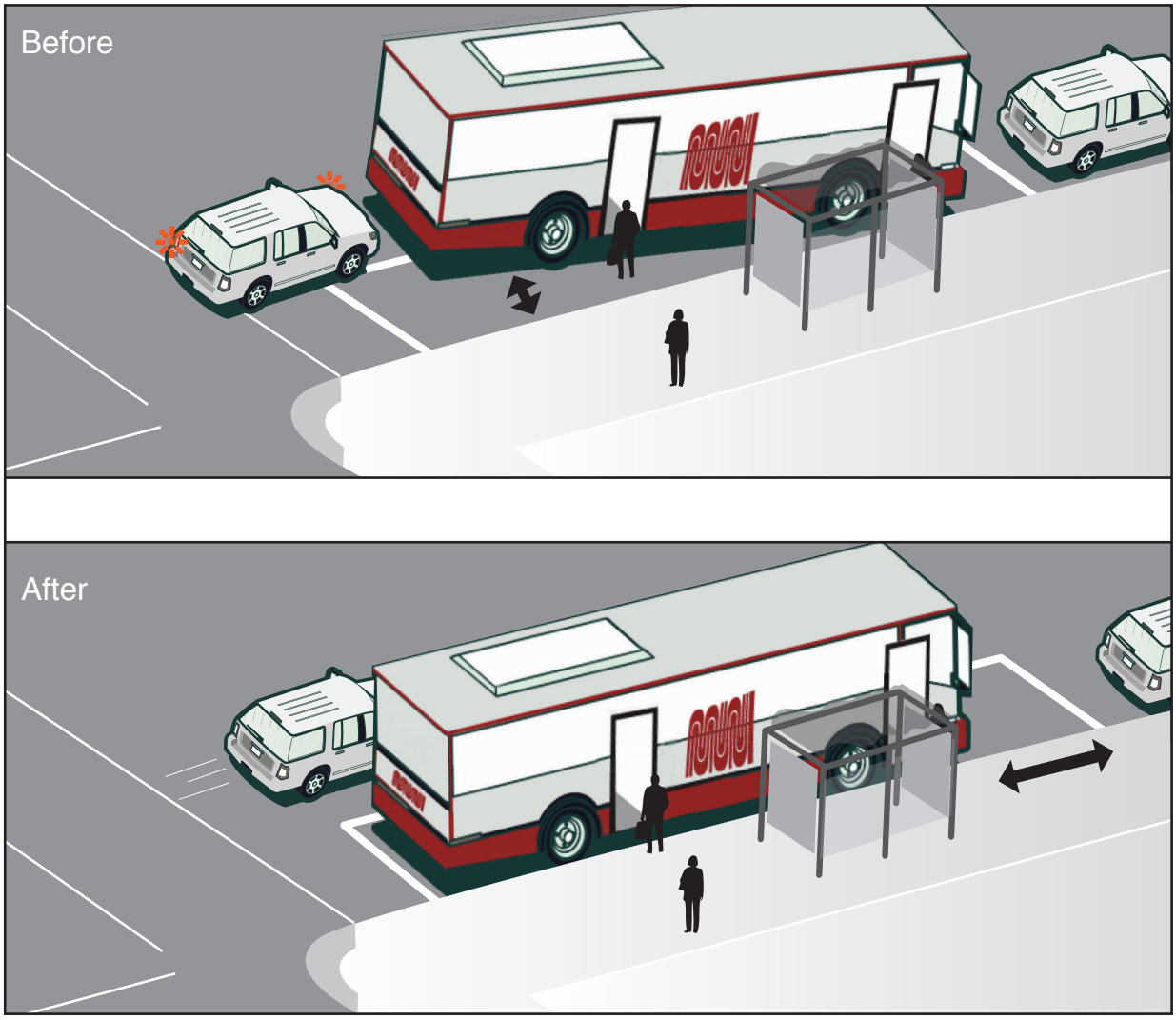
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Install Transit Boarding Islands. Transit boarding islands are raised islands within the street that allow transit vehicles to use a center lane within the roadway to pick-up and drop-off passengers at transit stops. They can reduce transit travel times on bus routes by eliminating the need for buses to exit and re-enter the flow of traffic to access curbside transit stops. Transit boarding islands also allow the bus to avoid the curb lane, which is generally slower as a result of parking maneuvers, right turns and illegal double parking. Transit boarding islands can reduce transit travel times on rail lines that operate on fixed guideways in the center of the street by providing a place for boarding passengers to wait directly adjacent to a stopped light rail vehicle (LRV), thereby eliminating the time needed for passengers to walk from the curb to the LRV.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4d - INSTALL TRANSIT BOARDING ISLANDS



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Optimize Transit Stop Lengths. Optimizing transit stop lengths can reduce transit travel times by providing space for all doors of a transit vehicle to align with the curb or boarding island or by providing space for multiple buses to pick up and drop off passengers at a bus stop concurrently. Most transit stops are designed to accommodate the arrival and departure of one bus at a time; however, where transit stops serve multiple bus routes and/or bus routes with frequent service, transit stops would be designed to accommodate multiple buses at the same time, thereby reducing the delay associated with a second bus waiting to access a transit stop to pick-up and drop-off passengers.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4e - OPTIMIZE TRANSIT STOP LENGTHS

allow buses to straighten out after completing the turn. Where existing transit stops are lengthened, any parking in the extended transit zone would be eliminated. Optimizing transit stop lengths may require that a curb ramp be rebuilt, or, in places where none exists, that a curb ramp be added. Construction of curb ramps would involve limited excavation of less than two feet bgs. Installation of striping for new transit zones and signage or parking meter additions/removals would likely be the extent of required physical changes necessary to extend the transit zone. Therefore, no excavation is anticipated for the implementation of this element, other than what would be required for curb ramp improvements.

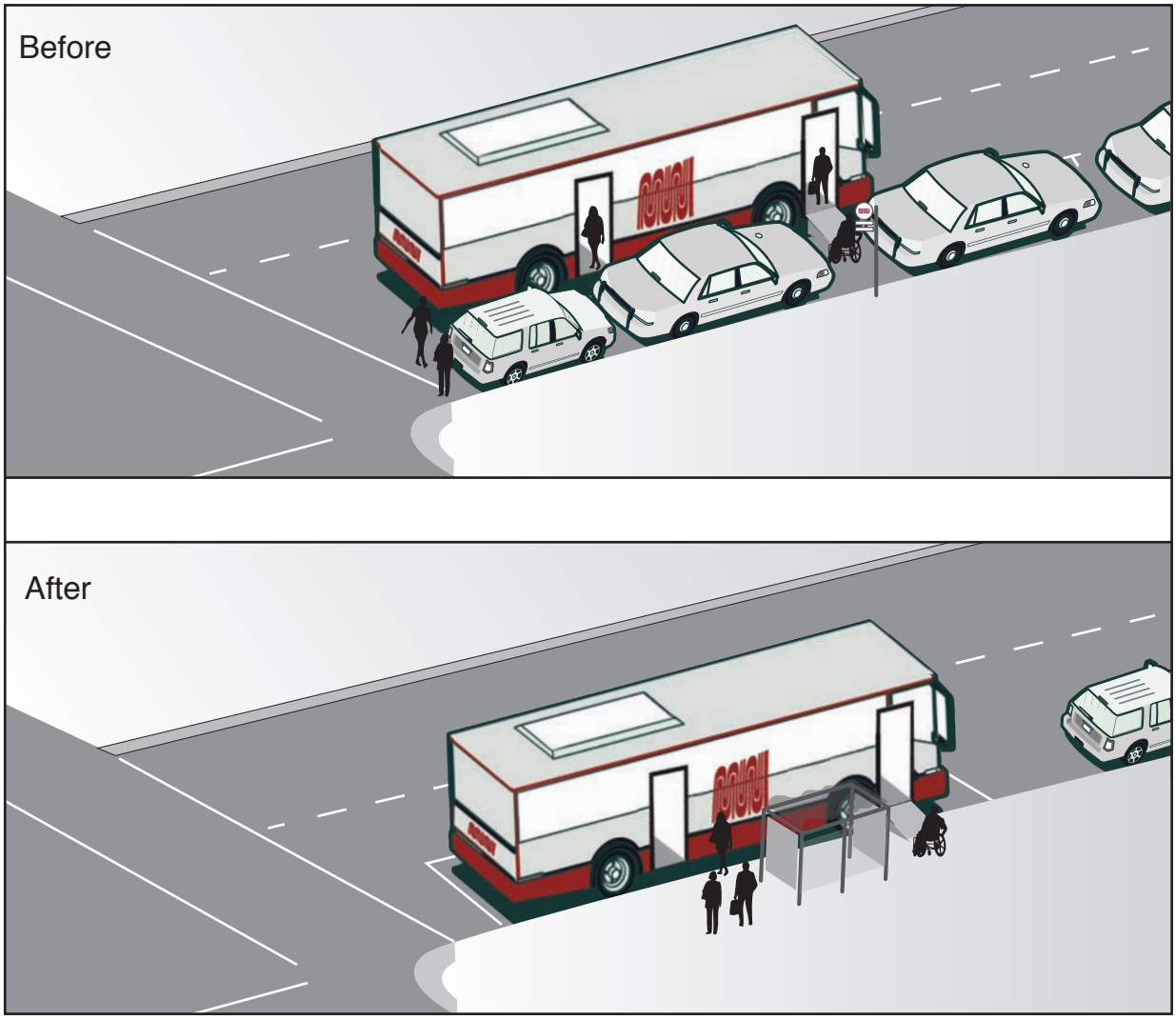
6. Convert Flag Stops to Transit Zones. A flag stop (also referred to as a pole stop) is defined as a transit stop without a designated curbside zone and where parking is not restricted. Some flag stops are located on streets without parking, in which case the bus can either stop in the mixed-flow lane or pull over to the curb. At flag stops adjacent to on-street parking, all passengers, including wheelchair users, must board and exit buses in the street since the bus cannot pull to the curb.

Converting flag stops adjacent to an existing parking lane into a transit zone can reduce transit travel times by allowing passengers to be picked up and dropped off at the curb adjacent to the sidewalk instead of in the street. Figure 4f illustrates the difference between how buses serve passengers at flag stops and transit zones. Transit zones also provide bus operators with a clear line-of-sight to see waiting passengers and to pull alongside the curb, improving transit accessibility and customer convenience. Existing parking located at a new transit zone would need to be eliminated. In addition, as described above, the City has constructed accessible curb ramps at many intersections. Should the conversion of a flag stop to a transit zone occur adjacent to an inaccessible sidewalk, a curb ramp would need to be constructed. Construction of curb ramps and any ancillary utility relocation could include excavation of up to two feet bgs.

Lane Modifications

Lane modification proposals would change the configuration of travel and parking lanes within the existing right-of-way, typically with striping and signage. Proposed lane modifications include creating transit-only lanes, creating transit queue jump/bypass lanes, creating dedicated turn lanes, and widening mixed-flow lanes by reducing the number of mixed-flow lanes. Each of these elements is described in detail below.

7. Establish Transit-Only Lanes. A transit-only lane is a travel lane that is dedicated for the exclusive use of transit vehicles. In San Francisco, taxis may also be permitted in these lanes. Transit-only lanes are typically identified with signs and pavement markings. Implementation of transit-only lanes under the proposed project could include the application



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Convert Flag Stops to Transit Zones. A flag stop (also referred to as a pole stop) is a transit stop without a designated curbside zone and where parking is not restricted. Some flag stops are located on streets without parking, in which case the bus can either stop in the mixed-flow lane or pull over to the curb. At flag stops adjacent to on-street parking, all passengers, including wheelchair users, must board and exit buses in the street since the bus cannot pull to the curb. Converting flag stops to transit zones can reduce transit travel times by allowing passengers to be picked up and dropped off at the curb adjacent to the sidewalk instead of in the street.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4f - CONVERT FLAG STOPS TO TRANSIT ZONES

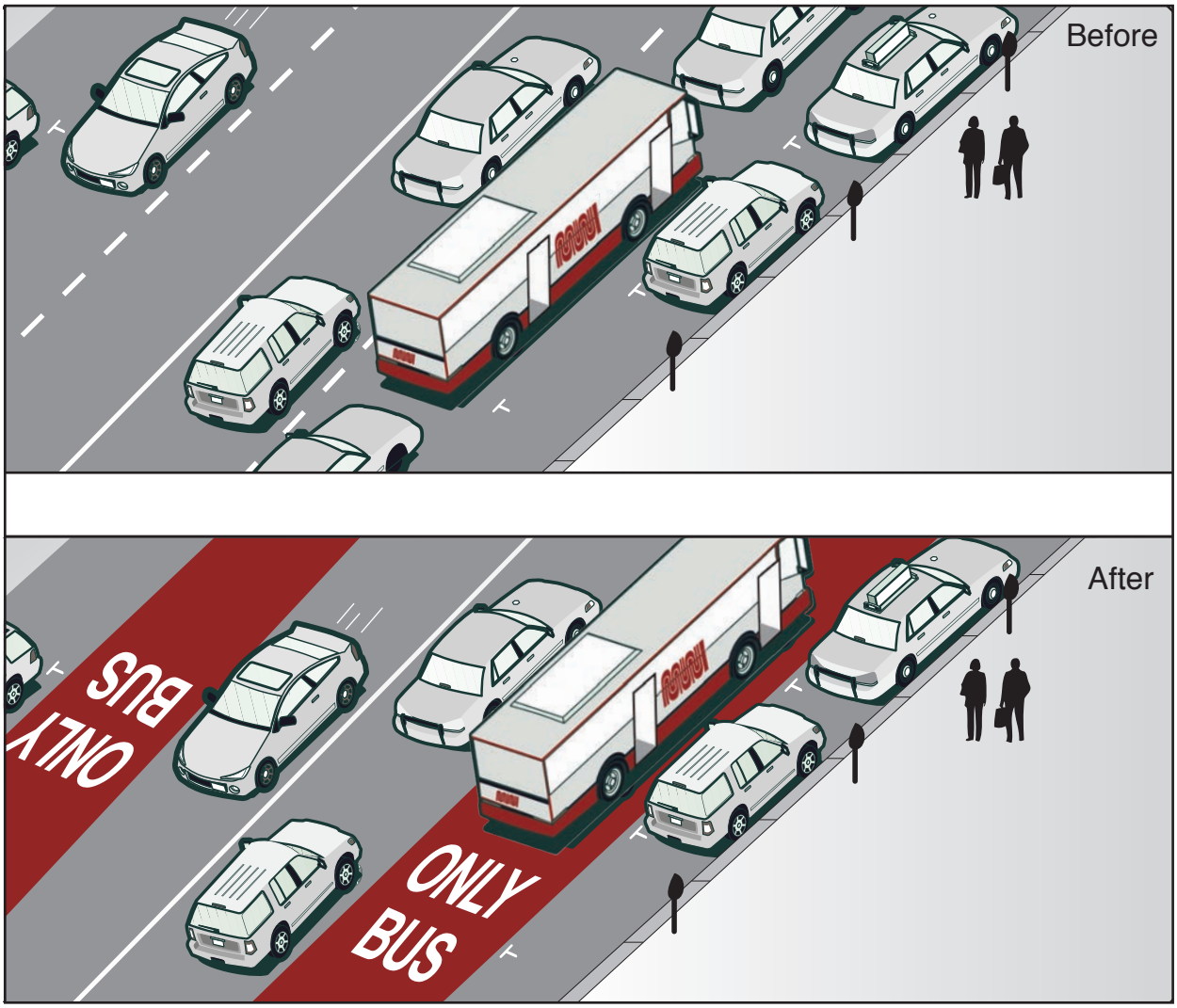
of red color to the pavement of the transit-only lane using special paint. The SFMTA is considering the use of red paint for transit-only lanes to improve their efficacy by making them more visibly prominent to non-transit vehicles.[12] A pilot project was initiated in March 2013 to test the effectiveness of transit-only lanes demarcated with red paint on a portion of Church Street between Duboce Avenue and 16th Street along the TTRP.J route. This pilot project received separate environmental clearance.[13]

Transit-only lanes can reduce transit travel times by allowing transit vehicles to bypass traffic congestion and avoid conflicts with other vehicles in mixed-flow lanes. Transit-only lanes are typically 11 to 13 feet in width (depending on the operating environment) and at least one block long. Figure 4g depicts how a transit-only lane would operate. Transit-only lanes are typically considered on streets with two or more mixed-flow lanes in the same direction. Non-transit vehicles are generally permitted to enter transit-only lanes to access curbside parking or to complete a turn, unless specifically prohibited. Emergency vehicles may use transit-only lanes at all times, and often taxis may also use these lanes. Transit-only lanes can be created by converting an existing mixed-flow lane or by removing a parking lane. Transit-only lanes could be dedicated full-time or only for certain hours of the day, such as during peak traffic hours which vary by roadway segment but are generally between 7 to 9 a.m. and 4 to 6 p.m. For example, transit-only lanes may be created in wide parking lanes with peak-period parking restrictions and tow-away. Installation of striping and paint color on the lane pavement for new transit-only lanes as well as appropriate signage would be the anticipated extent of physical changes needed to install the transit-only lane. Therefore, no excavation is anticipated for the implementation of this element.

8. Establish Transit Queue Jump/Bypass Lanes. Transit queue jump/bypass lanes can reduce transit travel times by providing priority to transit vehicles at signalized intersections. A transit queue jump/bypass lane allows transit vehicles to bypass general traffic stopped at a signalized intersection and move through the intersection ahead of general traffic by using an exclusive traffic signal phase for the transit vehicles. Figure 4h illustrates a transit queue jump/bypass lane at a signalized intersection. A transit queue jump/bypass lane is typically 10 to 13 feet in width and generally between 100 to 150 feet in length. A transit queue

[12] In order to use red paint for transit-only lanes, the SFMTA would need permission from the California Traffic Control Devices Committee (CTCDC). The CTCDC has suggested that lanes demarcated with a solid red pavement color be 24-hour transit-only lanes, rather than posted for specific hours with non-transit use of the lane permitted outside those posted hours. The CTCDC has approved a pilot implementation of red pavement color transit lanes.

[13] SFMTA TEP TTRP.J Pilot Project – Church Street from Duboce Avenue to 16th Street. Information on this pilot project is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2012.1141E.



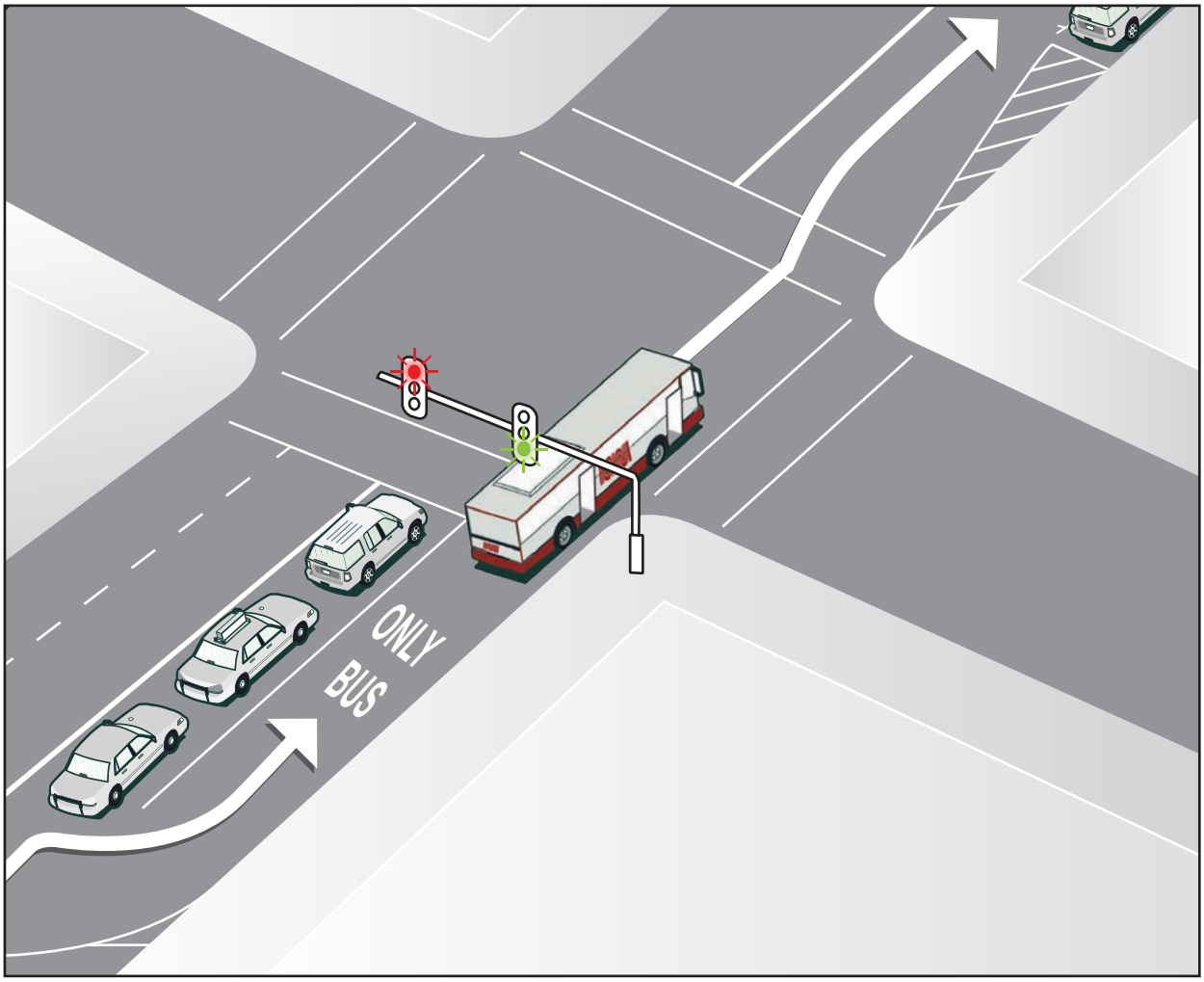
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Establish Transit-Only Lanes. A transit-only lane is a travel lane that is dedicated for the exclusive use of transit vehicles. Transit-only lanes are typically identified with signs and pavement markings. Transit-only lanes can reduce transit travel times by allowing transit vehicles to bypass traffic congestion and avoid conflicts with other vehicles in mixed travel lanes. Non-transit vehicles are generally permitted to enter transit-only lanes to access curbside parking or to complete a turn, unless specifically prohibited. Emergency vehicles may use transit-only lanes at all times, and often taxis may also use these lanes. Transit-only lanes can be created by removing an existing travel lane or by removing a parking lane.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4g - ESTABLISH TRANSIT-ONLY LANES



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Establish Transit Queue Jump/Bypass Lanes. Transit queue jump/bypass lanes can reduce transit travel times by providing priority to transit vehicles at signalized intersections. A transit queue jump/bypass lane allows transit vehicles to bypass traffic stopped at a signalized intersection and move through the intersection ahead of general traffic by using an exclusive traffic signal phase for the transit vehicles. A transit queue jump/bypass lane may be created by restricting parking at an intersection approach or by allocating a mixed-flow lane to transit vehicles only near the intersection where more than one mixed-flow lane is available.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4h - ESTABLISH TRANSIT QUEUE JUMP/BYPASS LANES

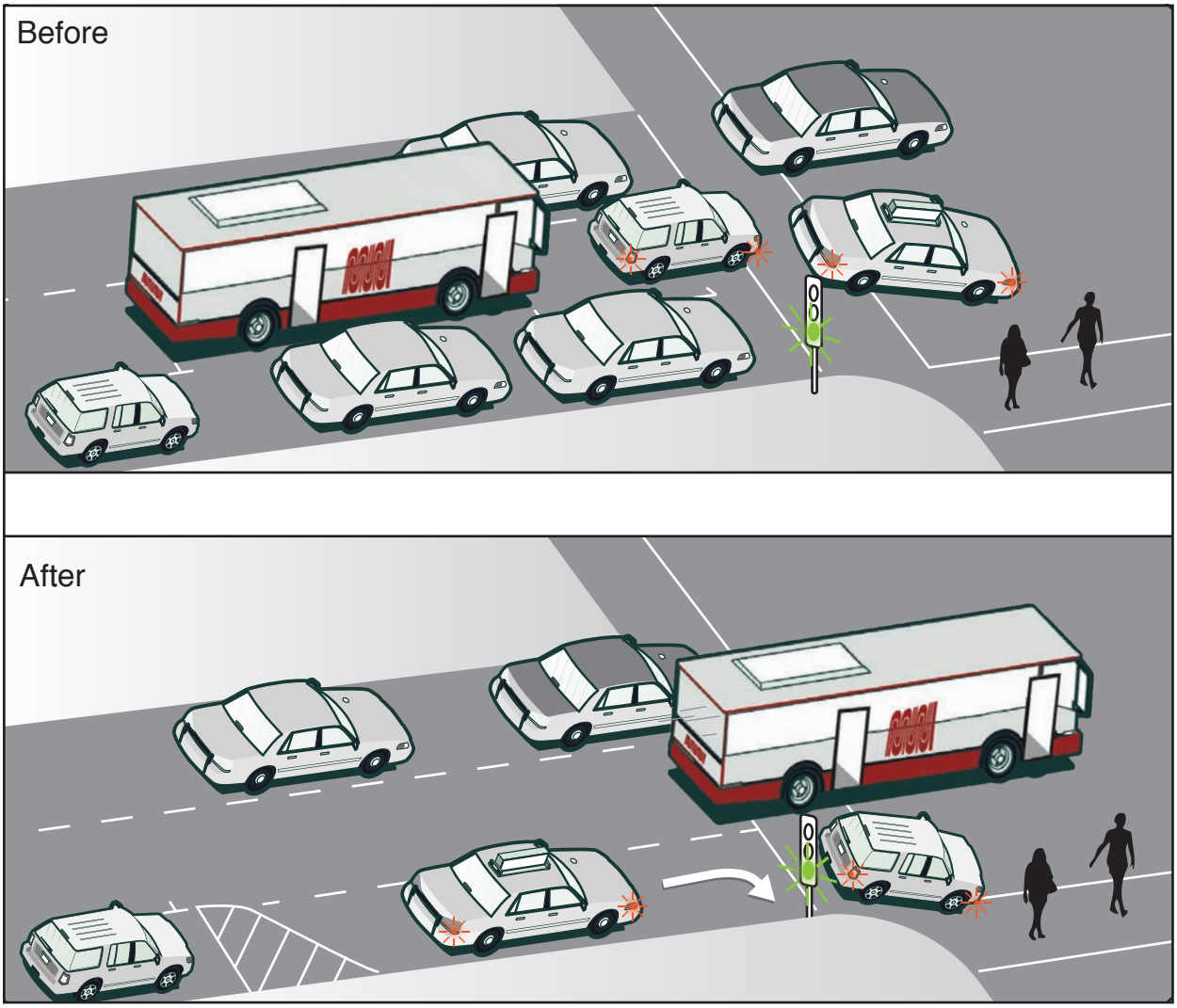
jump/bypass lane may be created by restricting parking at an intersection approach or by allocating a mixed-flow lane to transit vehicles only near the intersection where more than one mixed-flow lane is available. Installation of striping and related signage for queue jump/bypass lanes would be the extent of physical changes. Therefore, no excavation is anticipated for the implementation of this element.

9. Establish Dedicated Turn Lanes. Dedicated turn lanes can reduce transit travel times by providing a dedicated space for turning vehicles to queue at an intersection approach without blocking the through-movement of transit vehicles and other traffic. Dedicated turn lanes are typically 9 to 12 feet in width and 100 to 150 feet in length. An example of a dedicated right-turn lane is illustrated in Figure 4i. At some signalized intersections with a dedicated left-turn lane, the traffic signal may be modified to provide a protected signal phase for left-turning vehicles while opposing traffic is held with a red light. Dedicated turn lanes may require the removal of parking at intersection approaches. Installation of striping and related signage, as well as removal of parking meters would be the general extent of physical changes required to create a dedicated turn lane. Therefore, no excavation is anticipated for the implementation of this element.

10. Widen Travel Lanes through Lane Reductions. Widening mixed-flow lanes can decrease transit travel times and improve safety and reliability by reducing friction with other vehicles and eliminating the need for buses and other large vehicles to straddle two mixed-flow lanes. On streets with two or more mixed-flow lanes in the same direction, removing one mixed-flow lane would allow for widening of the remaining lanes. Figure 4j illustrates an example of removing one mixed-flow lane and widening the remaining mixed-flow lanes. Removing mixed-flow lanes to provide wider lanes can result in an overall decrease in vehicle capacity or worsen operating conditions on a street. This may result in diversion of vehicular traffic to other streets, depending on the existing traffic volumes relative to the available roadway capacity. Installation of striping and related signage to widen travel lanes within the existing right-of-way would be the extent of physical changes required. Therefore, no excavation is anticipated for the implementation of this element.

Parking and Turn Restrictions

Parking and turn restrictions would limit or prohibit parking, or limit or prohibit turns at intersections. They would involve signs indicating tow-away zones or other restrictions and/or lane markings in the right-of-way. Proposed parking and turn restrictions include restricting turns at intersections to improve transit and traffic flow and restricting parking to provide wider mixed-flow lanes. Each of these elements is described in further detail below.



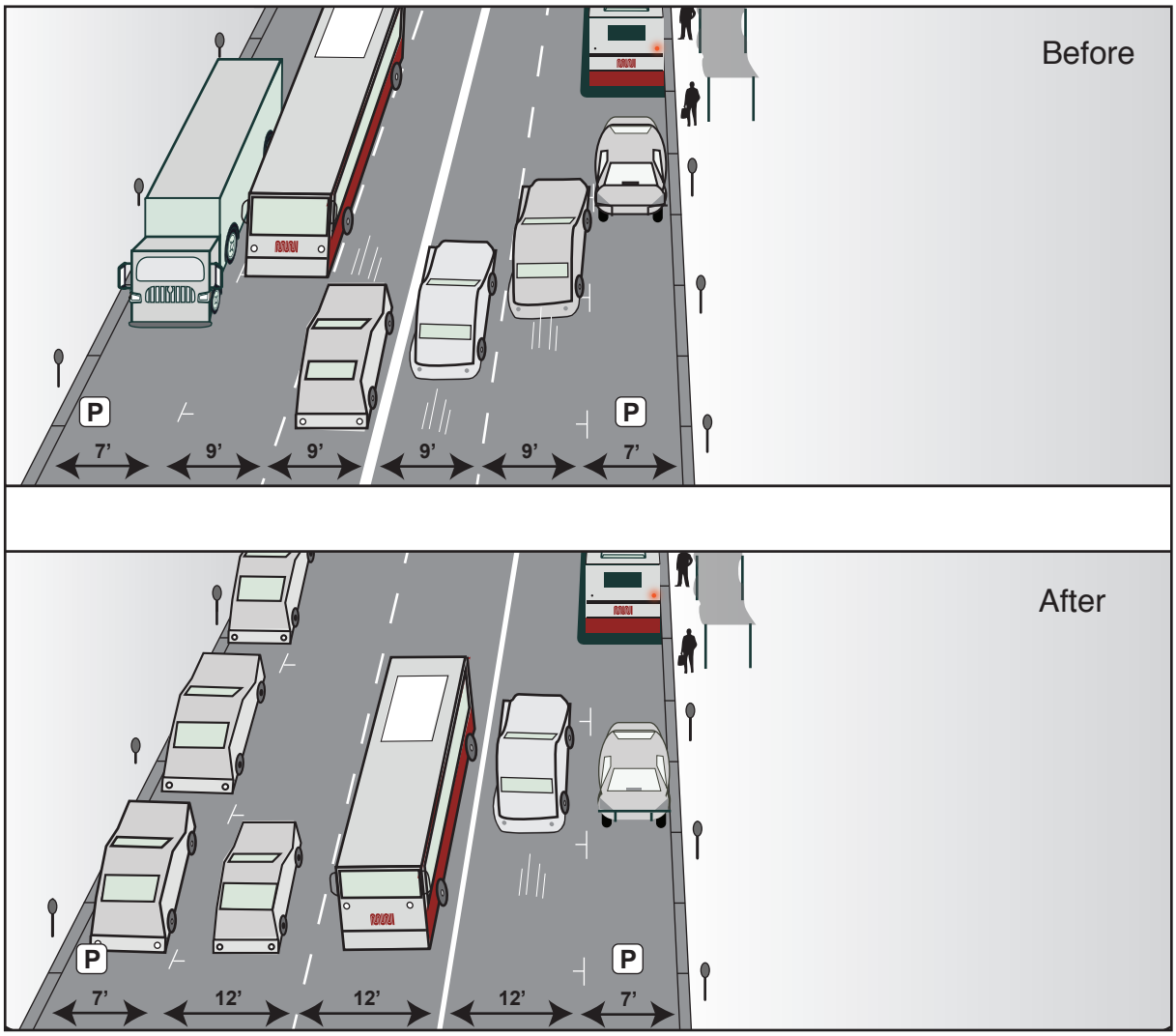
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Establish Dedicated Turn Lanes. Dedicated turn lanes can reduce transit travel times by providing a dedicated space for turning vehicles to queue at an intersection approach without blocking the through-movement of transit vehicles and other traffic. At some signalized intersections with a dedicated left-turn lane, the traffic signal may be modified to provide a protected signal phase for left-turning vehicles while opposing traffic is held with a red light. Dedicated turn lanes may require the removal of parking at intersection approaches.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4i - ESTABLISH DEDICATED TURN LANES



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Widen Travel Lanes through Lane Reductions. Widening mixed-flow lanes can decrease transit travel times and improve safety and reliability by reducing friction with other vehicles and eliminating the need for buses and other large vehicles to straddle two travel lanes. On streets with two or more mixed-flow lanes in the same direction, removing one mixed-flow lane would allow for widening of the remaining lanes. Removing mixed-flow lanes to provide wider lanes can result in an overall decrease in vehicle capacity on a street. This may result in diversion of vehicular traffic to other streets, depending on the existing traffic volumes relative to the available roadway capacity.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4j - WIDEN TRAVEL LANES THROUGH LANE REDUCTIONS

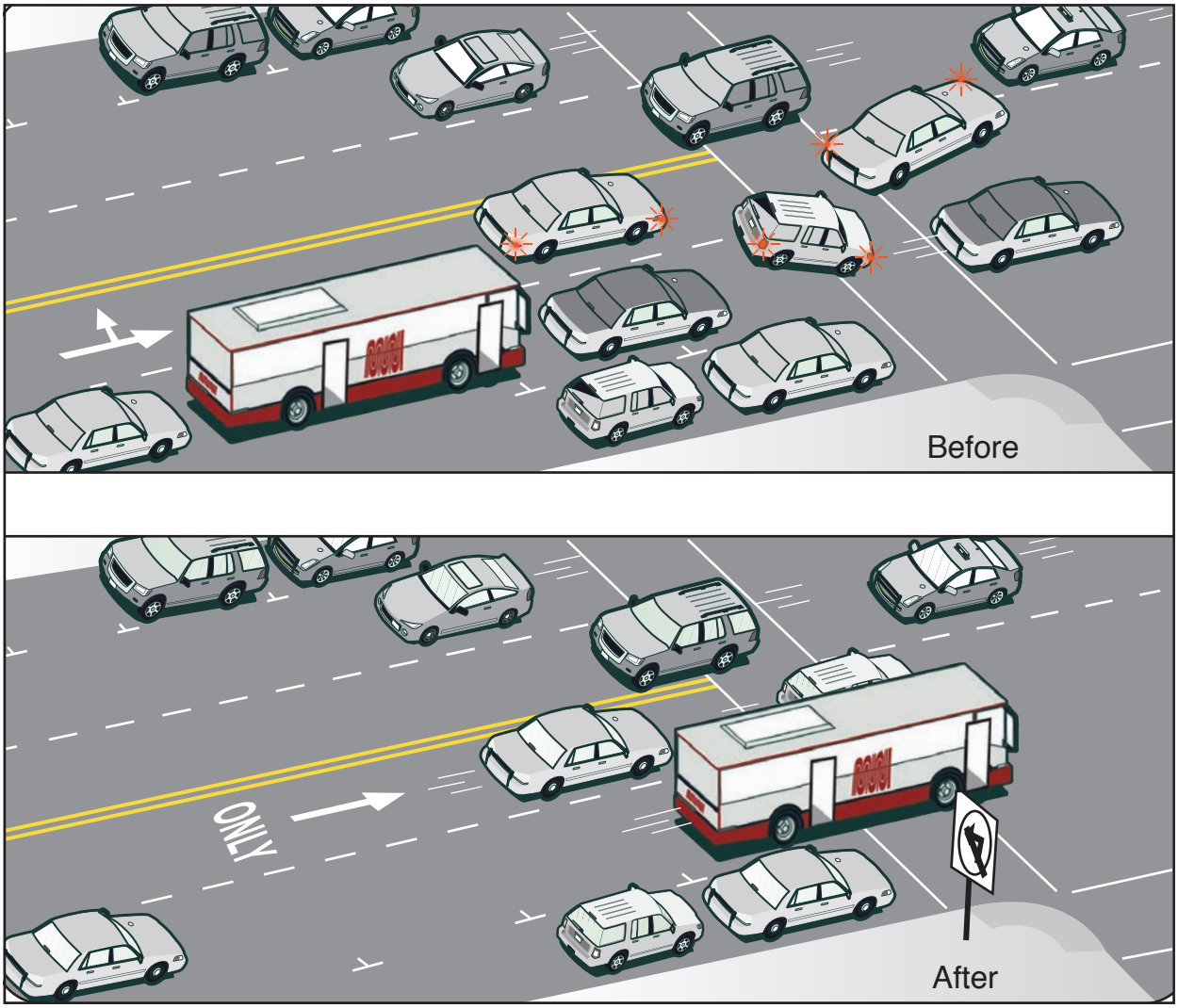
11. Implement Turn Restrictions. Turn restrictions can reduce transit travel times by preventing turning vehicles from blocking the through-movement of transit vehicles and other traffic. For example, left-turn restrictions would generally be applied on two-way streets where right-of-way is not available to provide dedicated left-turn lanes, or where left-turning vehicles are required to cross or enter a transit-only lane to complete a turn. Turn restrictions can be part-time or full-time. In locations where part-time turn restrictions are already in place, consistent hours would be considered at multiple intersections along a corridor to improve compliance and clarity. At locations where heavy traffic and/or pedestrian volumes result in few gaps for turning vehicles, turn restrictions would enhance overall intersection capacity, improve transit and traffic flow, reduce conflicts between turning vehicles and other traffic and pedestrians, and improve pedestrian safety. Figure 4k illustrates an example of how a left-turn restriction would eliminate conflicts and delay associated with left-turning vehicles waiting for a gap in opposing traffic to complete a left turn. Installation of striping and related signage to implement turn restrictions would be the extent of physical changes required. Therefore, no excavation is anticipated for the implementation of this element.

12. Widen Travel Lanes through Parking Restrictions. At locations with narrow mixed-flow lanes, traffic lanes can be widened by restricting parking and reallocating street space. This can reduce transit travel times by eliminating the need for buses and other large vehicles to straddle two mixed-flow lanes, by reducing delays associated with parking maneuvers, and by providing additional space for through-moving transit vehicles. Parking lanes are typically seven to nine feet in width. Parking restrictions could be implemented either during peak periods, such as 7 to 9 a.m. or 4 to 6 p.m., or full-time to facilitate bus travel on streets with narrow mixed-flow lanes. Figure 4l illustrates an example of how parking restrictions provide wider mixed-flow lanes for transit. Installation of striping and related signage to widen would generally be the extent of physical changes required to implement this element. Therefore, no excavation is anticipated for the implementation of this element.

Traffic Signal and Stop Sign Changes

Proposed traffic signal and stop sign changes include installing traffic signals, replacing all-way stop signs with traffic signals, removing the stop sign on the street with transit, or removing the stop signs on both streets. In the last example, traffic calming measures would be added to the intersection to improve conditions for all modes of transportation, including pedestrians. Each of these elements is described in detail below.

13. Install Traffic Signals at Uncontrolled and Two-way Stop-Controlled Intersections. At some intersections that are uncontrolled or have stop signs requiring only vehicles on the



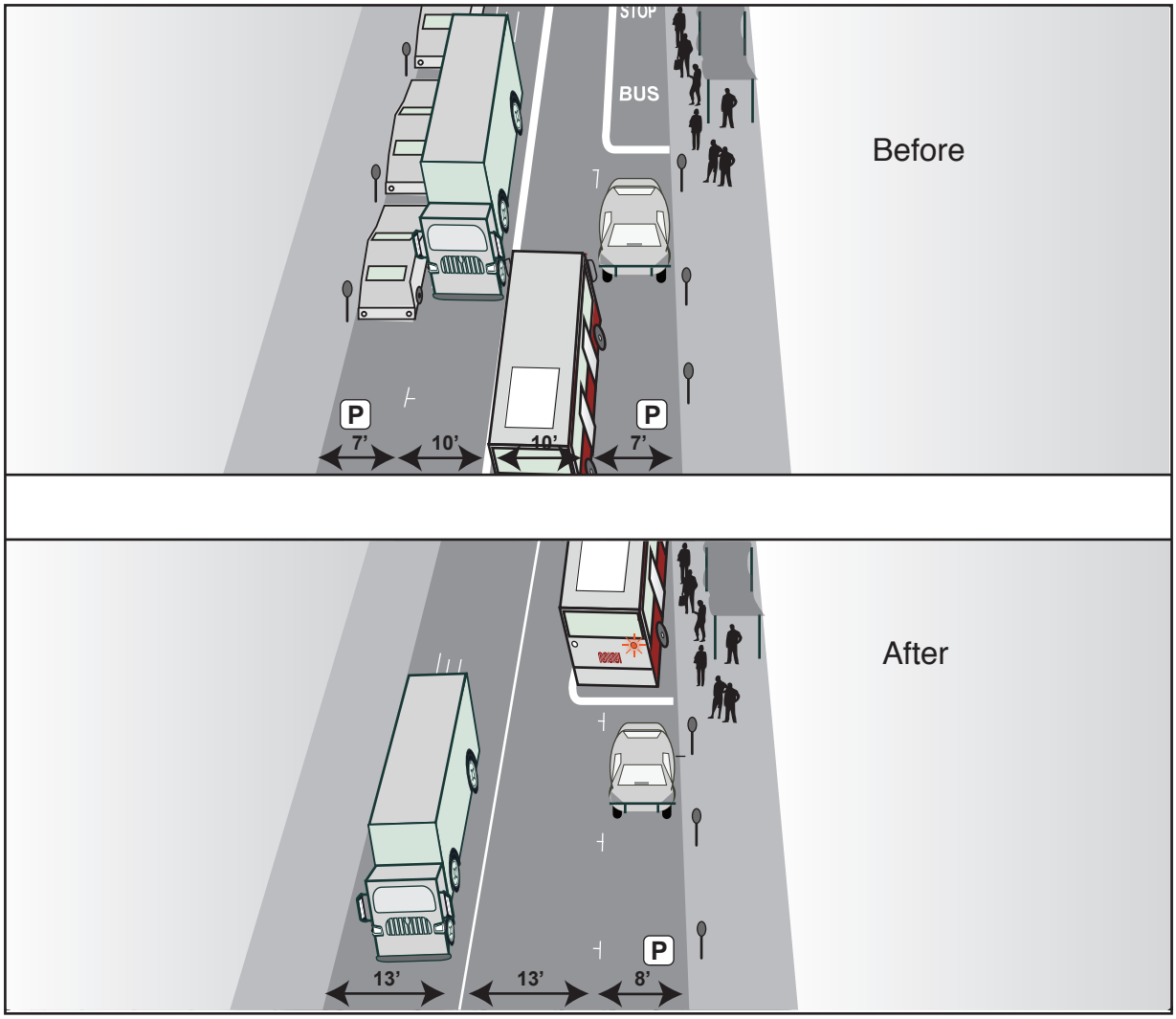
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Implement Turn Restrictions. Turn restrictions can reduce transit travel times by preventing turning vehicles from blocking the through-movement of transit vehicles and other traffic. For example, left-turn restrictions would generally be applied on two-way streets where right-of-way is not available to provide dedicated left-turn lanes, or where left-turning vehicles are required to cross or enter a transit-only lane to complete a turn. Turn restrictions can be part-time or full-time. In locations where part-time turn restrictions are already in place, consistent hours would be considered at multiple intersections along a corridor to improve compliance and clarity.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4k - IMPLEMENT TURN RESTRICTIONS



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Widen Travel Lanes through Parking Restrictions. At locations with narrow mixed-flow lanes, traffic lanes can be widened by restricting parking and reallocating street space. This can reduce transit travel times by eliminating the need for buses and other large vehicles to straddle two mixed-flow lanes, by reducing delays associated with parking maneuvers, and by providing additional space for through-moving transit vehicles. Parking restrictions could be implemented either during peak periods, such as 7 to 9 a.m. or 4 to 6 p.m., or full-time to facilitate bus travel on streets with narrow mixed-flow lanes.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

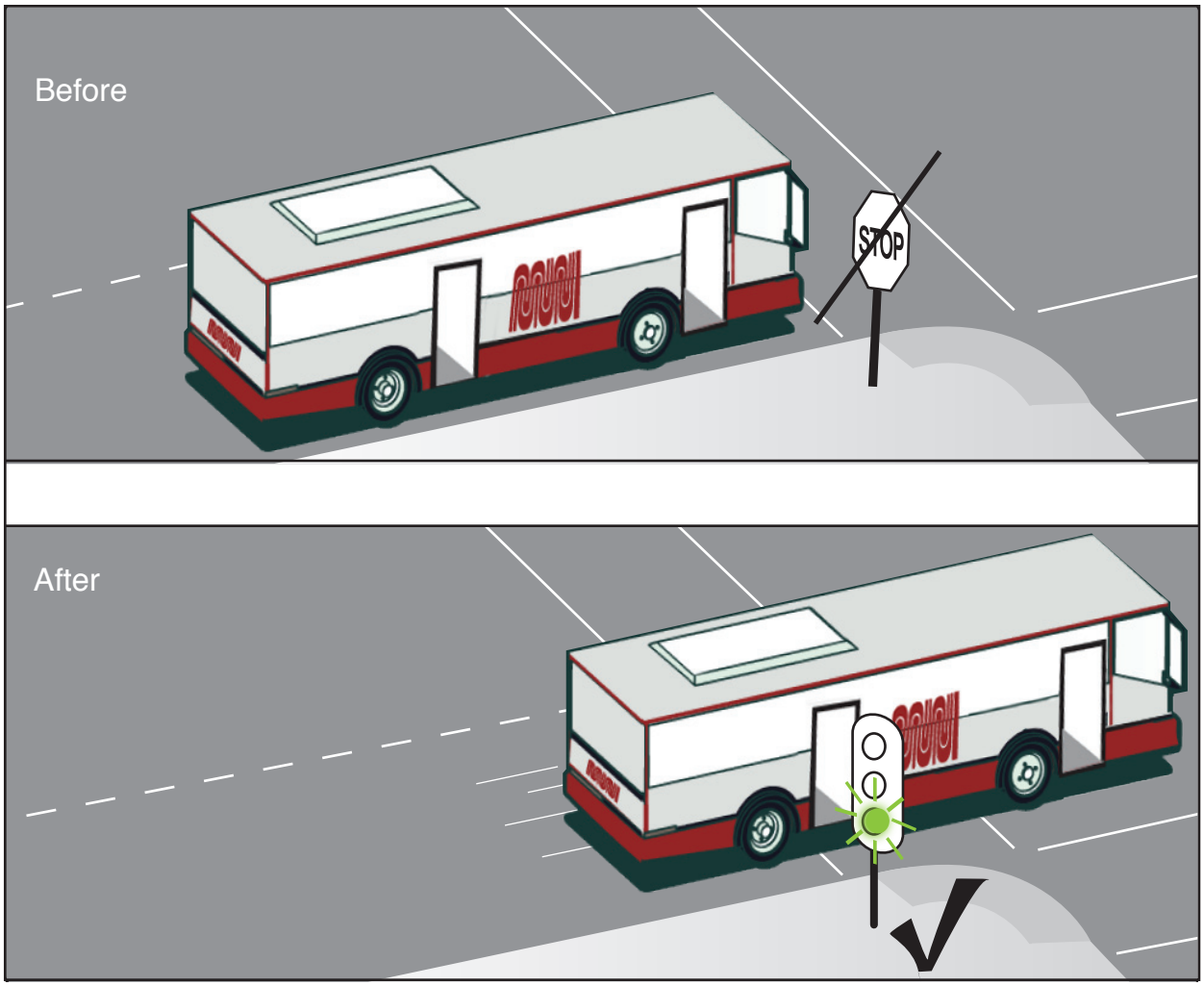
FIGURE 4l - WIDEN TRAVEL LANES THROUGH PARKING RESTRICTIONS

cross street without transit to stop, intersection safety and/or pedestrian access to transit stops may be improved with added right-of-way controls. At these intersections, particularly on Rapid Network corridors, installing a traffic signal could improve vehicular and pedestrian safety by clarifying the right-of-way for crossing the street while minimizing travel time delays for transit vehicles. New traffic signals would include pedestrian countdown signals and marked crosswalks, and could take advantage of planned transit signal priority improvements that reduce signal delay for approaching transit vehicles. Traffic signal poles are typically up to 30 feet in height. The installation of traffic signals at uncontrolled and two-way stop-controlled intersections may require that a curb ramp be rebuilt, or, in places where none exists, that a curb ramp be added. Figure 4m is an illustration of stop signs replaced by traffic signals. Installation of traffic signals and related traffic control utility boxes and signage is anticipated to require a maximum nine-foot bgs excavation depth (signal mast arm foundation).

14. Install Traffic Signals at All-way Stop-Controlled Intersections. Installing traffic signals at all-way stop-controlled intersections can reduce transit travel times by allowing transit vehicles to take advantage of planned transit signal priority improvements that reduce signal delay for approaching transit vehicles. This treatment also reduces delays associated with long vehicle queues at busy intersections which are stop-controlled with stop signs. New traffic signals would include pedestrian countdown signals and marked crosswalks. The installation of traffic signals at all-way stop-controlled intersections may require that a curb ramp be rebuilt, or, in places where none exists, that a curb ramp be added. Figure 4m is an illustration of stop signs replaced by traffic signals. Installation of traffic signals and related traffic control utility boxes and signage is anticipated to require a maximum nine-foot bgs excavation depth (signal mast arm[14] foundation).

15. Replace All-way Stop-Controls with Traffic Calming Measures at Intersections. At some intersections with all-way stop signs, the stop signs on the street with transit can be removed and traffic calming measures implemented to reduce transit travel time by allowing transit vehicles to proceed slowly through intersections without coming to a complete stop. This treatment also reduces delays associated with long vehicle queues at busy intersections with stop signs. Stop signs would typically be retained on the non-transit cross street, but in some cases may be removed on both streets. In conjunction with removing the stop signs, other traffic calming measures would be implemented. Such measures would generally involve improving crossing conditions for pedestrians, slowing traffic, and reducing right-of-way conflicts between pedestrians and other traffic. Examples of traffic calming measures that could be applied in conjunction with stop sign removal include, but are not limited to, the following:

[14] A signal mast arm is the pole and crossbar that hold a traffic signal over the roadway.



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Install Traffic Signals at All-way Stop-Controlled Intersections. Installing traffic signals at all-way stop-controlled intersections can reduce transit travel times by allowing transit vehicles to take advantage of planned transit signal priority improvements that reduce signal delay for approaching transit vehicles. This treatment also reduces delays associated with long vehicle queues at busy intersections which are stop-controlled with stop signs. New traffic signals would include pedestrian countdown signals and marked crosswalks.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4m - INSTALL TRAFFIC SIGNALS AT ALL-WAY STOP-CONTROLLED INTERSECTIONS

- Traffic circles;
- Pedestrian refuge islands;
- Pedestrian or transit bulbs;
- Speed humps (designed with a transit pass through feature);
- Median extensions through an intersection;
- Flashing beacons to draw the attention of roadway users to pedestrian crossings;
- Parking restrictions at intersection approaches to improve sight distance; and
- Enhanced crosswalk markings and signs.

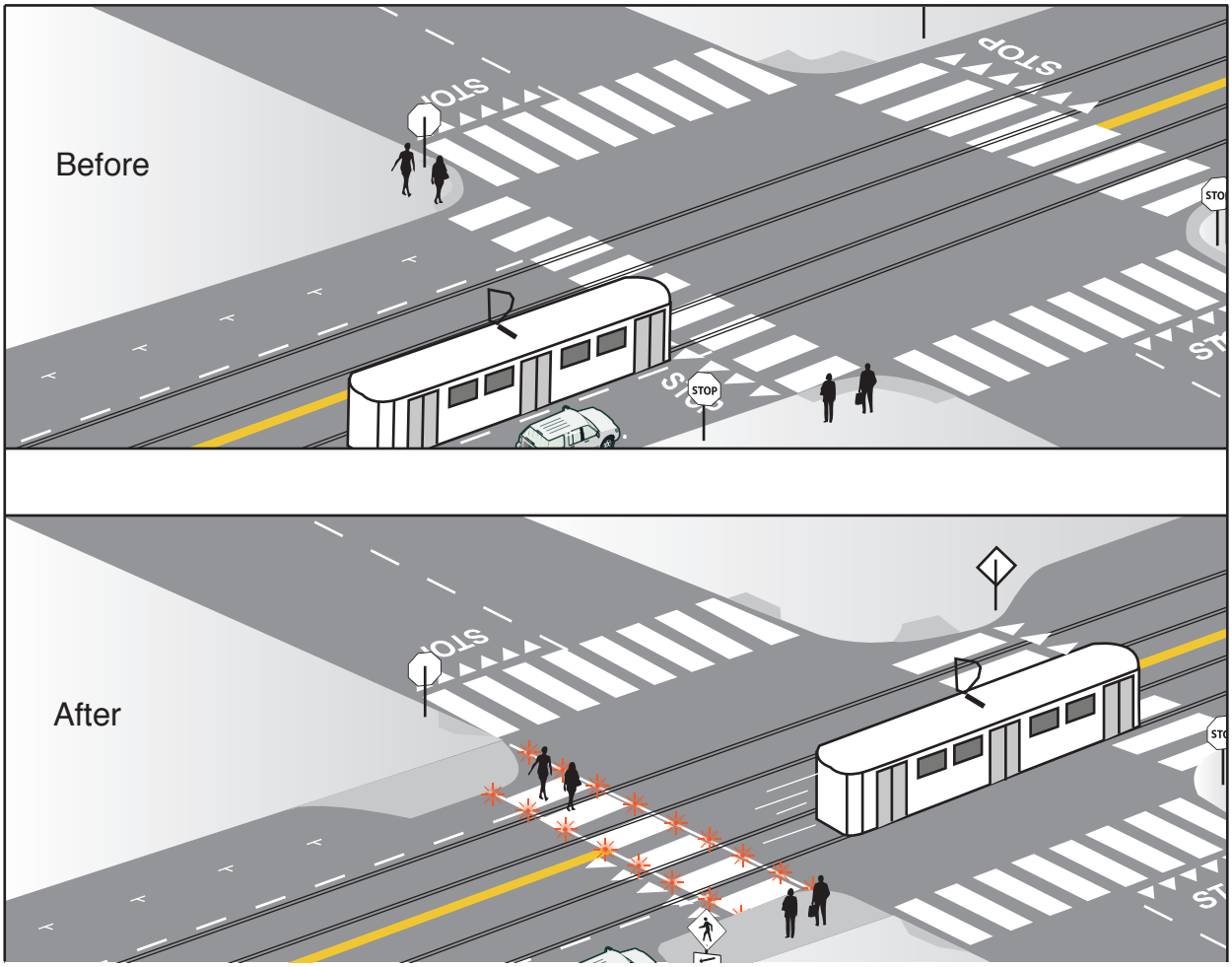
Figure 4n depicts an all-way stop sign-controlled intersection converted to a two-way stop sign-controlled intersection with pedestrian or transit bulbs added.

Traffic circles would involve construction of a circular island in the center of an intersection, and may remove the stop signs facing one or both streets. Figure 4o shows a traffic circle in the center of an intersection. Pedestrian bulbs may require relocating existing catch basins and storm sewers. Although uncommon, in some instances the installation of pedestrian refuge islands and median extensions may also require the relocation of existing catch basins and storm sewers. Some of these elements require the installation of curb ramps. Curb ramps, other concrete surface structures, and minor utility relocation associated with traffic calming measures are anticipated to require excavation up to two feet bgs.

Pedestrian Improvements

Proposed pedestrian improvements include pedestrian refuge islands, pedestrian bulbs and sidewalk widening. Pedestrian treatments help enhance pedestrian safety, improve access to transit stops and in some instances can also improve transit reliability and reduce transit travel time. Each of these elements is described in detail below.

16. Install Pedestrian Refuge Islands. Pedestrian refuge islands are raised islands in the center of the street at an intersection that provide space for pedestrians to wait while crossing a street, as shown in Figure 4p, on p. 2-50. Pedestrian refuge islands can reduce transit travel time by shifting mixed-flow lanes toward the curb and eliminating the need for buses to exit and re-enter the flow of traffic to access curbside transit stops. A typical pedestrian refuge island would be four to six feet in width and 10 to 25 feet long. Pedestrian refuge islands can also improve pedestrian safety by increasing pedestrian visibility and minimizing pedestrian exposure to vehicular traffic. Although uncommon, in some instances the installation of pedestrian refuge islands may require the relocation of existing catch basins and storm sewers. In addition, the installation of pedestrian refuge islands may require upgrading the crosswalk which may include construction of a curb ramp. Curb ramps and other minor utility relocations surface structures associated with pedestrian refuge islands is anticipated to require excavation of up to two feet bgs.



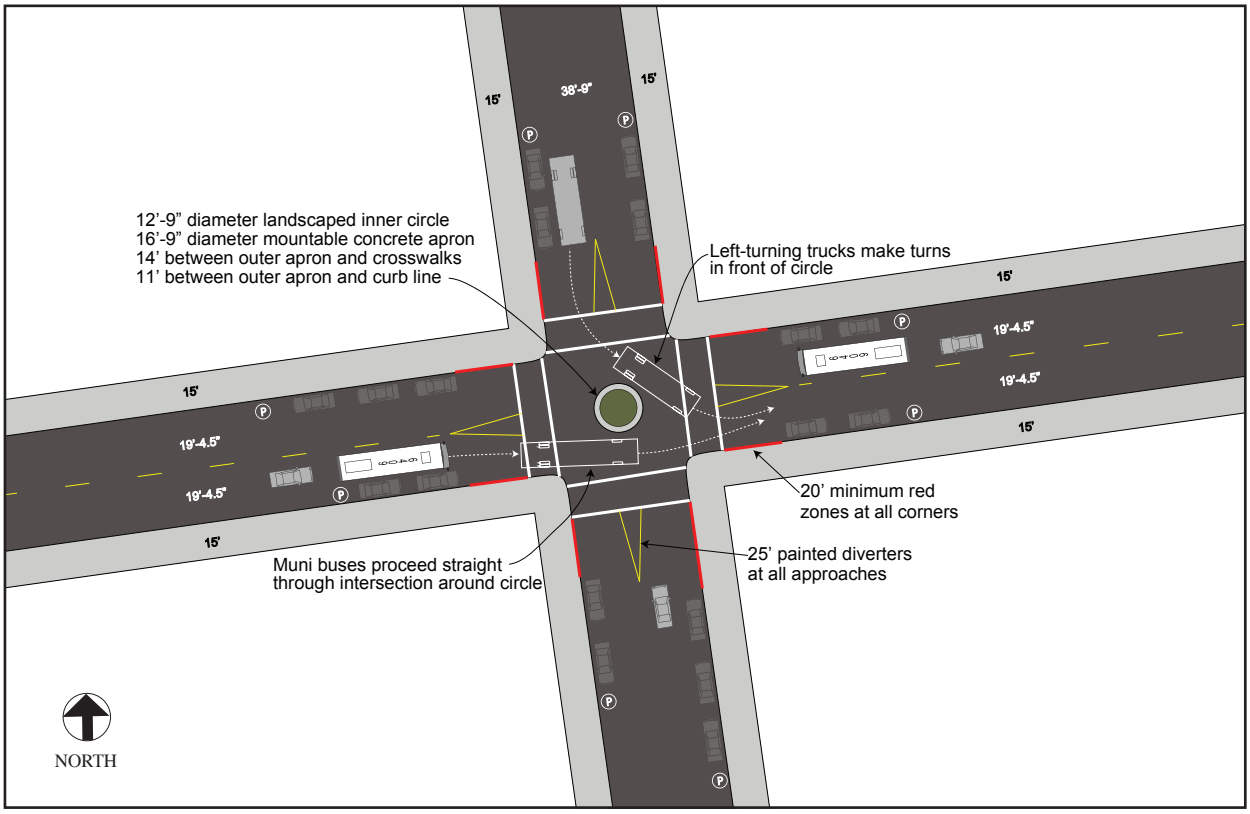
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Replace All-way Stop Controls with Traffic Calming Measures at Intersections. At some intersections with all-way stop signs, the stop signs on the street with transit can be removed to reduce transit travel time by allowing transit vehicles to proceed without coming to a complete stop. This treatment also reduces delays associated with long vehicle queues at busy intersections with stop signs. Stop signs would typically be retained on the street without transit. In conjunction with removing the stop signs, other traffic calming measures, which would generally involve improving crossing conditions for pedestrians, slowing traffic, and reducing-right-of way conflicts between pedestrians and other traffic, could be installed.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4n - REPLACE ALL-WAY STOP CONTROLS WITH TRAFFIC CALMING MEASURES AT INTERSECTIONS



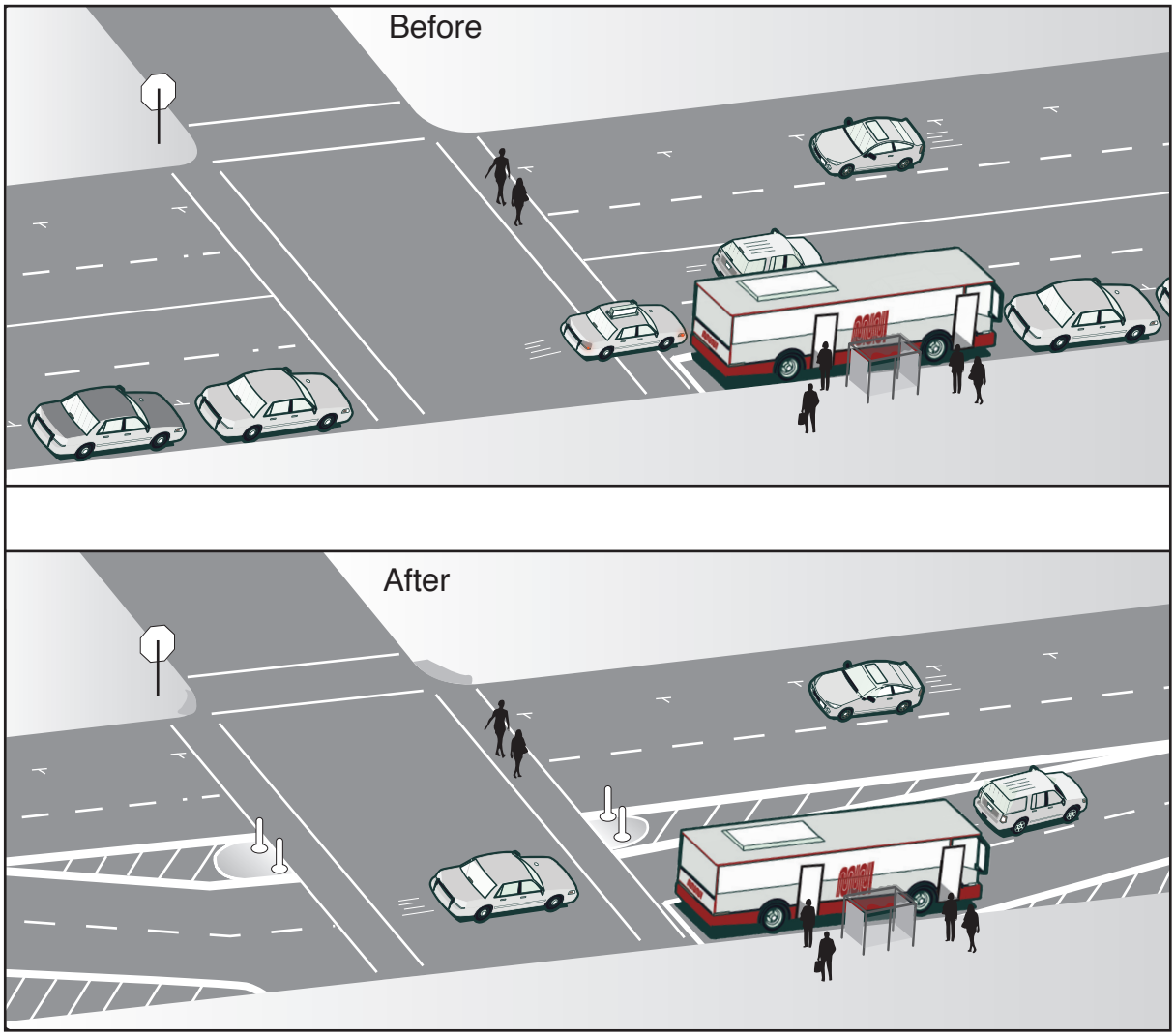
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Replace All-Way Stop Controls with Traffic Circles. At some intersections with all-way stop signs, the stop signs on the street with transit can be removed and traffic calming measures implemented to reduce transit travel time by allowing transit vehicles to proceed slowly through intersections without coming to a complete stop. This treatment also reduces delays associated with long vehicle queues at busy intersections with stop signs. In conjunction with removing the stop signs, other traffic calming measures would be implemented, which could include installing traffic circles in some locations. Traffic circles would involve construction of a circular island in the center of an intersection, and may remove the stop signs facing one or both streets.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4o - EXAMPLE OF A TRAFFIC CIRCLE



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Install Pedestrian Refuge Islands. Pedestrian refuge islands are raised islands in the center of the crosswalk at an intersection that provide space for pedestrians to wait while crossing a street. Pedestrian refuge islands can reduce transit travel time by shifting mixed-flow lanes toward the curb and eliminating the need for buses to exit and re-enter the flow of traffic to access curbside transit stops. Pedestrian refuge islands can also improve pedestrian safety by increasing pedestrian visibility and minimizing pedestrian exposure to vehicular traffic.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4p - INSTALL PEDESTRIAN REFUGE ISLANDS

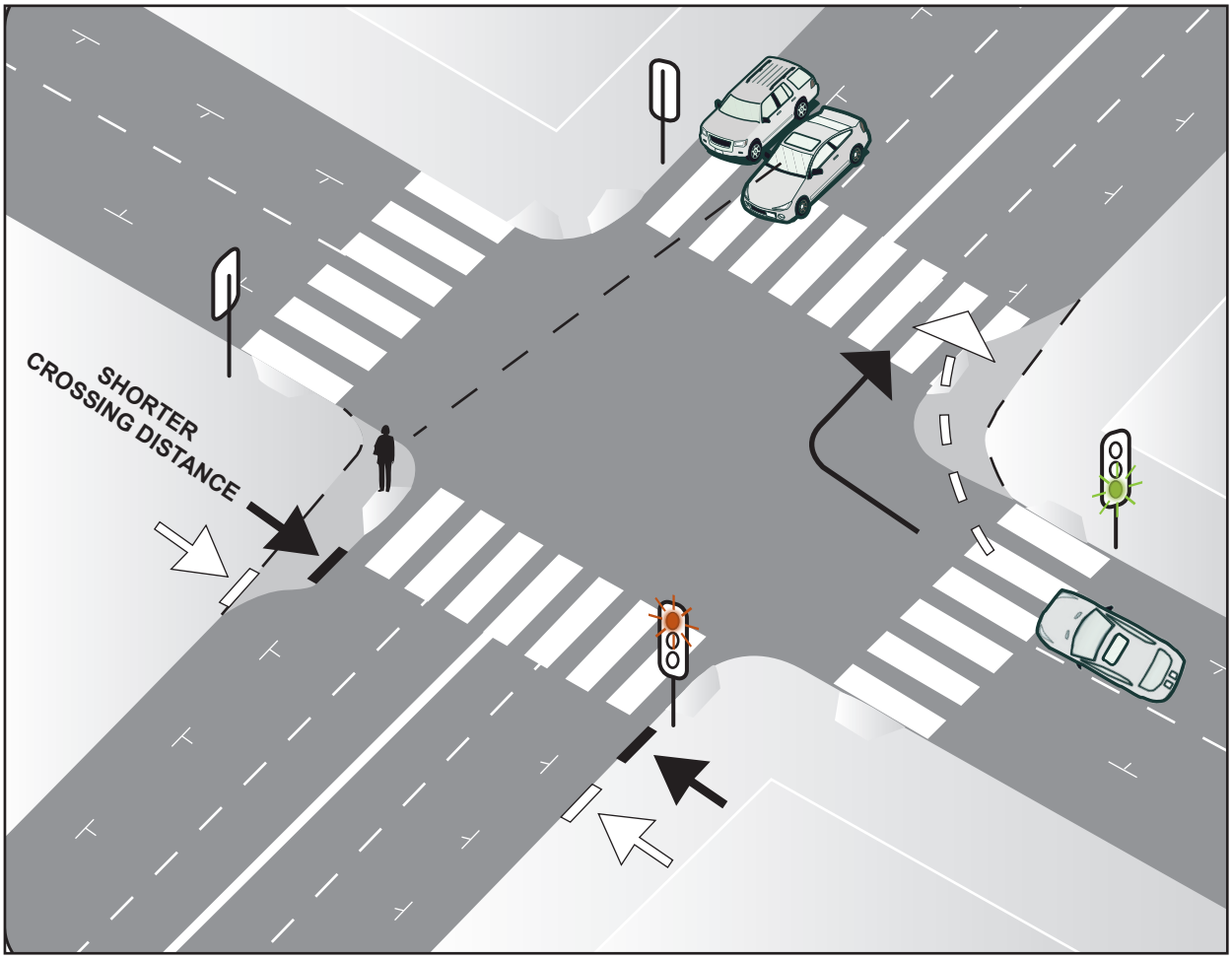
17. Install Pedestrian Bulbs. Pedestrian bulbs are sidewalk extensions at non-transit stop intersection corners that widen the sidewalk by typically four to six feet for the width of the crosswalk. In addition, approximately 20 feet is needed to transition to the regular sidewalk width. Pedestrian bulbs at signalized intersections can reduce transit travel time by reducing the roadway crossing distance, which can provide flexibility in traffic signal timing and reduce the likelihood of transit vehicles arriving on a red signal indication. Pedestrian bulbs improve pedestrian safety by shortening the street crossing distance, improving pedestrian visibility, and reducing the speed of turning traffic, as shown in Figure 4q. Any existing catch basins, storm sewers, or other utility structures situated at the corner where a pedestrian bulb is proposed may need to be relocated as part of the construction of the bulb. The installation of pedestrian bulbs may require rebuilding a curb ramp or introducing a new one. Curb ramps and other minor utility relocation associated with pedestrian bulbs is anticipated to require excavation up to two feet bgs.

18. Widen Sidewalk: Sidewalk widening can improve pedestrian conditions by providing additional space for pedestrians, transit shelters, landscaping and other amenities. Sidewalk widening can also improve pedestrian safety by shortening the street crossing distance. Sidewalk widening often requires removal of parking, as shown in Figure 4r, but could also be accomplished through mixed-flow lane removal on streets with multiple mixed-flow lanes in the same direction. Existing sidewalk widths and conditions vary throughout the City; therefore, the extent of sidewalk widening would vary. If the widened sidewalk were proposed on a street with one lane plus parking in each direction, parking would need to be eliminated.[15] Any existing catch basins and storm sewers may need to be relocated as part of constructing a wider sidewalk. Widening a sidewalk may also require rebuilding a curb ramp or adding a new one. Construction of curb ramps, associated utility relocation, and concrete sidewalk is anticipated to require excavation up to two feet bgs.

Program-Level TTRP Corridors

The exact locations (e.g., corner of a particular intersection) of the TPS Toolkit elements that would be applied to the nine Rapid Network corridors listed below in order to improve transit service have not yet been selected. It is assumed for environmental review purposes that any of the TPS Toolkit elements could be applied at various locations along these TTRPs to achieve transit travel time reductions. Therefore, these nine TTRPs are generally analyzed at a program-level in this environmental review. However, to the extent that specific details

[15] In limited instances on streets with wide lanes, the extra sidewalk width could be achieved by redesigning the lane widths of the existing parking and mixed-flow lanes without removing either a parking or a mixed-flow lane.



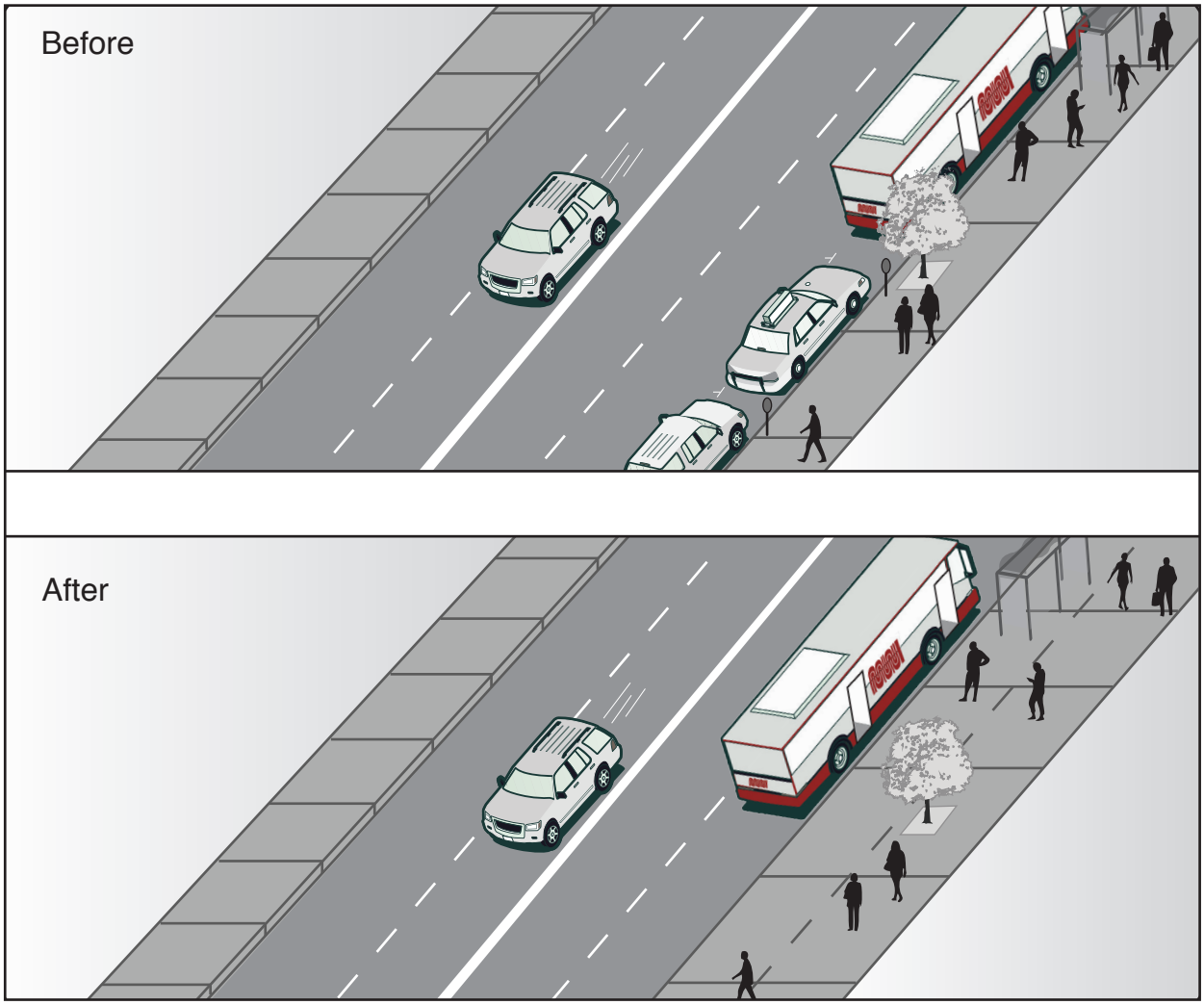
Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Install Pedestrian Bulbs. Pedestrian bulbs are sidewalk extensions at non-transit stop intersection corners that widen the sidewalk by a distance equal to or less than the width of the parking lane for the width of the crosswalk. Pedestrian bulbs at signalized intersections can reduce transit travel time by reducing the roadway crossing distance, which can provide flexibility in traffic signal timing and reduce the likelihood of transit vehicles arriving on a red signal indication. Pedestrian bulbs improve pedestrian safety by shortening the street crossing distance, improving pedestrian visibility, and reducing the speed of turning traffic.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4q - INSTALL PEDESTRIAN BULBS



Note: The above conceptual figure is not to scale and is for illustrative purposes only.

Widen Sidewalk. Sidewalk widening can improve pedestrian conditions by providing additional space for pedestrians, transit shelters, landscaping and other amenities. Sidewalk widening can also improve pedestrian safety by shortening the street crossing distance. Existing sidewalk widths and conditions vary throughout the City; therefore, the extent of sidewalk widening would also vary. If the widened sidewalk were proposed on a street with one lane plus parking in each direction, parking would need to be eliminated.

SOURCE: SFMTA, Turnstone Consulting, Fehr & Peers, Jungle Communications

TRANSIT EFFECTIVENESS PROJECT

FIGURE 4r - WIDEN SIDEWALK

were not necessary to fully assess the TPS Toolkit elements' impacts for certain environmental topics in the Initial Study (e.g., Aesthetics, Cultural Resources, Wind and Shadow, Biological Resources, among others) and this Draft EIR (e.g., Transportation and Circulation, Air Quality and Noise) this environmental review provides a complete, project-level analysis for those topics. Detailed designs for three of these TTRPs (TTRP.L, TTRP.9, and TTRP.71_1) were prepared after publication of the Draft EIR on July 10, 2013. The detailed designs are described at a project level in Section 2.5.2.3, Project-Level Travel Time Reduction Proposals, beginning on p. 2-110, and analyzed in Chapter 4, Environmental Setting, Impacts, and Mitigation.

TTRP.1 for the 1 California route: For this proposal, the TPS Toolkit elements would be applied along the 1 California route. The TPS Toolkit elements would be implemented along the following streets: Drumm, Sacramento, Steiner, and California streets, 32nd Avenue and Geary Boulevard (outbound), and along Geary Boulevard, 33rd Avenue, Clement Street, 32nd Avenue, California, Steiner, Sacramento, Gough and Clay streets (inbound). The corridor extends from the intersection of Geary Boulevard and 33rd Avenue to the intersection of Clay and Drumm streets, providing transit improvements to a major east-west route in the Rapid Network. This Rapid Network corridor provides transit connections between the northern portion of the Richmond District and neighborhoods to the east, including Pacific Heights, Nob Hill, Chinatown, the Financial District and the Embarcadero.

TTRP.9 for the 9 San Bruno and 9L San Bruno Limited routes: For this proposal, the TPS Toolkit elements would be applied along two segments of the 9 San Bruno/9L San Bruno Limited routes. The TPS Toolkit elements would be implemented along the following streets in two segments: Segment 1: 11th and Division streets, Potrero Avenue, Bayshore Boulevard, Silver and San Bruno avenues. This part of the corridor extends from the intersection of Market and 11th streets to the intersection of San Bruno and Silver avenues. Segment 2: Bayshore Boulevard, Sunnydale Avenue, Schwerin Street, Geneva Avenue, Santos Street and Sunnydale Avenue. This part of the corridor extends from the intersection of Visitacíon Avenue and Bayshore Boulevard to the existing terminus at 2070 Sunnydale Avenue, adjacent to the Gleneagles Golf Course in McLaren Park. This is a major north-south route in the Rapid Network and provides transit connections between the Civic Center and Downtown and neighborhoods to the southeast, including SoMa, the Mission, Showplace Square, Potrero Hill, Bernal Heights, Portola, Silver Terrace, Bay View, and Visitacion Valley.

TTRP.22_2 for the 22 Fillmore route: For this proposal, the TPS Toolkit elements would be applied along a segment of the 22 Fillmore route. The TPS Toolkit elements would be implemented along the following streets: Church, Hermann, Fillmore, Broadway, Steiner, and Union streets. This part of the 22 Fillmore corridor extends from the intersection of 16th

and Church streets to the intersection of Bay and Fillmore streets. This is a major north-south route in the Rapid Network, and provides crosstown transit connections between the following neighborhoods: Duboce Triangle, the Lower Haight and Western Addition, the Fillmore, Japantown, Pacific Heights, Cow Hollow and the Marina neighborhoods.

TTRP.28_2 for the 28L 19th Avenue Limited: For this proposal, the TPS Toolkit elements would be applied along a segment of the 28L 19th Avenue Limited route (portion of U.S. 101). The TPS Toolkit elements would be implemented along the following streets: Van Ness Avenue, Lombard Street and Richardson Avenue. This part of the 28 19th Avenue Limited corridor extends from the intersection of Beach Street and Van Ness Avenue to the intersection of Lyon Street and Richardson Avenue (US 101 N). This would improve an east-west portion of the Rapid Network connecting the future Van Ness BRT with the 28L 19th Avenue Limited, which provides transit connections through the Marina and the Presidio to the Richmond and Sunset Districts.

TTRP.30_2 for the 30 Stockton route: For this proposal, the TPS Toolkit elements would be applied along a segment of the 30 Stockton route. The TPS Toolkit elements would be implemented along Chestnut, Broderick, Divisadero and Jefferson streets, from the intersection of Van Ness Avenue and Chestnut Street to the intersection of Jefferson and Broderick streets. This would improve an east-west portion of the Rapid Network connecting the future Van Ness BRT with the 30 Stockton to provide transit connections between the Marina, Russian Hill, Civic Center, the North Waterfront, North Beach, Chinatown, Union Square, the Financial District, SoMa and the Caltrain Station.

TTRP.71 for the 71L Haight-Noriega Limited and 6 Parnassus routes: For this proposal, the TPS Toolkit elements would be applied along a segment of the 71L Haight-Noriega Limited and 6 Parnassus routes. The TPS Toolkit elements would be implemented along the following streets: Ortega Street, 47th Avenue, Noriega Street, 22nd Avenue, Lincoln Way, Frederick, Stanyan, and Haight streets (inbound), and along Haight, Stanyan, and Frederick streets, Lincoln Way, 23rd Avenue, Noriega Street, the Great Highway and Ortega Street (outbound). This corridor extends from the intersection of Ortega Street and 48th Avenue to the intersection of Market and Gough streets. This would improve an east-west portion of the Rapid Network connecting the Outer and Inner Sunset Districts with Cole Valley, the Haight Ashbury, the Lower Haight, Hayes Valley, Civic Center and Downtown and providing a future connection to the Van Ness BRT and Better Market Street Project improvements.

TTRP.K for the K Ingleside light rail line: For this proposal, the TPS Toolkit elements would be applied along Junipero Serra Boulevard and Ocean Avenue, from the intersection of San Jose Avenue and Oneida Street (Balboa Park Station) to Sloat and Junipero Serra boulevards. This Rapid Network corridor provides transit connections between the West Portal, St. Francis Wood, and Ingleside neighborhoods as well as the City College of San Francisco (CCSF) main campus and vicinity and Balboa Park Station. Inbound, the K Ingleside enters the Muni System underground at West Portal Station. From West Portal Station the K Ingleside becomes the T Third Street and continues to Embarcadero Station, providing connections from the above neighborhoods to Forest Hill, Midtown Terrace, the Castro/Eureka Valley/Corona Heights, Duboce Triangle, Church and Market streets vicinity, and destinations in Civic Center and Downtown before resurfacing after Embarcadero

Station to provide transit service along the Embarcadero, through SoMa and Mission Bay, to Potrero Hill, Hunter's Point, Bay View and Visitacíon Valley neighborhoods.

TTRP.L for the L Taraval light rail line: For this proposal, the TPS Toolkit elements would be applied primarily along Ulloa Street, 15th Avenue, Taraval Street, 46th Avenue, Vicente Street, 47th Avenue, Wawona Street and 46th Avenue, from the intersection of West Portal Avenue and Ulloa Street (at West Portal Station) to the intersection of Wawona Street and 46th Avenue. This Rapid Network corridor provides transit connections between West Portal Station and the southern portion of the Outer Sunset neighborhood. The L Taraval continues along West Portal Avenue to West Portal Station where inbound it enters the Muni System underground to Embarcadero Station providing connections from the above neighborhoods to Forest Hill, Midtown Terrace, the Castro/Eureka Valley/Corona Heights, Duboce Triangle, Church and Market streets vicinity, and destinations in Civic Center and Downtown.

TTRP.M for the M Ocean View light rail line: For this proposal, the TPS Toolkit elements would be applied along the dedicated right-of-way south of St. Francis Circle, 19th Avenue, Parkmerced local streets, Randolph Street, Orizaba Avenue, Broad Street and San Jose Avenue, from the intersection of 19th and Holloway avenues to Geneva and San Jose avenues near the Balboa Park Station. This corridor provides transit connections between West Portal Station and Balboa Park Station (Muni and BART), and includes transit service for the West Portal, St. Francis Wood, Stonestown/San Francisco State University, Ingleside and Parkmerced neighborhoods. The M Ocean View continues along West Portal Avenue to West Portal Station, where inbound it enters the Muni System underground to Embarcadero Station providing connections from the above neighborhoods to Forest Hill, Midtown Terrace, the Castro/Eureka Valley/Corona Heights, Duboce Triangle, Church and Market streets vicinity, and destinations in the Civic Center and Downtown.

With the application of the TPS Toolkit elements, travel times on the above-noted TTRPs are forecast to be reduced by 5 to 20 percent, with a median reduction of 10 percent. When combined with other ongoing SFMTA program and policy changes, such as transit signal priority and all-door boarding, the estimated travel time savings are forecast to improve an additional five percent over the results from the TTRPs.[16] The travel time savings that could be achieved with implementation of each element would vary widely and would depend on a number of factors specific to each corridor. Factors include the existing roadway configuration, traffic volumes, level of pedestrian activity, number and locations of left and right turns, on-street parking locations and level of use, and the types of traffic control in place.

[16] E-mail communication from Britt Tanner of SFMTA to Debra Dwyer of San Francisco Planning Department, June 14, 2013. A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E.

2.5.2 DESCRIPTION OF PROJECT-LEVEL TEP COMPONENTS

The following sections describe the components of the TEP that have been developed and designed in sufficient detail to be analyzed at a project level across all CEQA topics. Generally, these projects would be installed in the earlier phases of the TEP implementation and include Service Improvements, Service-related Capital Improvements, and TTRPs. Each of these components is described below.

2.5.2.1 Service Improvements

The TEP proposes a series of transit service changes (Service Improvements) that would allocate resources more cost effectively, better serve Muni passengers, reflect changing travel patterns within San Francisco, provide improved connections to regional transit, and streamline routes for improved reliability and reduced delay. These proposed Service Improvements would include developing new routes, modifying existing routes, or adding transit service to streets currently without any transit service; eliminating underutilized existing routes or route segments; changing the transit vehicle type operating along a route; changing the frequency and span of service for a route; changing the mix of local/limited/express service offered along a particular route; and other changes, such as adding new express service stops, expanding Limited-stop service to include Sundays, and expanding other service by adding days of operation. Implementation of some of the Service Improvements would rely on the completion of Service-related Capital Improvements (e.g., overhead wire expansion).

Table 6 identifies each Muni route by its proposed service route category. Routes would be assigned to service tiers based on existing performance but may be reclassified as usage and travel patterns change. The route type would determine the Service Improvements and Service-related Capital Improvements planned for the respective routes with the greatest allocation of resources to the Rapid Network routes and less to the others. The SFMTA is proposing to add up to 350,000 service hours on an annual basis to the existing 2011 service hours (approximately 3,500,000) as part of the proposed Service Improvements. This section describes in detail the proposed service changes, which are anticipated to take effect between 2015 and 2016, pending resource availability. At the time of implementation, the SFMTA many need to make minor modifications to the details described below in order to respond to new information, such as updated ridership data. This type of flexibility and responsiveness is necessary in order to provide the most efficient transit service possible. A summary of the proposed TEP Service Improvements is provided in Table 7 beginning on p. 2-59. While the specific service plan outlined in Table 7 is based on current conditions and best available information, the SFMTA would likely need to make minor adjustments in the service plan prior to implementation, but would stay within the maximum 350,000 additional annual service hours.

Table 6: Muni Routes by Service Route Categories

Category	Route	
Rapid Network	E Embarcadero* F Market-Wharves J Church KT Ingleside-Third L Taraval M Ocean View N Judah 1 California 5 Fulton/5L Fulton Limited* 8X-Bayshore Express	9 San Bruno/9L San Bruno Limited 14 Mission/14L Mission Limited 22 Fillmore[1] 28 19th Avenue/28L 19th Avenue Limited 30 Stockton 38 Geary/38L Geary Limited 47 Van Ness 49L Van Ness-Mission Limited* 71L Haight-Noriega
Local Network	2 Clement[1] 6 Parnassus 10 Sansome[2] 11 Downtown Connector 12 Folsom 18 46th Avenue 19 Polk 21 Hayes 23 Monterey 24 Divisadero[1] 27 Folsom[2] 29 Sunset	31 Balboa 33 Stanyan 43 Masonic 44 O'Shaughnessy 45 Union/Stockton[3] 48 Quintara/24th 54 Felton 58 24th Street 108 Treasure Island[3]
Community Connectors	17 Parkmerced 32 Roosevelt 35 Eureka 36 Teresita 37 Corbett	39 Coit[3] 52 Excelsior 56 Rutland 66 Quintara 67 Bernal Heights[3]
Specialized Services	1AX California Express 1BX California Express 8AX Bayshore Express 8BX Bayshore Express 14X Mission Express[3] 16X Noriega Express 30X Marina Express 31AX Balboa Express 31BX Balboa Express	38AX Geary 38BX Geary 41 Union 76 Marin Headlands 80X Gateway Express[3] 81X Caltrain Express[3] 82X Levi Plaza Express[3] 83X Mid-Market Express[3] 88 BART Shuttle[3] 90 Owl[3] 91A Owl* 91 B Owl*

Notes:
[1] With proposed Service Improvements, Routes 2 Clement, 10 Sansome, 22 Fillmore, 24 Divisadero, and 43 Masonic would replace service along portions of the existing 3 Jackson, which would be discontinued as part of proposed Service Improvements.
[2] Routes 27 Bryant and 10 Sansome would replace the 12 Folsom/Pacific, which would be discontinued as part of proposed Service Improvements.
[3] Route does not have proposed service changes, and is therefore not analyzed in the environmental review.
* New routes proposed as part of the TEP.

Source: SFMTA, 2012.

No service changes are proposed for Muni routes that are not listed in Table 7.

Table 7: Summary of Proposed Service Improvements*

Transit Route	New Route	Route Elimination	Change to Route Alignment	Change to Headway	Change to Vehicle Type	Other Changes[1]
E Embarcadero	X					
F Market-Wharves				X		
J Church				X		X
K-T Ingleside-Third				X		
L Taraval				X		
M Ocean View				X		
N Judah				X		[5]
1 California				X		
1AX California Express						X
1BX California Express			X			X
2 Clement			[4]	X		X
● 3 Jackson		X		X		
5 Fulton			X	X	[2]	[5]
5L Fulton Limited	X					[5]
6 Parnassus			X	X		
● 8X Bayshore Express			X[4]	X		[5]
8AX Bayshore Express				X		[5]
● 8BX Bayshore Express			X[4]	X		[5]
9 San Bruno						X

Transit Route	New Route	Route Elimination	Change to Route Alignment	Change to Headway	Change to Vehicle Type	Other Changes[1]
9L San Bruno Limited				X		X
10 Sansome (formerly 10 Townsend)			X	X		X
11 Downtown Connector	X		[4]			
12 Folsom-Pacific		X				
14 Mission					X	[5]
14L Mission Limited				X	X	[5]
14X Mission Express				X		[5]
16X Noriega Express			X[4]			X
● 17 Parkmerced			X[4]	X		X
18 46th Avenue			X			
19 Polk			X			X
21 Hayes				X		
22 Fillmore			X[4]	X	[2]	[5]
23 Monterey			X			
24 Divisadero				X		
27 Bryant			X[4]			X
● 28 19th Avenue			X[4]	X		[5]
● 28L 19th Avenue Limited			X[4]	X		[5]
29 Sunset			X	X		
30 Stockton					X	[5]

Transit Route	New Route	Route Elimination	Change to Route Alignment	Change to Headway	Change to Vehicle Type	Other Changes[1]
30X Marina Express				X		
31 Balboa				X		
31AX Balboa Express						X
31BX Balboa Express						X
32 Roosevelt	X		[4]			
● 33 Stanyan			X[4]	X		
● 35 Eureka			X[4]	X	X	
36 Teresita			X	X	X	
37 Corbett			X[4]	X	X	
38 Geary				X		
38 Geary Short				X		
38L Geary Limited				X		
38AX Geary Express						X
38BX Geary Express				X		X
41 Union				X		
● 43 Masonic			X[4]	X		
44 O'Shaughnessy				X		
45 Union-Stockton						[5]
47 Van Ness			X	X		
48 Quintara-24th Street			X	X		X
49 Van Ness-Mission		X				

Transit Route	New Route	Route Elimination	Change to Route Alignment	Change to Headway	Change to Vehicle Type	Other Changes[1]
49L Van Ness-Mission Limited	X				X	
52 Excelsior			X	X		X
54 Felton			X	X		
56 Rutland			X	X	X	
● 58 24th Street	X[4]					
66 Quintara					X	
71/71L Haight-Noriega[3]			X[4]	X		X
76 Marin Headlands (Sundays Only)			X			X
91 Owl A			X			
91 Owl B			X			

Notes:

* The 39 Coit, 67 Bernal Heights, 80X Gateway Express, 81X Caltrain Express, 82X Levi Express, 83X Mid-Market Express, 88 BART Shuttle, 90 Owl, and 108 Treasure Island do not have any changes associated with them and, therefore are not listed.

[1] "Other Changes" includes miscellaneous service improvements such as new express service stops, and expanding limited-stop service to Sundays, and the addition of a day of service for a route.

[2] The 5 Fulton shortline, and 22 Fillmore have Service Variants related to a change in vehicle type.

[3] Currently, the 71L Haight-Noriega Limited operates in the peak direction during the weekday peak period only, covering the same route as the 71 Haight-Noriega local service. The limited stop area is between Haight Street and Masonic Avenue and Market Street and 11th Street/Van Ness Avenue. As part of the TEP, there would no longer be 71 Haight-Noriega local service. Instead, all service on this route would be provided by the 71L Haight-Noriega Limited. See the 71L Haight-Noriega Limited route map in the Service Improvement Maps in the Initial Study, Appendix 2 to the EIR, for more information.

● [4] The 2 Clement, 8X Bayshore Express, 8AX Bayshore Express, 8BX Bayshore Express, 11 Downtown Connector, 16X Noriega Express, 17 Parkmerced, 22 Fillmore, 27 Bryant, 28 19th Ave, 28L 19th Ave. Ltd., 32 Roosevelt, 33 Stanyan, 35 Eureka, 37 Roosevelt, 43 Masonic, 58 24th Street, and 71L Haight-Noriega Limited have Service Variants related to a route change. The 33 Stanyan would have a route change as part of the 22 Fillmore Variant 1.

[5] "Other Changes", such as stop relocation and elimination, are planned along a portion of this route as part of a project-level TTRP. See associated project-level TTRP for a detailed description of these changes.

The SFMTA has ongoing facility requirements for the storage and maintenance of transit vehicles. Implementation of the TEP would increase the number of transit vehicles required to operate the Muni system over time by approximately 60 vehicles. These vehicles would incrementally increase the SFMTA's facility needs for storage and maintenance of additional buses and trains. In the short term, these changes could be accommodated within existing SFMTA-owned or leased facilities. Long-term vehicle storage needs would be addressed through the SFMTA's routine facilities planning practices.

Table 8, beginning on p. 2-64, provides a detailed description of the proposed Service Improvements for each of the transit routes listed in Table 7. For routes with proposed changes, the type of change (e.g., new route, route elimination, or change to the existing alignment) is stated after the name of those routes. The descriptions of the proposed service changes present route and service changes by location; list street segments where transit routes would be discontinued or added; discuss changes to vehicle types, if applicable; and summarize the project variants to proposed service changes that are being evaluated. Changes to service frequencies during the a.m. and p.m. peak periods are also presented for each line. Changes to service frequencies are also referred to as changes in the route headway.[17] Graphic depictions of all Service Improvements described in Table 8 are shown on Service Improvement Maps that are included on the CD enclosed with this Draft EIR in Appendix A to the Initial Study, which is Appendix 2 to the EIR.[18] In addition, these route maps are available at the Planning Department's Web page for the environmental review of the TEP in Appendix A to the Initial Study at http://tepeir.sfplanning.org.

Service Variants

Several variants to the Service Improvements (Service Variants) are under consideration by the SFMTA to maintain flexibility with respect to phasing and the implementation of the proposed Service Improvements on 15 routes. Proposed variants to the Service Improvements would either modify the proposed route, modify the frequency of service on the proposed route, or change the type of proposed transit vehicle. Therefore, each Service Variant would in other respects be to the same as the

[17] Headway is the scheduled time interval between any two revenue transit vehicles operating in the same direction on a route.

[18] A copy of the Initial Study and its Appendix A, Service Improvement Maps, is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E. Six of the Service Improvement route maps have been updated with minor corrections and clarifications for the following routes/lines: 8BX Bayshore Express, 10 Sansome, 22 Fillmore, 27 Folsom, 33 Stanyan, and 35 Eureka. The updated maps are included in Appendix 2 to the EIR. The Service Improvement route maps are also available on the SFMTA website by clicking on each of the Muni routes or lines on the "Improvements by Route or Line" table found at http://www.sfmta.com/projects-planning/projects/tep-proposed-service-improvements/detail. Accessed June 4, 2013.

Table 8: Description of Proposed Service Improvements

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
E Embarcadero (New Route)	• New historic streetcar line connecting Fisherman's Wharf and the northeast waterfront to AT&T Park and the Caltrain Station. • Line would start at the F Market & Wharves' northern terminus at Jones Street, then travel south along The Embarcadero to Market Street, and then follow the N/T Line alignment to King Street to the E Embarcadero terminus at the Caltrain Station at Fourth and King streets. • No capital improvements are needed for this Line.[19] • Requires the use of double-ended street cars due to lack of terminal loop at southern terminus at Fourth and King streets.	N/A	15	N/A	15
F Market & Wharves	• No route changes proposed. • Frequencies would be reduced due to the additional capacity provided by the new E Embarcadero Line. • Midday frequency would change from 5 to 6 minutes.	6.5	7.5	6	5
J Church	• No route changes proposed. • TTRP.J is also proposed for this corridor to reduce transit travel time.	9.5	8	8	9

[19] E Embarcadero - While no capital improvements are necessary to implement this service, TTPI.3 proposes to develop a new independent terminal for the E Embarcadero at the north end of the route near Jones and Beach streets. The terminal would facilitate independent movements of E and F streetcars, which would improve reliability for both routes by allowing for independent terminal departures. This would also prevent trains on one route from stacking up behind trains from the other route and being unable to pass.

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
K-T Ingleside-Third	• No route changes proposed. • TTRP.K is also proposed for this corridor to reduce transit travel time.	9.5	8.5	9.5	8.5
L Taraval	• No route changes proposed. • TTRP.L is also proposed for this corridor to reduce transit travel time.	8	7.5	7	7.5
M Ocean View	• No route changes proposed. • New terminal at Parkmerced is planned and would be funded by the private developer with an estimated year 2020 completion. During peak periods, alternate trips would originate/terminate from/to the Balboa Park Station and this new terminal. • TTRP.M is also proposed for this corridor to reduce transit travel time.	8.5	8.5	9.5	8.5
N Judah/ NX – Judah Express	• No route changes proposed. • TTRP.N is also proposed for this corridor to reduce transit travel time.	7.5	5.5	7	6
1 California (west of Presidio Avenue)	• No route changes proposed. • TTRP.1 is also proposed for this corridor to reduce transit travel time.	7	No Change	7	6
1 California (east of Presidio Avenue)	• No route changes proposed. • TTRP.1 is also proposed for this corridor to reduce transit travel time.	3.5	No Change	3.5	3

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
1AX California Express	• No route changes proposed. • New transit stop would be added on Pine Street (p.m.) and Bush Street (a.m.) at Van Ness Avenue to improve transit connections to the Civic Center and the northern waterfront. • TTRP.1 is also proposed for this corridor to reduce transit travel time.	9	No Change	13	No Change
1 BX California Express	• No stops would be eliminated, but the route alignment would change. Where the inbound (eastbound) route currently turns south on Fillmore Street, the proposed route would continue on California Street and turn south on Gough Street to Bush Street. The route segment that extends south on Fillmore Street and east on Bush Street to Gough Street would be discontinued. • New transit stop would be added on Pine Street (pm) and Bush Street (am) at Van Ness Avenue to improve transit connections to the Civic Center and the northern waterfront. • TTRP.1 is also proposed for the California Street corridor to reduce transit travel time.	7	No Change	12	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 2 Clement (west of Presidio Avenue)	• No route changes proposed. • Supplemental trolley coach service would be added between Downtown (Sansome/Market streets) and Presidio Avenue to maintain current transit frequencies on Sutter and Post streets after replacing the discontinued 3 Jackson route on this segment. • 2 Clement Service Variant proposes an alternative alignment that would use existing overhead wires for trolley coach service on the entire Sutter Street corridor. Instead of operating on Clement Street from Arguello Boulevard to Park Presidio Boulevard, the route would continue on California Street to Eighth Avenue, then south to Clement Street to Sixth Avenue. This Service Variant would include a terminal loop at Sansome Street in the Downtown area.	12	7.5	12	7.5
● 2 Clement (east of Presidio Avenue)	• No route changes proposed. • Supplemental trolley coach service would be added between Downtown (Sansome/Market streets) and Presidio Avenue to maintain current transit frequencies on Sutter and Post streets after replacing the discontinued 3 Jackson route on this segment. • 2 Clement Service Variant proposes an alternative alignment that would use existing overhead wires for trolley coach service on the entire Sutter Street corridor. Instead of operating on Clement Street from Arguello Boulevard to Park Presidio Boulevard, the route would continue on California Street to Eighth Avenue, then south to Clement Street to Sixth Avenue. This Service Variant would include a terminal loop at Sansome Street in the Downtown area.	12	15	12	15

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 3 Jackson (Route Elimination)	• Route would be discontinued. • Other Muni routes would provide service on streets currently served by this route, except for Jackson Street between Divisadero Street and Presidio Avenue which would be eliminated due to low ridership. Transit headways on Sutter Street would be maintained by adding supplemental trolley coach service on the 2 Clement between Downtown and Presidio Avenue. • If 3 Jackson route is retained as recommended, frequencies would be 15 minutes in the a.m. and p.m. peak hour.	13.5	N/A	12	N/A

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
5 Fulton Short-line/5L Fulton Limited (west of Eighth Avenue) (New Route)	• New Limited Service route would make local stops west of Eighth Avenue, limited stops between Eighth Avenue and Market Street, and resume local stops on Market Street to the Transbay Terminal. • 5L Fulton Limited would be supplemented by 5 Fulton short-line with local service from Eighth Avenue to Downtown. Working together, the 5/5L would serve all local stops from Ocean Beach to Downtown; passengers who want to travel from a local stop west of Eighth Avenue to a local stop between Eighth Avenue and Market Street would need to transfer from the 5L Fulton Limited to the 5 Fulton Short-line route. • In order to maintain Route 5/5L as an electric trolley coach service, bypass wires would be installed to allow limited-stop trolley coaches to pass local trolley coaches between Eighth Avenue and Market Street (OWE.4 The 5 Limited/Local Bypass Wire project). • TTRP.5 is also proposed for this corridor to reduce transit travel time. • The 5 Fulton Service Variant would operate the 5 Fulton short-line with motor coach service prior to the installation of bypass wires.	6	7.5	9	8

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 5 Fulton Short-line/5L Fulton Limited (east of Eighth Avenue) (New Route)	• New Limited Service route would make local stops east of Eighth Avenue, limited stops between Eighth Avenue and Market Street, and resume local stops on Market Street to the Transbay Terminal. • 5L Fulton Limited would be supplemented by 5 Fulton short-line with local service from Eighth Avenue to Downtown. Working together, the 5/5L would serve all local stops from Ocean Beach to Downtown; passengers who want to travel from a local stop west of Eighth Avenue to a local stop between Eighth Avenue and Market Street would need to transfer from the 5L Fulton Limited to the 5 Fulton Short-line route. • A new part-time midblock bus zone (162 feet) would be implemented at the route's terminal on Howard Street between Beale and Fremont streets from 6 a.m. to 8 p.m. Monday through Friday, which would result in temporary part-time parking restrictions at this location. Once the Transbay Transit Center is constructed, the 5/5L would terminate at a bus-bay in the new terminal. • Midday frequency would change from 4.5 to 5 minutes. • In order to maintain Route 5/5L as an electric trolley coach service, bypass wires would be installed to allow limited-stop trolley coaches to pass local trolley coaches between Eighth Avenue and Market Street (OWE.4 The 5 Limited/Local Bypass Wire project). • TTRP.5 is also proposed for this corridor to reduce transit travel time. • The 5 Fulton Service Variant would operate the 5 Fulton short-line with motor coach service prior to the installation of bypass wires. • A change in vehicle length from 45 feet to 60 feet would be made for the 5 Fulton short and the 5 Fulton Limited. Prior to completion of OWE.4 to install the bypass wires, this service would be operated with 60-foot motor coaches.	4	No Change	4.5	4

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
6 Parnassus[20] (Alignment Change)	• New alignment would follow Stanyan Street, instead of Masonic Avenue, between Haight Street and Parnassus Avenue to provide increased service on the busiest portion of Haight Street. Low ridership route segment in Ashbury Heights would be discontinued. Combined with service provided by the 71L Haight-Noriega Limited, the 6 Parnassus would provide local and limited-stop service along the full length of Haight Street. • Streets eliminated from the 6 Parnassus route would include Masonic Avenue, Frederick and Clayton streets, and Parnassus Avenue between Clayton and Stanyan streets. The 32 Roosevelt and 33 Stanyan routes would continue to offer service along these segments. Reroute on Haight Street between Masonic Avenue and Stanyan Street would require new overhead wire on Stanyan Street between Haight Street and Parnassus Avenue. (See OWE.3, 6 Parnassus on Stanyan Street). • In the future, the 6 Parnassus route would be extended to West Portal Station. Overhead wires would be extended to West Portal Station from current terminal at 14th Avenue and Quintara Street (OWE.6 New Overhead Wire - 6 Parnassus Extension to West Portal Station). The exact route for OWE 6 is unknown at this time; therefore, OWE.6 is being analyzed programmatically. • TTRP.71_1 is also proposed for this corridor to reduce transit travel time.	10.5	10	10	No Change

[20] 6 Parnassus - Proposed alignment includes two-way service on lower Haight Street consistent with the SFMTA project to convert Haight Street to two-way traffic between Gough Street and Octavia Boulevard, which has undergone its own environmental review process and is scheduled for construction starting in February 2014 and would be completed by December 2014. This would allow the 6 Parnassus and 71L Haight-Noriega Limited to continue east on Haight from Laguna to Market. When completed, inbound buses will have fewer turns and would not be delayed by traffic on Page Street turning onto Octavia Boulevard.

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
8X Bayshore Express (Alignment Change)	• Segment north of Broadway would be eliminated (replaced by 11 Downtown Connector). Proposed eliminated segments north of Pacific Avenue would be Bay and North Point streets between Powell and Kearny streets, Kearny Street between Bay and North Point streets, Powell Street between Columbus Avenue and North Point Street, Columbus Avenue between Powell Street and Pacific Avenue, and Stockton Street between Green Street and Broadway. Route 11 Downtown Connector would provide replacement service on Powell Street and Columbus Avenue. E and F Line service would be available nearby on Jefferson and Beach streets instead of service on Bay and North Point streets. • Midday frequency would change from 9 to 8 minutes • During non-peak periods, the 8X would layover on Kearny Street between Pacific Avenue and Broadway. In addition to the existing transit zone, a reduction of five parking spaces would be required (parking is currently prohibited from 3 to 6 p.m. as part of the Kearny Street tow-away zone.) The parking restriction hours would need to be extended to all day. • In the p.m. peak, the 8AX and 8BX would have separate terminals. The 8AX would stop on Kearny Street, nearside of the intersection with Columbus Avenue, and the 8BX would use the 8X midday terminal on Kearny Street between Pacific Avenue and Broadway. The 8AX would not layover Downtown in the a.m. peak (similar to existing conditions). • TTRP.8X is also proposed for this corridor to reduce transit travel time. • Currently, there is a temporary reroute in the southbound direction along Mason and Fifth streets to accommodate the Central Subway Project construction. The reroute is expected to be in place for several years.	7.5	No Change	7.5	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 8X Bayshore Express (continued)	• 8X Bayshore Express Service Variant would include an alternate alignment that would extend every other 8X Bayshore Express bus north of Broadway along the existing 8X Bayshore Express route to its current terminal at Powell and North Point streets. • 8X Bayshore Express Service Variant midday frequency would change from 9 to 7.5 minutes.				
● 8AX Bayshore Express	• No route changes proposed. • See 8X Bayshore Express for terminal details. • TTRP.8X is also proposed for this corridor to reduce transit travel time. • Currently, there is a temporary reroute in the southbound direction along Mason and Fifth streets to accommodate the Central Subway Project construction. The reroute is expected to be in place for several years. • 8AX Bayshore Express Service Variant a.m. and p.m. frequencies would change from 7.5 to 7 minutes.	7.5	No Change	7.5	No Change
● 8BX Bayshore Express (Alignment Change)	• Segment north of Broadway would be eliminated (replaced by 11 Downtown Connector). • Proposed eliminated segments north of Pacific Avenue would be Bay and North Point streets between Powell and Kearny streets, Kearny Street between Bay and North Point streets, Powell Street between Columbus Avenue and North Point Street, Columbus Avenue between Powell Street and Pacific Avenue, and Stockton Street between Green Street and Broadway. Route 11 Downtown Connector would provide replacement service on Powell Street and Columbus Avenue. E Embarcadero and F Market & Wharves Lines service would be available nearby on Jefferson and Beach streets instead of service on Bay and North Point streets.	8	7.5	7.5	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 8BX Bayshore Express (continued)	• See 8X Bayshore Express for terminal details. • TTRP.8X is also proposed for this corridor to reduce transit travel time. • Currently, there is a temporary reroute in the southbound direction along Mason and Fifth streets to accommodate the Central Subway Project construction. The reroute is expected to be in place for several years. • 8BX Bayshore Express Service Variant would include an alternate alignment that would extend every other 8BX Bayshore Express bus north of Broadway along the existing 8BX Bayshore Express route to its current terminal at Powell and North Point streets. • 8BX Bayshore Express Service Variant a.m. frequency would change from 8 to 7 minutes and p.m. frequency would change from 7.5 to 7 minutes.				
9 San Bruno	• No route changes proposed. • TTRP.9 is also proposed for this corridor to reduce transit travel time.	12	No Change	12	No Change
9L San Bruno Limited	• No route changes proposed. • TTRP.9 is also proposed for this corridor to reduce transit travel time.	12	10	12	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 10 Sansome (currently 10 Townsend) (Alignment Change)	• 10 Townsend would be renamed the 10 Sansome, since service would be rerouted off of Townsend Street. • Service would continue to operate between Jackson and Steiner streets and 24th Street and Potrero Avenue via Potrero Hill, but would be rerouted at Fourth Street south of the Caltrain Station through the Mission Bay neighborhood. From Fourth Street, the route would extend through Mission Bay to new proposed street segments on Seventh Street between Mission Bay Boulevard and Irwin Street, on Irwin Street between Seventh and 16th streets, on 16th Street between Irwin and Connecticut streets, and on Connecticut Street between 16th and 17th streets. • The northern terminal would continue to be located on Jackson Street between Fillmore and Steiner streets. On the weekends and evenings, all trips would continue to terminate at Van Ness Avenue, but would use a slightly different route from the existing one, which is a left turn onto Polk Street, right onto Jackson Street, and right onto northbound Van Ness Avenue. Instead, on weekends and evenings from Jackson Street the route would continue right on Franklin Street and right on Pacific Avenue. The one block segment on Van Ness Avenue between Jackson Street and Pacific Avenue under existing and TEP conditions may be eliminated to reduce conflicts with the Van Ness BRT Project. • Proposed eliminated segments would be on Townsend Street between Fourth and Eighth streets, Rhode Island Street between Eighth and 17th streets, and 17th Street between Rhode Island and Connecticut streets. The segment on Townsend Street between Fourth and Eighth streets would be served by the rerouted 47 Van Ness route and the 83X Mid Market Express between Fourth and Eighth streets during limited hours. • Midday frequency would change from 20 to 12 minutes. • The southern terminal would be located at the existing 33 Stanyan terminal, located on 25th Street between Potrero Avenue and Hampshire Street.	20	6	20	6

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 11 Downtown Connector (New Route)	• New 11 Downtown Connector would provide SoMa with two connections to Market Street, at the Van Ness and Montgomery Stations, and would provide North Beach with a direct connection to the Financial District and Montgomery Station. • Southbound, the new route would run on Van Ness Avenue, Bay, Polk, North Point, and Powell streets, on Columbus Avenue, on Montgomery, Clay, Sansome, Market, Second, Harrison, 11th, and Mission streets, to a southern terminal on South Van Ness Avenue. Northbound (IB), the new route would run on South Van Ness Avenue, Market, 11th, Folsom, Second, Market, Sutter, Sansome, and Washington streets, on Columbus Avenue, Powell and North Point and Bay streets to the northern terminal on Van Ness Avenue. • Proposed route in SoMa would operate on an east/west couplet on Folsom and Harrison streets. • The southern terminal would be located at the southeast corner of South Van Ness Avenue and Market Street. The 140-foot transit zone would require a reduction of up to eight parking spaces. • The northern terminal will be located on Van Ness Avenue between Bay and North Point streets requiring a 130-foot transit zone and the removal of up to six parking spaces. • The 11 Downtown Connector Service Variant would evaluate two-way operation on Folsom Street consistent with the proposal in the Western SoMa Community Plan. • The 11 Downtown Connector Service Variant 2 would include an additional route segment along the existing 12 Folsom-Pacific alignment south of the intersection of 11th and Folsom streets. The 11 Downtown Connector Service Variant 2 would operate in both directions on Folsom Street between 11th and Cesar Chavez streets, as well as on the portions of Cesar Chavez, Valencia, and 24th streets currently served by the 12 Folsom-Pacific, and on the portions of South Van Ness Avenue, Capp, and Mission streets included as part of the terminal loop. The 11 Downtown Connector Service Variant 2 would use the existing 12 Folsom-Pacific terminal at South Van Ness Avenue and 24th Street.	N/A	12	N/A	12

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
12 Folsom-Pacific (Route Elimination)	• Route would be discontinued. • Service on Folsom Street from Second to Fifth streets would be provided by the11 Downtown Connector. Service on Folsom Street from Fifth to Cesar Chavez streets, including the terminal loop to the 24th Street BART Station, would be replaced by rerouted 27 Bryant. • Service along Pacific Avenue, Sansome and Second streets would be provided by the 10 Sansome. The 11 Downtown Connector would also provide SoMa service on Folsom and Harrison streets, and Downtown service across Market Street on Sansome and Second streets.	20	N/A	20	N/A
14 Mission (north of Lowell Street)	• No route changes proposed. • Proposed conversion from trolley to motor coach. • TTRP.14 is also proposed for this corridor to reduce transit travel time. • TTPI.1 also proposes a new pedestrian bulb at the northwest corner of Ocean Avenue and Mission Street.	6	7.5	7.5	No Change
14 Mission (south of Lowell Street)	• No route changes proposed. • Proposed conversion from trolley to motor coach. • TTRP.14 is also proposed for this corridor to reduce transit travel time. • TTPI.1 also proposes a new pedestrian bulb at the northwest corner of Ocean Avenue and Mission Street.	15	No Change	15	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
14L Mission Limited	• No route changes proposed. • Route would operate as a trolley coach service, replacing current motor coach service, along with the 49L Van Ness-Mission Limited. The 14 Mission Local would be converted to motor coach to allow limited-stop services to pass local services. • TTRP.14 is also proposed for this corridor to reduce transit travel time.	9	7.5	9	7.5
14X Mission Express	• No route changes proposed. • TTRP.14 is also proposed for this corridor to reduce transit travel time.	8	7.5	8	7.5
16X Noriega Express (Alignment Change)	• Route would be extended to Market and Spear streets in the Financial District (currently terminates at Fourth Street). • Extension would run in the a.m. inbound from Golden Gate Avenue to Market and Spear streets, and in the p.m. outbound from Mission, Main and Market streets to Turk Street. • To create a 100-foot-long terminal layover space during the peak period, a peak tow-away zone from 4 to 6 p.m. would be adopted on the south side of Mission Street between Steuart and Spear streets. This would require a reduction of up to five parking spaces during the peak period. • Under existing conditions, the outbound route operates on 23rd Avenue between Lincoln Way and Noriega Street, and inbound on 22nd Avenue. The proposed 16X Service Variant would operate two-way inbound/outbound service on 22nd Avenue to provide better connections to the N Judah.	9	No Change	9	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 17 Parkmerced (Alignment Change)	• Would replace existing Route 18 46th Avenue segment around Lake Merced via John Muir Drive and Skyline Boulevard. The Daly City portion of the route would make limited stops at key destinations. • One-way loop on Arballo, Garces, and Gonzalez drives in Parkmerced would be replaced by two-way service on Font Boulevard to simplify route. • New street segments would be from Font Boulevard and Arballo Drive via Font Boulevard, Chumasero Drive, Junipero Serra Boulevard, John Daly Boulevard, Daly City BART, John Daly Boulevard, Lake Merced Boulevard, John Muir Drive, and Skyline Boulevard, Herbst Road (toward West Portal only), and Skyline and Sloat boulevards to Everglade Drive. • Midday frequency change from 30 to 20 minutes. • The bus would terminate near Lakeshore Plaza on the south side of Sloat Boulevard at Havenside Drive and would require removing up to four parking spaces. At the other end of the route, the route would terminate at its current West Portal Station location. • 17 Parkmerced Service Variant would include an alternate alignment along Brotherhood Way, rather than extending service south to serve Westlake Plaza. The 17 Parkmerced Service Variant would extend along the existing 18 46th Avenue alignment on Lake Merced Boulevard between John Muir Drive and Brotherhood Way, and on Brotherhood Way between Lake Merced Boulevard and Junipero Serra Boulevard. South of the intersection of Brotherhood Way/Junipero Serra Boulevard, the 17 Parkmerced Service Variant would operate along the existing 28 19th Avenue alignment and would serve the Daly City BART Station, and then return in the opposite direction on Junipero Serra Boulevard. North of the Intersection of Brotherhood Way and Junipero Serra Boulevard, the 17 Parkmerced Service Variant would serve Chumasera Drive, Font Boulevard, Lake Merced Boulevard, and Winston Drive between Lake Merced Boulevard and Buckingham Way. Between the intersection of Winston Drive and Buckingham Way and the West Portal Station, the 17 Parkmerced would operate on its current alignment.	30	20	30	15

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 17 Parkmerced (continued)	• 17 Parkmerced Service Variant new transit street segments include Font Boulevard between Lake Merced Boulevard and Arballo Drive, Chumasero Drive between Font Boulevard and Brotherhood Way, and Brotherhood Way between Junipero Serra and Lake Merced boulevards.				
18 46th Avenue (Alignment Change)	• Proposed alignment would operate on a more direct route between the San Francisco Zoo and Stonestown Galleria shopping center via Sloat, Sunset, and Lake Merced boulevards and Winston Drive. Service along Skyline Boulevard, John Muir Drive and Lake Merced Boulevard between Font Boulevard and Winston Drive would be replaced by the revised 17 Parkmerced route. • Service along Lake Merced Boulevard between John Muir Drive and Font Boulevard would be discontinued.	20	No Change	20	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
19 Polk (Alignment Change)	• Proposed route would continue to operate between Van Ness Avenue/North Point Street but service to the south would be cut back to San Francisco General Hospital at 23rd Street and Potrero Avenue. The route segment south of 24th Street would be replaced with the rerouted 48 Quintara. With this change, passengers would be required to transfer to reach the Civic Center, but would have a more direct connection to Potrero Avenue, the Mission (including 24th Street BART Station), Noe Valley and the Sunset District. • Route would be modified in Civic Center area to simplify route structure and reduce travel times in both directions. The line would run from Seventh and McAllister streets to Polk Street, and from Polk, McAllister, to Hyde Street. With these changes, the 19 Polk would no longer run on Market Street (between Seventh and Ninth streets), Larkin, Eddy or Hyde (between Eddy and McAllister) streets, or on Geary Boulevard (between Larkin and Polk streets). • Southbound routing to San Francisco General Hospital would be from Rhode Island Street, right on to 23rd Street, left on Utah Street, right on 24th Street, right on Potrero Avenue, and right on 23rd Street. • New terminal would be located at the existing 10 Townsend terminal on 24th Street at Potrero Avenue.	15	No Change	15	No Change
21 Hayes	• No route changes proposed.	9	8	10	9

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
22 Fillmore (Alignment Change)	• Would be rerouted to continue along 16th Street to Third Street, creating new connections to Mission Bay from the Mission District. • The proposed route change would add transit to 16th Street between Kansas and Third streets, Mission Bay Boulevard between Fourth and Third streets, Fourth Street between Gene Friend Way and Mission Bay Boulevard, and along Gene Friend Way. • Segment along Connecticut and 18th streets would be replaced by rerouted 33 Stanyan. Service on Kansas and 17th streets would be eliminated, although Kansas Street would continue to be used for short turns and other operational adjustments. • TTRP.22_1 and TTRP.22_2 are proposed for this corridor to reduce transit travel time. • Midday Frequency Change from 10 to 7.5 minutes. • New terminal loop would run from Third Street, Mission Bay Boulevard North, Fourth Street, Mission Bay Boulevard South, and Third Street, as presented in the Mission Bay EIR. • Proposed variants would evaluate motor coach service between Mission Bay and the 16th Street BART Station for initial service phase prior to new overhead wire construction (see OWE.5 for the 22 Fillmore). - 22 Fillmore Service Variant 1 would include new motor coach service to the Mission Bay terminus from the 16th Street BART Station and a reroute of the 33 Stanyan along the current 22 Fillmore route. The Mission Bay motor coach service would include a western terminal loop that would make a right on Mission Street, left on 15th Street, left on Valencia Street and back onto 16th Street to Mission Street. The eastern terminus would utilize the proposed 22 Fillmore terminal loop in Mission Bay. The 22 Fillmore trolley coach service would conduct a terminal loop by turning right on Kansas Street, right on 17th Street, right on Vermont Street and left on 16th Street. There is existing overhead wiring at this location.	9	6	8	5.5

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
22 Fillmore (continued)	- 22 Fillmore Service Variant 2 would have a similar motor coach service between 16th Street BART Station and Mission Bay. However, instead of rerouting the 33 Stanyan to 18th Street, that segment would be covered by sending every other 22 Fillmore trolley coach to the current terminal at Third and 20th streets and terminating the rest at the existing loop on Kansas, 17th and Vermont streets.				
23 Monterey (Alignment Change)	• Segment on Toland Street, Jerrold Avenue and Phelps Street proposed to be eliminated to provide a more direct path of travel. Route would operate on Oakdale Avenue, Industrial Way and Palou Avenue. Transit would be added to Palou Avenue between Barneveld Avenue and Industrial Way, and Barneveld Street between Oakdale and Palou avenues.	20	No Change	20	No Change
24 Divisadero	• No route changes proposed.	10	9	10	9

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 27 Folsom (current 27 Bryant) (Alignment Change)	• Would be renamed the 27 Folsom since the route would no longer operate on Bryant Street. • Service would be extended north on Leavenworth Street and west on Vallejo Street to Van Ness Avenue, and would be moved from Bryant Street to Folsom Street to replace 12 Folsom service on Folsom Street from Fifth to Cesar Chavez streets, including the terminal loop to the 24th Street BART Station. • Existing passengers on Bryant Street could use 9 San Bruno/9L San Bruno Limited rapid service on Potrero Avenue or local service on Folsom Street. • The 27 Folsom Service Variant 1 would evaluate two-way service on Leavenworth and Ellis streets, and two-way service on Folsom Street, as proposed in the Tenderloin Community Plan and the Western SoMa Community Plan, respectively. • 27 Folsom Service Variant 2 would evaluate transit service on Harrison Street in the Inner Mission from 11th to Cesar Chavez streets. • New terminal loop would follow Vallejo Street, Van Ness Avenue, Green and Polk streets. The terminal would be located on Vallejo Street at Van Ness Avenue and would be 100 feet long, requiring a reduction of up to five parking spaces. • 27 Folsom Service Variant 3 includes an alternate alignment that would maintain the existing routing of the 27 Bryant south of Market Street under the 11 Downtown Connector Variant 2. Under the 27 Folsom Service Variant 3, the existing alignment of the 27 Bryant south of Market Street would not change. The 27 Folsom Service Variant 3 would include extending service north on Leavenworth Street and west on Vallejo Street to Van Ness Avenue as described above. The route would not be renamed the 27 Folsom.	15	No Change	15	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 28 19th Avenue (Alignment Change)	• Proposed alignment would terminate at Golden Gate Bridge (Toll Plaza Area) during daytime hours. Service to Van Ness Avenue and North Point Street via the Marina District would be provided by the 28L 19th Avenue Limited and service to Fort Mason would be provided by Route 43 Masonic. • When 28L 19th Avenue Limited is not in service, the 28 19th Avenue would provide evening service to Van Ness Avenue/North Point Street via Lombard Street. • Midday frequency change from 12 to 9 minutes. • To accommodate a new terminal at the northern segment of the route, the existing red curb in the eastern parking lot of the Toll plaza, adjacent to the new Pavilion building, would be designated as a bus terminal (the precise location would be selected in consultation with Golden Gate Bridge, Highway and Transportation District and Golden Gate National Recreation Area). • TTRP.28_1 is proposed to reduce transit travel time on this corridor. • The 28 19th Avenue Service Variant would maintain the existing routing of the 28 19th Avenue between the Golden Gate Bridge Toll Plaza Area and the intersection of Lombard and Laguna streets, and would extend the 28 19th Avenue along Lombard Street between Laguna Street and Van Ness Avenue, and along Van Ness Avenue between Lombard and North Point streets. Proposed eliminated segments would continue to be on Laguna Street between Lombard and Beach streets, Beach Street between Laguna and Buchanan streets, Buchanan Street between Beach and Bay streets, and Bay Street between Laguna and Buchanan streets.	11	9	10	9

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
28L 19th Avenue Limited (Alignment Change)	• Proposed alignment would provide all-day rapid, very limited-stop cross-town service, increasing access to San Francisco State University and CCSF from Van Ness Avenue/North Point streets and would provide better connections between the Marina, Richmond, Sunset, and Excelsior neighborhoods. Route would be extended to Van Ness Avenue/North Point Street from Lombard Street and to Mission Street/Geneva Avenue via I-280. (Note: Golden Gate Bridge Toll Plaza would not be served by this route.) • New streets on northern segment are Lombard Street, between Laguna Street and Van Ness Avenue, and on sections of Alemany Boulevard, between Sagamore Street and San Jose Avenue; I-280 between Ocean and Sickles avenues exit, Brotherhood Way, between Junipero Serra Boulevard and Sagamore Street, on Niagara Avenue between Alemany Boulevard between Niagara and Geneva avenues (to accommodate the terminal loop). • Midday service would operate every 9 minutes. • Limited-stop service would operate seven days a week from 6 a.m. to 9 p.m. with wider stop spacing than current 28L 19th Avenue Limited (currently limited-stop service operates weekdays only approximately 7 - 9 a.m. and 2 - 4 p.m.). • TTRP.28_1 and TTRP.28_2 are proposed to reduce transit travel time on this corridor. • The southern terminal would be located on Geneva Avenue midblock between Mission Street and Alemany Boulevard. The terminal loop would be right onto Mission Street, right onto Niagara Avenue, and right onto Alemany Boulevard. This would require a reduction of up to five parking spaces. • Northern terminal will require a 160 foot extension of the current 30 Stockton short line service terminal located on North Point Street between Van Ness Avenue and Polk Street. Accommodating the 28L 19th Avenue Limited at this location will require the removal of up to 10 parking spaces.	12	9	N/A	N/A

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 28L 19th Avenue Limited (continued)	• In October 2011, the 28L 19th Avenue Limited was extended to Fort Mason, with express service from Park Presidio Boulevard and California Street to Lombard Street. Currently there is a temporary reroute due to the major Doyle Drive reconstruction underway which requires the utilization of California Street to access the Marina District. • The 28L 19th Avenue Limited Service Variant northern segment would terminate at Park Presidio Boulevard and California Street. Proposed eliminated segments would be on California Street between Park Presidio Boulevard and Presidio Avenue, Presidio Avenue between California Street and Letterman Drive in the Presidio, Letterman Drive between Presidio Avenue and Lyon Street, Lombard Street between Lyon Street and Laguna Street, Laguna Street between Lombard and Beach streets, Beach Street between Laguna and Buchanan streets, Buchanan Street between Beach and Bay streets, and Bay Street between Laguna and Buchanan streets.				
29 Sunset[21] (Alignment Change)	• Would provide a more direct route on Ocean Avenue to Balboa Park Station (instead of current route on Mission Street and Geneva Avenue). • Route would extend from Persia Avenue to Ocean Avenue to Plymouth Avenue. New street segment on Persia Avenue between Mission Street and Ocean Avenue in association with TTPI.1 Persia Triangle Improvements. • Service would be eliminated on Mission Street between Persia and Geneva avenues and on Geneva Avenue between Mission Street and Ocean Avenue. • Two-way service on Gilman Avenue would simplify route to/from Candlestick Park; service on Fitzgerald Street would be discontinued.	10	9	10	No Change

[21] SFMTA is pursuing a separate project that would reduce travel time by enabling the bus to turn left from Lincoln Way onto 19th Avenue instead of going right on 20th Avenue, left on Irving Street and left on 19th Avenue.

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
30 Stockton (east of Van Ness Avenue)	• No route changes proposed. • Subject to equipment availability, all service on Stockton Street would be provided by 60-foot articulated buses to reduce crowding and improve reliability. • Currently, there is a temporary reroute in the southbound direction along Mason and Fifth streets to accommodate the Central Subway Project construction. The reroute is expected to be in place for several years. • TTRP.30 is also proposed to reduce transit travel time along this corridor.	N/A	N/A	4	No Change
30 Stockton (west of Van Ness Avenue)	• No route changes proposed. • Subject to equipment availability, all service on Stockton Street would be provided by 60-foot articulated buses to reduce crowding and improve reliability. • Currently, there is a temporary reroute in the southbound direction along Mason and Fifth streets to accommodate the Central Subway Project construction. The reroute is expected to be in place for several years. • TTRP.30 is also proposed to reduce transit travel time along this corridor.	7.5	7	12	No Change
30X Marina Express	• No route changes proposed. • In the a.m. peak period, the 30X Marina Express would use 60-foot articulated motor coaches instead of standard 40-foot motor coaches.	4	5.5	7.5	7
31 Balboa	• No route changes proposed.	12	No Change	14	12

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
31AX Balboa Express	• No route changes proposed. • New stop would be added on Bush and Pine streets at Van Ness Avenue to improve connections to the northern waterfront and the Civic Center.	12	No Change	11	No Change
31BX Balboa Express	• No route changes proposed • New stops would be added on Bush and Pine streets at Van Ness Avenue to improve connections to the northern waterfront and the Civic Center.	10	No Change	12	No change
● 32 Roosevelt (New Route)	• Proposed route would replace Roosevelt Way segment of Route 37 Corbett but would not extend north of Cole/Frederick streets. • Route would travel from Church and Market streets via Church Street left on Hermann Street, left on Fillmore Street, left on Duboce Avenue, right on Church Street, right on 14th Street, followed by Roosevelt Way, Buena Vista Terrace, Buena Vista East, Upper Terrace, Masonic Avenue, Roosevelt Way, then on 17th, Cole, Frederick, Clayton, and 17th streets, on Roosevelt Way onto to 14th Street and then, left onto Church Street. This would require modifying the existing no left turn restriction at Fillmore Street and Duboce Avenue to no left turns except Muni. • Terminal would be on Church Street between Market and Reservoir streets. This would require a reduction of up to five parking spaces (when combined with the 37 Corbett terminal in the same location). • 32 Roosevelt Service Variant would include an alternative alignment along Church Street, Hermann Street, Fillmore Street and Duboce Avenue. • Recommended for van service, but the timeline for van procurement is uncertain. • The new 32 Roosevelt route would not be provided under the 37 Corbett Service Variant 2.	N/A	20	N/A	20

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 33 Stanyan (Alignment Change)	• Would operate on current route on 18th Street west of Valencia Street and 16th Street between Valencia Street and Potrero Avenue. • Would cross Potrero and continue east on 16th Street to Connecticut Street, south to 18th Street, to Third Street, 20th and Tennessee streets to cover Potrero Hill segment of 22 Fillmore that would be eliminated. • Service would be rerouted onto Valencia Street between 16th and 18th streets (new street segment) to alleviate transit congestion on Mission Street and provide better connections with 22 Fillmore as described in Service-related Capital Improvement project OWE.1. • Potrero Avenue passengers would use Route 9 San Bruno/9L San Bruno Limited. • 33 Stanyan Service Variant would include an alternative alignment on 16th Street between Mission and Guerrero streets, and on Guerrero Street between 16th and 18th streets. Proposed eliminated segments would be on Mission Street between 16th and 18th streets, and 18th Street between Mission and Guerrero streets. The 33 Stanyan Service Variant would include Service-related Capital Improvement project OWE.1 Variant. • 33 Stanyan Service Variant new transit street segment includes Guerrero Street between 16th and 18th streets.	15	12	15	12

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 35 Eureka (Alignment Change)	• Service would be extended to Glen Park Station via Diamond Heights Boulevard and Diamond Street. • Would be rerouted between 21st and 24th streets to replace existing Route 48 Quintara on Hoffman Avenue and Douglass Street. • Buses would turn around near Glen Park Station using Wilder, Arlington, Bosworth and Diamond streets. • Segment along Farnum, Moffitt, Bemis, and Addison streets would be eliminated. • New transit street segments on Arlington Street between Bosworth and Wilder streets; Wilder Street, between Arlington and Diamond streets, and on 21st Street between Eureka and Douglass streets. • Midday frequency would change from 30 to 20 minutes. • Recommended for van service, but the timeline for van procurement is uncertain. • Potential 35 Eureka Service Variant would include an alignment along Diamond Street. • 35 Eureka Service Variant 2 would include an alternative alignment for the route extension to the Glen Park Station. From the intersection of Bemis and Addison streets, outbound service towards the Glen Park Station would be routed on Bemis Street between Addison and Miguel streets, Miguel Street between Bemis and Arlington streets, and Arlington Street between Miguel and Bosworth streets. Service would terminate on Bosworth Street across from the Glen Park Station between Arlington and Chenery streets. Inbound service towards the Castro would continue from the Glen Park terminal on Bosworth Street via Diamond Street between Bosworth and Chenery streets, Chenery Street between Diamond and Miguel streets, Miguel Street between Chenery and Bemis streets, and Bemis Street between Miguel and Addison streets, where it would connect with the existing 35 Eureka route.	30	20	20	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 35 Eureka (continued)	• 35 Eureka Service Variant 2 new transit street segments include Bemis Street between Addison and Miguel streets, Miguel Street between Bemis and Arlington streets, and Arlington Street between Miguel and Bosworth streets. • Variant 3 would include an alternative routing to Variant 2 in which two-way service would be provided on Chenery Street. This would replace the one-way transit service that is proposed going westbound on Arlington and eastbound on Chenery Street that is proposed under Variant 2.				
36 Teresita (Alignment Change)	• Recommended for van service, but the timeline for van procurement is uncertain. • Service to Forest Knolls (via Warren Drive) would be eliminated to make remaining service less circuitous; service to Midtown Terrace would be unchanged. • Eliminated streets include Clarendon Avenue between Panorama and Oak Park drives, Oak Park and Warren drives, Lawton and Seventh avenues to Clarendon Avenue. • Midday frequency would change from 30 to 20 minutes.	30	20	30	20

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
37 Corbett[22] (Alignment Change)	• The Roosevelt Way branch of the 37 Corbett would be replaced by the new 32 Roosevelt route. • Streets in the Roosevelt Way branch proposed to be served by the 32 Roosevelt would be: Market, Sanchez, and 14th streets, Roosevelt Way, Buena Vista Terrace, Buena Vista East, Upper Terrace, Masonic Avenue, Roosevelt Way, 17th, Cole, Frederick, Clayton, and 17th streets, Roosevelt Way, and 14th. • Streets no longer served by either 37 Corbett or 32 Roosevelt are Clayton Street between 17th and Carmel streets, Carmel Street between Clayton and Cole streets, Cole Street between Carmel and 17th streets, Cole Street between Frederick and Haight streets, and Haight Street, Masonic Avenue, Waller and Ashbury streets. • The new terminal loop would operate from Market Street, left on Church Street, left on Hermann Street, left on Fillmore Street, left on Duboce Avenue, and right on Church Street. The terminal would be on Church Street between Market and Reservoir streets. This would require a reduction of up to five parking spaces (when combined with the 32 Roosevelt terminal in the same location). • 37 Corbett Service Variant would include an alternative alignment along Church Street, Hermann Street, Fillmore Street and Duboce Avenue.	15	No Change	20	15

[22] 37 Corbett - Segments of the 37 Corbett route on Portola Avenue between Burnett Avenue and Glenview Drive, Glenview Drive, and Dawn View Drive are proposed to be eliminated in 2012 and are not analyzed as part of TEP. Information regarding this project is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2012.0796E.

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 37 Corbett (continued)	• 37 Corbett Service Variant 2 would not replace the Roosevelt Way branch of the existing 37 Corbett with a new 32 Roosevelt route. Instead, the 37 Corbett Service Variant 2 would include an alternative alignment on Frederick Street between Cole Street and Masonic Avenue, and on Masonic Avenue between Frederick and Haight streets. Proposed eliminated segments would be on Cole Street between Frederick and Haight streets, and Haight Street between Cole Street and Masonic Avenue. The 37 Corbett Service Variant 2 would use the existing 6 Parnassus terminal at Haight Street and Masonic Avenue. • 37 Corbett Service Variant 2 new transit street segment includes Frederick Street between Clayton and Cole streets.				

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
38 Geary (west of 33rd Avenue)	• No route changes proposed. • Midday frequency would change from 16 to 15 minutes west of 33rd Avenue. • Would coordinate with Geary BRT study currently underway.	12	15	16	12
38 Geary (east of 33rd Avenue)	• No route changes proposed. • Would coordinate with Geary BRT study currently underway.	12	7.5	8	6
38L Geary Limited	• No route changes proposed (Proposed Geary BRT is subject to its own environmental review). • Midday frequency change from 5.5 to 5 minutes. • Limited-stop service would be expanded to include Sundays. • Would coordinate with Geary BRT Study currently underway.	5.5	5	5.5	5
38AX Geary Express	• No route changes proposed. • New stops would be added on Pine and Bush streets at Van Ness Avenue to improve connections to the northern waterfront and the Civic Center.	11	No Change	9	No Change
38BX Geary Express	• No route changes proposed. • New stops would be added at Pine and Bush streets at Van Ness Avenue to improve connections to the northern waterfront and the Civic Center.	11	No Change	9	No Change
41 Union	• No route changes proposed.	10	7	8	7

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 43 Masonic (Alignment Change)	• Proposed alignment would extend from Chestnut/Fillmore streets to Fort Mason (Marina Boulevard/Laguna Street), replacing the existing Route 28 19th Avenue/28L 19th Avenue Limited terminal. • Service in the Presidio would be modified to connect to the Presidio Transit Center; then exit the Presidio in the Marina District at Richardson Avenue instead of Lombard Street. Modified route would use Presidio Avenue, Lincoln Boulevard, Graham Street (Presidio Transit Center), Halleck Street, Gorgas and Richardson avenues, to Lombard Street. • The 43 Masonic would no longer serve Letterman Drive and Lombard Street between Presidio and Richardson avenues. • 43 Masonic Service Variant would include an alternative alignment on Masonic Avenue between Haight and Frederick streets, and on Frederick Street between Masonic Avenue and Cole Street. Proposed eliminated segments would be on Haight Street between Masonic Avenue and Cole Street, and Cole Street between Haight and Frederick streets. • 43 Masonic Service Variant new transit street segments include Frederick Street between Clayton and Cole streets.	10	8	12	10
44 O'Shaughnessy	• No route changes proposed.	9	7.5	9	8

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
47 Van Ness (Alignment Change)	• Route would terminate at Van Ness Avenue and North Point Street and would share a terminal with the 49L Van Ness-Mission Limited. A common terminal for both routes serving Van Ness Avenue would improve reliability by allowing line management from a single point; North Point segment would be covered by new Route 11 Downtown Connector. • Northern street segments that would be eliminated include portions of North Point, Stockton, Beach, and Powell streets. • Route would operate along South Van Ness Avenue, Division and Townsend streets, instead of Bryant and Harrison streets to provide faster connection to Caltrain and better connections to the commercial and residential centers along 13th and Division streets. New transit streets on the southern segment are South Van Ness Avenue between Mission and 13th streets; 13th Street between South Van Ness Avenue and Bryant Street; and Division Street between Brannan and Townsend streets. • Southern street segments that would be eliminated are Mission, 11th Street, Harrison, Bryant, Fifth, and Fourth streets. • Midday frequency would change from 10 to 9 minutes. • Proposed route change would coordinate with proposed Van Ness BRT project.	10	7.5	10	7.5

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
● 48 Quintara-24th Street (Alignment Change)	• Service would operate all day from 48th Avenue to the Hunters Point Naval Shipyard; new Route 58 24th Street would provide complementary service between Diamond Street and the 22nd Street Caltrain Station. • Would provide more direct routing from Portola Drive to 24th Street via Clipper and Douglass streets; new transit streets would be Clipper Street between Grandview Terrace and Douglass Street, and Douglass Street between Clipper and 24th streets; drop-off only on-demand service on the Hoffman Loop, Grandview Terrace, and Fountain Street would be discontinued; service on Douglass Street and Hoffman Avenue would be replaced by the modified Route 35 Eureka. • At 25th and Connecticut streets, this route would no longer follow the existing Route 48 Quintara alignment and would change to follow the existing 19 Polk route to Hunters Point via Evans and Innes avenues. • New connection from the Mission District, Noe Valley and the Sunset to Third Street and Hunters Point would be provided, covering a portion of existing Route 19 Polk on Evans and Innes avenues and Galvez Street. • The part-time terminal on the Lower Great Highway nearside at Rivera Street would become an all-day terminal. No additional parking reduction would be required. The southeastern end of the route would use the existing 19 Polk terminal at the former Navy Yard Gate. • 58 Service Variant would replace the discontinued portion of Route 48 on Grand View Avenue, 21st Street, and Douglass Street and introduce service on Clipper Street between Grand View Avenue and Douglass Street and on Douglass Street between Clipper Street and 24th Street.	11	15	12	15

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
49L Van Ness-Mission Limited (New Route)	• No route changes proposed. • To provide shorter travel times, proposed service would make local stops (as proposed in the Van Ness BRT project) on Van Ness Avenue and on Ocean Avenue and make limited stops on Mission Street. • The 49L Van Ness-Mission Limited would follow the current 49 Van Ness-Mission route. • The TTPI.1, Persia Triangle Improvements, would construct two new transit zones with transit bulbs along Ocean Avenue for the 49L Van Ness-Mission Limited.	N/A	7.5	N/A	7.5
52 Excelsior (Alignment Change)	• Route would be extended from the Excelsior District to Balboa Park Station and CCSF via Naples Street and Geneva Avenue to include segments currently covered by the 54 Felton that would be eliminated. • Would provide the Excelsior with two connections to BART. • Two-way service would be provided on Excelsior Avenue and Naples Street; service would be discontinued on Brazil Avenue, Prague Street, and La Grande Avenue. • Transit would be added to Naples Street between Brazil and Russia avenues. • Midday frequency change from 30 to 20 minutes. • A new terminal would be located on the western side of Phelan Avenue between Cloud Circle Street and Ocean Avenue in front of the CCSF bookstore; a 100-foot-long terminal would be created that would result in a reduction of up to five parking spaces and moving the existing motorcycle parking north approximately 100 feet.	20	No Change	20	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
54 Felton (Alignment Change)	• Route would be modified in several segments to make service quicker, more direct and less circuitous for passengers. • Two-way service on Hunters Point hilltop would begin at Third Street and Palou Avenue, run two-way on Hudson Avenue, North Ridge Road, Jerrold Avenue, Kirkwood Street, Kiska Road, Ingalls Street, Van Dyke Avenue, and then continue through Silver Terrace. • More direct routing on Bacon Street through the reservoir would eliminate the segment on Holyoke and Woolsey streets, and University Street between Bacon and Woolsey streets. • Routing via Persia, Ocean, and Plymouth avenues would streamline service and improve access to/from CCSF and Balboa Park Station; some eliminated segments between Geneva Avenue and the Balboa Park Station would be picked up by the revised 52 Excelsior. • The inbound route would travel from BART access road (Daly City BART Station), right on John Daly Boulevard, right on Junipero Serra Boulevard, right on Alemany Boulevard, right on Sagamore Street, left on Plymouth Avenue, right on Ocean Avenue (Balboa Park Station), right on Persia Avenue, left on Athens Street, right on Avalon Avenue, left on Felton Street, right on University Street, left on Bacon Street, left on Phelps Street, left on Vesta Street, right on Thornton Avenue, right on Bridgeview Drive, right on Topeka Avenue, right on Thornton Avenue, left on Reddy Street, straight on Williams Avenue, straight onto Van Dyke Avenue, left on Ingalls Street, right on Kiska Road, straight on Kirkwood Avenue, left on Earl Street, left on Jerrold Avenue, and straight onto Northridge Road, Hudson Avenue, Third Street and Palou Avenue. • The outbound route would travel from Third Street and Palou Avenue via Palou Avenue, Newhall Street, Third Street, Hudson Avenue, Northridge Road, Jerrold Avenue, Earl Street, Kirkwood Avenue, Kiska Road, Ingalls Street, Van Dyke Avenue, Williams Avenue, Reddy Street, Thornton Avenue,	20	15	20	15

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
54 Felton (continued)	Topeka Avenue, Bridgeview Drive, Thornton Avenue, Vesta Street, Phelps Street, Bacon Street, University Street, Felton Street, Moscow Street, Persia and Ocean avenues (Balboa Park Station), Plymouth Avenue, Sagamore Street, Alemany Boulevard, St. Charles Avenue, and BART Access Road (Daly City BART). • The bus would share the existing 24 Divisadero terminal on Third Street between Palou Avenue and Oakdale Street.				
56 Rutland (Alignment Change)	• Route would be shortened and the service frequency increased. • Proposed one-way loop route: from terminal at Arleta Avenue and Bayshore Boulevard, left on San Bruno Avenue, left on Wilde Avenue, left on Rutland Street, right on Raymond Avenue, left on Sawyer Street, left on Leland Avenue, left on Alpha Street, right on Arleta Avenue to terminal at Arleta Avenue and Bayshore Boulevard. • Route would follow Leland Avenue, rather than Sunnydale Avenue, between Sawyer and Alpha streets. • Segments on Sawyer Street between Leland and Visitacíon avenues, Hahn Street, Rutland Street between Sunnydale and Leland avenues, and Sunnydale Avenue between Schwerin and Hahn streets would be discontinued. The 8X Bayshore Express and 9 San Bruno would cover segments of Route 56 Rutland on Sunnydale Avenue between Rutland and Schwerin streets, and on Hahn Street between Visitacíon and Sunnydale avenues. • Transit would be added to Leland Avenue between Sawyer and Rutland streets and Rutland Street between Tioga and Wilde avenues, Alpha Street between Leland and Arleta avenues and Arleta Avenue between Alpha Street and Bayshore Boulevard.	30	20	30	20

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
56 Rutland (continued)	• Route segments to/from Executive Park and along Visitacíon Avenue would be discontinued on Wilde between Delta and Rutland streets, Delta between Wilde and Tioga avenues, and Tioga between Delta and Rutland streets. • Midday frequency would change from 30 to 20 minutes. • New terminal would be located at the nearside corner of Arleta Avenue at Bayshore Boulevard. This would require a reduction of up to five parking spaces. • Recommended for van service, but the timeline for van procurement is uncertain.				
● 58 24th Street (New Route)	• Route would operate between Diamond and Third streets to increase service frequency on 24th Street and to provide connection between the 24th Street BART Station and 22nd Street Caltrain Station (previously provided by Route 48 Quintara). • Eastern portion of new route would replace existing Route 48 Quintara service in Potrero Hill. • Buses would turn around on the northern portion of the route using 24th, Diamond, Clipper, and Castro streets to 24th Street; Clipper Street between Castro and Diamond streets is not currently used for buses. • Terminal would be located on Castro Street nearside of the intersection with 25th Street; the existing transit zone would be extended, which would require a reduction of up to five parking spaces. • 58 Service Variant would replace the discontinued portion of Route 48 on Grand View Avenue, 21st Street, and Douglass Street and introduce service on Clipper Street between Grand View Avenue and Douglass Street and on Douglass Street between Clipper Street and 24th Street.	N/A	15	N/A	15
66 Quintara	• No route change proposed. • Recommended for van service, but the timeline for procurement is uncertain.	20	No Change	20	No Change

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
71L Haight-Noriega Limited[23] Route)	• No route changes proposed. • Existing 71L Haight-Noriega Limited, which operates only in the peak period and peak direction, would replace the 71 Haight Noriega and provide all day limited-stop service on Haight Street in both directions. • Route would make local stops west of Stanyan Street and on Market Street; route would make limited stops between Stanyan and Market streets. • Route includes inbound/outbound service on 22nd/23rd Avenue couplet. 71L Haight-Noriega Limited Service Variant would evaluate two-way, inbound/outbound service on 22nd Avenue to improve connections to the N Judah. • Midday frequency would change from 12 to 10 minutes. • TTRP.71_1 is proposed to reduce transit travel time on this corridor.	10.5	7	10	7

[23] 71L Haight-Noriega Limited - Proposed route includes two-way service on lower Haight Street consistent with the SFMTA project (in design phase) to convert Haight Street to two-way traffic operation between Gough Street and Octavia Boulevard. This would allow the 6 Parnassus and 71L Haight-Noriega Limited to continue east on Haight from Laguna to Market streets. When completed, inbound buses would have fewer turns and would not be delayed by traffic on Page Street turning onto Octavia Boulevard.

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
76 Marin Headlands (Alignment Change)	• Route segment south of Market Street to Caltrain Station would be discontinued. • Northern segment of the outbound route would be extended to serve the Point Bonita lighthouse via Field Road and Battery Alexander; however, the terminal loop would remain at the existing terminal location at Fort Cronkhite. • New southern terminal would be located in the vicinity of Montgomery Station. The terminal would be located at the existing NX Judah Express terminal, at the northwest corner of the intersection of Sutter and Sansome streets. This terminal would be at an existing farside stop and would not require the removal of any additional parking. • Route is proposed to run on Saturdays, Sundays and holidays (currently Sundays and holidays only).[24]	Sunday and holidays only	Saturday, Sunday, and holidays	Sunday and holidays only	Saturday, Sunday, and holidays

[24] A 24-month pilot project for the 76 Marin Headland service changes received environmental clearance on October 11, 2012. A copy of this file is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2012.1140E.

Table 8: Description of Proposed Service Improvements (continued)

Transit Line (Type of Change)	• Description of Proposed Service Change	a.m. Existing	a.m. Proposed	p.m. Existing	p.m. Proposed
		Change to Peak Period -Headway [1, 2] (Minutes)			
91 Owl A (Alignment Change)	• In conjunction with 91B Owl, would replace the existing 91 Owl. This bus would operate between 1 and 5 a.m. weekdays, and between 1 and 6 a.m. on Saturday and Sunday. • Existing 91 Owl loop line would be split in two to improve reliability. • Would operate from Mission Street/San Jose Avenue in Daly City to the Caltrain Station at Fourth and King streets via 19th Avenue, Lombard Street, Columbus Avenue, and Stockton and Fourth streets. • Would connect with the 14 Owl, and also connect with SamTrans at the Daly City BART Station. • Frequency of service would be the same as the existing 91 Owl – every 30 minutes. • The Daly City terminal loop would follow John Daly Boulevard, Mission Street, Flournoy Street, San Jose Avenue, to John Daly Boulevard. • The Caltrain Station terminal loop would follow Fourth, Townsend, and Third streets.	N/A	N/A	N/A	N/A
91 Owl B (Alignment Change)	• In conjunction with 91A Owl, would replace the 91 Owl. • Existing 91 Owl loop line would be split in two to improve reliability. • 91B would be through-routed with the N Owl (Fourth and Townsend streets to West Portal Station via Third Street, Geneva and Ocean avenues). • Frequency of service would be the same as the existing 91 Owl - every 30 minutes. • Cargo Way segment would be eliminated.	N/A	N/A	N/A	N/A

Notes:

1. The a.m. peak period is between 7 a.m. and 9 a.m.; the p.m. peak period is between 4 p.m. and 6 p.m., and the midday period is between 9 a.m. and 2 p.m. ‘
2. On some lines, the headways for the inbound and outbound directions during the peak period are different and an average of the two headways is shown. Also, the headways are rounded to the half a minute.

proposed project except for the specific variation described. The project-level analyses of the proposed Service Improvements incorporate these Service Variants. The Service Variants are described in Table 8 on pp. 2-64 to 2-101 as part of the description of each relevant Service Improvement route, and are listed separately in Table 9; they are also shown on the Service Improvement Maps attached as Appendix A to the Initial Study, which is Appendix 2 to this Draft EIR and provided on the CD enclosed with this Draft EIR.

2.5.2.2 Project-Level Service-related Capital Improvements

Project-level Service-related Capital Improvements include one TTPI project, five OWE projects, and one SCI project. These are described in detail in the subsections that follow.

Project-Level Terminal and Transfer Point Improvements

TTPIs are required to support Service Improvements and to improve transfer points for passengers, to provide adequate layover locations for buses, and to provide access to restroom facilities for transit operators. A terminal provides layover space at the end of a route for transit vehicles to wait while operators take a break, get back on schedule, or use the restroom, or turnaround to begin service in the opposite direction. A terminal may include customer and operator amenities, such as restrooms, wayfinding signage and benches, and may also serve as a transfer point to other Muni and regional transit routes. Transfer points, by contrast, may be located at any point along a route where transfer opportunities to other transit routes occur.

TTPI.1 – Persia Triangle Improvements

The Persia Triangle Improvements (TTPI.1) would change the pedestrian and transit circulation along the intersections of Mission Street and Ocean Avenue, Mission Street and Persia Avenue, and Ocean and Persia avenues, which form the "Persia Triangle." The proposed project would include improvements to complement the realignment of the 29 Sunset route to travel along Ocean Avenue between Mission Street and the Balboa Park Station. Currently, the inbound 29 Sunset route turns left onto southbound Mission Street from Persia Avenue, turns right onto westbound Geneva Avenue from Mission Street, and proceeds along Geneva Avenue to the Balboa Park Station. The revised inbound (northbound) route would continue on Persia Avenue across Mission Street and turn left onto Ocean Avenue to proceed to the Balboa Park Station. The new segment of the 29 Sunset route would operate in both the inbound and outbound directions. The existing 29 Sunset route along Persia Avenue (east of Mission) would remain unchanged (see Figure 5).

Table 9: Service Variants

Route	Description of Variant to Service Improvement
2 Clement	2 Clement Service Variant would include continuing route on California Street to Eighth Avenue, then south on Clement Street to Sixth Avenue, as well as an eastern terminal loop at Sansome Street.
5 Fulton short	5 Fulton Service Variant would include operation of 5 Fulton short-line as motor coach service, instead of trolley service, prior to the installation of bypass wires.
● 8X Bayshore Express	8X Bayshore Express Service Variant would include an alternate alignment that would extend every other 8X Bayshore Express bus north of Broadway on the existing 8X Bayshore Express route to the existing terminal at Powell and North Point streets. Midday frequency would change from 9 to 7.5 minutes.
● 8AX Bayshore Express	8AX Bayshore Express Service Variant would operate with increased service frequencies, from 7.5 minutes to 7 minutes, in the morning and afternoon peak periods.
● 8BX Bayshore Express	8BX Bayshore Express Service Variant would include an alternate alignment that would extend every other 8BX Bayshore Express bus north of Broadway on the existing 8BX Bayshore Express route to the existing terminal at Powell and North Point streets. Morning and afternoon peak period frequencies would change from 8 to 7 minutes in the a.m. peak period and from 7.5 to 7 minutes in the p.m. peak period.
11 Downtown Connector	11 Downtown Connector Service Variant 1 would include two-way service on Folsom, rather than Folsom (east) and Harrison (west) couplet.
● 11 Downtown Connector	11 Downtown Connector Service Variant 2 would include an additional route segment along the existing 12 Folsom –Pacific alignment south of 11th and Folsom streets. It would operate in both directions on Folsom Street between 11th and Cesar Chavez streets, as well as on the portions of Cesar Chavez, Valencia and 24th streets currently served by the 12 Folsom-Pacific, and on the portions of South Van Ness Avenue and Capp and Mission streets included in the terminal loop, using the existing terminal at South Van Ness Avenue and 24th Street.
16X Noriega Express	16X Noriega Express Service Variant would include two-way service on 22nd Avenue, rather than current 22nd/23rd Avenue couplet.

Table 9: Service Variants (continued)

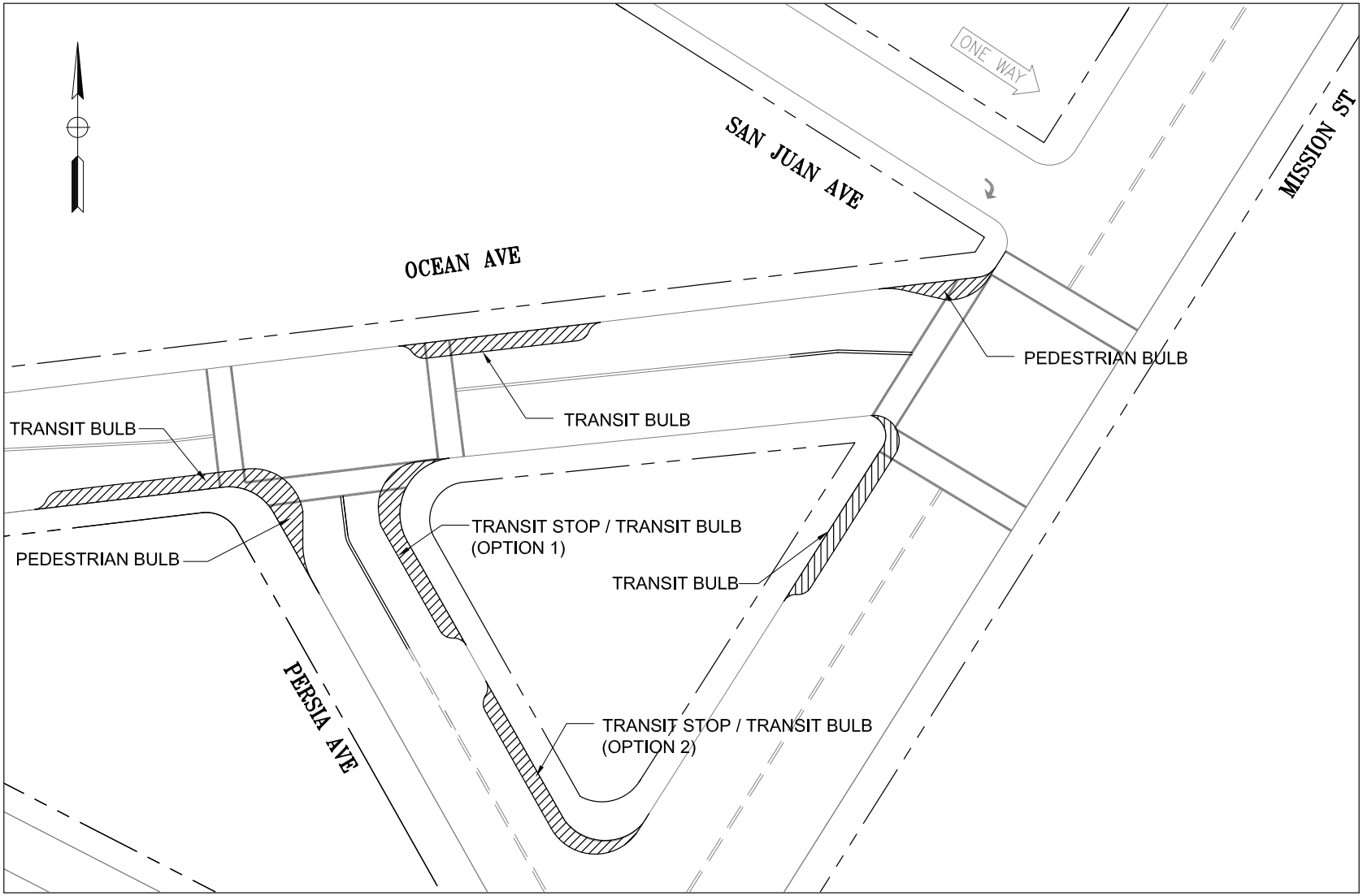
Route	Description of Variant to Service Improvement
● 17 Parkmerced	17 Parkmerced Service Variant would include an alternate alignment along Brotherhood Way, rather than extending service south to serve Westlake Plaza. North of the intersection of John Muir Drive/Lake Merced Boulevard, the 17 Parkmerced would extend along the existing 18 46th Avenue alignment on Lake Merced Boulevard between John Muir Drive and Brotherhood Way, on Brotherhood Way between John Muir Drive and Junipero Serra Boulevard, South of the intersection of Brotherhood Way/Junipero Serra Boulevard, the 17 Parkmerced would operate along the existing 28 19th Avenue alignment and would serve the Daly City BART Station, and then return in the opposite direction on Junipero Serra Boulevard. North of the Intersection of Brotherhood Way and Junipero Serra Boulevard, the 17 Parkmerced would serve Chumasera Drive, Font Boulevard, Lake Merced Boulevard, and Winston Drive between Lake Merced Boulevard and Buckingham Way. Between the intersection of Winston Drive and Buckingham Way and the West Portal Station, the 17 Parkmerced would operate on its current alignment.
22 Fillmore/ 33 Stanyan	22 Fillmore Service Variant 1 would include motor coach service to the Mission Bay terminus from the 16th Street BART Station and the reroute of the 33 Stanyan along the current 22 Fillmore route. The Mission Bay motor coach service would include a western terminal loop that would make a right on Mission Street, left on 15th Street, left on Valencia Street and back onto 16th Street to Mission Street. The eastern terminus would use the proposed 22 Fillmore terminal loop in Mission Bay. The 22 Fillmore trolley coach service would conduct a terminal loop by turning right on Kansas Street, right on 17th Street, right on Vermont Street and left on 16th Street.
22 Fillmore/33 Stanyan	22 Fillmore Service Variant 2 would include motor coach service between 16th Street BART Station and Mission Bay. However, instead of rerouting the 33 Stanyan to 18th Street, that segment would be covered by sending every other 22 Fillmore trolley coach to the current terminal at Third and 20th streets and having the other 22 Fillmore trolley coaches at the existing loop on Kansas, 17th and Vermont streets
27 Folsom	27 Folsom Service Variant 1 would include two-way service on Leavenworth and Ellis streets, and two-way service on Folsom Street.
27 Folsom	27 Folsom Service Variant 2 would include two-way service on Harrison Street from 11th to Cesar Chavez streets.
● 27 Folsom	27 Folsom Service Variant 3 would maintain the existing routing of the 27 Bryant south of Market Street under the 11 Downtown Connector Variant 2. The 27 Bryant would not be realigned from Bryant Street to Folsom Street, and the route would not be re-named the 27 Folsom.

Table 9: Service Variants (continued)

Route	Description of Variant to Service Improvement
● 28 19th Avenue	28 19th Avenue Service Variant would maintain the existing route of the 28 19th Avenue between the Golden Gate Bridge Toll Plaza Area and the intersection of Lombard and Laguna streets, and continue along Lombard Street between Laguna Street and Van Ness Avenue, and along Van Ness Avenue between Lombard and North Point streets. Proposed eliminated segments would be on Laguna Street between Lombard and Beach streets, Beach Street between Laguna and Buchanan streets, Buchanan Street between Beach and Bay streets, and Bay Street between Laguna and Buchanan streets.
● 28 19th Avenue Limited	The 28L 19th Avenue Limited Service Variant northern segment would terminate at Park Presidio Boulevard and California Street. Proposed eliminated segments would be on California Street between Park Presidio Boulevard and Presidio Avenue, Presidio Avenue between California Street and Letterman Drive in the Presidio, Letterman Drive between Presidio Avenue and Lyon Street, Lombard Street between Lyon Street and Laguna Street, Laguna Street between Lombard and Beach streets, Beach Street between Laguna and Buchanan streets, Buchanan Street between Beach and Bay streets, and Bay Street between Laguna and Buchanan streets.
32 Roosevelt	32 Roosevelt Service Variant would include an alternate eastern terminal loop along Church Street, Hermann Street, Fillmore Street and Duboce Avenue.
33 Stanyan	Service Variant 2 for 22 Fillmore would retain existing route for 33 Stanyan from Potrero Avenue to current southern terminus.
● 33 Stanyan	33 Stanyan Service Variant would include an alternative alignment on 16th Street between Mission and Guerrero streets, and on Guerrero Street between 16th and 18th streets to allow rerouting from 18th to 16th streets via Guerrero Street rather than Valencia Street.
35 Eureka	35 Eureka Service Variant would include an alignment along Diamond Street.
● 35 Eureka	35 Eureka Service Variant 2 would include an alternative alignment for the route extension to the Glen Park Station. From Bemis and Addison streets, outbound service towards the Glen Park Station would be routed on Bemis Street between Addison and Miguel streets, Miguel Street between Bemis and Arlington streets, and Arlington Street between Miguel and Bosworth streets. Service would terminate on Bosworth Street across from the Glen Park Station between Arlington and Chenery streets. Inbound service towards the Castro would continue from the Glen Park terminal on Bosworth Street via Diamond Street between Bosworth and Chenery streets, Chenery Street between Diamond and Miguel streets, Miguel Street between Chenery and Bemis streets, and Bemis Street between Miguel and Addison streets, where it would connect with the existing 35 Eureka route.

Table 9: Service Variants (continued)

Route	Description of Variant to Service Improvement
● 35 Eureka	35 Eureka Service Variant 3 would include an alternative routing to Variant 2 in which two-way service would be provided on Chenery Street. This would replace the one-way transit service proposed to go westbound on Arlington Street and eastbound on Chenery Street in Variant 2.
37 Corbett	37 Corbett Service Variant would include an alternate eastern terminal loop along Church Street, Hermann Street, Fillmore Street and Duboce Avenue.
● 37 Corbett	37 Corbett Service Variant 2 would not replace the Roosevelt Way branch of the existing 37 Corbett with a new 32 Roosevelt route. Instead, the 37 Corbett Service Variant 2 would include an alternative alignment on Frederick Street between Cole Street and Masonic Avenue, and on Masonic Avenue between Frederick and Haight streets. Proposed eliminated segments would be on Cole Street between Frederick and Haight streets, and Haight Street between Cole Street and Masonic Avenue. The 37 Corbett Service Variant 2 would use the existing 6 Parnassus terminal at Haight Street and Masonic Avenue.
● 43 Masonic	43 Masonic Service Variant would include an alternative alignment on Masonic Avenue between Haight and Frederick streets, and on Frederick Street between Masonic Avenue and Cole Street. Proposed eliminated segments would be on Haight Street between Masonic Avenue and Cole Street, and Cole Street between Haight and Frederick streets.
● 58 24th Street	58 Service Variant would replace the discontinued portion of Route 48 on Grand View Avenue, 21st Street, and Douglass Street and introduce service on Clipper Street between Grand View Avenue and Douglass Street and on Douglass Street between Clipper Street and 24th Street.
71L Haight - Noriega	71L Haight - Noriega Service Variant would include two-way service on 22nd Avenue, rather than current 22nd/23rd Avenue couplet.



SOURCE: SFMTA

TRANSIT EFFECTIVENESS PROJECT

FIGURE 5 - TTPI.1 PERSIA TRIANGLE IMPROVEMENTS

A new transit stop would be added on the east side of Persia Avenue between Mission Street and Ocean Avenue. There are two possible locations under consideration for this new stop on Persia Avenue; one would be nearside at the intersection with Ocean Avenue, and the other would be farside at the intersection with Mission Street. This transit stop would include the construction of a transit bulb. As part of the project, curb radii modifications at the T-intersection of Persia and Ocean avenues would also be completed by installing a pedestrian bulb at the southwest corner of the intersection to improve the turning radius for outbound buses traveling from Ocean Avenue to Persia Avenue. The new transit stops with transit bulbs would be approximately 60 feet in length by six feet in width and the pedestrian bulb approximately 20 feet in length by six feet in width.

In addition, two new transit zones with transit bulbs (approximately 60 feet in length by six feet in width) would be constructed along Ocean Avenue at the intersection with Persia Avenue for the 49L Van Ness-Mission Limited route. One would be located on the north side of Ocean Avenue midblock between Persia Avenue and Mission Street. The other stop would be located on the nearside of the intersection of Ocean Avenue with Persia Avenue for the inbound 49L Van Ness-Mission Limited route. A pedestrian bulb approximately 20 feet in length by six feet in width would be added on the northwest corner of the intersection of Ocean Avenue and Mission Street and a new transit stop with a transit bulb would be added on the southwest corner of this intersection to serve the 14 Mission and 14L Mission Limited routes. Up to five existing parking spaces would need to be removed to construct the improvements for the Persia Triangle Improvements project.

Project-Level Overhead Wire Expansion Projects

Overhead wire expansion (OWE) would support rerouting of bus routes serviced by electric trolley coaches, and would facilitate operations at terminals that serve multiple trolley coach routes. Construction of new overhead wires often requires the installation of new pole foundations and/or underground duct work. Poles to support overhead wires would vary in height from 26 to 30 feet and would be approximately eight to 13 inches in diameter at the base, and four to nine inches in diameter at the top of the poles. The pole foundations are typically three feet in diameter and 12 feet deep. These poles are typically installed every 90 to 100 feet along a street segment. Another part of the infrastructure for overhead wire service is the electrical distribution system that provides power to the trolleys. Electrical wires in conduits are placed in groups, called duct banks, underground within the center and along the sides of streets in order to transport electricity from the source (electrical transformer) to the wires in the poles which then power the overhead trolley wires. At some locations, the construction of new curb ramps, transit bulbs and pedestrian refuge islands may also be required. It is anticipated that no on-street parking would be removed as a result of these overhead wire expansion (OWE) projects.

OWE.1 – New Overhead Wiring - Reroute 33 Stanyan onto Valencia Street

The New Overhead Wiring - Reroute 33 Stanyan onto Valencia Street (OWE.1) project would install new two-way overhead wire infrastructure and underground duct bank on Valencia Street between 17th and 18th streets (there are existing wires between 16th and 17th streets) to allow the 33 Stanyan to be rerouted from 18th to 16th streets via Valencia Street rather than Mission Street. Approximately 700 linear feet of overhead wire and about 24 poles would be installed. New curb ramps would not be needed on Valencia Street due to a prior project. New electrical wiring in underground conduits, along with new and additional support poles would be installed at the northeast and southeast corners of 16th and Valencia streets, on the west and east side of Valencia Street between 17th and 18th streets, and at the northwest and southwest corners of 18th and Valencia streets. Existing overhead wire and the related underground power feed is already in place on Valencia Street between 16th and 17th streets.

- The 33 Stanyan Supplemental Service Variant would include a Service-Related Capital Improvement project, Overhead Wire Expansion.1 Variant, or OWE.1 Variant, to install two-way overhead wire infrastructure and underground duct bank on Guerrero Street between 16th and 18th streets. The OWE.1 Variant would allow the 33 Stanyan to be rerouted from 18th to 16th streets via Guerrero Street rather than Valencia Street as proposed as part of the 33 Stanyan Service Improvements.

OWE.2 – Bypass Wires at Various Terminal Locations

Bypass Wires at Various Terminal Locations (OWE.2) would include the installation of bypass wires to improve terminal operations where multiple trolley coach routes share a terminal. This project would provide trolley coach access to and egress from terminals and would improve route reliability by preventing trolley coaches from one route from getting stuck behind trolley coaches from another route. Currently, at terminals shared by multiple trolley coach routes, operators must exit their vehicle and pull trolley poles in order to pass a coach already in the terminal. A combined total of about 1,200 linear feet of overhead bypass wires and the installation of about 50 poles are proposed at the following terminal locations:

- Lyon and Union streets (Terminal for Routes 41Union and 45 Union-Stockton). Installation of overhead bypass wires would involve the installation of additional pole foundations within sidewalks along the north and south sides of Greenwich Street between Lyon and Baker streets, and along the west and east side of a portion of Lyon Street between Greenwich and Filbert streets.

No underground electrical wiring would be required. Construction of three new curb ramps to provide disabled access would be required at the intersection of Lyon and Greenwich streets. As curb ramps are typically installed at the same location as an existing sidewalk, it is not anticipated that any utilities, such as catch basins, would need to be relocated. An existing operator restroom facility is located at the northwest corner of Lyon and Greenwich streets which would remain.

- Presidio Avenue and Sacramento Street (Terminal for Routes 1 California and 2 Clement short-line). This proposal would provide a common inbound stop for the 1

California and its short-line and would also accommodate the western 2 Clement short-line terminal, which would use trolley coaches. New poles, overhead wires, and duct banks, would be constructed. Four new curb ramps to meet accessibility standards are proposed for both the Laurel Street and Walnut Street intersections with Sacramento Street; in addition, four curb ramps are proposed on the north side of California Street at its intersection with Laurel and Walnut streets for a total of eight curb ramps. The installation of poles and underground wiring may require minor utility relocation, such as moving catch basins.

OWE.3 – New Overhead Wiring – 6 Parnassus on Stanyan Street

The New Overhead Wiring – 6 Parnassus on Stanyan Street (OWE.3) project would build new two-way overhead wiring on Stanyan Street between Haight Street and Parnassus Avenue to enable the 6 Parnassus to operate on Haight Street west of Masonic Avenue, and then connect to the existing 6 Parnassus route at Stanyan Street and Parnassus Avenue. The project would require new overhead wires on Stanyan Street between Haight Street and Parnassus Avenue (there are existing wires on Haight Street between Masonic Avenue and Stanyan Street). The new overhead wiring would allow the 6 Parnassus to operate on Haight Street between Masonic Avenue and Stanyan Street, and on Stanyan Street and would provide increased transit service on the busiest portion of the corridor. Collectively, the 6 Parnassus and 71L Haight-Noriega Limited would provide local and limited-stop service along the full length of Haight Street.

Approximately 2,000 linear feet of new wiring and 50 new poles would be installed. Poles, eight to 13 inches in diameter, would be placed approximately every 90 feet. A total of 12 curb ramps could be constructed along Stanyan Street at its intersections with Beulah, Frederick, and Carl streets and Parnassus Avenue.

OWE.4 – Bypass Wires - 5 Fulton Limited/5 Fulton Local

The 5 Fulton Limited/Local Bypass Wires (OWE.4) project would enable the 5 Fulton and 5L Fulton Limited service to operate with trolley coaches on one set of wires in each direction along the 5 Fulton corridor between Sixth Avenue and Market Street on Fulton, Central and McAllister streets. The proposed project would install up to six overhead bypass wires at strategic points in each direction, between Sixth Avenue and Fulton Street and Market and McAllister streets so that both the 5L Fulton Limited and 5 Fulton local service could operate concurrently. This would also enable 5L Fulton Limited trolley coaches to pass the 5 Fulton local coaches. Having a local and limited network on Fulton and McAllister streets would improve travel times and transit reliability.

The proposed project would involve the installation of approximately 50 poles and additional overhead wiring. Overhead wiring would be installed on the north and south side of Fulton Street at the Shrader Street/Parker Avenue (offset) intersection[25] and at the Clayton Street intersection. On McAllister Street, wiring and poles would be installed on the north and south side of McAllister Street at its intersection with Baker, Pierce, Gough and Laguna streets. Curb ramps to meet accessibility standards would be installed at each corner of the McAllister and Baker streets and McAllister and Pierce streets intersections, for a total of eight curb ramps. The installation of poles and underground wiring may require minor utility relocation, such as moving catch basins.

Transit bulbs and pedestrian refuge islands would also be constructed on Fulton and McAllister streets as part of the proposed TTRP.5 improvements. For more detailed information regarding the TTRP.5 project, please see pp. 2-121 to 2-127.

OWE.5 - 22 Fillmore Extension to Mission Bay[26]

The 22 Fillmore Extension to Mission Bay (OWE.5) would involve the construction of new overhead wires on 16th and Third streets and parts of the University of California, San Francisco Mission Bay (UCSF) campus to allow the 22 Fillmore to continue east along 16th Street to Third Street, and north on Third Street to a new terminal in Mission Bay. The new overhead wire project would provide a direct transit connection between development at Mission Bay and the 16th Street BART Station, the Mission District, and Fillmore Street. This overhead wire extension project was evaluated in the Final Mission Bay Subsequent Environmental Impact Report (SEIR) in 1998 and is provided here for informational and cumulative context.[27] The SEIR addressed changes proposed for 16th Street between its intersection with Terry A. Francois Boulevard and the intersection with Mississippi and Seventh streets. This project would facilitate an important east-west transit connection for the rapidly developing Mission Bay neighborhood.

The portion of the project on 16th Street between Kansas and Connecticut streets would be constructed as part of an overhead wire replacement project (including the block of

[25] An offset intersection occurs when two different streets intersect the same street and are slightly misaligned, but cross traffic on the two streets can still proceed through the intersection.

[26] Caltrain and the California High Speed Rail Authority are proposing electrification and high speed rail respectively in San Francisco. This project could require a grade-separated crossing at the intersection of 16th and 7th streets. Grade separation for the Caltrain tracks at these locations is speculative at this time, as no specific design or schedule for this project is known. If this project were to materialize, the SFMTA would need to make transit service adjustments.

[27] San Francisco Planning Department/San Francisco Redevelopment Agency, *Final Mission Bay Subsequent Environmental Impact Report,* p. V.E.53. Certified September 17, 1998. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E; the entire SEIR is available there in Case File 96.771E.

Connecticut Street between 16th and 17th streets that will be used by the 33 Stanyan to provide service on the portion of Potrero Hill that will no longer be served by the 22 Fillmore). Infrastructure, including the poles and underground conduits for the electrical wiring, within the Mission Bay terminal loop has been constructed by developers of adjacent parcels along the route. The overhead and underground electrical wiring would be installed by the SFMTA and has already received separate environmental clearance as part of the Mission Bay project SEIR described above.

The proposed project would involve the installation of about 4,300 linear feet of overhead wiring and the construction of about 85 support poles on 16th Street between Arkansas and Third streets, and a total of 26 curb ramps along 16th Street at the following intersections:

- Rhode Island/16th streets (northern and southern corners) – four curb ramps
- Carolina /16th streets (northern and southern corners) – four curb ramps
- Wisconsin/16th streets (northern and southern corners) – four curb ramps
- Arkansas/16th streets (southeast and southwest corners) – two curb ramps
- Hubbell/16th streets (northeast and northwest corners) – two curb ramps
- Daggett/16th streets – two curb ramps
- Missouri/16th streets (southeast and southwest corners) – two ramps
- Owens/16th streets (northern and southern corners) – four curb ramps
- Fourth/16th streets (northeast and northwest corners) – two curb ramps

Transit bulbs and pedestrian refuge islands would also be constructed on 16th Street, including between Kansas and Third streets as part of the proposed TTRP.22 improvements. For more detailed information concerning the TTRP.22 project, please see p. 2-144 and pp. 2-148 to 2-153.

Project-Level Systemwide Capital Infrastructure

SCI improvements are proposed projects that would construct infrastructure to support transit route changes, enhance accessibility and/or reduced transit travel time and improve reliability, but that are not included in the TTRPs. One project-level SCI is proposed as described below.

SCI.2 – Sansome Street Contraflow Lane Extension

The Sansome Street Contraflow Lane Extension (SCI.2) project would extend the existing southbound "transit-commercial"[28] contraflow lane three blocks to the north on Sansome Street from Washington Street to Broadway (approximately 1,000 feet). Under existing

[28] The contraflow lane is restricted to transit only during peak periods; taxi and delivery vehicles are permitted to use the contraflow lane during off-peak periods.

conditions, Sansome Street is a one-way northbound street north of Washington Street with transit-commercial contraflow lane south of Washington Street to Market Street. The inbound (southbound) Routes 10 Townsend and 12 Folsom currently follow Broadway, make a right on Battery Street and then, right onto Washington Street to access Sansome Street south of Washington Street (see Figure 6).

The contraflow lane extension would require roadway restriping, signage and modification of three existing traffic signals from Broadway to Washington Street. Existing traffic signals at the Sansome/Washington streets, Sansome/Jackson streets, and Pacific/Sansome streets intersections would be modified in order to control traffic in the southbound direction. Curb ramps would also be installed at each of the four corners at these intersections.

Proposed signal modifications at each of the three intersections would include the installation of two traffic signal mast-arm poles (excavation dimensions of approximately nine feet in depth and three feet in diameter) and six standard traffic signal poles (excavation depth of approximately three feet and one foot in diameter). Excavation for traffic signal infrastructure, including foundations for mast arms signal poles and conduits, would be required to implement this project. It is anticipated that up to 17 of the 27 parking spaces along the west side of Sansome Street would be converted to commercial loading zones as a result of this project. The other 10 parking spaces are existing commercial loading zones.

2.5.2.3 Project-Level Travel Time Reduction Proposals

- For the following 11 transit corridors on the Rapid Network, project-level TTRPs have been developed using the TPS Toolkit elements in order to reduce transit travel time. The categories of TPS Toolkit elements include transit stop changes, lane modifications, parking and turn restrictions, traffic signal and stop sign changes, and pedestrian improvements. These TPS Toolkit elements are summarized in Table 3 on p. 2-14, and are described in detail under Description of TPS Toolkit Elements, Section 2.5.1.3 beginning on p. 2-23.

  Pursuant to *CEQA Guidelines* §15126.6, a range of reasonable alternatives to the proposed project must be considered in the environmental analysis if an environmental impact report (EIR) is being prepared. For the TEP, a range of potential combinations of the elements in the TPS Toolkit is being considered for the TTRPs in order to reduce transit travel time. The range of TTRP treatments being analyzed has been bracketed by: 1) a moderate set of TPS Toolkit elements referred to as the TTRP Moderate Alternative; and 2) an expanded set of TPS Toolkit elements referred to as the TTRP Expanded Alternative. The difference between these two alternatives is that the TTRP Expanded Alternative is comprised of TPS

FIGURE 6 - SCI.2 SANSOME STREET CONTRAFLOW LANE EXTENSION

Toolkit elements that may have a greater potential to trigger physical environmental effects such as substantial changes to traffic, bicycle, or pedestrian circulation or similar impacts, whereas the TTRP Moderate Alternative is expected to have fewer physical environmental effects due to the nature of the TPS Toolkit elements chosen. These two alternatives are presented and analyzed at an equal level of detail in this environmental review. The TEP public outreach process and further design refinement would inform the ultimate design of each TTRP corridor segment prior to implementation. The SFMTA would not necessarily adopt the TTRP Expanded Alternative or TTRP Moderate Alternative systemwide. In consideration of the results of the transportation analysis, design refinement, and public outreach, the SFMTA might choose to implement the TTRP Expanded Alternative on one TTRP corridor, the TTRP Moderate Alternative on another, and a modified combination consisting of TPS Toolkit elements from both the TTRP Moderate and TTRP Expanded Alternatives on another corridor. The analysis provided in the environmental review for the TEP adequately disclosed the potential environmental effects of the above described scenarios.

TTRP.J: J Church

The TTRP.J project would provide transit improvements for the J Church light rail line along the Church and 30th streets and San Jose Avenue corridors. The proposed project would implement the specified TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Church Street and Duboce Avenue to Balboa Park Station. The inbound direction for this route is north towards the intersection of Church Street and Duboce Avenue (continuing downtown in the underground subway) and the outbound direction is south toward Balboa Park Station.

TTRP.J has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes and pedestrian improvements. This alternative would also include the replacement of all-way stop signs with new traffic signals at five intersections along Church Street. The Expanded Alternative would include the same transit stop changes, pedestrian improvements, and traffic signal and stop sign changes as the Moderate Alternative, except the stop signs at four of the intersections would be replaced with traffic calming measures as described below, rather than traffic signals. The Expanded Alternative would also establish a transit-only lane in both directions on Church Street between Duboce Avenue and 16th Street, and left turns on Church Street at 15th and 16th streets would be limited to Muni vehicles and taxis at all times.[29]

[29] SFMTA has proposed to install the transit-only lane in both directions on Church Street between Duboce Avenue and 16th Street as a pilot project. This pilot project received separate environmental clearance (Planning Department Case File 2012.1141E) October 18, 2012 for a duration of 18 months, and the pilot project was implemented in March 2013.

Details of the two project alternatives for this corridor are provided below. Figure 8 presents a graphic representation of the TTRP.J Expanded Alternative on p. 2-118, below, following the description of both alternatives; the figure has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

Implementation of the improvements in both the Moderate and Expanded Alternatives would result in an estimated net reduction of up to 20 parking spaces. The parking removal would be due to the construction of transit bulbs, boarding islands, and extensions to existing boarding islands. There would not be a reduction in the number of loading spaces with implementation of either the Moderate or Expanded Alternative.

TTRP.J Moderate Alternative

TPS Toolkit elements in the Moderate Alternative include transit stop changes, pedestrian improvements, and replacement of all-way stop signs with traffic signals.

Transit Stop Changes (Moderate). Transit bulbs (80 feet long) would be constructed at the inbound and outbound stops located on Church Street at Clipper and 27th streets and on 30th Street at Dolores Street. A transit bulb up to 13 feet in width by 80 feet in length would be installed at the inbound stop at Church and 22nd streets. This bulb would be up to 13 feet wide due to the wide traffic lane at this location; it would not eliminate any traffic lanes.

The existing boarding islands at the inbound stops on San Jose Avenue at Santa Rosa (29 feet long) and Santa Ynez (36 feet long) avenues would be extended to 80 feet in length. The outbound stops on Church Street at 18th and on San Jose Avenue at Santa Rosa Avenue and the stops in both directions on Church Street at 24th Street would be relocated from the nearside to the farside of the intersection. Both the inbound and outbound stops at 24th Street would have new 160-foot-long boarding islands. The new outbound stop at 18th Street would be a 160-foot platform due its location inside Dolores Park. The stop at Santa Rosa Avenue would have a new 160-foot-long boarding island and a key stop. The outbound stop at Church and 22nd streets would be relocated from the farside of the intersection to the nearside of the intersection and the existing platform at that new location would be extended to 80 feet in length, subject to right-of-way acquisition from the adjoining property.

The inbound and outbound stops at the intersection of the J Church right-of-way and Liberty Street, and the inbound stop at Church and 30th streets would be removed.

Pedestrian Improvements (Moderate). Pedestrian bulbs would be constructed at the southeast and southwest corners of 30th and Chenery streets at the existing Fairmount School crosswalk. Also, a new crosswalk would be installed at the intersection of San Jose

Avenue and Colonial Way to connect to the new outbound transit boarding island on San Jose Avenue spanning from Santa Rosa Avenue to Colonial Way.

Traffic Signal and Stop Sign Changes (Moderate). This alternative would also include proposals to replace existing stop signs with traffic signals on Church Street at the intersections with 24th, 25th, 26th, Cesar Chavez, and Day streets.

TTRP.J Expanded Alternative

Transit Stop Changes and Pedestrian Improvements (Expanded). The Expanded Alternative would include the same proposed transit stop changes and pedestrian improvements as the Moderate Alternative.

Parking and Turn Restrictions (Expanded). At the intersections of Church/15th and Church/16th streets the Expanded Alternative would prohibit left turns from Church Street, with taxis and Muni exempt at the intersection of Church/16th streets.

Traffic and Stop Sign Changes (Expanded). This alternative would convert the existing all-way stop-controlled intersections of Church/25th, Church/26th, Church/Cesar Chavez, and Church/Day streets to two-way stop-sign controlled (Church Street approaches would no longer have stop signs) and additional traffic calming measures would be implemented. The traffic calming measures would consist of the following:

> Church/25th streets: Pedestrian bulbs would be added on the northwest and southwest corners on Church Street. Pedestrian half-bulbs would be added on the northeast and southeast corners of Church Street.
>
> Church/26th streets: Pedestrian bulbs would be added on all four corners on Church Street.
>
> Church/Cesar Chavez streets: Pedestrian bulbs would be added on all four corners on Church Street.
>
> Church/Day streets: Speed humps would be added in both directions of Church Street in the curbside mixed-flow lane next to the boarding island. Pedestrian bulbs would be added to the southeast and northwest corners on Church Street.

This alternative would include replacing the existing all-way stop signs with traffic signals on Church Street at 24th Street, the same as proposed in the Moderate Alternative.

Lane Modifications (Expanded). A full-time transit-only lane in both directions would be established on Church Street between Duboce Avenue and 16th Street by removing one

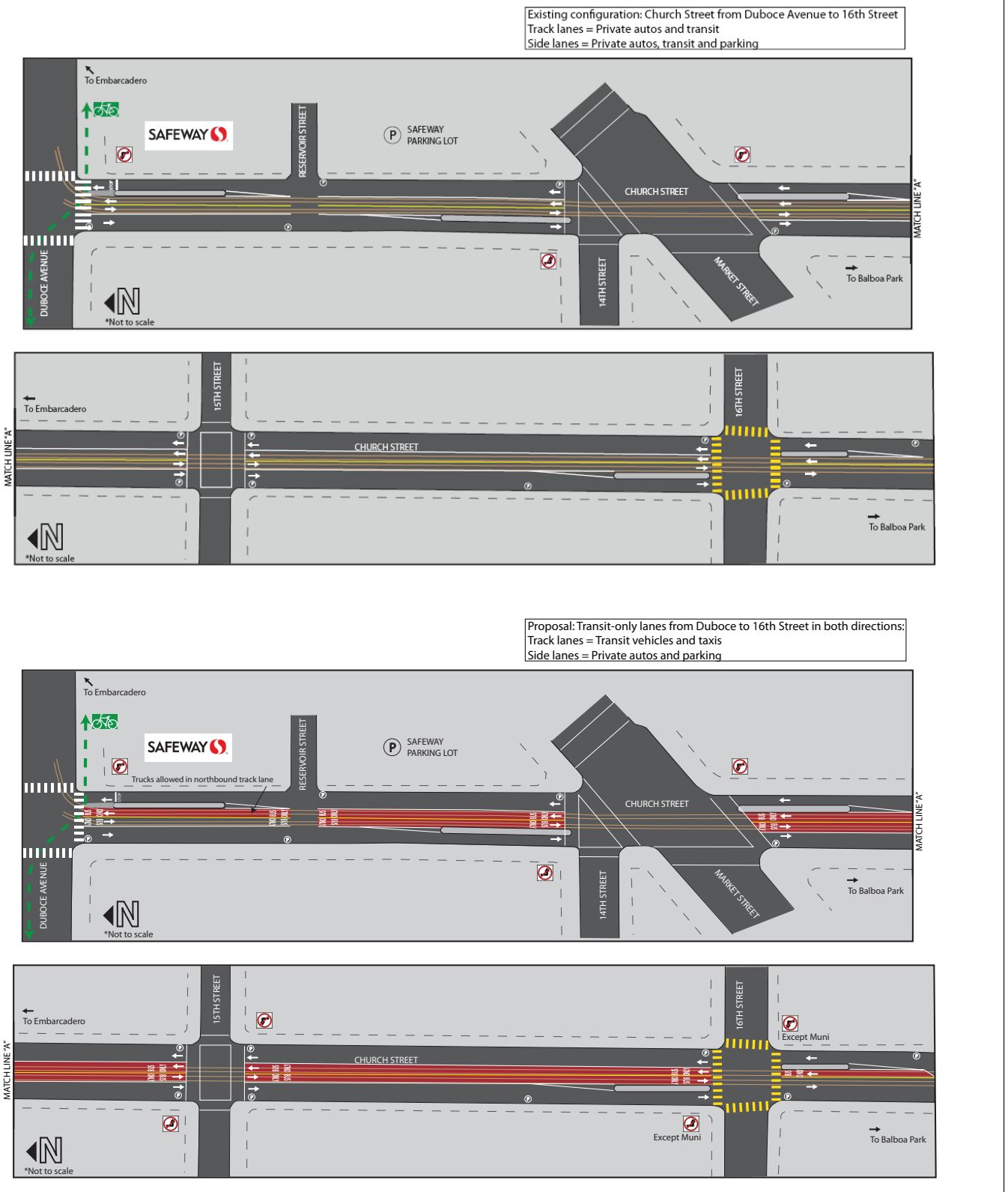
mixed-flow lane in both directions while maintaining the existing parking lanes. The transit-only lane would be demarcated with red paint on the lane pavement. Figure 7 shows the existing and proposed configurations. The inbound transit-only lane would begin 160 feet south of Church and 16th streets at the existing boarding island. This lane would be used by both the 22 Fillmore trolley coach line and the J Church light rail line.

Except for taxis, all non-transit vehicles would be required to use the single curbside mixed-flow lane in both directions of this portion of Church Street, with the exception that trucks would be permitted in the northbound transit-only lane on Church Street between Duboce Avenue and Reservoir Street. Reservoir Street is a public right-of-way that serves as the entrance into the parking lot for the Safeway shopping center at 2020 Market Street and is used by trucks making deliveries to the Safeway store's truck loading area adjacent to Church Street. Due to the truck turning radius for large trucks, trucks exiting the loading area to northbound Church Street would need to enter the transit-only lane. Non-transit vehicles on southbound Church Street would be permitted to make left turns from southbound Church Street onto Reservoir Street. Therefore, the portion of the transit-only lane on southbound Church Street from Duboce Avenue to Reservoir Street would have "Bus Only" pavement signage and would not be demarcated with red paint on the pavement. Additionally, a dashed white line would be used to separate the transit-only lane from the curbside mixed-flow lane at the location where non-transit vehicles could enter the transit-only lane to complete the left turn onto Reservoir Street.

An 18-month pilot project for the collection of data for a portion of the improvements being studied for the TTRP.J has undergone separate environmental review[30] and was approved by the City Traffic Engineer on October 29, 2012. This pilot project would include the designation of a center-running transit-only lane in both directions of Church Street, between Duboce Avenue and 16th Street, for the exclusive use of transit vehicles: the J Church Line and the 22 Fillmore route, and taxis. The full-time transit-only lane on this three-block

- segment of Church Street (approximately 1,800 feet) would be demarcated with red paint on the roadway surface. Left turns on Church Street at 15th and 16th streets would be limited to only Muni vehicles and taxis at all times. The purpose of this 18-month pilot project is to analyze transit travel time savings, transit reliability impacts, changes to area traffic patterns resulting from implementation of the transit-only lane in this area, the performance of the red paint on the roadway surface, and whether the demarcation of the transit-only lanes with a red pavement color improves compliance with transit-only lane restrictions.

[30] SFMTA TEP TTRP.J Pilot Project – Church Street Transit-only Lane, October 18, 2012. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2012.1141E



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 7 - TTRP.J LANE MODIFICATIONS EXPANDED ALTERNATIVE

Figure 8 shows the TTRP.J Expanded Alternative. Narrative text on the figure describes differences between the Expanded and Moderate Alternatives.

Please see information and additional graphics illustrating the TTRP.J project at the SFMTA Web site, online at http://www.sftep.com.

- **TTRP.L: L Taraval**

- TTRP.L would provide transit improvements for the L Taraval light rail line along Ulloa Street, 15th Avenue, Taraval Street and 46th Avenue. The proposed project would implement TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Ulloa Street and West Portal Avenue to the intersection of Ulloa Street and 46th Avenue. The inbound direction for this route is east toward West Portal Avenue and Ulloa Street (continuing downtown in the underground subway) and the outbound direction is west toward the Great Highway.

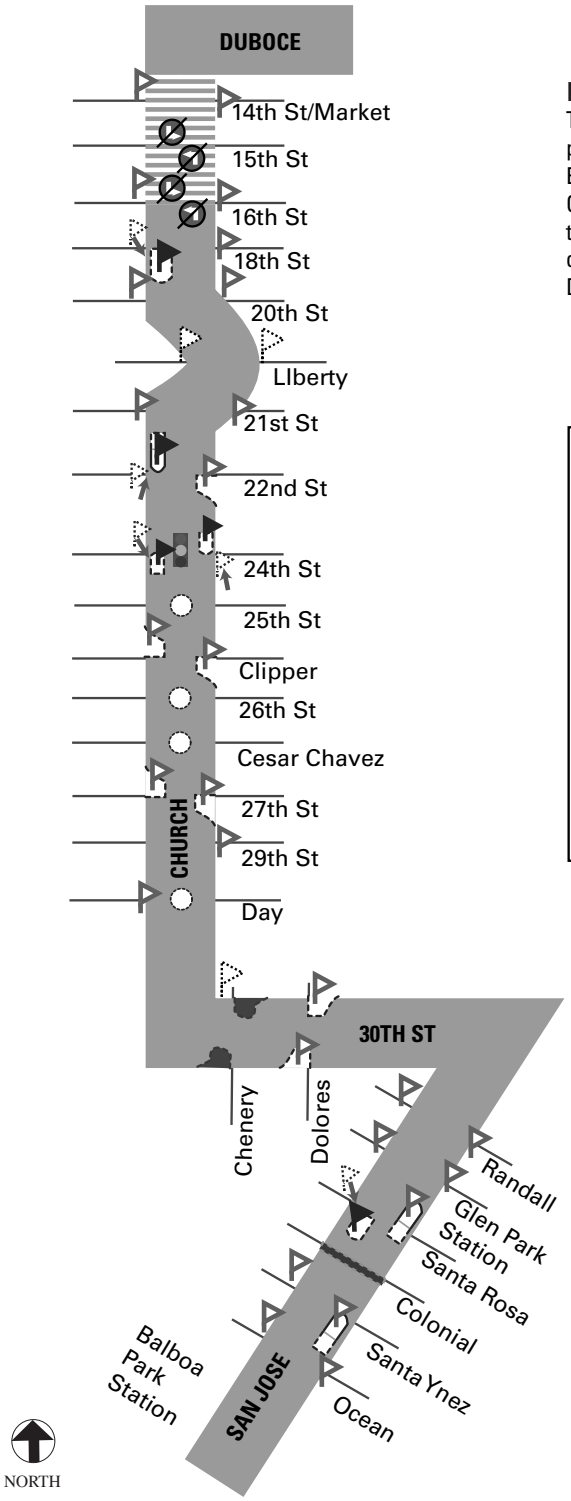
- The TTRP.L project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes. This alternative would replace stop signs with traffic signals at six intersections on Taraval Street and Ulloa Street. The Expanded Alternative would include the same transit stop changes, pedestrian improvements, and parking and turn restrictions as the Moderate Alternative. Under the Expanded Alternative, pedestrian improvements would also be made at the intersection of Taraval Street at 44th Avenue and traffic signal and stop sign changes would also be different at four intersections. At two of the intersections along Taraval and Ulloa streets, existing stop signs would be replaced with pedestrian bulbs as described below, rather than traffic signals. At two additional intersections, the stop signs would be replaced with traffic calming measures as described below. The Expanded Alternative would also establish a new transit-only lane in both directions on Taraval Street from 15th to 46th avenues. Figure 8d (on p. 2-118h, below) shows the TTRP.L Expanded Alternative; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

- Implementation of the improvements in the Moderate Alternative would result in an estimated net reduction of approximately 75 parking spaces and a net reduction of approximately 80 parking spaces in the Expanded Alternative. The parking spaces

SFMTA | Municipal Transportation Agency

J CHURCH

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative



Moderate Alternatives

The Moderate Alternative would include the same transit stop changes, pedestrian improvements, and traffic signal and stop sign changes as the Expanded Alternative, except the stop signs at four intersections (Church/25th, Church/26th, Church/Cesar Chavez and Church/Day) would be replaced with traffic signals as opposed to traffic calming measures. The Moderate Alternative does not include the proposed transit-only lane in both directions between Duboce Avenue and 16th Street.

SEGMENT PROPOSALS

- Existing Stop
- Stop Removal
- Stop Relocation
- New Transit Bulb
- Extend Existing Boarding Island
- Proposed Transit Only Lane
- Traffic Calming
- New Traffic Signal
- New Boarding Island
- No Left Turn Restrictions
- New Pedestrian Bulbs
- Crosswalk

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 8 - TTRP.J EXPANDED ALTERNATIVE

removed would result from the construction and extension of boarding islands, installation of transit bulbs, and the implementation of traffic calming measures. The Moderate Alternative would relocate two commercial loading spaces within 250 feet of their existing locations, while the Expanded Alternative would relocate three such spaces. No net reduction in commercial loading spaces would occur with implementation of either the Moderate Alternative or Expanded Alternative for TTRP.L.

- Details of the two project alternatives for this corridor are provided below.

- **TTRP.L Moderate Alternative**

- TPS Toolkit elements in the Moderate Alternative would include transit stop changes, pedestrian improvements, traffic signal and stop changes, and parking and turn restrictions.

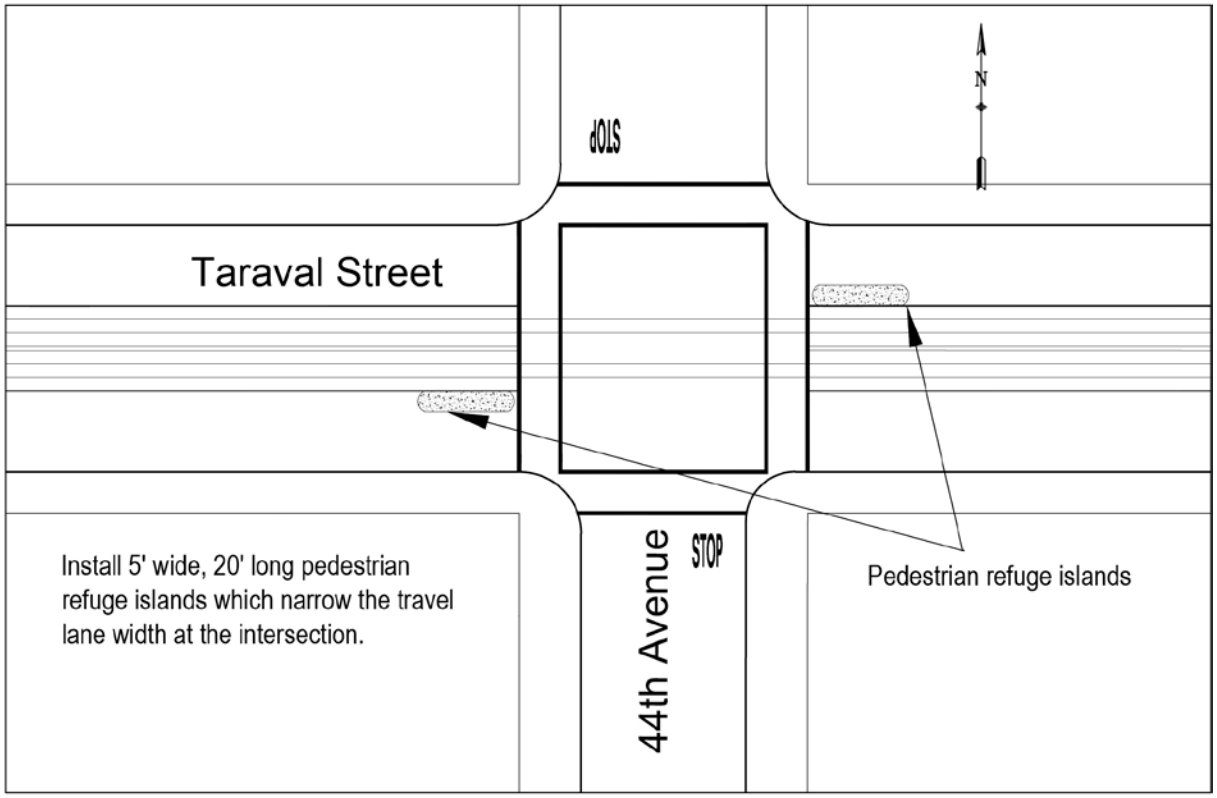
- **Transit Stop Changes (Moderate).** At Taraval Street and 15th Avenue, in the outbound direction a new nearside transit bulb (100 feet long) would be constructed on 15th Avenue, and the inbound stop would be moved from farside (15th Avenue) to nearside with a new 50-foot-long transit bulb on Taraval Street.

- The nearside flag stops on Taraval Street at 17th Avenue in both directions would be relocated to 18th Avenue with new 210-foot long, nine-foot-wide boarding islands, each with an accessible platform for wheelchair accessibility. On Taraval Street, the inbound stop would be relocated to the nearside of 18th Avenue, and the outbound stop would be relocated to the farside of 18th Avenue.

- The existing farside boarding island at the inbound stop on Taraval Street at 22nd Avenue would be extended by 115 feet to a total of 235 feet in length, with the accessible platform at this stop shifted 115 feet to the east. The outbound nearside flag stop on Taraval Street at 22nd Avenue would be moved to farside and replaced with a new 235-foot-long boarding island with an accessible platform.

- The nearside flag stops would be removed in the inbound and outbound directions on Taraval Street at 17th, 19th, 35th, and 44th avenues and on Ulloa Street at 15th and 46th avenues. The inbound nearside flag stop on Taraval Street and 24th Avenue and the outbound farside boarding island and accessible platform on Taraval Street at 23rd Avenue would be removed.

- **Pedestrian Improvements (Moderate):** On Taraval Street at 44th Avenue, a five-foot-wide, 20-foot-long pedestrian refuge island would be added between the mixed-flow travel lane and the transit-only lane in the inbound and outbound directions. Figure 8a shows the proposed change.



SOURCE: SFMTA, Turnstone Consulting

FIGURE 8a - TTRP.L TARAVAL STREET AND 44TH AVENUE IMPROVEMENTS

- **Traffic Signal and Stop Sign Changes (Moderate).** The all-way stop signs would be replaced with traffic signals at the intersections of Taraval Street and 17th, 18th, and 35th avenues.

- **Parking and Turn Restrictions (Moderate).** At the intersection of Sunset Boulevard and Taraval Street, there would be no left turn restrictions at all times in both the eastbound and westbound directions.

- *The following Transit Stop Changes and Traffic Signal and Stop Sign Changes are part of the Moderate Alternative and are not part of the Expanded Alternative.*

- **Transit Stop Changes (Moderate Only).** The inbound and outbound nearside flag stops on Taraval Street at 26th, 28th, 30th, 32nd, and 40th avenues would be replaced with new 150-foot-long nearside boarding islands. The inbound and outbound nearside flag stops on Taraval Street at 42nd Avenue would be replaced with new 240-foot-long boarding islands each with an accessible platform.

- **Traffic Signal and Stop Sign Changes (Moderate Only).** The all-way stop signs would be replaced with traffic signals at the intersections of 15th Avenue and Ulloa Street, 22nd Avenue and Taraval Street, 24th Avenue and Taraval Street.

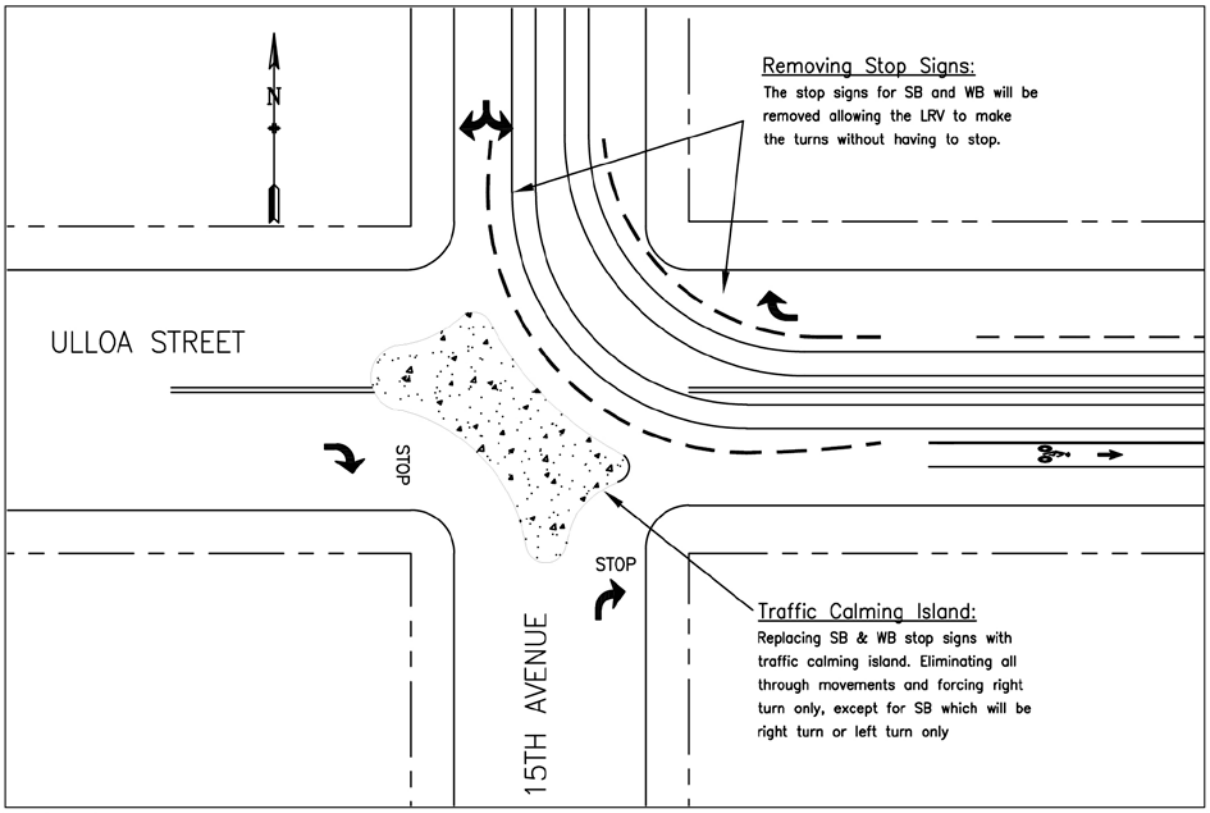
- **TTRP.L Expanded Alternative**

- **Transit Stop Changes, Traffic Signal and Stop Sign Changes, Pedestrian Improvements, and Parking and Turn Restrictions (Expanded).** The Expanded Alternative would include the same proposed transit stop changes, traffic signal and stop sign changes, pedestrian improvements, and parking and turn restrictions as the Moderate Alternative, except for several transit stop changes and traffic signal and stop sign changes noted above as Moderate Only.

- **Transit Stop Changes (Expanded)**. The inbound and outbound nearside flag stops would be replaced with 150-foot-long boarding islands and also would be moved to the farside on Taraval Street at 26th, 28th, 30th, 32nd, and 40th and 42nd avenues.

- **Traffic Signal and Stop Sign Changes (Expanded).** In addition to the traffic signal and stop sign changes proposed under the Moderate Alternative, this alternative would convert the existing all-way stop-controlled intersections on Ulloa Street at 15th Avenue, on Taraval Street at the intersections of 22nd, 24th, and 42nd avenues, and on Ulloa Street at 46th Avenue to two-way stop-sign controlled intersections. At these cross-streets, the Ulloa Street and Taraval Street approaches would no longer have stop signs, and additional traffic calming measures would be implemented on Ulloa Street and on Taraval Street. The traffic calming measures at each intersection (noted below) would consist of the following:

- Ulloa Street/15th Avenue: A traffic calming, channelizing island would be added in the intersection which would eliminate all through movements forcing a right turn only for all directions, except for southbound traffic, which would be required to make either a right turn or left turn. Figure 8b shows the proposed change for this intersection.



SOURCE: SFMTA, Turnstone Consulting

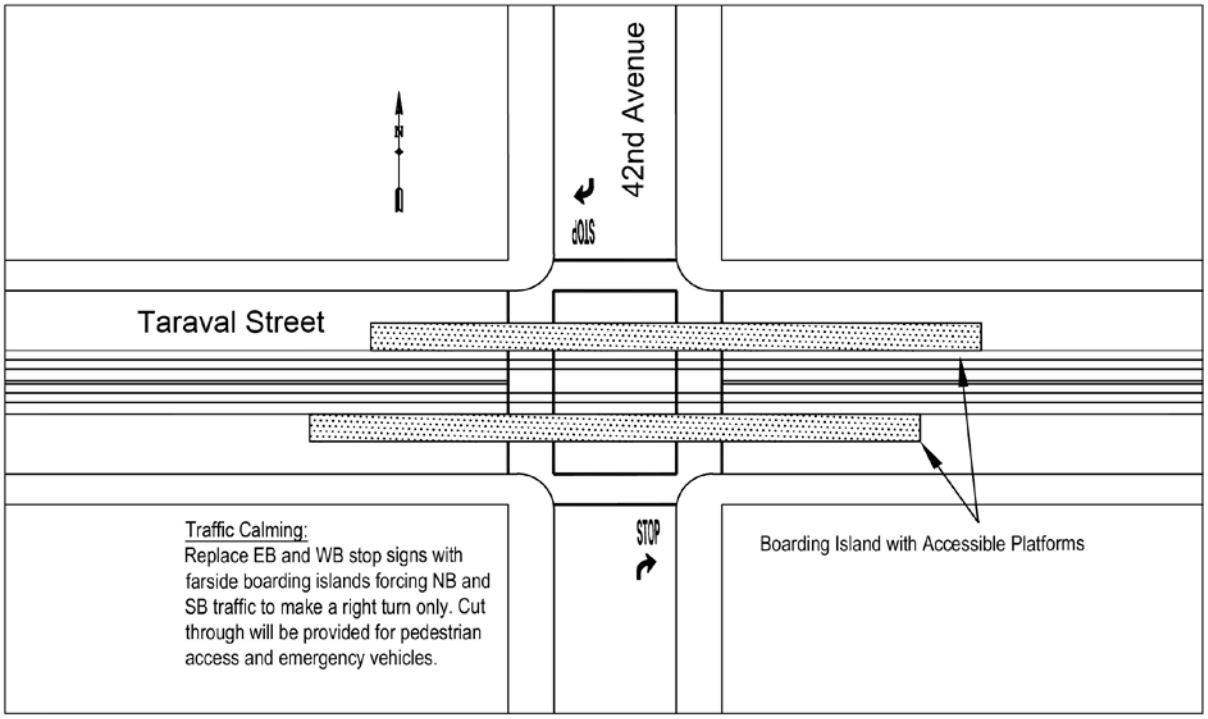
FIGURE 8b - TTRP.L TRAFFIC CALMING AT ULLOA STREET AND 15TH AVENUE EXPANDED ALTERNATIVE

- Taraval Street/22nd Avenue: On Taraval Street, pedestrian bulbs would be installed on the northeast and southwest corners. The stop signs for eastbound and westbound traffic on Taraval Street would be removed.

- Taraval Street/24th Avenue: On Taraval Street, pedestrian bulbs would be installed on the northeast and southwest corners. The stop signs for eastbound and westbound traffic on Taraval Street would be removed.

- Taraval Street/42nd Avenue: On Taraval Street, two 9-foot-wide, 150-foot-long transit boarding islands would be installed and extended through the intersection to serve both inbound and outbound directions. Right-turn only restrictions would be added on 42nd Avenue for northbound and southbound traffic. The islands would be designed with a low profile cut-out in the middle that would be wide enough for emergency vehicles to continue through the intersection. Figure 8c shows the proposed change.

- Ulloa Street/46th Avenue: Eight-foot-wide, 30-foot-long pedestrian bulbs would be added at all corners of this intersection.



SOURCE: SFMTA, Turnstone Consulting

FIGURE 8c - TTRP.L TRAFFIC CALMING AT TARAVAL STREET AND 42ND AVENUE EXPANDED ALTERNATIVE

- The Expanded Alternative would include replacing the existing all-way stop signs with traffic signals on Taraval Street at 17th, 18th, and 35th avenues, the same as in the Moderate Alternative. In addition, this alternative would include replacing the existing all-way-stop signs with traffic signals on Taraval Street at 26th, 28th, 30th, 32nd and 40th avenues.

- **Lane Modifications (Expanded).** A full-time transit-only lane would be established in both directions on Taraval Street between 15th and 46th avenues by converting one mixed-flow (center) lane in both directions to a transit-only lane while maintaining the existing parking lanes. The outbound transit-only lane would begin 50 feet west of the intersection of Taraval Street and 15th Avenue. The inbound transit-only lane would begin 40 feet east of the intersection of Taraval Street and 46th Avenue. Except for taxis and left-turning vehicles at intersections, all non-transit vehicles would be required to use the single curbside mixed-flow lane in both directions of this portion of Taraval Street, with the exception that trucks would be permitted in the transit-only lanes in both directions on Taraval Street between 17th and 18th avenues. The Safeway grocery store at 730 Taraval Street has a truck loading area accessed

from Taraval Street where large trucks make their deliveries. These trucks make a southbound right turn from 17th Avenue onto westbound Taraval Street and then, back into the loading area. Due to the truck turning radius for large trucks and the back-in maneuver required to enter the loading area, these trucks would need to enter the transit-only lane in order make these maneuvers.

- Figure 8d shows the TTRP.L Expanded Alternative and narrative text describes the difference between the Moderate and Expanded Alternatives.

- Please see information and additional graphics illustrating the TTRP.L project at the SFMTA Web site, online at http://www.sftep.com.

TTRP.N: N Judah

TTRP.N would provide transit improvements for the N Judah light rail line along Carl Street, Irving Street, Ninth Avenue, and Judah Street. The proposed project would implement TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Carl and Cole streets to the intersection of Judah and La Playa streets. The inbound direction for this route is east toward The Embarcadero and the Caltrain Station and the outbound direction is west toward the Great Highway.

The TTRP.N project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, pedestrian improvements, and parking and

- turn restrictions. The SFMTA may consider adding bicycle corrals at locations where pedestrian or transit bulbs are proposed. This alternative would also replace stop signs with traffic signals at seven intersections on Judah Street and one intersection on Irving Street. The Expanded Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes as the Moderate Alternative, except that stop signs at five of the intersections along Judah Street would be replaced with traffic calming measures as described below, rather than traffic signals. Figure 9 shows the TTRP.N Expanded Alternative on p. 2-122, below, following the description of both alternatives; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

- Implementation of the improvements in the Moderate Alternative would result in an estimated net reduction of 120 parking spaces and a net reduction of up to 130 parking spaces in the Expanded Alternative. All of the parking spaces removed would be due to the new construction and extension of boarding islands and transit bulbs. No loading spaces would be removed with implementation of either the Moderate or Expanded Alternative for TTRP.N.

Details of the two project alternatives for this corridor are provided below.

SFMTA | Municipal Transportation Agency

L TARAVAL

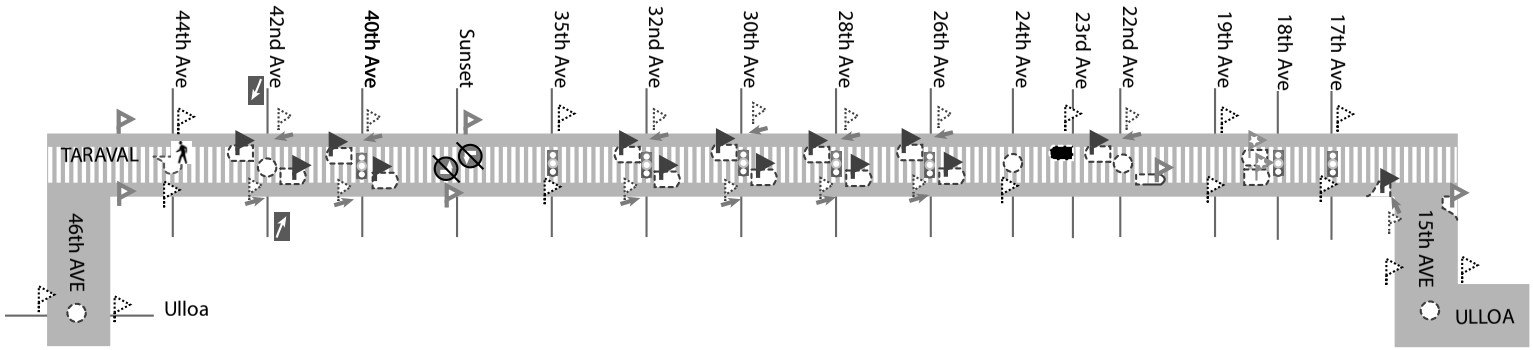
TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative

SEGMENT PROPOSALS

- Existing Stop
- Stop Removal
- Stop Relocation
- New Transit Bulb
- New Pedesrian Refuge Island
- New Boarding Island
- Extend Boarding Island
- New Traffic Signal
- Remove Stop Signs and Replace with Traffic Calming Measure
- New Stop
- No Left-Turn Restriction
- Center Transit-Only Lanes (both directions)
- Remove Exist. Boarding Island
- Right-Turn Only Restrictions

Moderate Alternative

The Moderate Alternative would include the same transit stop changes, parking and turn restrictions and traffic signal changes as the Expanded Alternative, except the following: The stop signs at 15th Avenue and Ulloa Street and on Taraval at 22nd and 24th avenues would be replaced by a traffic signal. Also, the stop signs on Taraval Street at 26th, 28th, 30th, 32nd, 40th, 42nd avenues would remain and the transit stops would remain nearside with new transit boarding islands, and traffic from 42nd Avenue would not be subject to right-turn only restrictions at Taraval.



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

● FIGURE 8d - TTRP.L EXPANDED ALTERNATIVE

TTRP.N Moderate Alternative

TPS Toolkit elements in the Moderate Alternative include transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes.

Transit Stop Changes (Moderate). Farside 160-foot-long transit bulbs would be installed in the outbound direction at the intersections of Irving Street at Fifth and Ninth avenues. Nearside 160-foot-long outbound transit bulbs would be installed on Carl Street at Stanyan Street and on Judah Street at La Playa Street. Inbound 160-foot-long transit bulbs would be installed on the farside of the intersections of Irving Street at Sixth and Ninth avenues.

Existing transit boarding islands would be extended to 160 feet and widened to nine feet at the following intersections on Judah Street: at 12th, 16th, 23rd, 25th, 28th, 34th, 40th, 43rd, and 46th avenues in the outbound direction; and at 12th, 15th, 22nd, 25th, 28th, 31st, 34th, 43rd, and 46th avenues in the inbound direction. The existing inbound boarding island on Judah Street at 19th Avenue would be extended to 220 feet and include a key stop for wheelchair accessibility. The existing outbound boarding island at 19th Avenue would be extended to 225 feet so that it would connect to the existing accessible platform located on Judah Street at 18th Avenue. The existing inbound and outbound boarding islands on Judah Street at 28th Avenue would each be extended from 60 feet to 240 feet and include accessible platforms for wheelchair access. A new 115-foot transit boarding island would be installed at the nearside inbound stop on Judah Street at 48th Avenue.

The inbound and outbound stops at Irving Street and Ninth Avenue would be moved from the nearside to the farside of the intersection with new 160-foot-long transit bulbs. Due to the wide curb lanes at these locations, the inbound bulb would be up to 18 feet wide and the outbound would be up to 13 feet wide. The new farside transit bulb in the outbound direction would be installed on Ninth Avenue at the southwest corner of the intersection. The outbound stop on Judah Street at 31st Avenue would be moved from the nearside to the farside of the intersection with a new 160-foot long boarding island.

At Judah Street and Sunset Boulevard, the stops in both directions would be moved from the nearside to the farside of the intersection with new 160-foot-long boarding islands. The outbound accessible platform would remain on the nearside of this intersection while the inbound accessible platform would be relocated from the nearside at 37th Avenue to the nearside at Sunset Boulevard. At Judah Street and 40th Avenue, the farside inbound stop would be moved to the nearside with a new 160-foot long boarding island.

Flag stops would be removed in the inbound and outbound directions on Irving Street at Fourth and Seventh avenues, and those stops would be consolidated into a new outbound stop at the farside of Fifth Avenue and a new inbound stop at the farside of Sixth Avenue. The flag stops would be removed in both directions at Judah Street and Funston Avenue.

Pedestrian Improvements (Moderate). The intersection at Arguello Boulevard with Carl Street would be reconfigured to simplify the right-of-way. This would be accomplished by adding median islands within the intersection so that right-of-way for southbound traffic turning left to Carl Street or continuing straight towards Irving Street would be better defined for vehicles. The northernmost stop sign facing southbound Arguello Boulevard traffic would be removed, but the southernmost stop sign would remain.

Parking and Turn Restrictions (Moderate). At the intersections of Judah Street at 36th and 37th avenues, there would be right-turn only restrictions in both the northbound and southbound directions, except for emergency vehicles. The turn restrictions would be needed due to the proposed relocation of transit stops from the nearside to the farside of the intersection at Judah Street/Sunset Boulevard, and the installation of 160-foot-long boarding islands, which would extend through these closely-spaced intersections. The island would be designed with a low profile cut-out in the middle that would be wide enough for emergency vehicles to continue through the intersection.

A new bulb would be added at the northwest corner of Arguello Boulevard and Irving Street to prevent vehicles from parking and encroaching into the dynamic envelope (clearance zone) of the light rail vehicles.

Traffic Signal and Stop Sign Changes (Moderate). The all-way stop signs would be replaced with traffic signals at the following eight intersections: Irving Street at Fourth Avenue and Judah Street at 10th, Funston, 18th, 22nd, 23rd, 31st, and 41st avenues.

TTRP.N Expanded Alternative

Transit Stop Changes, Pedestrian Improvements, and Parking and Turn Restrictions (Expanded). The Expanded Alternative would include the same proposed transit stop changes, pedestrian improvement, and parking and turn restrictions as in the Moderate Alternative.

Traffic Signal and Stop Sign Changes (Expanded). All-way stop signs would be replaced with traffic calming measures at the following intersections with Judah Street: 10th, Funston, 22nd, 23rd, and 41st avenues. The stop signs on Judah Street would be removed, but the stop signs would remain on the cross streets. The traffic calming measures would consist of the following treatments:

> Judah Street/10th Avenue: A six-foot-wide pedestrian bulb would be added to the southwest corner on Judah Street. A speed hump would be added to the curbside mixed-flow lanes in both directions on Judah Street. Special striping would be added on Judah Street in advance of the crosswalk.

Judah Street/Funston Avenue: Six-foot-wide pedestrian bulbs would be added to the northwest, southwest, and southeast corners on Judah Street. A speed hump would be added in the eastbound direction to the curbside mixed-flow lane on Judah Street. Special striping would be added on Judah Street in advance of the crosswalk.

Judah Street/22nd Avenue: A six-foot-wide pedestrian bulb would be added to the southwest and northeast corners on Judah Street. Speed humps would be added in both directions to the curbside mixed-flow lane on Judah Street. Special striping would be added on Judah Street in advance of the crosswalk.

Judah Street/23rd Avenue: Six-foot-wide pedestrian bulbs would be added to the northwest, southeast and southwest corners on Judah Street. Speed humps would be added in both directions to the curbside mixed-flow lane on Judah Street. Special striping would be added on Judah Street in advance of the crosswalk.

Judah Street/41st Avenue: Six-foot-wide pedestrian bulbs would be added to the northeast and southwest corners on Judah Street. Speed humps would be added in both directions to the curbside mixed-flow lane on Judah Street. Special striping would be added on Judah Street in advance of the crosswalk.

The stop signs on Judah Street at 18th and 31st avenues and on Irving Street at Fourth Avenue would be replaced with traffic signals, the same as in the Moderate Alternative.

Figure 9 shows the TTRP.N Expanded Alternative, and includes text describing the differences between the Moderate and Expanded Alternatives.

Please see information and additional graphics illustrating the TTRP.N project at the SFMTA Web site, online at http://www.sftep.com.

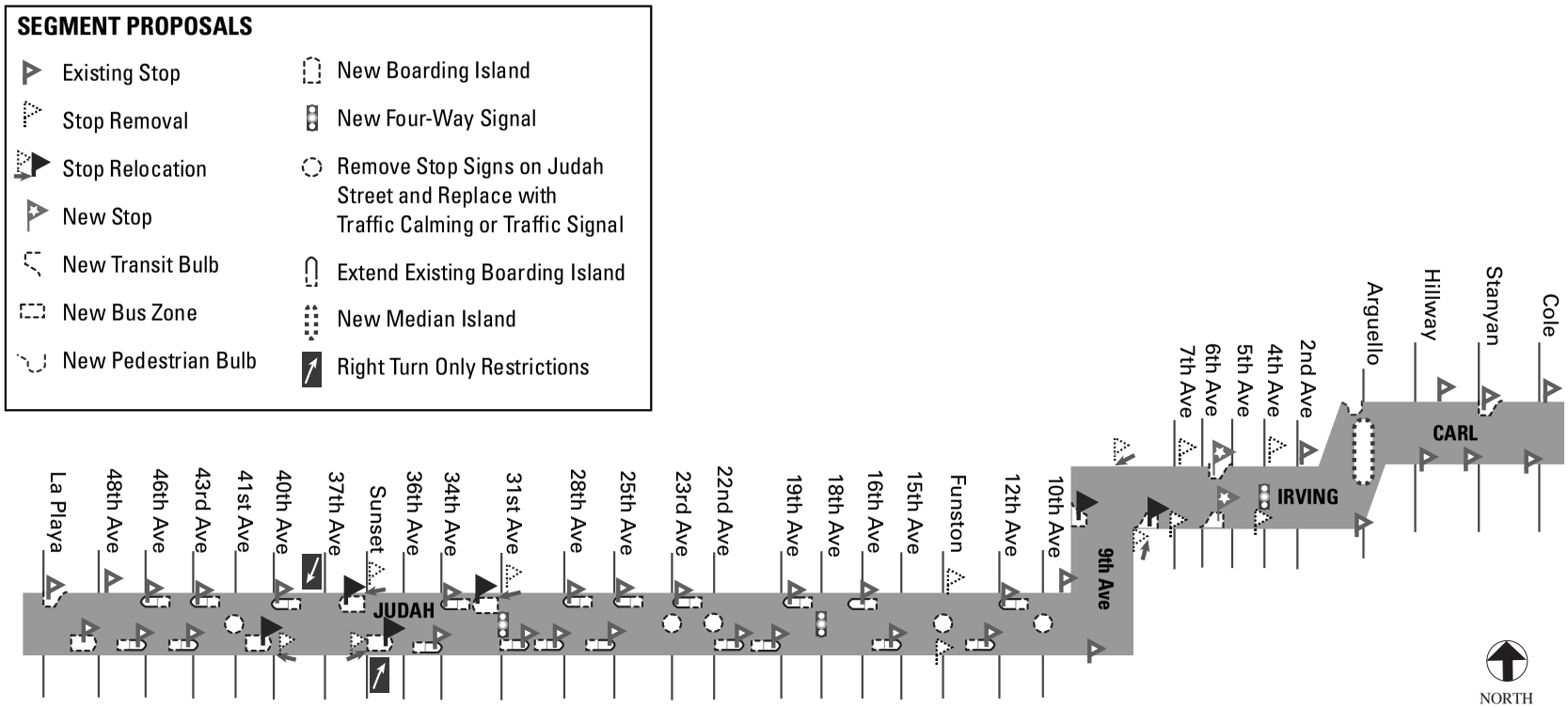
TTRP.5: 5 Fulton and 5L Fulton Limited

TTRP.5 would provide transit improvements for the 5 Fulton and the new 5L Fulton Limited routes along the Fulton and McAllister streets corridor. The proposed project would implement specified TPS Toolkit elements in both the inbound and outbound directions, from the intersection of McAllister and Market streets to the intersection of La Playa and Cabrillo streets. The inbound direction for these routes is east toward Downtown (i.e., toward Market Street) and the outbound direction is west toward the Sixth Avenue short-line terminus for the 5 Fulton and Ocean Beach terminus for the 5L Fulton Limited.

SFMTA | Municipal Transportation Agency

N JUDAH

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative



Moderate Alternative

The Moderate Alternative would replace stop signs with traffic signals at seven intersections on Judah Street (10th, Funston, 18th, 22nd, 23rd, 31st and 41st avenues) and one intersection on Irving Street and 4th Avenue. The Expanded Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes as the Moderate Alternative, except that stop signs at five of the intersections along Judah Street would be replaced with traffic calming measures, rather than traffic signals.

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 9 - TTRP.N EXPANDED ALTERNATIVE

The TTRP.5 project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes. This alternative would replace stop signs at six intersections on McAllister Street and two intersections on Fulton Street with traffic signals, and would relocate transit stops at two of the intersections on McAllister Street from nearside to farside in conjunction with the proposals to signalize these intersections. The Expanded Alternative would include the same improvements as the Moderate Alternative, with the following differences. At two intersections along Fulton Street where pedestrian bulbs are proposed under the Moderate Alternative, pedestrian refuge islands would be built under the Expanded Alternative in conjunction with the proposal to reconfigure the travel lanes as follows: a segment of Fulton Street between Stanyan Street and Central Avenue would be reduced from four lanes to three lanes to provide a center left-turn lane by removing a westbound travel lane; a segment of Fulton Street between Central Avenue and Baker Street would have one westbound travel lane removed; and parking on the north side of the street would be converted from parallel to perpendicular parking. Stop signs would be replaced with traffic-calming measures instead of traffic signals at six intersections on McAllister Street and transit stops would be extended instead of relocated at two of these intersections.

Implementation of the improvements in the Moderate Alternative would result in an estimated net reduction of up to 100 parking spaces. There would be an estimated net reduction of up to 110 parking spaces with implementation of the Expanded Alternative. These totals include 10 spaces that would not be available from 7 a.m. to 5 p.m on weekdays on the east side of Central Avenue between Fulton and McAllister streets and from 6 a.m. to 8 p.m. on weekdays on the south side of Howard Street between Beale and Fremont streets. Implementation of improvements in either the Moderate or Expanded Alternative would not result in a reduction to the number of loading spaces.

Details of the two project alternatives for this corridor are provided below. Figure 11 presents a graphic representation of the TTRP.5 Expanded Alternative on p. 2-128, below, following the description of both alternatives; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

TTRP.5 Moderate Alternative

TPS Toolkit elements in the Moderate Alternative include transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes.

Transit Stop Changes (Moderate). New transit bulbs would be constructed at outbound stops on McAllister Street at Larkin Street, at Van Ness Avenue, and at Fillmore Street, and on Fulton Street at Arguello and Park Presidio boulevards, at Sixth, Eighth, 28th, 33rd, 40th,

43rd, and 46th avenues, and at 25th Avenue/Crossover Drive. In the inbound direction, transit bulbs would be constructed on McAllister Street at Van Ness Avenue and at Fillmore Street, and on Fulton Street at Park Presidio Boulevard and at Masonic, Sixth, 25th, 28th, 33rd, 37th, 40th, 43rd, and 46th avenues. The new transit bulbs on McAllister Street at Larkin and Fillmore streets, and Van Ness Avenue and on Fulton Street at Arguello Boulevard (outbound only), Masonic and Sixth

avenues (both inbound only) would be 130 feet long. Transit bulbs at the intersections along Fulton Street at Park Presidio Boulevard, and Sixth (outbound), Eighth (outbound only), 25th, 28th, 33rd, 37th (inbound only), 40th, 43rd, 46th avenues would be 65 feet long. The existing 115-foot transit bulb on Fulton Street at Arguello Boulevard in the eastbound direction would be extended to 130 feet. The inbound transit bulb at Futon Street and 33rd Avenue would be located at the mid-intersection. All of the other transit bulbs would be located at the farside of intersections.

- Stops would be lengthened at outbound locations on McAllister Street at Hyde Street (from 75 feet to 100 feet), at Divisadero Street (from 75 feet to 185 feet), at Gough Street (from 65 feet to 100 feet) and at Baker Street (from 80 feet to 120 feet), and on Fulton Street at Masonic Avenue (from 80 feet to 185 feet), at Clayton Street (from 75 feet to 120 feet), at Parker Avenue/Shrader Street (from 85 feet to 165 feet), at 4th Avenue (from 75 feet to 100 feet), at 10th Avenue (from 90 feet to 100 feet), at 18th Avenue (from 80 feet to 100 feet), at 22nd Avenue (from 75 feet to 100 feet), at 36th Avenue (from 75 feet to 100 feet) and at La Playa Street (from 75 feet to 160 feet). Stops would be lengthened at inbound locations on McAllister Street at Leavenworth Street (from 100 feet to 120 feet), at Divisadero Street (from 65 feet to 185 feet) and at Baker Street (from 70 feet to 120 feet), and on Fulton Street at Clayton Street (from 75 feet to 100 feet), at Parker Avenue/Shrader Street (from 80 feet to 165 feet), at Stanyan Street (from 70 feet to 145 feet), at 4th Avenue (from 75 feet to 100 feet), at 10th Avenue (from 90 feet to 100 feet), at 22nd Avenue (from 75 feet to 100 feet) and at 30th Avenue (from 80 feet to 100 feet).

- The inbound stops on Fulton Street at Park Presidio Boulevard and at Masonic, 18th, 37th and 43rd avenues, and the outbound stops on Fulton Street at 28th, 30th, 40th and 43rd avenues would be relocated from nearside to farside of the intersection. In conjunction with the proposal to signalize the intersections on McAllister Street at Laguna and Pierce streets, the stops at these intersections would be moved from nearside to farside.

- The inbound and outbound stops on McAllister Street at Central Avenue, and at Polk, Octavia, Webster, and Broderick streets, and on Fulton Street at 12th, 16th, and 20th avenues, the inbound stop on Fulton Street at 36th Avenue, and the outbound stop on Fulton Street at 38th Avenue would be removed. Nearside flag stops would be converted to farside transit bulbs on Fulton Street at 28th and 40th avenues in conjunction with stop optimization in the outbound direction. The existing farside flag stop on Fulton Street at 30th Avenue would be converted to a farside bus zone in the outbound direction. The existing farside flag stop on Fulton Street at 33rd Avenue would be converted to a farside transit bulb in the outbound direction.

- New transit stops would be added in the inbound and outbound directions on McAllister Street at Lyon Street (both 100-foot-long bus zones would be located farside in conjunction with replacing the all-way stop controls with a traffic signal).

- ***Pedestrian Improvements (Moderate).*** Pedestrian bulbs would be constructed on Fulton Street at Ashbury, Clayton, and Cole streets to shorten the crosswalk distance.

- ***Parking and Turn Restrictions (Moderate).*** Right-turn pockets would be added in both directions at the intersection of McAllister Street with Fillmore Street (70 feet long in the westbound direction); and in the eastbound direction on Fulton Street at its intersection with Masonic Avenue. The existing right-turn pocket in the eastbound direction at the intersection of McAllister Street with Van Ness Avenue (135 feet long) would be changed from a.m. only to full time. Except as specifically called out, all of the above noted turn pockets would be 60 feet in length.

- A part-time tow-away zone (i.e., 7 a.m. to 5 p.m.) would be established on the entire east side of Central Avenue between Fulton and McAllister streets.

Traffic Signal and Stop Sign Changes (Moderate). Traffic signals would be installed on Fulton Street at 47th Avenue and La Playa Street, which are currently intersections with all-way stop sign controls.

All-way stop intersections would be replaced with traffic signals on McAllister Street at Laguna, Steiner, Scott, Pierce, Broderick, and Lyon streets.

TTRP.5 Expanded Alternative

Transit Stop Changes, Pedestrian Improvements, Parking and Turn Restrictions, Lane Modifications, and Traffic Signal and Stop Sign Changes (Expanded). The Expanded Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes as the Moderate Alternative, except as indicated below.

- ***Transit Stop Changes (Expanded).*** The existing transit stops on McAllister Street at Laguna and Pierce streets would remain nearside in conjunction with replacing stop signs with traffic circles at these intersections. Stops would be lengthened at outbound locations on McAllister Street at Laguna Street (from 75 feet to 120 feet) and at Pierce Street (from 75 feet to 120 feet) and at inbound locations on McAllister Street at Laguna Street (from 75 feet to 120 feet) and at Pierce Street (from 65 feet to 120 feet).

Pedestrian Improvements (Expanded). This alternative would include the installation of pedestrian refuge islands on Fulton Street at Clayton and Cole streets, instead of the

pedestrian bulbs proposed in the Moderate Alternative. The pedestrian refuge islands would only be built on the west side of these intersections.

- ***Parking and Turn Restrictions (Expanded).*** Sixty-foot-long right-turn pockets would be added in both directions on McAllister Street at Divisadero Street in conjunction with moving transit stops from the nearside to the farside of this intersection.

- ***Lane Modification (Expanded).*** The number of mixed-flow lanes on Fulton Street between Central Avenue and Stanyan Street would be reduced from four lanes (two lanes in each direction) to three (one lane in each direction with a two-way left-turn lane in the center). The segment of Fulton Street between Central Avenue and Baker Street would have one westbound travel lane removed and parking on the north side of the street would be converted from parallel to perpendicular parking. The proposed lane modifications on Fulton Street between Central Avenue and Baker Street would result in the addition of 20 perpendicular parking spaces. See Figure 10, which shows an example of the existing and proposed roadway modifications.

- ***Traffic Signal and Stop Sign Changes (Expanded).*** The Expanded alternative would include replacing the all-way stop signs with traffic calming measures instead of the traffic signals proposed in the Moderate Alternative at the following intersections with McAllister Street: Steiner, Scott, Broderick, Laguna, Pierce, and Lyon streets. The traffic calming measures would consist of the following:

  McAllister/Steiner streets: A traffic circle would be added to the intersection.

  McAllister/Scott streets: A traffic circle would be added to the intersection.

  McAllister/Broderick streets: A traffic circle would be added to the intersection.

  McAllister/Laguna streets: A traffic circle would be added to the intersection.

  McAllister/Pierce streets: A traffic circle would be added to the intersection.

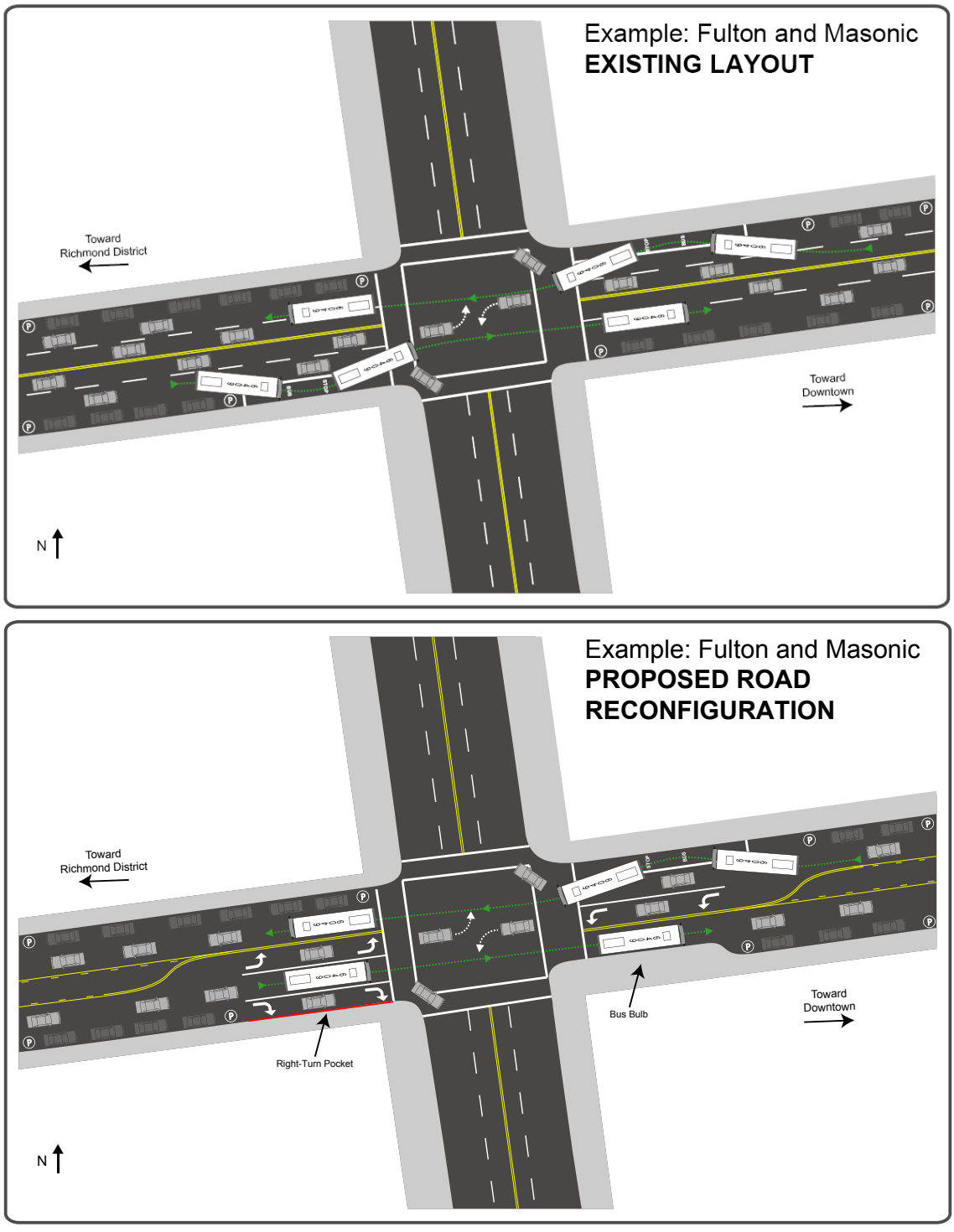
  McAllister/Lyon streets: A traffic circle would be added to the intersection.

Figure 11 shows the TTRP.5 Expanded Alternative, and includes a narrative description of the differences between the Moderate and Expanded Alternatives.

Please see information and additional graphics illustrating the TTRP.5 project at the SFMTA Web site, online at http://www.sftep.com.

TTRP.8X: 8X Bayshore Express

TTRP.8X would provide transit improvements for the southern portion of the 8X Bayshore Express bus route along the San Bruno, Visitacíon, and Geneva avenues corridor. The proposed project would implement specified TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Silver and San Bruno avenues to the intersection of Lee and Ocean avenues. The inbound direction for this route is east and north towards the SoMa Area and the outbound direction is south and west towards the City College of San Francisco (CCSF) campus.



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 10 - TTRP.5 LANE MODIFICATIONS EXPANDED ALTERNATIVE

SFMTA | Municipal Transportation Agency

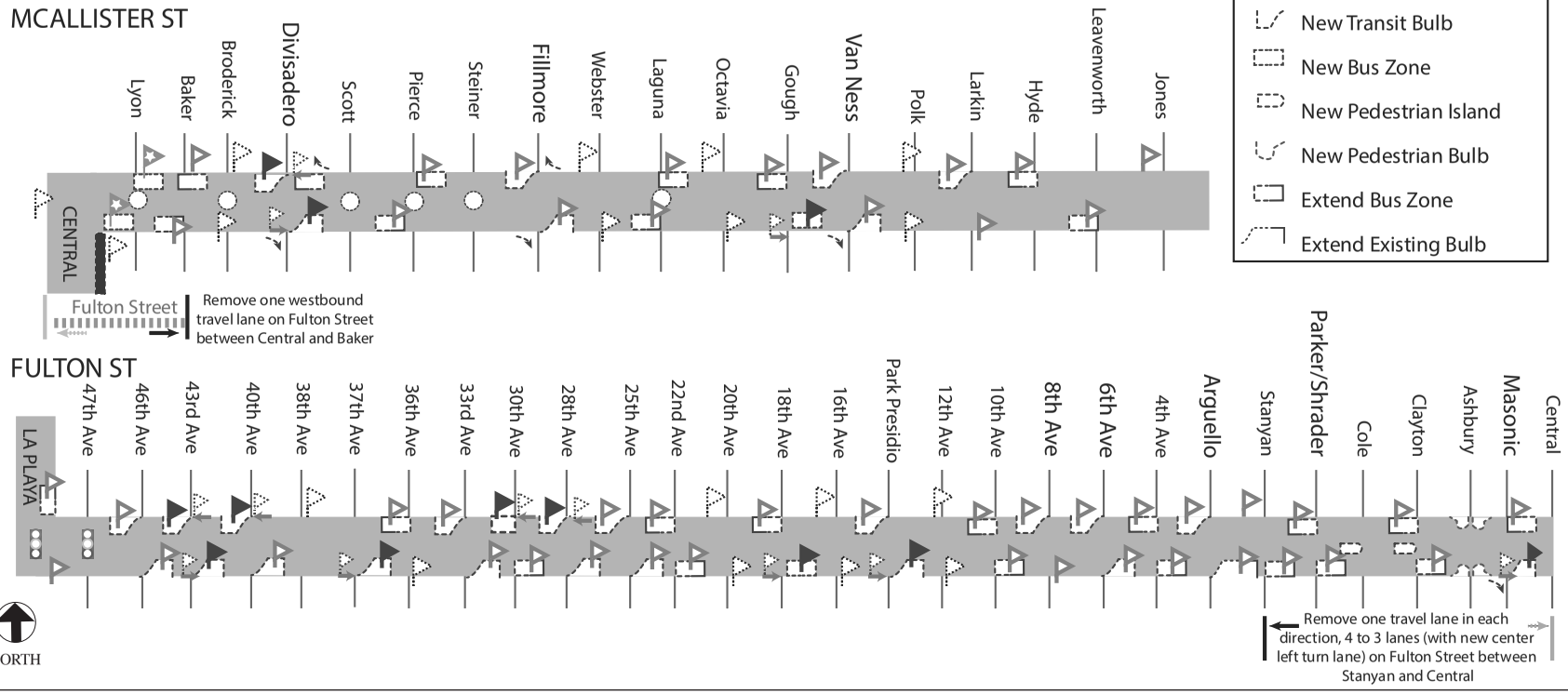
5 FULTON (Revised)

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative

Both the Expanded and Moderate Alternatives also include a part-time tow-away bus zone at the terminal on Howard Street between Beale and Fremont Streets, not shown on this map. The proposed 5L Fulton Limited would provide limited service between 8th Avenue and Jones, serving only the stops shown in bold.

Moderate Alternative

This alternative would include the installation of pedestrian bulbs on Fulton Street at Clayton and Cole streets, instead of the pedestrian refuge islands proposed in the Expanded Alternative. This alternative would also include replacing the stop signs with traffic signals on McAllister Street at Steiner, Scott, Broderick, Laguna, Pierce, and Lyon streets, instead of the traffic calming measures proposed in the Expanded Alternative. At McAllister/Laguna and McAllister/Pierce, the bus stops at these two intersections would be optimized from nearside to farside. The bus zones at McAllister/Divisadero would remain nearside and would be extended; right turn pockets would not be included at this intersection. The bus zones at McAllister/Lyon would be located far side. The inbound stop at Gough/McAllister would not be relocated from nearside to farside. Additionally, this alternative would not include any lane removals on Fulton Street between Stanyan and Baker.



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

● FIGURE 11 - TTRP.5 EXPANDED ALTERNATIVE

The TTRP.8X project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, parking and turn restrictions, lane modifications, and traffic signal and stop sign changes. The Expanded Alternative would include the same parking and turn restrictions and traffic and stop sign changes and most of the transit stop changes and lane modifications as the Moderate Alternative. The Expanded Alternative would also include additional transit stop changes at three intersections, establishment of a transit-only lane on Geneva Avenue between Santos Street and Moscow Avenue, and the replacement of all-way stop signs with a traffic signal at one intersection and with other traffic-calming measures at four intersections. Both the Moderate and Expanded Alternatives would include bicycle lanes on Geneva, but the location would vary by alternative.

Details of the two alternatives are provided below. Figure 14 presents a graphic representation of the TTRP.8X Expanded Alternative on p. 2-134, following the description of both alternatives; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

Implementation of the improvements would result in an estimated net reduction of up to 90 parking spaces in the Moderate Alternative and up to 80 parking spaces in the Expanded Alternative. There would be no net loss of loading spaces in either alternative.

TTRP.8X Moderate Alternative

The Moderate Alternative would include transit stop changes, parking and turn restrictions, lane modifications, and traffic signal and stop sign changes. In addition, bicycle lanes would be installed on Geneva Avenue.

Transit Stop Changes (Moderate). Transit bulbs would be added in several locations as described below, and all transit bulbs would be 55 feet in length except as noted below. Transit bulbs would be added at stops in the outbound (south/westbound) direction on San Bruno Avenue at Mansell Avenue (60 feet long), on Visitacíon Avenue at Rutland and Schwerin streets, on Hahn Street at Sunnydale Avenue, on Sunnydale Avenue at Santos Street, on Santos Street at Velasco Avenue, and on Geneva Avenue at Naples Avenue (120 feet long). In the inbound (north/eastbound) direction, transit bulbs would be built at stops on Santos Street at Velasco and at Sunnydale avenues, on Sunnydale Avenue at Hahn Street, and on Visitacíon Avenue at Sawyer, Schwerin, and Rutland avenues. New farside boarding islands would be added in the inbound (east) direction on Geneva Avenue at Mission Street (130 feet long) and at Munich Street (65 feet long) and in the outbound (west) direction at Geneva Avenue and Prague Street (65 feet long).

Stops would be lengthened at outbound (south/west) locations on San Bruno at Silver avenues (from 70 feet to 160 feet), Bacon (from 100 feet to 160 feet), Paul Avenue/Dwight Street (from 75 feet to 165 feet), and Arleta Avenue/Bayshore Boulevard (from 100 feet to 135 feet) and on Geneva Avenue at Santos Street (from 50 feet to 175 feet), and inbound (north/east) locations on Geneva Avenue at Cayuga Avenue (from 80 feet to 165 feet) and Geneva Avenue at Santos Street (from 75 feet to 100 feet), on San Bruno Avenue at Paul Avenue/Dwight Street (from 150 feet to 165 feet), Bacon Street (from 100 feet to 180 feet), and Silver Avenue (from 105 feet to 125 feet).

Stops in the outbound (west) direction on Geneva Avenue at Carter, Prague and Naples streets, and at Cayuga Avenue (165-foot-long transit zone) would be relocated from nearside to the farside of the intersection. Stops in the inbound (east/north) direction would be relocated from the farside to the nearside of the intersection on Santos Street at Sunnydale Avenue (55-foot-long transit bulb), and on Sunnydale Avenue at Hahn Street (55-foot-long transit bulb).

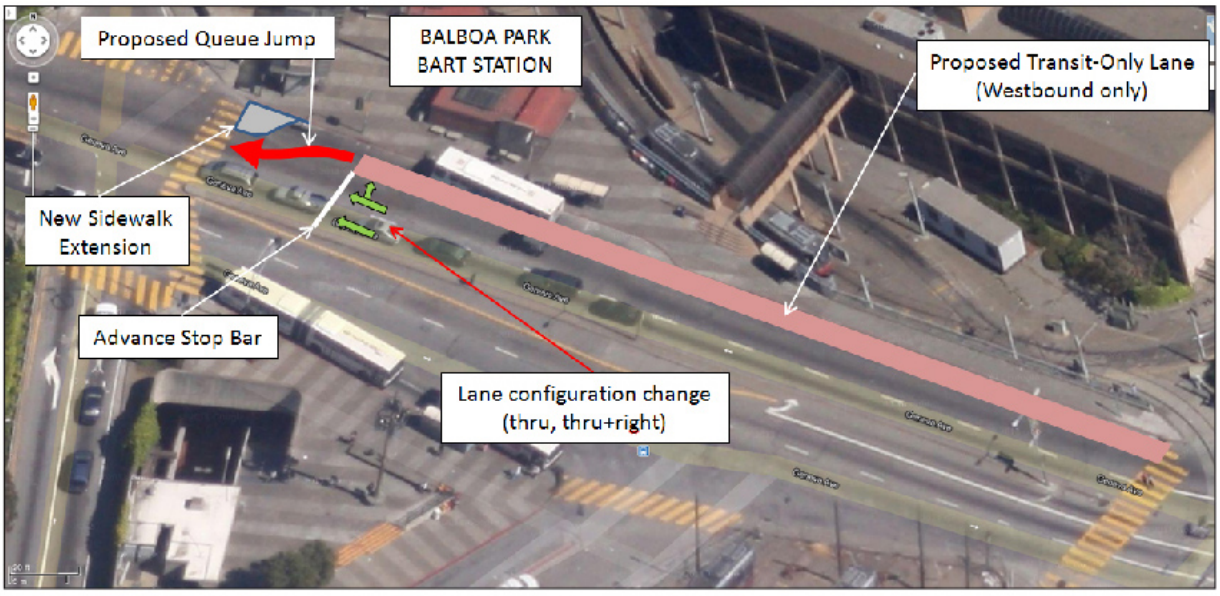
Stops would be converted from flag stops to transit zones in the outbound (south/west) direction on San Bruno Avenue at Somerset Avenue and at 3800/3801 San Bruno Avenue[31] (120-foot-long bus zone farside), on Visitacíon Avenue at Sawyer Avenue (120-foot-long bus zone nearside), and on Geneva Avenue at 1720-1750 Geneva Avenue (145-foot-long bus zone). For the inbound (north/east) direction, conversion of flag stops to bus zones is proposed on Geneva Avenue at Howth Street, San Bruno Avenue at Somerset Avenue and on 3800/3801 San Bruno Avenue (120-foot-long bus zone).

New stops would be added in both directions on San Bruno Avenue at Harkness Avenue (both 100-foot-long bus zones farside) to consolidate stops at Wilde and Ward avenues which would be removed. A nearside 120-foot-long stop would be established in both directions on Visitacíon Avenue at Desmond Avenue. Outbound (south/west) stops would be removed on San Bruno Avenue at Woolsey Avenue; on Bayshore Boulevard at Leland Avenue; on Visitacíon Avenue at Bayshore Boulevard and Britton Avenue; on Hahn Street at Visitacíon Avenue; on Santos Avenue at Brookdale Avenue; and on Geneva Avenue at 1650/1651 Geneva Avenue, and at Moscow and Paris streets, and Delano Avenue. Inbound (north/east) stops would be removed on Geneva Avenue at Delano Avenue and Paris Street and at 1650/1651 Geneva Avenue; on Santos Street at Brookdale Avenue; on Visitacíon Avenue at Britton and Cora streets; on Bayshore Boulevard at Visitacíon Avenue; and on San Bruno Avenue at Wayland Avenue.

[31] For reference, this stop is located adjacent to the Beeman Lane stairway.

Parking and Turn Restrictions (Moderate). The parking lane would be removed in the outbound (south) direction on San Bruno Avenue at its intersection with Paul Avenue/Dwight Street (93-foot-long area on the southwest corner) to allow buses to bypass left turning vehicles, and on the southbound approach to the intersection of San Bruno Avenue with Arleta Avenue/Bayshore Boulevard (110 feet long) to allow buses to wait closer to the intersection.

Lane Modifications (Moderate). Curbside transit-only lanes would be established in the outbound (westbound) direction on Geneva Avenue along the block between Delano and San Jose avenues by removing the existing white zone (passenger loading) and narrowing the painted median. The transit-only lane would continue westbound to the next block, between San Jose Avenue and the I-280 eastbound ramps, by narrowing the existing eastbound and westbound mixed-flow lanes. The two mixed-flow lanes would include one through-lane in the center and a through and right-turn lane next to the curbside transit-only lane. The transit-only lane would include a curb extension to delineate the space for transit and minimize vehicle violations. The traffic signal would be modified to add a queue jump to allow buses to go westbound through the intersection of Geneva Avenue at the eastbound I-280 ramps before the two mixed-flow lanes get a green light (see Figure 12).



SOURCE: SFMTA, Turnstone Consulting

FIGURE 12 - TTRP 8X LANE MODIFICATIONS MODERATE ALTERNATIVE

Bicycle lanes would be established in the westbound direction on Geneva Avenue along the block between Paris and London streets and in the eastbound direction on Geneva Avenue along the two blocks between Mission and Paris streets.

A right-turn pocket would be implemented in the outbound (westbound) direction on Geneva Avenue at San Jose Avenue, and a left turn pocket (60 feet long) would be established on northbound San Bruno Avenue at its intersection with Bacon Street. For the inbound (north/east) direction, right-turn pockets would be established on Geneva Avenue in the eastbound direction at the I-280 westbound ramp entrance, on San Bruno Avenue at Bacon Street (75 feet long) and at Silver Avenue (120 feet long). The right-turn pocket proposed on northbound San Bruno Avenue at Silver Avenue would be a signalized queue jump. To allow through-traveling Muni buses to proceed across the intersection, this right-turn pocket proposed on northbound San Bruno Avenue at Silver Avenue would be designated as "Right Turn Only Except Muni." Muni vehicles would receive a signal indication before the vehicular traffic, which would allow buses to utilize the right-turn lane to proceed across the intersection. At the intersection of San Bruno and Silver avenues, the eastbound and westbound approaches of Silver Avenue would also have new 75-foot-long left turn pockets.

Traffic Signal and Stop Sign Changes (Moderate). All-way stop signs would be replaced with a traffic signal at the intersection of Geneva and Cayuga avenues.

The following Transit Stop Changes and Lane Modifications are part of the Moderate Alternative and are not part of the Expanded Alternative.

Transit Stop Changes and Lane Modifications (Moderate Only). At the intersection of San Bruno Avenue and Felton Street intersection, the inbound (north) stop on San Bruno Avenue would be relocated from the farside to the nearside of the intersection with a new 20-foot-long front door bulb and the existing outbound (south) stop would be lengthened from 120 feet to 165 feet. A boarding island for the outbound (west) stop on Geneva Avenue at Mission Street (extending 130 feet from London Street to 60 feet east of Mission Street) would be installed separating the bicycle lane from the mixed-flow lanes and a 60-foot-long right-turn pocket would be established in front of this transit island.

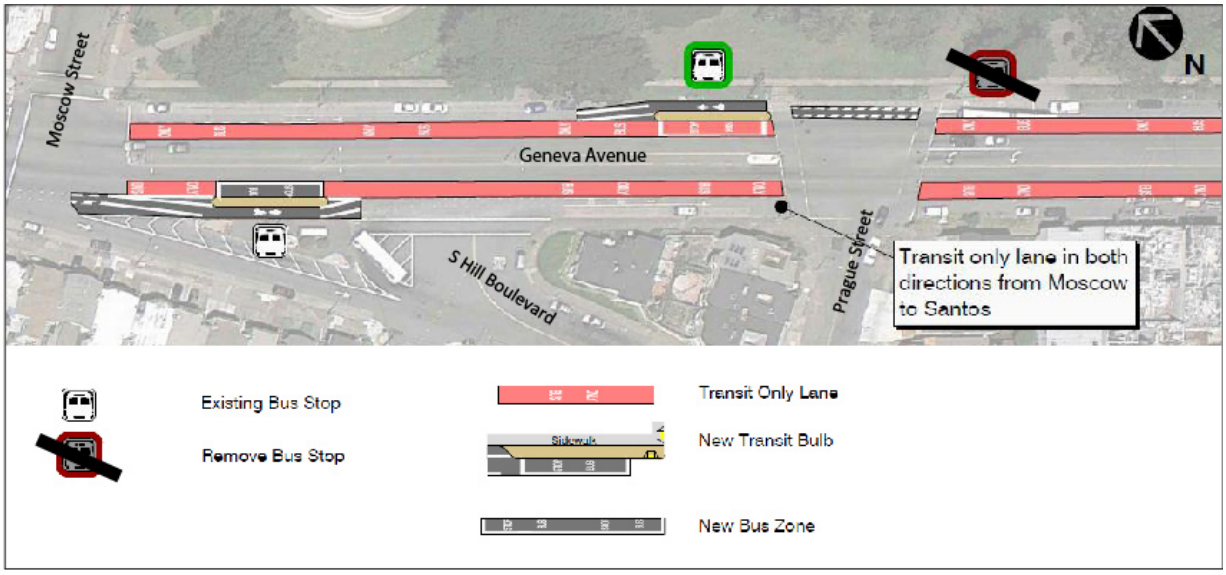
TTRP.8X Expanded Alternative

Transit Stop Changes, Lane Modifications, and Traffic Signal and Stop Sign Changes (Expanded). The Expanded Alternative would include the transit stop changes, lane modifications and traffic signal and stop sign changes included in the Moderate Alternative, except for several transit stop changes and lane modifications noted above as Moderate Only.

Transit Stop Changes (Expanded). The following additional transit stop changes would be included in this alternative. At the San Bruno Avenue/Felton Street intersection, the outbound (south) transit stop on San Bruno Avenue would be relocated from nearside to a 170-foot-long transit zone on the farside of the intersection and the inbound (north) stop

would be lengthened from 54 feet to 75 feet in conjunction with adding a 15- to 20-foot sidewalk extension into Thornton Avenue. On Thornton Avenue parking would be relocated from the north side of the street to the south side. At Geneva Avenue and Mission Street, the outbound (west) stop on Geneva Avenue would be relocated from the nearside to the farside of the intersection at the existing 29 Sunset transit stop.

Lane Modifications (Expanded). As shown in Figure 13, a mixed-flow lane in both directions on Geneva Avenue would be converted into a transit-only lane and a bicycle lane between Moscow and Santos streets.



SOURCE: SFMTA, Turnstone Consulting

FIGURE 13 - TTRP.8X LANE MODIFICATIONS EXPANDED ALTERNATIVE

Traffic Signal and Stop Sign Changes (Expanded). A new traffic signal would be installed at the intersection of San Bruno Avenue and Felton Street, replacing the existing all-way stop-controlled intersection. All-way stop signs on Visitacíon Avenue at Peabody, Cora, Britton, and Loehr streets would be replaced with stop signs on the cross street and none on Visitacion Avenue, and six-foot-wide pedestrian bulbs added on all four corners of Visitacíon Avenue with bulb-outs into both Visitacíon Avenue and the side street. Six-foot wide pedestrian refuge islands would be added on Visitacíon Avenue at its intersections with Britton and Loehr streets, with two-foot wide buffers striped on either side of each island, for a total width of ten feet.

Figure 14 shows the TTRP.8X Expanded Alternative. Narrative text describes the differences in the Expanded and Moderate Alternatives.

SFMTA | Municipal Transportation Agency

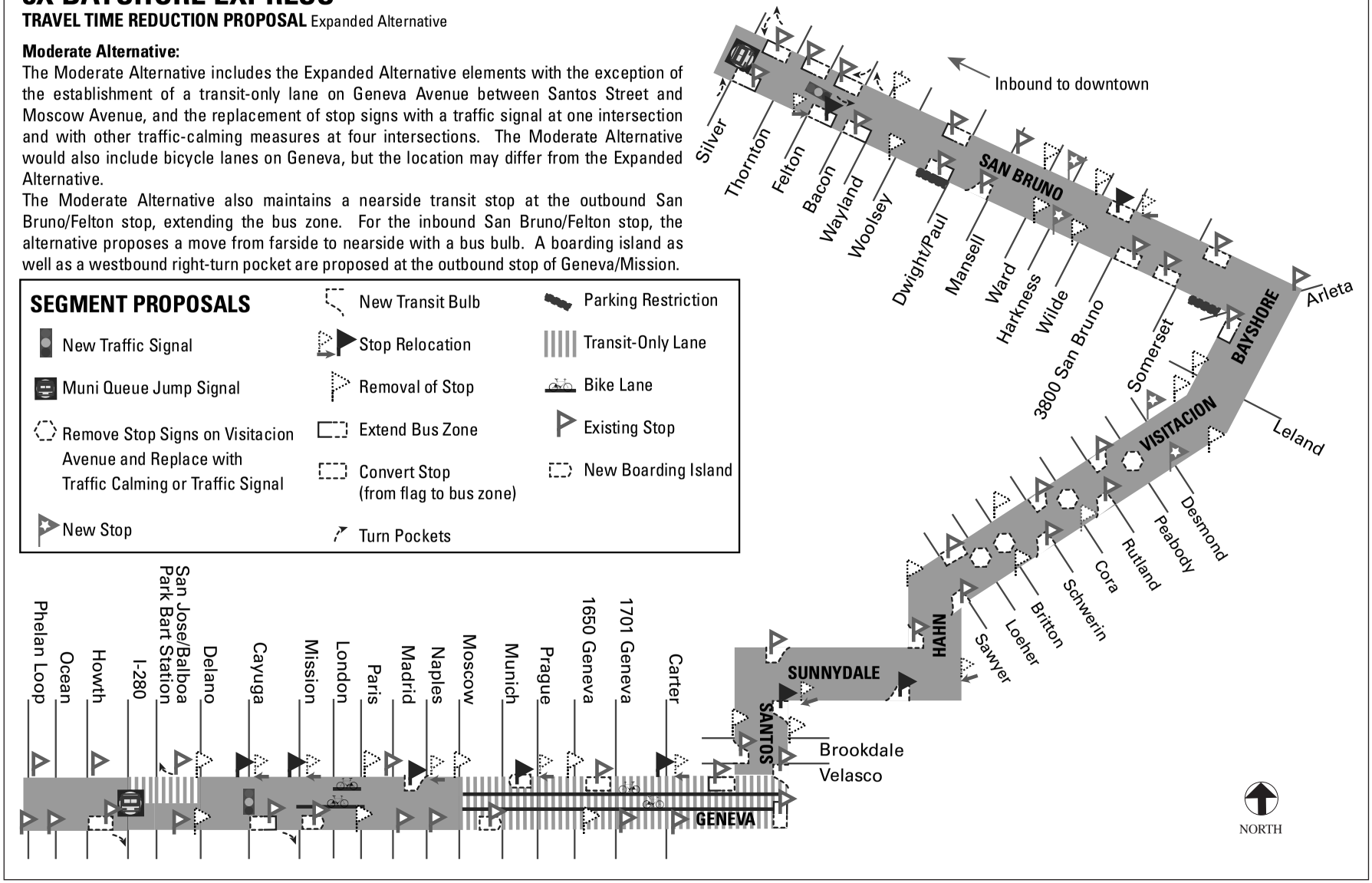
8X BAYSHORE EXPRESS

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative

Moderate Alternative:

The Moderate Alternative includes the Expanded Alternative elements with the exception of the establishment of a transit-only lane on Geneva Avenue between Santos Street and Moscow Avenue, and the replacement of stop signs with a traffic signal at one intersection and with other traffic-calming measures at four intersections. The Moderate Alternative would also include bicycle lanes on Geneva, but the location may differ from the Expanded Alternative.

The Moderate Alternative also maintains a nearside transit stop at the outbound San Bruno/Felton stop, extending the bus zone. For the inbound San Bruno/Felton stop, the alternative proposes a move from farside to nearside with a bus bulb. A boarding island as well as a westbound right-turn pocket are proposed at the outbound stop of Geneva/Mission.



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 14 - TTRP.8X EXPANDED ALTERNATIVE

Please see information and additional graphics illustrating the TTRP.8X project at the SFMTA Web site, online at http://www.sftep.com.

- **TTRP.9: 9 San Bruno and 9L San Bruno Limited**

- TTRP.9 would provide transit improvements for the portion of the 9 San Bruno and 9L San Bruno Limited bus routes along the 11th and Division streets, Potrero Avenue, and Bayshore Boulevard corridors. The proposed project would implement specified TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Market and 11th streets to the intersection of Bayshore Boulevard and Silver Avenue. The inbound direction for this route is north towards Downtown and the SoMa Area and the outbound direction is south towards the Silver Terrace neighborhood.

- The TTRP.9 project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, lane modifications, parking and turn restrictions, and pedestrian improvements. The Expanded Alternative would include the same transit stop changes, lane modifications, parking and turn restrictions, and pedestrian improvements as the TTRP.9 Moderate Alternative except that the Moderate Alternative would not include sidewalk widening on the portion of Potrero Avenue between 22nd and 24th streets. The Moderate Alternative would, however, add buffers to the existing bicycle lanes along this segment. Within this segment, the Expanded Alternative would include a widened sidewalk along the east side of Potrero Avenue, and parking along the east side of Potrero Avenue would be removed to widen the sidewalk. The Expanded Alternative would not include adding buffers to the existing bicycle lanes between 22nd and 24th streets. Both alternatives would include the removal of an existing transit-only lane from the inbound (northbound) direction on Potrero Avenue between 200 feet north of 24th Street and 21st Street. A transit-only lane would be added between 18th and 24th streets in the southbound direction in the Expanded Alternative. Figure 14e (on p. 2-135i, below) shows the TTRP.9 Expanded Alternative. Narrative text on the figure describes differences between the Expanded and Moderate Alternatives.

- Implementation of the improvements under the Moderate Alternative would include the estimated removal of up to 30 parking spaces within the corridor; under the Expanded Alternative up to 55 parking spaces would be removed. Two commercial loading spaces would be relocated to within 250 feet of their existing locations under either the Moderate or Expanded Alternative. There would be no net loss of commercial loading spaces under either alternative. No passenger loading/unloading zones would be affected by these proposals.

- Details of the two alternatives are provided below.

- **TTRP.9 Moderate Alternative**

- The Moderate Alternative would include transit stop changes, lane modifications, parking and turn restrictions, and pedestrian improvements

- **Transit Stop Changes (Moderate).** Transit bulbs would be added in the following locations and would be 90 feet in length, except as noted below. Transit bulbs would be constructed in the outbound (southbound) direction on 11th Street at Market and Harrison (110-foot-long) streets, on Potrero Avenue at 16th and 24th streets, and on Bayshore Boulevard at Oakdale and Cortland avenues. In the inbound (northbound) direction, transit bulbs would be constructed at the existing stops on Bayshore Boulevard at Cortland and Oakdale avenues, on Potrero Avenue at 16th Street, and on 11th Street at Harrison (110-foot-long) and Market streets. An existing transit bulb would be removed in the inbound direction at Potrero Avenue located farside of a midblock signalized crosswalk between 22nd and 23rd streets and would be replaced with a 100-foot-long transit zone.

- Transit stops would be reconfigured in the outbound (southbound) direction at the following locations. An existing flag stop on Potrero Avenue at Alameda Street would be changed to an 80-foot-long bus zone and moved to the farside of the intersection. The transit zone on Bayshore Boulevard at Oakdale Avenue would be changed to a 90-foot-long transit bulb and moved to the farside of the intersection. On Bayshore Boulevard at Cortland Street the existing 95-foot-long transit zone would be changed to a 90-foot-long transit bulb and relocated from the nearside to the farside of the intersection. Transit stops in the inbound (northbound) direction would be relocated from the nearside to the farside of the intersection on Bayshore Boulevard at Oakdale Avenue (90-foot-long transit bulb) and on Bayshore Boulevard at Jerrold Street where the existing stop would be moved approximately 550 feet to the south and would be converted from a flag stop to a 35-foot-long transit bulb.

- Existing transit stops on Potrero Avenue would be consolidated into one new stop that would be located at 80-foot-long transit zones on the farside of the intersection in both directions at the following locations. The stops on Potrero Avenue at 17th and 18th streets would be consolidated into one at Mariposa Street in both directions. In the inbound direction, two closely spaced stops at 20th and 22nd streets would be consolidated into one new farside stop at 21st Street. In the outbound direction, the stops on Potrero Avenue at 20th and 22nd streets would be consolidated into the existing stop at 21st Street. A new stop at 19th Street would be created (in both directions, 80-foot-long transit zone on the farside of the intersection) to

maintain two-block stop spacing between the new stops at Mariposa and 21st streets. A new stop (80-foot-long transit zone) would be added in the outbound direction midblock on Potrero Avenue between 22nd and 23rd streets, on the farside of the existing midblock signalized crosswalk, to serve San Francisco General Hospital.

- Outbound stops would be removed on 11th Street at Howard Street, on Potrero Avenue at 23rd and 25th streets and on Bayshore Boulevard at Alemany Boulevard. Inbound stops would be removed on 11th Street at Mission and Howard streets and on Bayshore Boulevard at Alemany Boulevard.

- **Parking and Turn Restrictions (Moderate).** Turn restrictions would be implemented on 23rd Street at Potrero Avenue limiting eastbound traffic to right turns only and westbound traffic to left and right turns only (no through movement). The signal timing would be reconfigured from a four-phase signal to a three-phase signal, removing the split phase for 23rd Street.[32]

- **Lane Modifications (Moderate).** A side-running transit-only lane would be established in the outbound (southbound) direction on Potrero Avenue between 18th Street and the farside of 24th Street by removing some of the parking spaces along both sides of Potrero Avenue and altering the existing lane widths. The existing side-running transit-only lane in the inbound (northbound) direction on Potrero Avenue between 200 feet north of 24th Street and 21st Street would be removed.

- A 2-foot-wide buffer would be added to the northbound and southbound bicycle lanes on Potrero Avenue between 17th and 22nd streets, and between 24th and 25th streets.

---

[32] In describing traffic signal characteristics, a signal phase is the right-of-way interval (i.e., the green phase) in a signal cycle that is assigned to an independent traffic movement (e.g., an exclusive green phase for a left turn movement) or combination of movements (e.g., northbound and southbound movements having a green phase at the same time). Split phasing is when two opposing approaches have a green phase consecutively (e.g., the eastbound approach has a green phase while the westbound approach is stopped, then the westbound approach has a green phase while the eastbound approach is stopped) rather than both approaches moving concurrently. The existing signal timing at the intersection of Potrero Avenue/23rd Street currently has four phases: Potrero Avenue northbound/southbound, Potrero Avenue exclusive southbound left turn, 23rd Street westbound and 23rd Street eastbound. The proposed improvements would restrict the eastbound approach to a right-turn only movement, eliminating the need for separate eastbound and westbound green phases. Thus, the signal timing at the intersection of Potrero Avenue/23rd Street would be reconfigured from the existing four-phase signal to a three-phase signal, with Potrero Avenue northbound/southbound, Potrero Avenue exclusive southbound left turn, and 23rd Street westbound. A stop sign would control the required right turn from eastbound 23rd Street.

- **Pedestrian Improvements (Moderate).** Pedestrian bulbs would be installed on Potrero Avenue to shorten the crosswalk distance at the signalized crossings at Alameda Street (northwest and southeast corners), 15th (northwest, southwest, and southeast corners), 16th (northwest and southeast corners), 17th (all four corners), at Mariposa (northwest and southeast corners), at 18th (northwest, northeast, and southwest corners), at 19th (northwest corner), at 20th (northwest, northeast and southwest corners), at 21st (northwest corner), and at 25th (northwest and northeast corners) streets.

- The existing pedestrian bulb on Potrero Avenue at 24th Street (northwest corner) would be removed.

- Pedestrian refuge islands would be installed at all intersection crosswalks from 17th to 25th streets.

- A new crosswalk to provide pedestrian access across Potrero Avenue would be installed on the north side of the Potrero Avenue and 23rd Street east leg intersection.[33]

- The sidewalk on the east side of Potrero Avenue from 21st Street to 60 feet south would be widened from 9 to 15 feet by removing the parking lane on the east side of the street.

- *The following Lane Modifications are part of the Moderate Alternative and are not part of the Expanded Alternative.*

- **Transit Stop Changes (Moderate Only).** A 90-foot-long transit bulb would be constructed at the existing farside stop in the inbound (northbound) direction on Potrero Avenue at 24th Street.

- **Lane Modifications (Moderate Only).** A 2-foot-wide buffer would be added to the northbound and southbound bicycle lanes on Potrero Avenue between 22nd and 24th streets.

- **Pedestrian Improvements (Moderate Only).** Pedestrian bulbs would be installed on Potrero Avenue to shorten the crosswalk distance at the signalized crossings at 22nd Street east of Potrero Avenue (northeast and southeast corners), at 22nd Street west of Potrero Avenue (all four corners), at the new outbound stop and existing inbound stop between 22nd and 23rd streets (midblock on the west and east side of Potrero Avenue), and at 23rd Street (northeast, southwest, and southeast corners).

---

[33] The Potrero Avenue and 23rd Street intersection is offset with the west leg north of the east leg. For this analysis 23rd Street west refers to the leg to the west, and 23rd Street east the leg to the east of Potrero Avenue.

- **TTRP.9 Expanded Alternative**

- **Transit Stop Changes, Lane Modifications, Parking and Turn Restrictions, Pedestrian Improvements, and Traffic Signal and Stop Sign Changes.** The Expanded Alternative would include the same transit stop changes, lane modifications, parking and turn restrictions, and pedestrian improvements as the TTRP.9 Moderate Alternative. The TTRP.9 Expanded Alternative would not include the two-foot-wide buffer to be added to the bicycle lanes on Potrero Avenue between 22nd and 24th streets that is proposed in the TTRP.9 Moderate Alternative. The TTRP.9 Expanded Alternative also would differ from the TTRP.9 Moderate Alternative in the pedestrian improvements proposed, as indicated below.

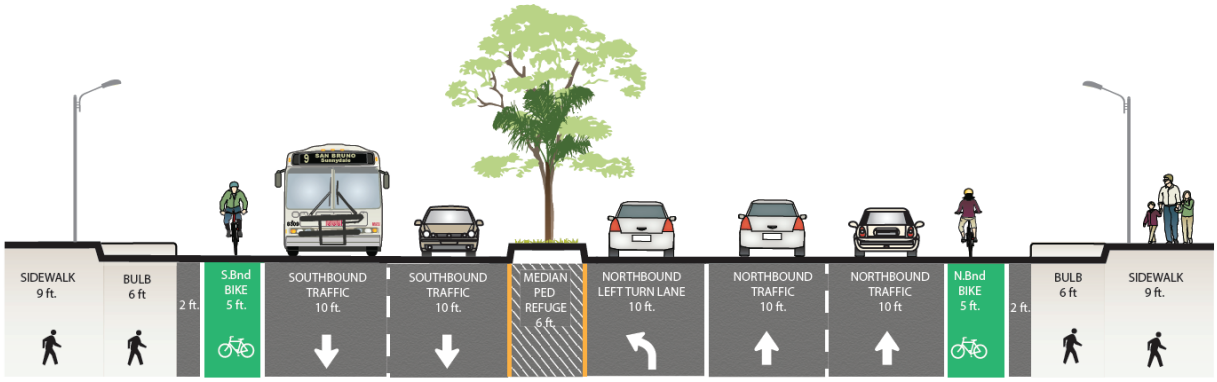
- **Pedestrian Improvements (Expanded Only).** Pedestrian bulbs would be installed on Potrero Avenue to shorten the crosswalk distance at the signalized crossings at 22nd Street east of Potrero Avenue (northeast corner), at 22nd Street west of Potrero Avenue (northwest and southwest corners), at the new outbound stop between 22nd and 23rd streets (midblock on the west side of Potrero Avenue), and at 23rd Street (southwest corner). On the segment of Potrero Avenue between 22nd and 24th streets, the Expanded Alternative would widen the sidewalk on the east side of Potrero Avenue from 9 to 15 feet.

- Figures 14a and 14b present the common design elements on Potrero Avenue between 17th and 25th streets for the Moderate and Expanded Alternatives for the intersection and midblock locations, respectively. Figures 14c and 14d present the typical block cross-section at the intersection and midblock on Potrero Avenue between 22nd and 24th streets for the TTRP.9 Moderate Alternative and TTRP.9 Expanded Alternative, respectively.[34]

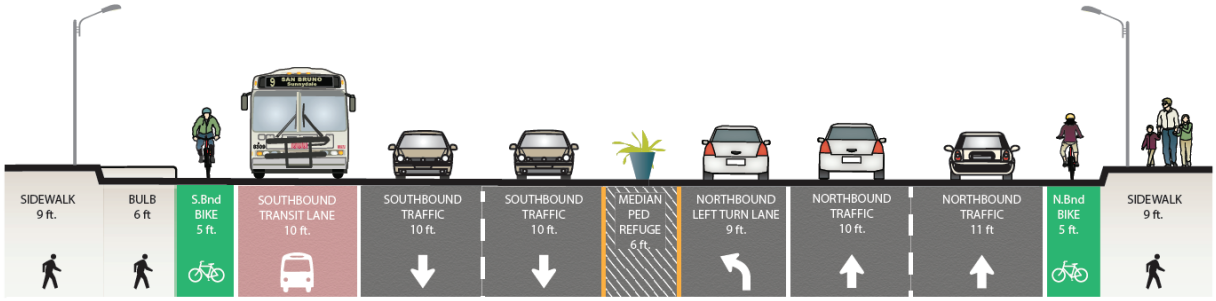
- Figure 14e shows the TTRP.9 Expanded Alternative and includes narrative description of the differences between the Moderate and Expanded Alternative.

- Please see information and additional graphics illustrating the TTRP.9 project at the SFMTA Web site, online at http://www.sftep.com.

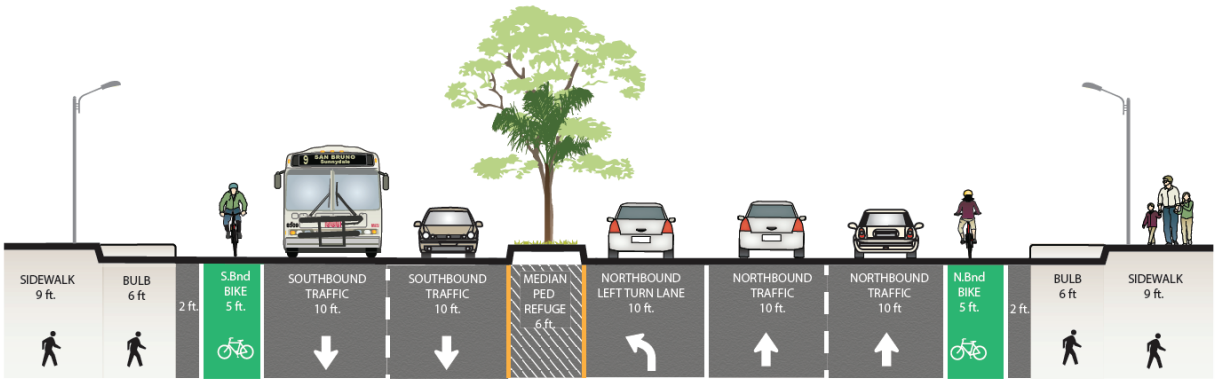
[34] Medians illustrated in Figure 14d for the TTRP.9 Expanded Alterative are associated with the median improvements on Potrero Avenue between Cesar Chavez and Division streets planned as part of the Mission District Streetscape Plan Project, San Francisco Planning Department Case File 2008.1075. Available online at http://www.sf-planning.org/ftp/files/MEA/Final_042810_PMDSP_2PM.pdf. Accessed December 10, 2013.



POTRERO AVENUE FACING NORTH
17TH TO 18TH, INTERSECTION



POTRERO AVENUE FACING NORTH
18TH TO 22ND, INTERSECTION

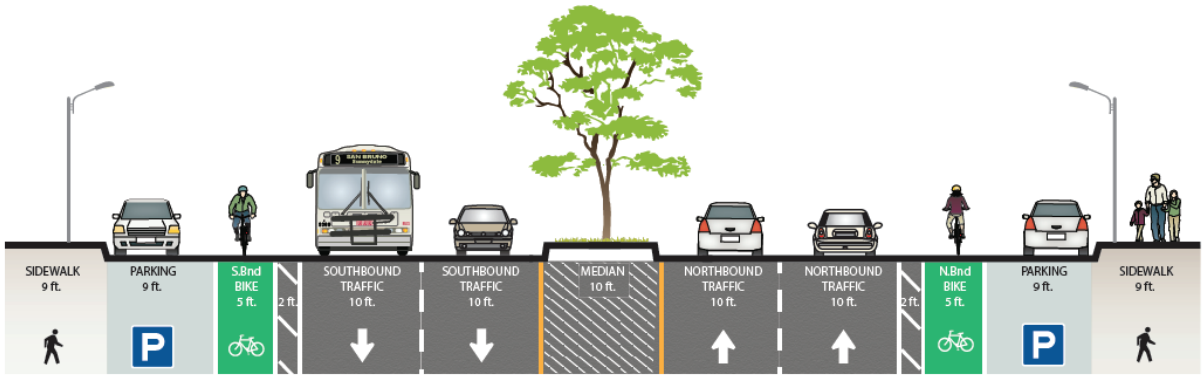


POTRERO AVENUE FACING NORTH
24TH TO 25TH, INTERSECTION

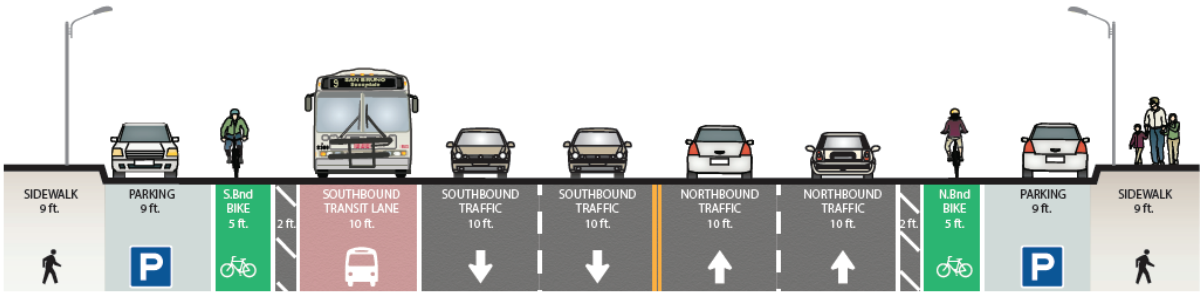
SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

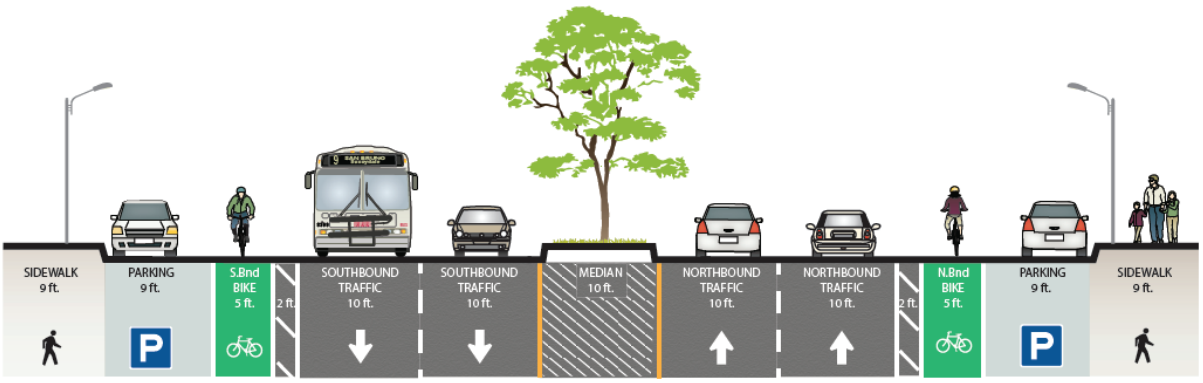
FIGURE 14a - TTRP.9 POTRERO AVENUE COMMON INTERSECTION DESIGN ELEMENTS, 17TH TO 25TH STREETS MODERATE AND EXPANDED ALTERNATIVES



POTRERO AVENUE FACING NORTH
17TH TO 18TH, MIDBLOCK



POTRERO AVENUE FACING NORTH
18TH TO 22ND, MIDBLOCK

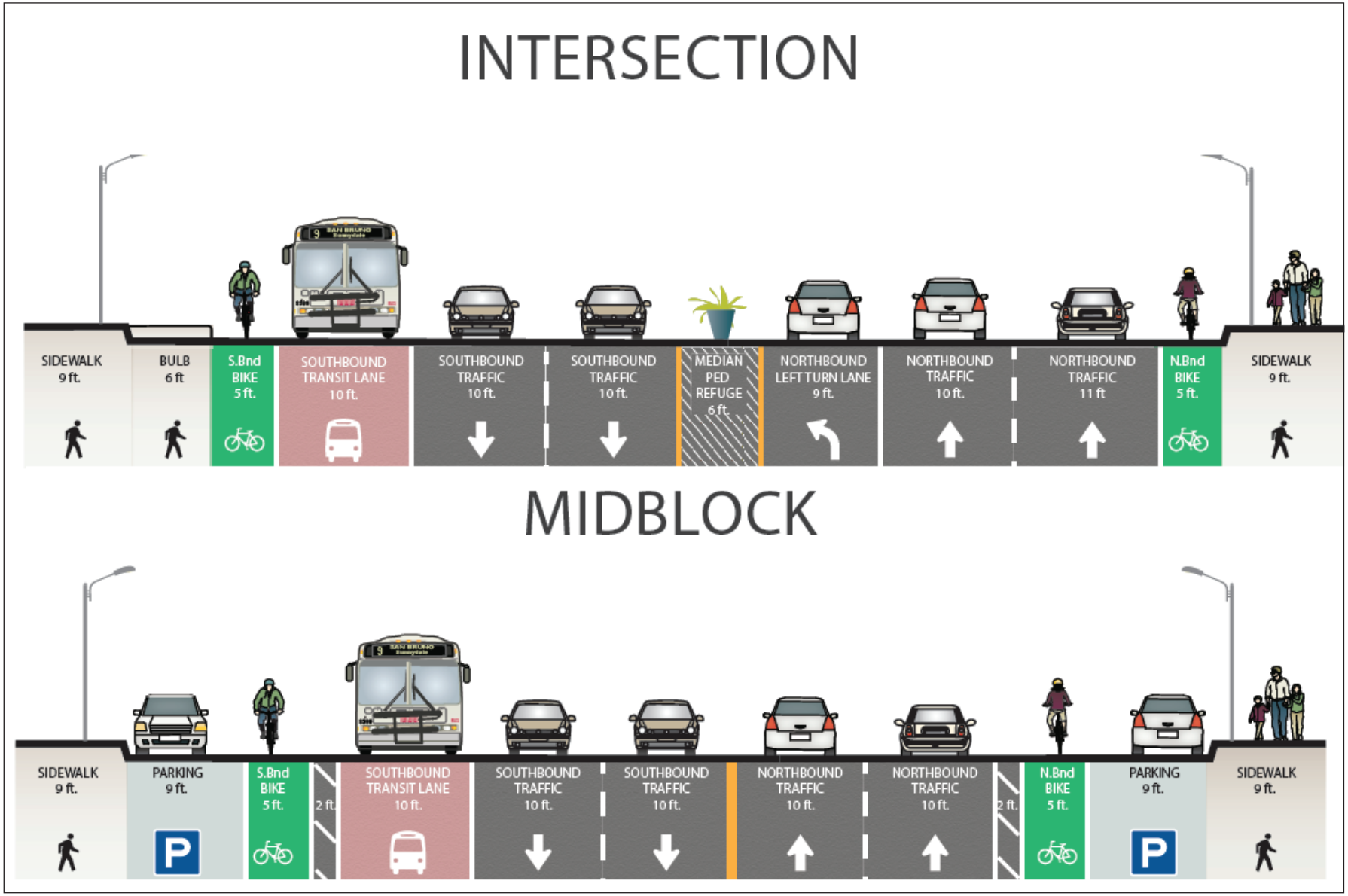


POTRERO AVENUE FACING NORTH
24TH TO 25TH, MIDBLOCK

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

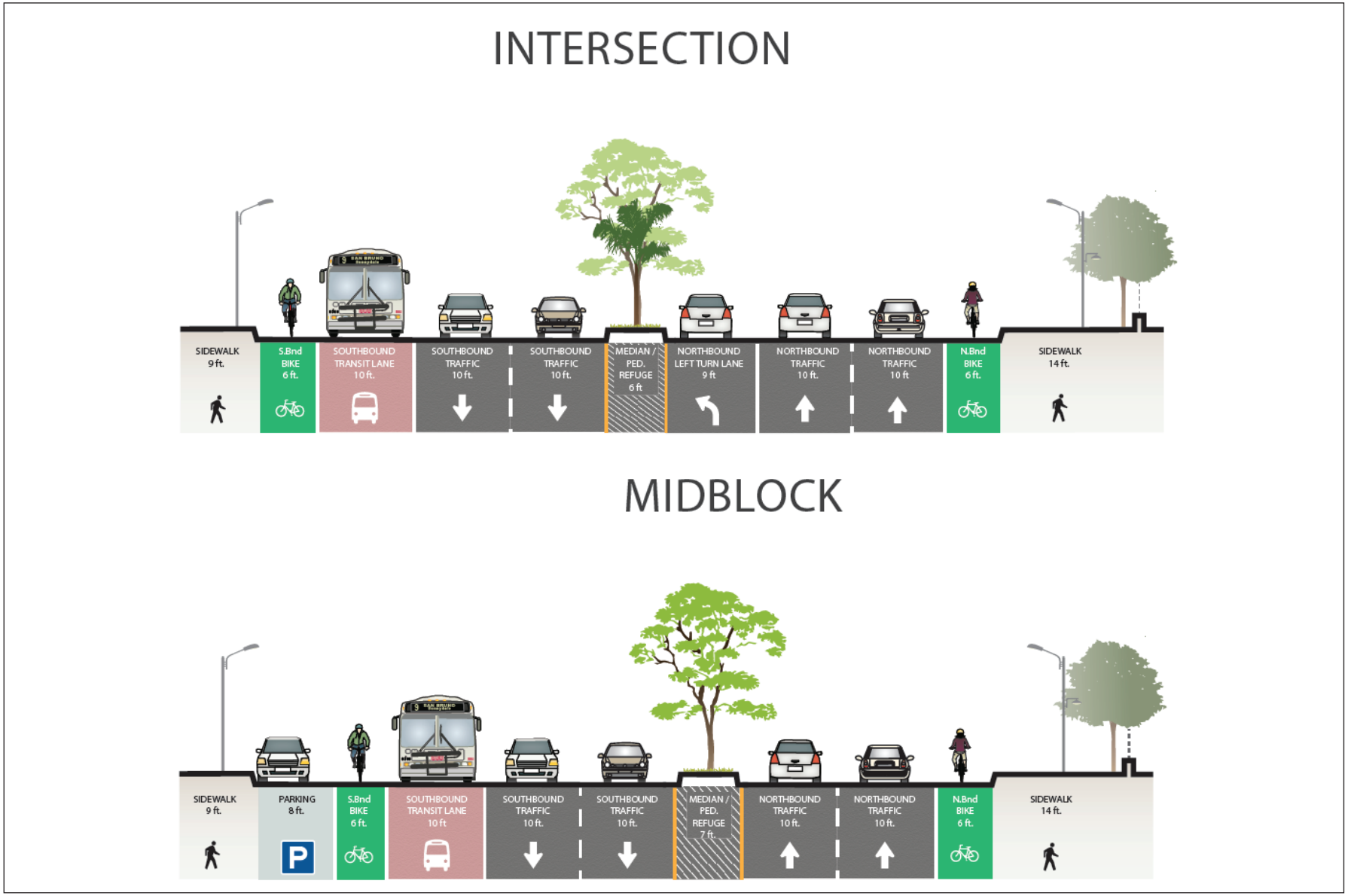
FIGURE 14b - TTRP.9 POTRERO AVENUE COMMON MIDBLOCK DESIGN ELEMENTS, 17TH TO 25TH STREETS MODERATE AND EXPANDED ALTERNATIVES



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

● FIGURE 14c - TTRP.9 POTRERO AVENUE TYPICAL BLOCK, 22ND TO 24TH STREETS MODERATE ALTERNATIVE



SOURCE: SFMTA, Turnstone Consulting

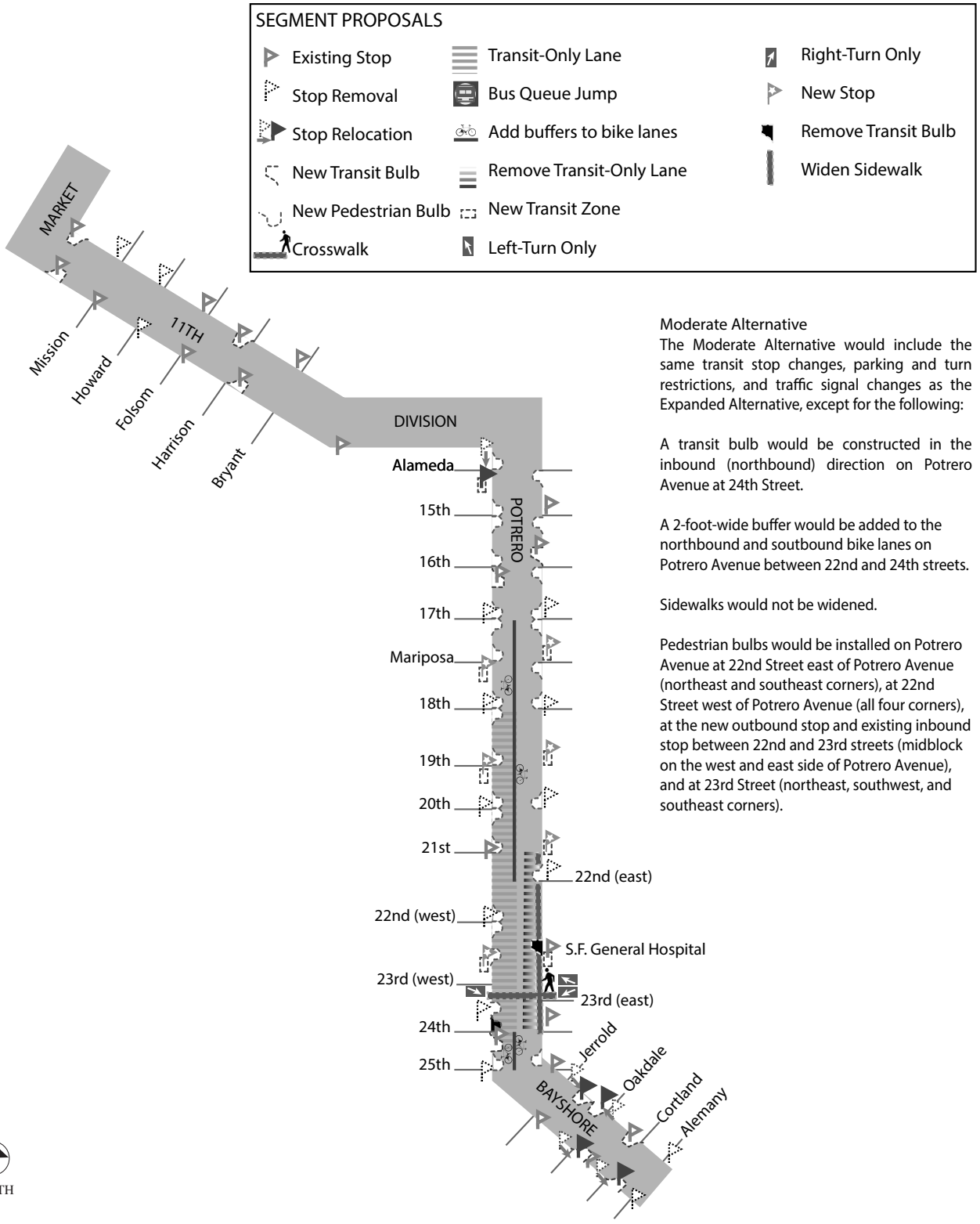
TRANSIT EFFECTIVENESS PROJECT

● FIGURE 14d - TTRP.9 POTRERO AVENUE TYPICAL BLOCK, 22ND TO 24TH STREETS EXPANDED ALTERNATIVE

SFMTA | Municipal Transportation Agency

9/9L SAN BRUNO

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative



Moderate Alternative

The Moderate Alternative would include the same transit stop changes, parking and turn restrictions, and traffic signal changes as the Expanded Alternative, except for the following:

A transit bulb would be constructed in the inbound (northbound) direction on Potrero Avenue at 24th Street.

A 2-foot-wide buffer would be added to the northbound and soutbound bike lanes on Potrero Avenue between 22nd and 24th streets.

Sidewalks would not be widened.

Pedestrian bulbs would be installed on Potrero Avenue at 22nd Street east of Potrero Avenue (northeast and southeast corners), at 22nd Street west of Potrero Avenue (all four corners), at the new outbound stop and existing inbound stop between 22nd and 23rd streets (midblock on the west and east side of Potrero Avenue), and at 23rd Street (northeast, southwest, and southeast corners).

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 14e - TTRP.9 EXPANDED ALTERNATIVE

TTRP.14: 14 Mission and 14L Mission Limited

TTRP.14 would provide transit improvements for the 14 Mission and 14L Mission Limited routes along the length of the Mission Street corridor extending from the Ferry Building to Daly City. TTRP.14 includes recommendations for both the inbound and outbound directions, from the intersection of Mission and Spear streets in Downtown San Francisco to Mission and Goethe streets near the border of Daly City and San Francisco. The inbound direction for these routes is north towards the Ferry Building, and the outbound direction is south towards Daly City. The project corridor is entirely on Mission Street, with the exception of a portion of the outbound direction which includes a two-block segment of Otis Street.

The TTRP.14 project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, parking and turn restrictions, lane modifications, and traffic signal and stop sign changes. There are two variants proposed for the Moderate Alternative, which are referred to as TTRP.14 Moderate Alternative Variant 1 and TTRP.14 Moderate Alternative Variant 2. Both variants include changes for the entire corridor; in many portions of the corridor, the two variants are the same. However, they propose different features for the segment between 13th and Cesar Chavez streets. TTRP.14 Moderate Alternative Variant 1 would establish side-running transit-only lanes in both directions during peak periods on Mission Street between 13th and Cesar Chavez streets. Tow-away restrictions would be implemented for the parking lanes on both sides of the street during peak periods in order to reduce parking friction.[35] Due to the narrow width of these curbside parking lanes, they would not be used as additional travel lanes during these peak periods. TTRP.14 Moderate Alternative Variant 2 would create full-time side-running transit-only lanes in both directions on Mission Street between 13th and Cesar Chavez streets. A parking lane on one side of the street would be permanently removed from this portion of Mission Street. For both of the TTRP.14 Moderate Alternative variants, to reduce parking friction, the parking lanes on both sides of Mission Street, from Cesar Chavez to Randall Avenue and from Silver Avenue to Geneva Avenue, would be tow-away zones in the peak direction during the peak period (inbound a.m., outbound p.m.).

[35] Parking friction refers to the delay caused to traffic in lanes adjacent to on-street parking due to vehicles maneuvering into and out of on-street parking spaces. In addition, in some locations the travel lanes adjacent to on-street parking are relatively narrow, which causes larger vehicles such buses to travel more slowly. Removing this on-street parking during peak periods speeds up transit because there are no parallel parking maneuvers and the travel lane becomes wider, allowing buses to travel at higher speeds.

The Expanded Alternative would include most of the changes proposed in the Moderate Alternative variants, excluding the elements proposed under the two Moderate Alternative Variants 1 and 2 for the segment of Mission Street between 13th and Cesar Chavez streets. The Expanded Alternative would instead relocate the existing side-running transit-only lanes so that they become center-running transit-only lanes from First to Fifth streets outbound and from Sixth to First streets inbound, transition the outbound transit-only lane back to its existing curbside configuration and rescind the inbound transit-only lane from Seventh to Sixth streets, then, establish a new outbound transit-only lane extending from 11th to Cesar Chavez streets. Between 11th and 13th streets, this would be achieved by converting a southbound mixed-flow lane into a transit-only lane. Between 13th and Cesar Chavez streets, this would be achieved by reducing the roadway from four lanes to three lanes, with a transit-only lane and a mixed-flow lane in the southbound direction and single mixed-flow lane in the northbound direction. From Cesar Chavez Street to Randall Avenue and from Silver Avenue to Geneva Avenue, a mixed-flow lane in both directions would be converted to a full-time side-running transit-only lane. Several other changes to support these transit-only lanes would be made in the Expanded Alternative.

Figures 17, 18, and 19 present graphic representations of the three segments of the TTRP.14 Expanded Alternative on pp. 2-145 to 2-147, below, following the descriptions of the alternatives. The figures also have text summarizing how the Moderate Alternative variants differ from the Expanded Alternative for each segment.

Implementation of the improvements in the Moderate Alternative variants would result in an estimated net reduction of up to 1,160 parking spaces (including 1,130 that would not be available during part-time tow-away restrictions) with Moderate Alternative Variant 1 and up to 960 parking spaces with Moderate Alternative Variant 2 (including 715 that would not be available during part-time tow-away restrictions). There would be a reduction of up to 405 parking spaces (including 235 that would not be available during part-time tow-away restrictions) with implementation of the Expanded Alternative. Implementation of either of the TTRP.14 Moderate Alternatives would result in a net reduction of up to 33 commercial loading spaces which could not be relocated in proximity to the uses requiring loading spaces (a loss of up to 33 loading spaces for TTRP.14 Moderate Variant 1 and up to 27 loading spaces for TTRP.14 Moderate Variant 2). Implementation of the TTRP.14 Expanded Alternative would result in a net reduction of up to 11 commercial loading spaces that could not be relocated in proximity to the uses requiring loading spaces.

TTRP.14 Moderate Alternative

For this TTRP corridor, under the Moderate Alternative, there are two options proposed, which are called TTRP.14 Moderate Alternative Variant 1 and TTRP.14 Moderate Alternative Variant 2. These two options propose the same TPS Toolkit elements in the same locations

along the corridor except for the segment of Mission Street between 13th and Cesar Chavez streets. Different roadway treatments are proposed for that segment. The two Moderate Alternative Variants would include transit stop changes, pedestrian improvements, parking and turn restrictions, lane modifications, and traffic signal and stop sign changes as described below.

Transit Stop Changes (Moderate). Boarding island and transit bulb changes are proposed as follows. A 115-foot nearside boarding island would be constructed on Mission Street at Fremont Street in the inbound direction, in conjunction with the Transbay Transit Center District Plan Projects.[36] Transit bulbs would be installed on Mission Street at the following intersections in the outbound direction: 11th and 20th streets, and Richland and Silver avenues. The bulbs in the outbound direction at 11th and 20th streets and at Silver Avenue would be 130 feet long, whereas the bulb in the outbound direction at Richland Avenue would be up to 145 feet long. Transit bulbs would be installed on Mission Street in the inbound direction: at 11th, 16th and 20th streets, and Richland, Silver, and Lowell avenues and would be 130 feet long.

Additionally, the outbound transit bulb on Mission Street at 30th Street would be extended in length from 85 feet to 115 feet and the inbound bulb at 30th Street would be extended in length from 90 feet to 125 feet. The outbound transit bulb at Goethe Street and the inbound transit bulb at Evergreen Avenue would be extended from 40 feet to 115 feet. In addition, existing transit bulbs would be removed at the following locations: at 150 Otis Street in the outbound direction and on Mission Street at 22nd Street in both directions to provide additional lane width for the 14L Mission Limited buses to pass the local 14 Mission buses.

Transit stop locations would be relocated at the following intersections. Transit zones that are currently located on the nearside of intersections would be relocated to the farside of the Mission Street intersections at 11th Street and Richland Avenue in the inbound direction, and at Cortland, Appleton, and Onondaga avenues in the outbound direction. In addition, in the outbound direction, the transit stop at Francis Street would be moved from the farside of Francis Street to the farside of Excelsior Avenue.

[36] The Transit Center District Plan (TCDP) proposed this feature as part of its public realm plan. The TCDP project includes the creation of center-running transit-only lanes between First and New Montgomery streets. The TCDP was approved by the City on July 31, 2012; therefore, this modification has undergone the requisite environmental review. It is discussed here for informational purposes and to present a full picture of the corridor as well as acknowledge the cumulative context. Documents related to the TCDP environmental review are available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case Files 2007.0558E and 2008.0789E.

Transit stops proposed for consolidation are as follows: Two closely-spaced stops would be consolidated into one at Spear and Beale streets (outbound), Precita and Fair avenues (inbound), Norton and Ruth streets (outbound), Mount Vernon and Foote avenues (outbound), Allison and Guttenberg streets (inbound), and Whittier Street and Lawrence Avenue/Oliver Street (both directions). For each of the pairs of transit stops removed, a new transit stop would be established at the following locations: Main Street (outbound), Powers Avenue (inbound), Ocean Avenue (outbound), Ottawa Avenue (both directions), and Farragut Avenue (both directions). Table 10 lists each stop consolidation.

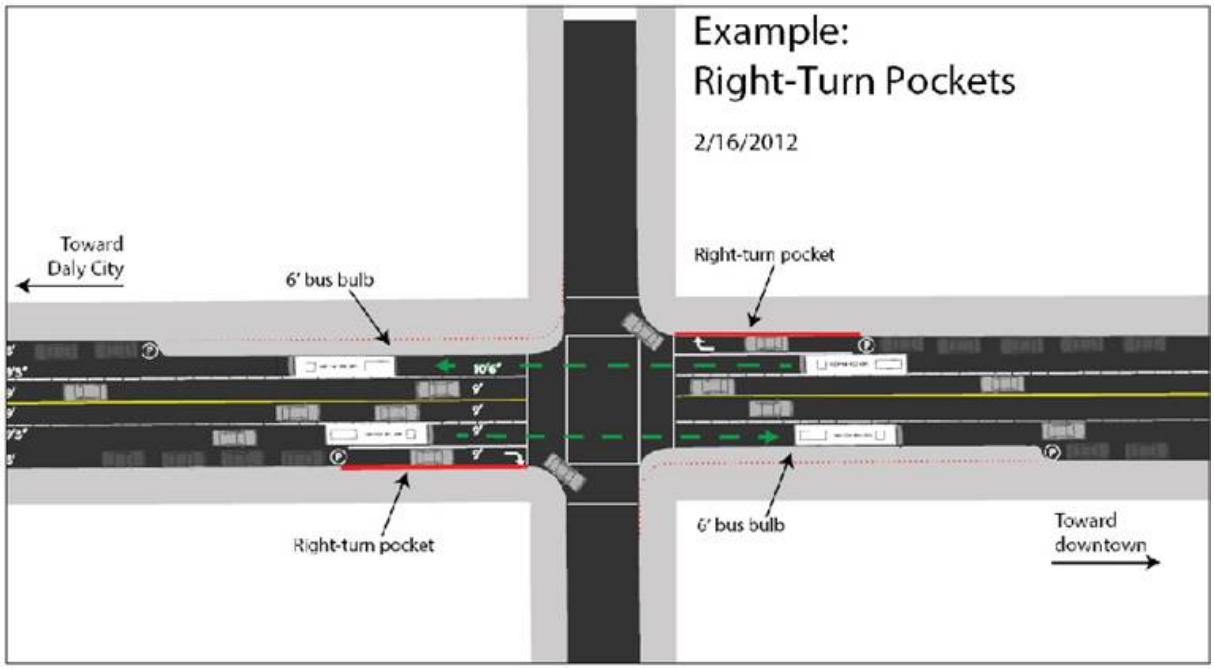
Table 10: 14 Mission and 14L Mission Limited Stop Consolidations

Stops Consolidated – Moved from:	New Stop at:
OUTBOUND	
Spear Street, Beale Street	Main Street
Norton Street, Ruth Street	Ocean Avenue
Mount Vernon Avenue, Foote Avenue	Ottawa Avenue
Whittier Street, Lawrence Avenue	Farragut Avenue
INBOUND	
Precita Avenue, Fair Avenue	Powers Avenue
Allison Street, Guttenberg Street	Ottawa Avenue
Whittier Street, Oliver Street	Farragut Avenue

Bus stops proposed for removal are as follows. Stops would be removed in both the inbound and outbound directions on Mission Street at 15th, 19th, 21st, 23rd, and 29th streets, as well as at Highland Avenue. Outbound bus stops on Mission Street at Precita Avenue and 4080 Mission Street would be removed as would the inbound bus stop at Brazil Avenue.

Parking and Turn Restrictions (Moderate). The existing weekday and Saturday left-turn restrictions would be modified from the current 4 p.m. to 6 p.m. to extend to 7 a.m. to 7 p.m. at the following Mission Street intersections: 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, and 26th streets in both directions, 15th Street in the inbound direction only, and 14th Street in the outbound direction only. At Cesar Chavez Street, a new left-turn restriction would be implemented from 7 a.m. to 7 p.m. and would exclude Muni vehicles.

Lane Modifications (Moderate). Dedicated right-turn pockets would be added at the following Mission Street intersections in both directions: 16th, 17th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, Cesar Chavez, and Valencia/Fair streets, and Francis Street/Excelsior Avenue, and Norton Street/Brazil Avenue (see Figure 15). They would also be established in the inbound direction at the following Mission Street intersections: 14th Street, Precita, Cortland, Persia, and Italy avenues. Right-turn pockets would be established in the outbound direction on Mission Street at Ninth Street, South Van Ness Avenue, and 15th, 18th, and 29th streets, and Silver Ocean, and Onondaga/Russia avenues. Right-turn pockets would be established by eliminating existing on-street parking spaces generally within 75 feet of the intersection in the location of the proposed right-turn pocket. A left-turn pocket would be added on Mission Street at Silver Avenue in the inbound direction. At South Van Ness Avenue, parking would be removed on Mission Street and the center median would be rebuilt at a narrower width. At Mission and Randall streets, parking would be removed on the east side of Mission Street and lanes would be shifted over to establish a 120-foot-long right-turn pocket in the outbound direction.



SOURCE: SFMTA, Turnstone Consulting

FIGURE 15: TTRP.14 LANE MODIFICATIONS MODERATE ALTERNATIVE

The existing transit-only lane hours of 4 p.m. to 6 p.m. in both directions and 7 a.m. to 9 a.m. in the inbound direction would be extended to full-time for the segment of Mission Street between Fourth and 11th streets. The existing 7 a.m. to 6 p.m. hours of the Mission Street transit-only lanes between Fourth and Main streets in the outbound direction and between Fourth and Beale streets in the inbound direction would be extended to full-time.

Traffic Signal and Stop Sign Changes (Moderate). The all-way stop sign at Mission Street and Templeton Avenue in Daly City would be replaced with a traffic signal.

Note: The following Transit Stop Changes, Traffic Signal and Stop Sign Changes, and Parking and Turn Restrictions changes would also be implemented in the Moderate Alternative Variants but would not be implemented in the Expanded Alternative.

Transit Stop Changes (Moderate Only). The inbound transit zone at Fifth Street would be extended in length from 120 feet to 185 feet, and the inbound transit zone that is currently located on the nearside of Second Street would be relocated to the farside of the intersection.

Traffic Signal and Stop Sign Changes (Moderate Only). The traffic signal timing at Mission Street and Cortland Avenue would be altered to provide southbound to eastbound left turns from Mission Street onto Cortland Avenue a protected turning phase to remove delay caused to southbound transit.

Parking and Turn Restrictions (Moderate Only). Right-turn pockets would be lengthened on Mission Street in the outbound direction at the following intersections: Third and Fifth streets. The striped queue jump lane in the outbound direction at Third Street would be lengthened.

The existing weekday tow-away restrictions on Mission Street between Beale and First streets from 3 p.m. to 6 p.m. in the outbound direction and from 7 a.m. to 9 a.m. and 3 p.m. to 6 p.m. in the inbound direction would be extended to 7 a.m. to 7 p.m. in both directions.

The existing weekday tow-away restrictions on Mission Street between First and Third streets from 7 a.m. to 9 a.m. and 3 p.m. to 6 p.m. in both directions would be extended to 7 a.m. to 7 p.m. in both directions.

The existing weekday tow-away restrictions on Mission Street between Fourth and Fifth streets from 3 p.m. to 6 p.m. in the outbound direction would be extended to 7 a.m. to 7 p.m.

The existing weekday tow-away restrictions on Mission Street between Fifth and 11th streets from 4 p.m. to 6 p.m. in the outbound direction and 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. in the inbound direction would be extended to 7 a.m. to 7 p.m. in both directions.

TTRP.14 Moderate Alternative Variant 1

TTRP.14 Moderate Alternative Variant 1 would include the addition of the following lane modifications and parking and turn restrictions to the above-listed changes in the Moderate Alternative to create a transit-only lane in both directions between 13th and Cesar Chavez

streets. Please note that due to conflicts between the two variant proposals, only one of the two (TTRP.14 Moderate Alternative Variant 1 or 2) could be implemented, not both.

Parking and Turn Restriction (TTRP.14 Moderate Alternative Variant 1). Under Variant 1, a tow-away zone during peak periods would be established for the parking lanes on both sides of Mission Street from 13th to Cesar Chavez Street.

Lane Modification (TTRP.14 Moderate Alternative Variant 1). Under Variant 1, a mixed-flow lane in both directions of Mission Street would be converted to a side-running transit-only lane during peak periods from 13th Street to Cesar Chavez Street.

TTRP.14 Moderate Alternative Variant 2

TTRP.14 Moderate Alternative Variant 2 would include adding the following lane modifications and parking and turn restrictions to the above listed changes in the Moderate Alternative to create full-time transit-only lanes in both directions of Mission Street between 13th Street and Cesar Chavez Street.

Lane Modifications (TTRP.14 Moderate Alternative Variant 2). Under Variant 2, a mixed-flow lane in both directions of Mission Street would be converted to a full-time side-running transit-only lane from 13th to Cesar Chavez streets.

Parking and Turn Restrictions (TTRP.14 Moderate Alternative Variant 2). Under Variant 2, a parking lane would be permanently removed from one side of Mission Street from 14th Street to Cesar Chavez Street. The parking lane removal would alternate between sides of Mission Street approximately every two blocks from 14th Street to Cesar Chavez Street.

TTRP.14 Expanded Alternative

The Expanded Alternative would include additional changes, largely to facilitate the implementation of transit-only lanes. The Expanded Alternative would include the transit stop changes, lane modifications, parking and turn restrictions, and traffic signal and stop sign changes noted above in the Moderate Alternative except those (*Moderate Only*) noted to conflict with the Expanded Alternative, as well as those described in TTRP.14 Moderate Alternative Variants 1 and 2. The Expanded Alternative would include the following additional changes.

Transit Stop Changes (Expanded). Nearside transit boarding islands would be installed in the segment of Mission Street where there would be center-running transit-only lanes. The islands would be installed in both directions on Mission Street at Second, Third and Fourth streets (all 115-foot-long), and in the inbound only direction at Fifth Street (115-foot-long) and Sixth Street (55-foot-long).

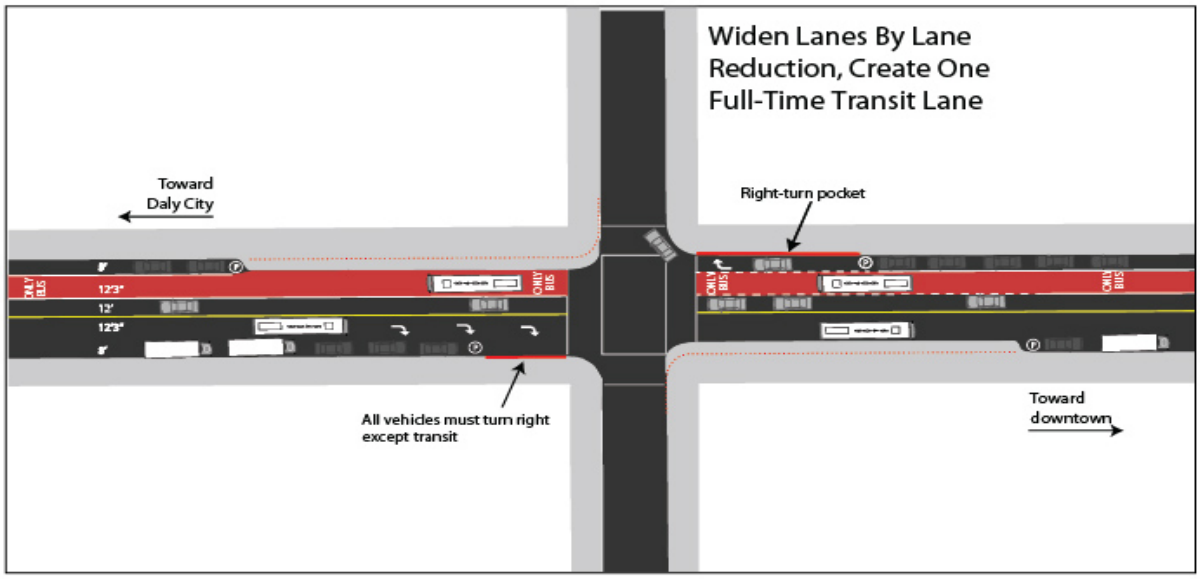
Lane Modifications (Expanded). Transit-only lanes would be established on portions of the 14 Mission/14L Mission Limited route where none exist under existing conditions, and changes would be made to existing transit-only lanes. Center-running transit-only lanes would be established on a portion of the route by converting a mixed-flow traffic lane to a transit-only lane in both directions. The existing side-running transit-only lane would be eliminated on blocks where the center-running transit-only lane is established. In the outbound direction, the center-running transit-only lane would begin at First Street and end at Fifth Street. In the inbound direction, the center-running transit-only lane would begin at Sixth Street and continue to First Street. As part of this proposal, the existing peak period side-running transit-only lane would also be eliminated between Seventh and Sixth streets to allow traffic to merge out of the center lane and allow buses to be in the center lane by the time they reach Sixth Street.

From 11th Street to 13th Street, a side-running transit-only lane would be established in the outbound direction by reconstructing the center median at South Van Ness Avenue in order to provide sufficient width for a transit-only lane, which would be converted from a mixed-flow lane to a transit-only lane. The median would be reconstructed at a narrower width to gain approximately five feet of street space on the north side of Mission Street at South Van Ness Avenue. The additional five feet would be allocated to the transit-only lane as well as the right-turn pocket discussed in the *Lane Modifications (Moderate)* section. The transit-only lane would extend from South Van Ness Avenue to 13th Street on Otis Street, also by converting a mixed-flow lane to a transit-only lane (see Figure 16a).

From 14th to Cesar Chavez streets, a transit-only lane in the outbound (southbound) direction would be established by converting the four existing mixed-flow lanes into one outbound side-running transit-only lane, one outbound mixed-flow lane, one inbound mixed-flow lane with forced right turns at every intersection for non-transit vehicles, and parking maintained on both sides of the street. From Cesar Chavez to Randall streets and from Silver to Geneva avenues, a side-running transit-only lane in both directions would be created by removing one mixed-flow lane in each direction (see Figure 16b).

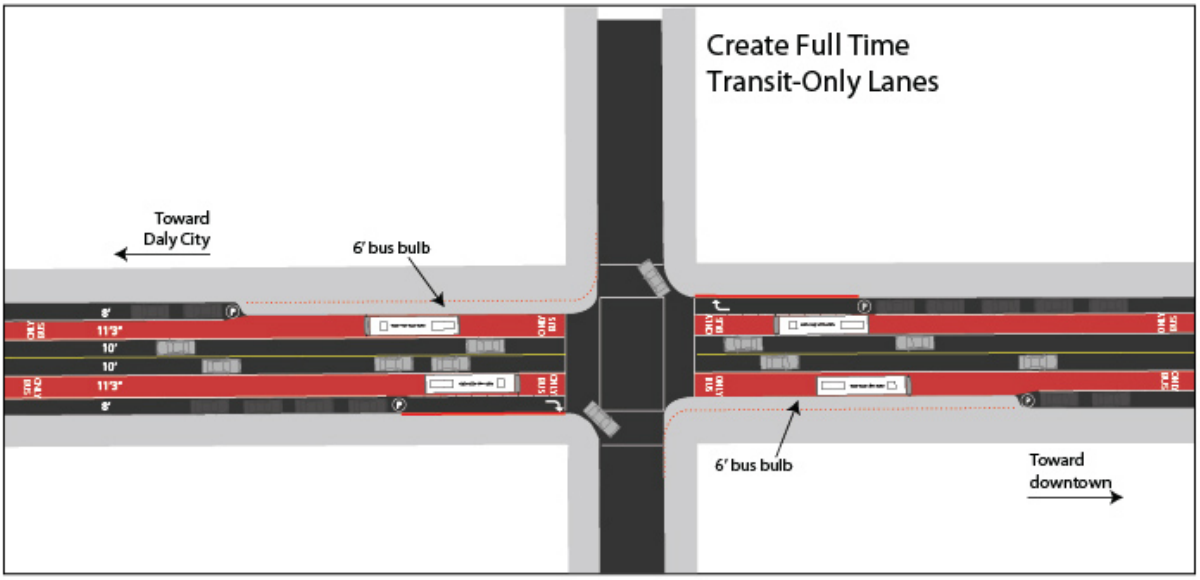
A signalized queue jump would be installed at First Street in the outbound direction to allow buses to merge into the proposed center-running transit-only lane.[37] At Fifth Street, there

[37] The Transit Center District Plan (TCDP) project includes the creation of center-running transit-only lanes between First and New Montgomery streets. The TCDP was approved by the City on July 31, 2012; therefore, this modification has undergone the requisite environmental review. It is discussed here for informational purposes and to present a full picture of the corridor as well as acknowledge the cumulative context. Documents related to the TCDP environmental review are available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case Files 2007.0558E and 2008.0789E.



SOURCE: SFMTA, Turnstone Consulting

FIGURE 16a: TTRP, 14 LANE MODIFICATION FROM 14TH TO CESAR CHAVEZ STREETS (EXPANDED)



SOURCE: SFMTA, Turnstone Consulting

FIGURE 16B: TTRP, 14 LANE MODIFICATION FROM CESAR CHAVEZ TO RANDALL STREETS AND FROM SILVER TO GENEVA STREETS (EXPANDED)

would be an additional signalized queue jump in the outbound direction to allow the bus to merge out of the transit-only lane, back to the curb lane.

At Randall Street, parking would be eliminated on the east side of Mission Street, lanes would shift four to six feet to the east, and a 75-foot-long right-turn pocket would be created in the southbound direction.

At Cortland Avenue, the Expanded Alternative would remove the transit bulb in the outbound direction to create the necessary street width for a left-turn pocket in the southbound direction.

Traffic Signal and Stop Sign Changes (Expanded). The all-way stop sign would be converted to a new traffic signal at the intersection of Mission and Randall streets.

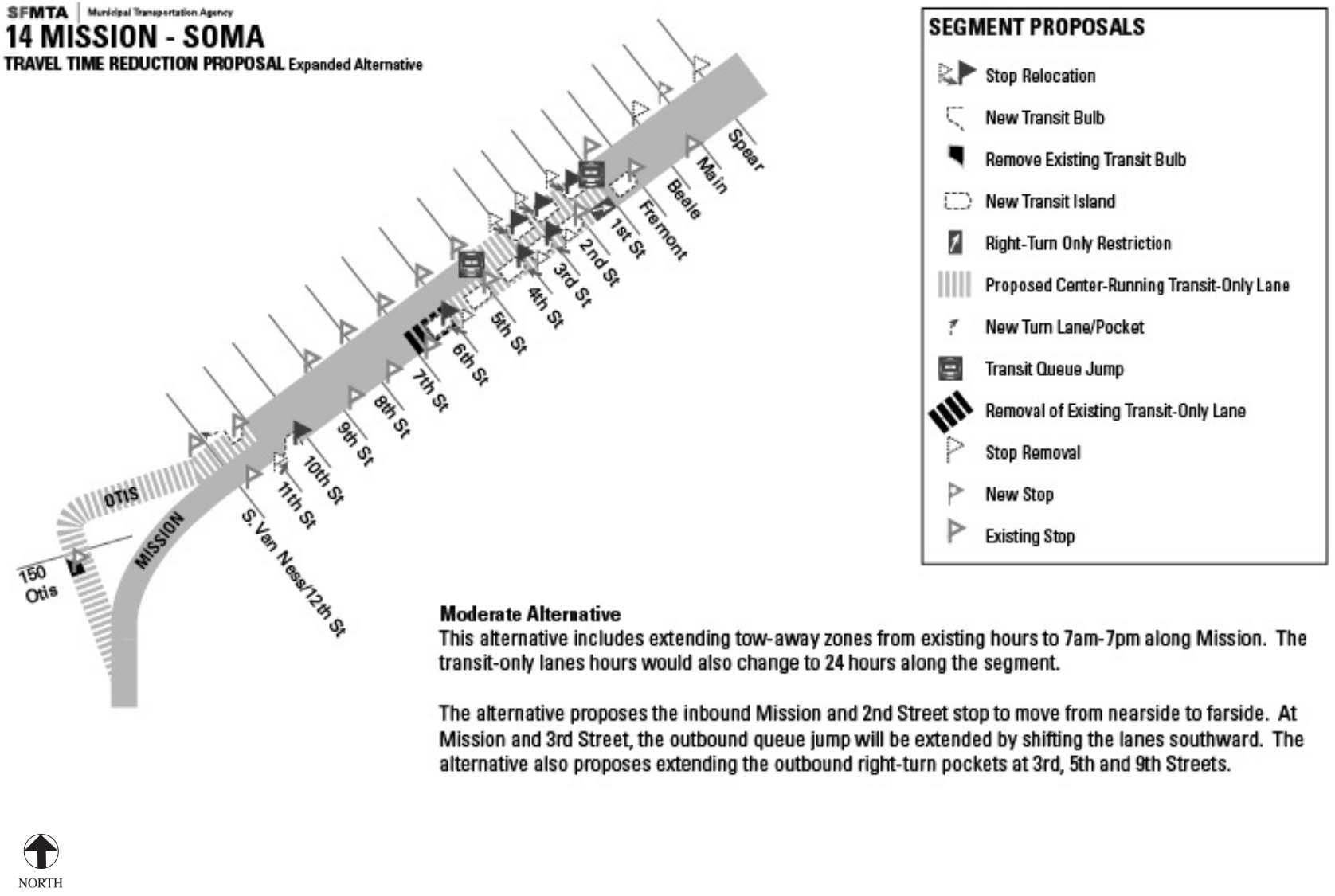
Parking and Turn Restrictions (Expanded). In conjunction with the installation of the center-running transit-only lanes on Mission Street in the Downtown area, a right-turn-only except for Muni restriction would be implemented in the inbound direction at First Street. Parking would be removed at all times on Mission Street from Fremont to 3rd Streets in both directions. In the westbound/outbound direction, parking would be removed on Mission Street between 4th Street and Jessie Street East, and between 5th Street and 200' east of 6th Street. In the eastbound/inbound direction, parking would be removed from 200' west of 6th to 6th Street, and from Mary Street to 5th Street.

Figures 17 to 19 show the TTRP.14 Expanded Alternatives along the corridor and describe the differences in the Expanded and Moderate Alternatives.

Please see information and additional graphics illustrating the TTRP.14 project at the SFMTA Web site, online at http://www.sftep.com.

TTRP.22_1: 22 Fillmore

TTRP.22_1 would provide transit improvements for the southeastern portion of the 22 Fillmore route along the 16th Street corridor. The proposed project would implement specified TPS Toolkit elements in both the inbound and outbound directions, from Church Street to Third Street. The inbound direction for this route is west towards Church Street and the outbound direction is east towards Third Street. The TTRP.22_1 project has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes and parking and turn restrictions. The Expanded Alternative would include the same parking and turn restrictions and most of the same transit stop changes as the Moderate Alternative, along with a center-running transit-only lane in both directions from Third Street to Bryant



SOURCE: SFMTA, Turnstone Consulting

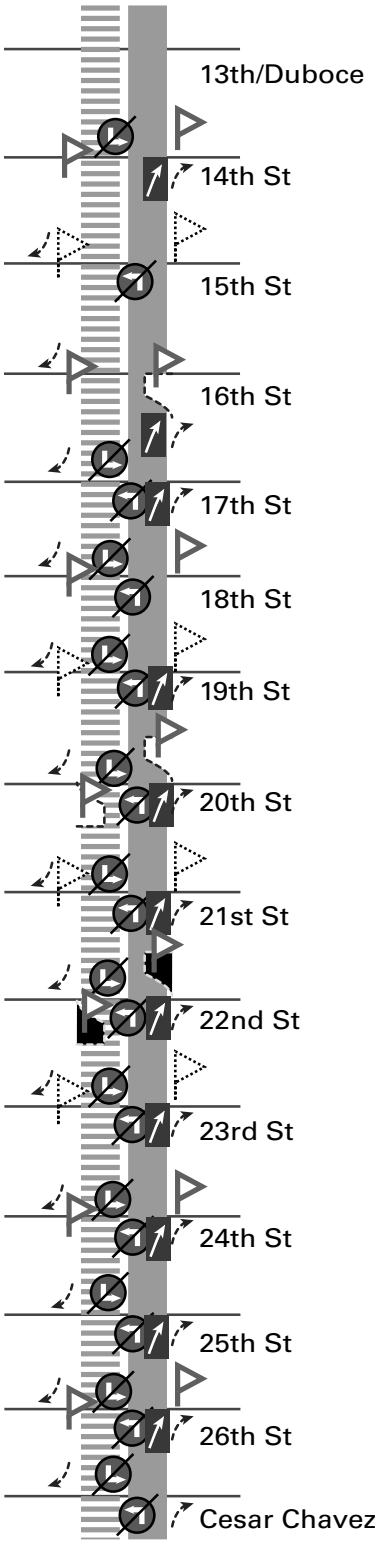
TRANSIT EFFECTIVENESS PROJECT

FIGURE 17 - TTRP.14 (SOMA) - EXPANDED ALTERNATIVE

SFMTA | Municipal Transportation Agency

14 MISSION - Inner Mission

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative



Travel lanes will be widened along entire corridor from 13th/Duboce to Cesar Chavez Street by elminating one northbound lane of traffic.

Moderate Alternatives

Variant 1: Converts the existing parking lane on both sides of Mission Street from 13th Street to Cesar Chavez Street and from Silver Avenue to Geneva Avenue into a tow-away lane during peak periods and converts the curb-side mixed-flow lanes into transit-only lanes.

Variant 2: Convert an existing mixed-flow lane in both directions to a curb-side transit-only lane and remove parking on one side of the street between 13th and Cesar Chavez streets

SEGMENT PROPOSALS

- New Transit Bulb
- Remove Transit Stop
- Remove Transit Bulb
- Extend No Left-Turn Restrictions 7AM - 7PM
- Right-Turn Only Restrictions
- New Turn Lanes/Pockets
- Proposed Transit-Only Lane
- Existing Stop

SOURCE: SFMTA, Turnstone Consulting

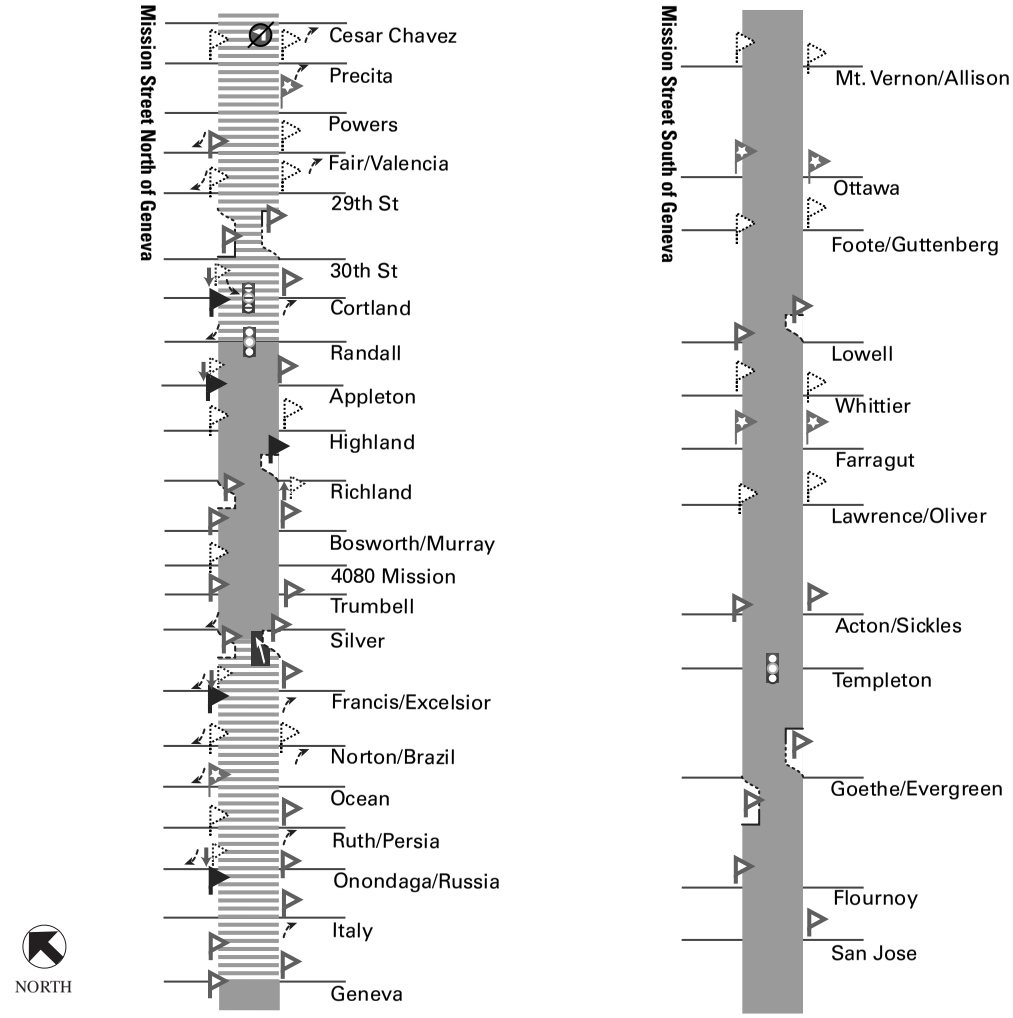
TRANSIT EFFECTIVENESS PROJECT

FIGURE 18 - TTRP.14 (INNER MISSION) - EXPANDED ALTERNATIVE

SFMTA | Municipal Transportation Agency

14 MISSION - South of Cesar Chavez

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative



Moderate Alternative

Converts the existing parking lane on both sides of Mission Street from 13th Street to Cesar Chavez Street into a tow-away lane during peak periods and converts the curb-side mixed-flow lanes into transit-only lanes.

SEGMENT PROPOSALS

- New Traffic Signal
- Modified Traffic Signal
- Removal Transit Stop
- New Transit Stop
- Stop Relocation
- New Transit Bulb
- Extend Existing Transit Bulb
- Extend No Left-Turn Restriction 7AM - 7PM
- New Right-Turn Lane/Pocket
- Proposed Transit-Only Lane
- Existing Stop
- New Left-Turn Pocket

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 19 - TTRP.14 (OUTER MISSION) EXPANDED ALTERNATIVE

Street. Details of the two alternatives are provided below. Figure 20 presents a graphic representation of the TTRP.22_1 Expanded Alternative on p. 2-153, following the description of both alternatives; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

The Expanded Alternative has two variants for providing a transit-only lane on 16th Street from Bryant Street to Church Street. These variants are referred to as TTRP.22_1 Expanded Alternative Variant 1 and TTRP.22_1 Expanded Alternative Variant 2. The TTRP.22_1 Expanded Alternative Variant 1 or TTRP.22_1 Expanded Alternative Variant 2 could be implemented in addition to the proposed project; however, due to conflicts between the two variant proposals, only one of the two (TTRP.22_1 Expanded Variant 1 or 2) could be implemented, not both.

Implementation of the improvements in the Moderate Alternative would result in an estimated net gain of up to 10 on-street parking spaces. Implementation of the Expanded Alternative would result in a loss of up to 290 parking spaces. There would be a net reduction of up to 520 parking spaces with implementation of the Expanded Alternative Variant 1 (including 240 spaces that would not be available during the proposed part-time tow-away restrictions). The net reduction in parking spaces as a result of Variant 2 would be up to 280 parking spaces. Implementation of improvements in either the Moderate or Expanded Alternative would not result in the reduction of the number of on-street loading spaces, but TTRP.22_1 Expanded Alternative Variant 1 would temporarily (during peak periods) restrict access to the on-street commercial loading spaces on 16th Street between Bryant and Church streets. However, these spaces would be available for commercial loading activities during the non-peak hours, and additional commercial loading spaces would be provided on the adjacent side streets (i.e., to Capp, Julian, Hoff, and Albion streets) within 250 feet of their existing locations.

TTRP.22_1 Moderate Alternative

The Moderate Alternative would include transit stop changes and parking and turn restrictions.

Transit Stop Changes (Moderate). Transit stops in both directions on 16th Street at Guerrero and Harrison/Treat streets would be moved from the nearside to the farside of the intersection. Transit stops would be removed at the intersections on 16th Street at Valencia and Dolores streets in both directions, on 16th Street at Vermont Street in the inbound (west) direction, and on 16th Street at San Bruno Avenue in the outbound (south) direction.

Due to the change to the 22 Fillmore route, transit service would be moved from 17th and 18th streets to 16th Street between Kansas and Third streets, and stops would be removed in both directions on 17th Street at Kansas, De Haro, Wisconsin and Connecticut streets.[38] New stops would be established in both directions on 16th Street at Fourth, Wisconsin, and Missouri streets and in the inbound (west) direction at Kansas Street.

Transit bulbs would be constructed in both directions at the farside of the intersection on 16th Street at Harrison, Mission, and Guerrero streets and in the inbound (west) direction at Folsom and Church streets, and in the outbound (east) direction at Shotwell Street.

Parking and Turn Restrictions (Moderate). Left turns would be prohibited in both directions on 16th Street at Florida, Alabama, Harrison, Folsom, Shotwell, Capp, Mission, Hoff/Julian, Valencia, Albion, Guerrero, and Dolores streets and at South Van Ness Avenue.

Note: The following Transit Stop Changes are included only in the Moderate Alternative and not in the Expanded Alternative.

Transit Stop Changes (Moderate only). New transit bulbs would be constructed for the new stops in both directions on 16th Street at the farside of the intersections of Fourth, Missouri, and Wisconsin streets. In the inbound (west) direction, a new transit bulb would be constructed for the new farside stop on 16th Street at Kansas Street.

In the outbound (east) direction, existing stops on 16th Street at Potrero Avenue and at Kansas Street would be moved from the nearside to the farside of the intersection, and new transit bulbs would be constructed for these stops. In the inbound (west) direction, the existing stop on 16th Street at Bryant Street would be moved from midblock to the farside of the intersection and a new transit bulb would be constructed. Transit bulbs would be added to the existing inbound (west) farside stop at 16th Street and Potrero Avenue and to the existing outbound (east) farside stop at 16th Street and Bryant Street. All new transit bulbs would be 45 feet in length.

TTRP.22_1 Expanded Alternative

The Expanded Alternative would include the same transit stop changes and parking and lane modifications included in the Moderate Alternative except those noted as *Moderate Only*. The Expanded Alternative would include the following additional changes.

[38] The 22 Fillmore would no longer make stops on 18th, 20th, or Third streets, but these stops would be served by the 33 Stanyan route, which would be rerouted to cover this portion of the existing 22 Fillmore route.

Transit Stop Changes (Expanded). Median boarding islands would be built in both directions on the nearside of the intersection on 16th Street at Missouri, Wisconsin, Kansas, and Bryant streets, and at Potrero Avenue. At the intersection of 16th and Fourth streets, median boarding islands would be built on 16th Street on the nearside of the intersection in the inbound (west) direction and on the farside of the intersection in the outbound (east) direction. Boarding islands would be 80 feet in length.

Lane Modifications (Expanded). Center-running transit-only lanes and one mixed-flow lane would be provided in each direction on 16th Street between Bryant and Third streets. On 16th Street from Seventh to Kansas streets, the existing bike lane is proposed to be removed and relocated to 17th Street.

A left-turn lane in the westbound direction would be maintained on 16th Street at Mississippi Street by removing the existing right-turn lane. A left turn lane would also be maintained in the westbound direction on 16th Street at Seventh Street. At Third Street, a transit-only left-turn lane in the outbound (east) direction would be installed as an extension of the median transit-only lane.

On 16th Street between Seventh and Third streets, the University of California San Francisco expansion plan calls for a second northbound left-turn lane on Owens Street at 16th Street when certain traffic volume triggers are met.[39] To accommodate the installation of this lane and maintain the proposed center-running transit-only lanes, the 16th Street bike lanes would be converted to sharrows west of Owens Street and parking would be removed on the south side of 16th Street in order to create two receiving westbound mixed-flow lanes. This modification would only be necessary if future traffic volumes were large enough to warrant the creation of a double left-turn lane from northbound Owens Street onto westbound 16th Street. At 16th and Third streets, traffic volume triggers could require reconfiguring the intersection to one westbound mixed-flow lane, one westbound transit-only lane, one eastbound transit-only left-turn lane, one eastbound through left-turn lane, one eastbound through lane, and one right-turn lane pocket. This would be accommodated by removing parking and converting the eastbound bike lane to sharrows. Similarly, these modifications would only be necessary if future traffic volumes were sufficiently large enough to exceed capacity thresholds.

Parking and Turn Restrictions (Expanded). Left turns would be prohibited in both directions on 16th Street at Bryant, Utah, San Bruno, Kansas, Rhode Island, De Haro,

[39] University of California, San Francisco, *UCSF Medical Center at Mission Bay – Fourth Street Public Plaza Final EIR*, State Clearinghouse No. 2011122065. Certified May 18, 2012. Available online at: http://campusplanning.ucsf.edu/pdf/Fourth_Street_Final_EIR_Consolidated_5-30-12.pdf. Accessed July 30, 2012.

Carolina, Wisconsin, Arkansas, Connecticut, Missouri, and Fourth (westbound only) streets and at Potrero Avenue (westbound only).

As discussed in the following Pedestrian Improvements section, parking would be removed from both sides of 16th Street between Potrero Avenue and Seventh Street to allow for the widening of the adjacent sidewalks up to 18 feet in width, as well as the addition of pedestrian lighting. Parking would also be removed on the south side of 16th Street from Third to Seventh streets to accommodate boarding islands and turn pockets.

Traffic Signal and Stop Sign Changes (Expanded). New traffic signals would be installed on 16th Street at San Bruno, Wisconsin, Connecticut, and Missouri streets.

At 16th and Third streets, a Muni-only left turn signal and signage would be added to the transit-only outbound (east) left-turn lane to Third Street.

Pedestrian Improvements (Expanded). The sidewalks on both sides of 16th Street between Potrero Avenue and Seventh Street would be widened from 10 to 18 feet by removing the parking lanes on both sides of the street. Parking/delivery "pockets" would be carved out of the widened sidewalk and provided along 16th Street based on specific land use demands.

Pedestrian bulbs would be installed at Dolores, Valencia, Mission, Capp, Folsom, Harrison, San Bruno, Kansas, Rhode Island, De Haro, Wisconsin, and Connecticut streets. A new crosswalk and pedestrian bulbs would be installed at Julian Avenue.

TTRP.22_1 Expanded Alternative Variant 1

Lane Modifications (Expanded Variant 1). From Bryant Street to Church Street, 16th Street would be restriped with two wider (13 feet wide) mixed-flow and two 12-foot-wide parking lanes with tow away restrictions during peak periods. During peak periods, the parking lanes would be used as curbside transit-only lanes.

TTRP.22_1 Expanded Alternative Variant 2

Transit Stop Changes (Expanded Variant 2). Transit bulbs would be constructed in both directions at the farside of the intersection on 16th Street at Harrison, Mission, and Guerrero streets and in the inbound (west) direction at Folsom and Church streets, and in the outbound (east) direction at Shotwell Street.

Lane Modifications (Expanded Variant 2). From Bryant Street to Church Street, 16th Street would be restriped for one mixed-flow lane in both directions, parking in both directions, and a full-time, inbound (westbound) side-running transit-only lane.

Figure 20 shows the TTRP.22 Expanded Alternative. Narrative text describes differences in the Expanded and Moderate Alternatives.

Please see information and additional graphics illustrating the TTRP.22_1 project at the SFMTA Web site, online at http://www.sftep.com.

TTRP.28_1: 28 19th Avenue and 28L 19th Avenue Limited

TTRP.28_1 would provide transit improvements for the 28 19th Avenue and 28L 19th Avenue Limited bus routes along the 19th Avenue corridor. TPS Toolkit improvements would be implemented in both the inbound and outbound directions, from the intersection of 19th Avenue and Lincoln Way to the intersection of 19th Avenue and Junipero Serra Boulevard. The inbound direction for these routes is north toward the Golden Gate Bridge (28 19th Avenue) and the Marina District (28L19th Avenue Limited). The outbound direction is south toward the Daly City BART Station (28 19th Avenue) and the Excelsior District (28L 19th Avenue).

The TTRP.28_1 project has a Moderate and Expanded Alternative. The Moderate Alternative would include transit stop changes and pedestrian improvements. The Expanded Alternative would include the same proposals as the Moderate Alternative, as well as a proposal to shorten one of two northbound left-turn lanes at 19th Avenue/Winston Drive to prevent vehicles from delaying M Ocean View LRV movements at the intersection.

Implementation of the improvements in both the Moderate and Expanded Alternatives would result in a net gain of up to 10 parking spaces. There would not be a reduction in the number of loading spaces due to the implementation of improvements for either the Moderate or Expanded Alternative.

Details of the two project alternatives for this corridor are provided below. Figure 21 presents a graphic representation of the TTRP.28_1 Expanded Alternative on p. 2-155, following the description of both alternatives; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

TTRP.28_1 Moderate Alternative

The Moderate Alternative would include transit stop changes and pedestrian improvements.

Transit Stop Changes (Moderate). Transit bulbs would be constructed for the inbound (north) bus stops on 19th Avenue at Judah (130 feet long), Noriega, Ortega, Taraval (130 feet long), and Vicente streets, Sloat Boulevard, Eucalyptus Drive, Holloway Avenue (130 feet long), and Junipero Serra Boulevard. Transit bulbs would be constructed for the outbound (south) transit stops at Lincoln Way, Judah (130 feet long), Lawton, Noriega Ortega,

SFMTA | Municipal Transportation Agency

22 FILLMORE

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative

Segment Proposals

- Transit Only Lane
- New Traffic Signal
- Stop Removal
- Existing Stop
- Stop Optimization
- New Stop
- New Transit Island
- New Transit Bulb
- No Left Turn Restrictions
- Crosswalk
- New Pedestrian Bulb
- New Left-Turn Pocket

Moderate Alternative

The Moderate Alternative would include the same parking and turn restriction proposals of the Expanded Alternative with the following exceptions: Left turns would only be prohibited in both directions on 16th Street at Florida, Alabama, Harrison, Folsom, Shotwell, Capp, Mission, Hoff/Julian, Valencia, Albion, Guerrero, and Dolores streets and at South Van Ness Avenue. The Moderate Alternative does not include a center-running transit-only lane in both directions from Third Street to Bryant Street. The Moderate Alternative includes the following transit stop changes:

Transit Stop Changes

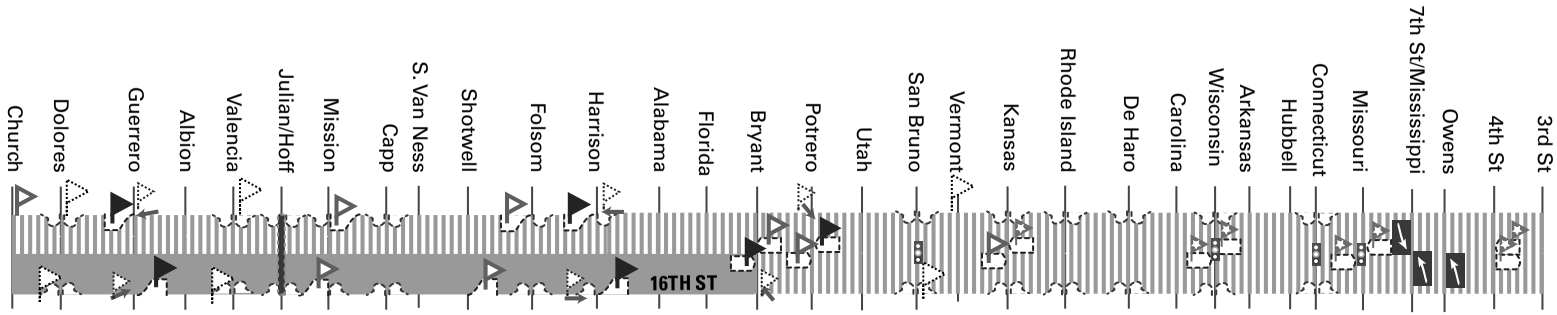
New bus bulbs would be constructed for the new stops in both directions on 16th Street at the farside of the intersections of 4th, Missouri, Wisconsin, Harrison, Mission, and Guerrero streets. In the inbound direction, a new bus bulb would be constructed for the new stop on 16th Street at Rhode Island Street. In the outbound direction, existing stops on 16th Street at Potrero Avenue and at Kansas Street would be moved from the nearside to the farside of the intersection, and new bus bulbs would be constructed for these stops. In the inbound direction, the existing stop on 16th Street at Bryant Street would be moved from midblock to the farside of the intersection and a new bus bulb would be constructed. Bus bulbs would be added to the existing inbound farside stop at 16th Street and Potrero Avenue and to the existing outbound farside stop at 16th Street and Bryant Street.

Expanded Alternative – Variant 1

From Bryant Street to Church Street, 16th Street would be restriped with two wider (13-foot-wide) mixed-flow and two (12-foot-wide) parking lanes with tow away restrictions during peak hours. During peak hours, the parking lanes would be used as curbside transit-only lanes.

Expanded Alternative – Variant 2

Transit Stop Changes (Expanded – Variant 2) Bus bulbs would be constructed in both directions at the farside of the intersection on 16th Street at Harrison, Mission, and Guerrero streets and in the inbound direction at Folsom and Church streets, and in the outbound direction at Shotwell Street. From Bryant Street to Church Street, 16th Street would be restriped for one mixed-flow lane in both directions, parking in both directions, and a full time, inbound (westbound) side-running transit-only lane.



← Move bike lane from Kansas Street to 7th Street to 17th Street →

← Sidewalk widening to 18' from Bryant Street to 7th Street →

Expanded Alternative Proposed Left-Turn Restrictions

- 16th St / Florida
- 16th St / Alabama
- 16th St / Harrison
- 16th St / Folsom
- 16th St / Shotwell
- 16th St / S Van Ness
- 16th St / Capp
- 16th St / Mission
- 16th St / Hoff & Julian
- 16th St / Valencia
- 16th St / Albion (westbound only)
- 16th / Hubbell (eastbound only)
- 16th St / Arkansas (westbound only)
- 16th St / Wisconsin
- 16th St / Carolina
- 16th St / De Haro
- 16th St / Guerrero
- 16th St / Dolores
- 16th St / 4th St (westbound only)
- 16th St / Missouri (westbound only)
- 16th St / Connecticut (westbound only)
- 16th St / Rhode Island
- 16th St / Kansas
- 16th St / San Bruno
- 16th St / Utah
- 16th St / Potrero (westbound only)
- 16th St / Bryant

NORTH

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 20 - TTRP.22 EXPANDED ALTERNATIVE

Quintara, Rivera, Taraval (130 feet long), and Vicente streets, Sloat Boulevard, Eucalyptus Drive, and Winston Drive (130 feet long). A boarding island may be constructed at Winston Drive instead of a transit bulb. Except as noted above, the transit bulbs would be 65 feet in length. All of the transit bulbs would be located at the farside of intersections, except at Winston Drive, where a nearside transit bulb or boarding island would be constructed.

Transit stops that are currently located on the nearside of the intersection would be relocated to the farside of the intersection on 19th Avenue at Judah, Noriega, and Vicente streets, and at Eucalyptus Drive in the inbound (north) direction, and at Taraval Street and Eucalyptus Drive in the outbound (south) direction. Both inbound (north) and outbound (south) stops would be removed on 19th Avenue at Irving, Kirkham, Moraga, Pacheco, Santiago, Ulloa, and Wawona streets, and at Ocean Avenue.

Pedestrian Improvements (Moderate). Pedestrian bulbs would be built at both the northeast and southwest corners in both directions on 19th Avenue at Irving, Kirkham, Moraga, Pacheco, Santiago, Ulloa, and Wawona streets, and Ocean Avenue, with three additional pedestrian bulbs on the northeast corners at Lawton, Quintara, and Rivera streets. All of the pedestrian bulbs would be located at the farside of intersections.

TTRP.28_1 Expanded Alternative

Transit Stop Changes, Pedestrian Improvements, and Parking and Turn Restrictions (Expanded). The Expanded Alternative would include the same transit stop changes, pedestrian improvements, and parking and turn restrictions as the Moderate Alternative.

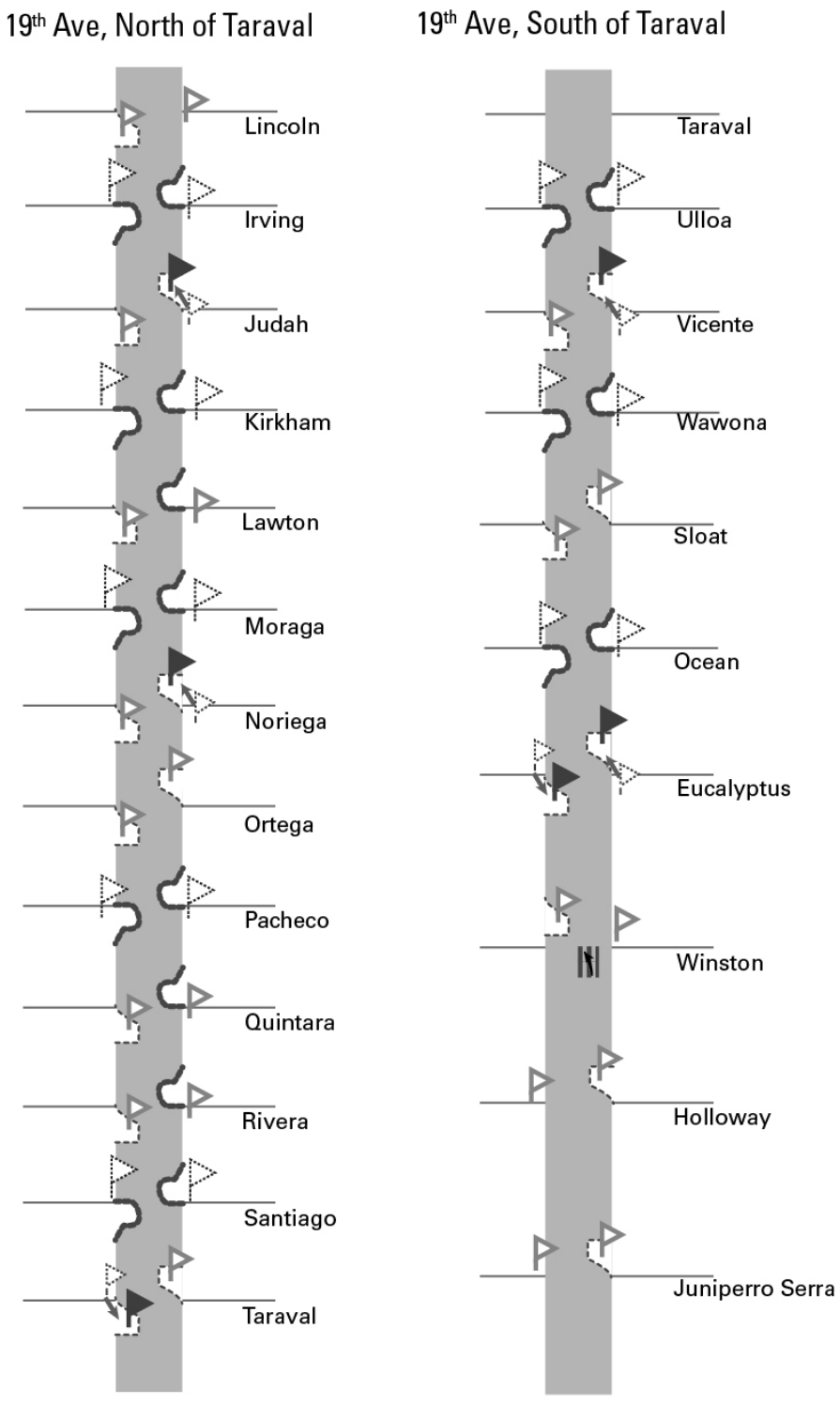
Lane Modifications (Expanded). One of the two existing left-turn lanes would be shortened in the northbound direction on 19th Avenue at the intersection of 19th Avenue with Winston Drive. The M Ocean View rail line currently operates in its own dedicated right-of-way in the median of 19th Avenue with the exception of the northbound direction at Winston Drive, where one of the two left-turn lanes is used for both left-turning vehicles and through Muni light rail trains. Consequently, all inbound (north) M Ocean View trains must wait for the left turn queue to dissipate before proceeding through the intersection. This alternative would minimize transit delay by shortening a portion of the leftmost left-turn lane, thereby limiting the stacking length available to non-transit vehicles to queue in front of a transit vehicle. This would allow for both the non-transit vehicles and transit vehicle to clear the intersection in one left-turn signal phase.

Figure 21 shows the TTRP.28 Expanded Alternative. Narrative text describes differences in the Expanded and Moderate Alternatives.

SFMTA | Municipal Transportation Agency

28, 28L 19th AVENUE

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative



Moderate Alternative

The Moderate Alternative would include the same proposals as the Expanded Alternative, with the exception of the proposal to shorten one of two northbound left turn lanes at 19th Avenue/ Winston Drive.

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

FIGURE 21 - TTRP.28 EXPANDED ALTERNATIVE

Please see information and additional graphics illustrating the TTRP.28 project at the SFMTA Web site, online at http://www.sftep.com.

TTRP.30_1: 8X Bayshore Express, 30 Stockton, and 45 Union-Stockton

TTRP.30_1 would provide transit improvements for the 30 Stockton bus route along the Van Ness Avenue, North Point Street, Columbus Avenue, Stockton Street, and Kearny Street corridors. The 8X Bayshore Express and 45 Union-Stockton routes also use portions of this corridor and would benefit from these improvements. The proposed project would implement specified TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Van Ness Avenue and Lombard Street to the intersections of Stockton and Market streets and Kearny and Market streets. The inbound direction for this route is south towards Market Street and the outbound direction is north towards North Point Street. On the east side of Columbus Avenue (outbound direction) for the entire block between Union and Powell street the sidewalk would be widened by six feet to create a transit bulb at this existing stop location.

- The TTRP.30_1 project has a Moderate and Expanded Alternative. The Moderate Alternative would include transit stop changes and sidewalk widening. The Expanded Alternative would include the same transit stop changes and sidewalk widening as the Moderate Alternative, along with the addition of a transit-only lane in both directions on Van Ness Avenue between Lombard and Bay streets and on Columbus Avenue between Filbert Street and Stockton Street/Green Street, and a transit-only lane in the outbound direction on Kearny Street between Market and Sutter streets. The Expanded Alternative also would include two variants to widen the mixed-flow lanes on Stockton Street between Columbus Avenue and Broadway. These are referred to as TTRP.30_1 Expanded Alternative Variants 1 and 2. TTRP.30_1 Expanded Alternative Variant 1 would include rescinding the p.m. peak period tow-away zone on the west (inbound) side of the street and converting the two inbound (south) and one outbound (north) mixed-flow lanes to a single mixed-flow lane in each direction with a parking lane on both sides. TTRP.30_1 Expanded Alternative Variant 2 would include maintaining the p.m. peak period tow-away zone on the west side of Stockton Street and eliminating the parking lane on the east side, as well as widening the two inbound (south) lanes (from 10 to 12 feet) and narrowing the one outbound (north) mixed-flow lane (from approximately 17 to 13 feet).

Implementation of the improvements in the Moderate Alternative would result in a net addition of up to 20 on-street parking spaces and the loss of six on-street loading spaces. With the implementation of the Expanded Alternative and the Expanded Alternative Variant 1

about 30 parking spaces would be removed and 50 would be added, for a net increase of about 20 parking spaces. With Expanded Alternative Variant 2 there would be no net change in the number of parking spaces. There would be a net reduction of eight loading spaces with implementation of the Expanded Alternative.

Details for the two project alternatives for this corridor are provided below. Figure 23 presents a graphic representation of the TTRP.30 Expanded Alternative on p. 2-160,

following the description of both alternatives; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

TTRP.30_1 Moderate Alternative

- The Moderate Alternative would include transit stop changes and sidewalk widening along the east side of Columbus Avenue between Union and Powell streets.

Transit Stop Changes (Moderate). Transit bulbs would be constructed for the inbound bus stops on Van Ness Avenue at Bay Street (65 feet long), at North Point/Polk streets (65 feet long), and Columbus Avenue at Bay (55 feet long) and Union (140 feet long) streets. Transit bulbs would be constructed for the outbound transit stops on North Point Street at Polk Street (65 feet long), on Columbus Avenue at North Point (55 feet long), Chestnut (65 feet
- long), and Greenwich (85 feet long including 20-foot-wide crosswalk width) streets, on Stockton Street at Columbus Avenue (55 feet long), and at Washington Street (55 feet long).

Existing transit bulbs in the inbound direction would be extended on Stockton Street at Pacific (from 80 to 130 feet), Sacramento (from 50 to 130 feet), and Sutter (from 70 to 130 feet) streets. An existing boarding island on Stockton Street at Geary Street would be extended from 85 to 130 feet as part of the Union Square Pedestrian Right-of-way Accessibility Improvement Project proposed by the DPW.[40]

- The existing sidewalk on the east side of Columbus Avenue (in the outbound direction) between Union and Powell streets, which includes an existing outbound transit stop at Union Street, would be extended six feet for the entire block (up to approximately 270 feet) in coordination with the Columbus Avenue Streetscape project proposed by the SFMTA. This extended sidewalk would serve as a transit bulb at the existing transit stop.

Stops for both directions on North Point Street at Hyde Street would be relocated from nearside to 100-foot-long transit zones on the farside of the intersection. On Stockton Street, the inbound midblock stop at the intersection of Stockton and Washington streets would be moved to a new 130-foot-long transit bulb on the farside of the intersection.

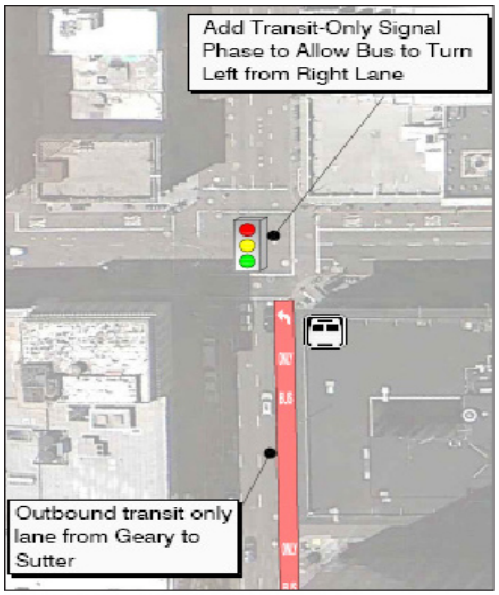
[40] Environmental review for the Union Square Pedestrian Right-of-way Accessibility Improvement Project was completed June 5, 2012. A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2011.0833E.

A new stop would be created in the inbound direction at a new 65-foot-long transit bulb at the farside of the intersection of Columbus Avenue and Greenwich Street. In the outbound direction, a new stop would be created on Stockton Street at a new 55-foot-long transit bulb at the farside of the intersection with Washington Street. Both inbound and outbound stops would be removed on North Point Street at Larkin Street, and Columbus Avenue at Francisco Street. In the inbound direction, the stops on North Point Street at Van Ness Avenue, and on Columbus Avenue at Lombard and Filbert streets would be removed.

TTRP.30_1 Expanded Alternative

Transit Stop Changes (Expanded). The Expanded Alternative would include all the transit stop changes included in the Moderate Alternative as well as the sidewalk widening along the east side of Columbus Avenue between Union and Powell streets.

Lane Modifications (Expanded). Side-running transit-only lanes would be created by converting a mixed-flow lane to a transit-only lane in both directions on Van Ness Avenue between Lombard and Bay streets and on Columbus Avenue between Filbert Street and Stockton Street/Green Street. To facilitate the transition to the outbound Columbus Avenue transit-only lane, one outbound mixed-flow lane would be removed on Columbus Avenue from Vallejo Street to Stockton Street/Green Street. A right-turn pocket in the westbound direction on Columbus Avenue would be added to allow turns onto northbound Stockton Street and eastbound Green Street. A mixed-flow lane would be converted to a curbside transit-only lane in the outbound direction on Kearny Street between Market and Sutter streets. At the intersection of Kearny and Sutter streets, a queue-jump signal would be installed to allow buses to turn left from the transit-only lane in advance of other vehicular movements in the northbound direction (see Figure 22a).



SOURCE: SFMTA, Turnstone Consulting

FIGURE 22a: TTRP 30 1 LANE MODIFICATION (EXPANDED)

Two variants are proposed for Stockton Street between Columbus Avenue and Broadway. TTRP.30_1 Expanded Alternative Variant 1 would include rescinding the p.m. peak period tow-away zone on the west (inbound) side of the street and converting the two inbound and one outbound mixed-flow lanes to a widened single mixed-flow lane in each direction with a parking lane on both sides.

TTRP.30_1 Expanded Alternative Variant 2 would include maintaining the p.m. peak period tow-away zone on the west side of Stockton Street and eliminating the parking lane on the east side, as well as widening the two inbound lanes and narrowing the one outbound mixed-flow lane (see Figure 22b).

SOURCE: SFMTA, Turnstone Consulting

FIGURE 22b: TTRP 30 1 LANE MODIFICATION (EXPANDED-VARIANT 2)

Figure 23 shows TTRP.30_1 Expanded Alternative and describes the differences between the Expanded and Moderate Alternatives.

Please see information and additional graphics illustrating the TTRP.30 project at the SFMTA Web site, online at http://www.sftep.com.

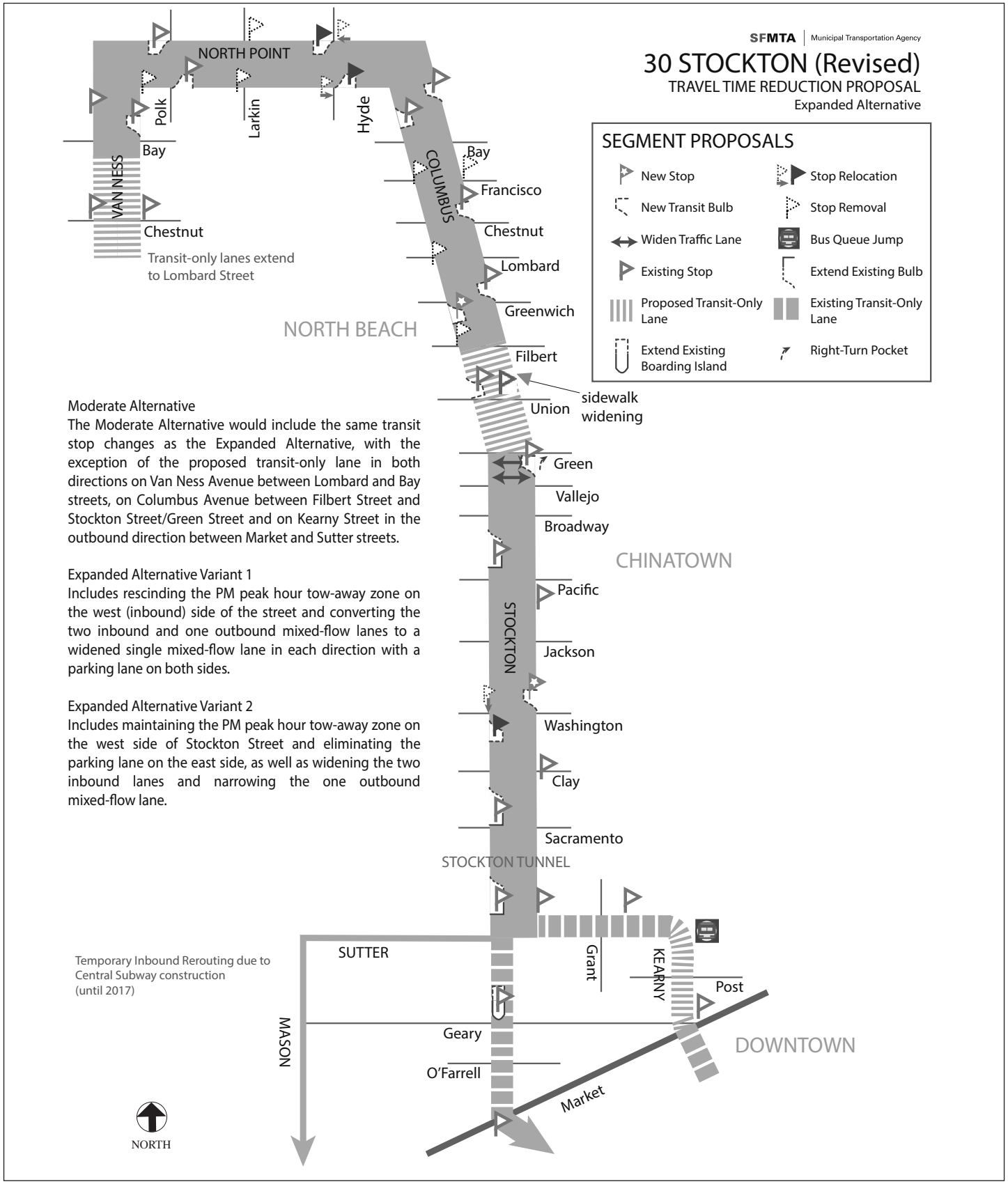
- **TTRP.71_1: 71 Haight-Noriega, 71L Haight-Noriega Limited, and 6 Parnassus**

- TTRP.71_1 would provide transit improvements for the 71L Haight-Noriega Limited and the 6Parnassus routes along the Haight Street corridor.[41] The proposed project would implement the specified TPS Toolkit elements in both the inbound and outbound directions, from the intersection of Haight and Laguna streets to the intersection of Haight and Stanyan streets. The inbound direction for these routes is east towards Downtown (i.e., toward Market Street) and the outbound direction is west toward the 48th Avenue terminus for the current 71 Haight-Noriega and 71L Haight-Noriega Limited; and 14th Avenue terminus for the existing 6 Parnassus. As part of the TEP Service Improvements, the 71 Haight-Noriega and 71L Haight-Noriega Limited would be consolidated into one limited all day service.

- The TTRP.71_1 has a Moderate and an Expanded Alternative. The Moderate Alternative would include transit stop changes, pedestrian improvements, parking and turn restrictions, lane modifications, and traffic signal and stop sign changes. This alternative would also include the replacement of stop signs at ten intersections on Haight Street with traffic signals, add a transit queue jump on Haight Street at Buchanan Street, and would relocate transit stops at three of the intersections on Haight Street from nearside to farside. The Expanded Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes as the Moderate Alternative, with the following difference: stop signs would be replaced with traffic calming measures instead of traffic signals at six of the ten intersections on Haight Street. Details of the two project alternatives for this corridor are provided below. Figure 23a (on p. 2-160e below) presents a graphic representation of the TTRP.71_1 Expanded Alternative; the figure also has text summarizing how the Moderate Alternative differs from the Expanded Alternative.

- Implementation of the improvements in the Moderate Alternative would result in an estimated net reduction of about 45 parking spaces. There would be an estimated net reduction of about 60 parking spaces with implementation of the Expanded Alternative. Implementation

[41] With implementation of the proposed TEP Service Improvements, the 71 Haight-Noriega local service would be discontinued, and the 71L Haight-Noriega Limited would operate as limited-stop service all day.



SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

● **FIGURE 23 - TTRP.30 EXPANDED ALTERNATIVE**

of improvements in either the Moderate or Expanded Alternative would not result in a net change to the number of loading spaces. As part of both the Moderate and Expanded Alternatives, 15 yellow commercial loading zones and one white passenger loading zone would be relocated. The commercial loading zones would be relocated to within 250 feet of the existing loading zone locations.

- **TTRP.71_1 Moderate Alternative**

- TPS Toolkit elements in the Moderate Alternative include transit stop changes, pedestrian improvements, parking and turn restrictions, traffic signal and stop sign changes, and lane modifications.

- **Transit Stop Changes (Moderate).** New 110-foot-long transit bulbs would be constructed on the farside of the intersection at the inbound and outbound stops on Haight Street at Fillmore and Divisadero streets, and in the inbound direction on Haight Street at Masonic Avenue and Stanyan Street. A new 110-foot-long transit bulb would also be constructed in the outbound direction on Haight Street midblock between Shrader and Stanyan streets.

- The existing outbound farside bus zone at Haight and Laguna streets would be lengthened from 80 feet to 100 feet.

- The inbound and outbound stops on Haight Street at Clayton and Pierce streets and the outbound stop on Haight Street at Buchanan Street would be relocated from nearside to farside of the intersection. The new farside bus zones would be 100 feet long.

- The inbound and outbound stops on Haight Street at Cole Street would be removed. Additionally, the new farside stops at Haight Street and Clayton Street would be converted to local-only stops. Therefore, after implementation of the proposed Service Improvements changes to the 6 Parnassus and 71 Haight-Noriega routes, the inbound and outbound stops on Clayton Street would be served by the 6 Parnassus but not by the 71L Haight-Noriega Limited.

- The closely-spaced inbound and outbound stops at the intersection of Haight Street and Central/Buena Vista West and the intersection of Haight Street and Baker/Buena Vista East would be consolidated into new farside stops at Haight Street at Lyon Street in both directions.

- **Pedestrian Improvements (Moderate).** Pedestrian bulbs would be constructed on the southwest corner of Haight Street at Baker/Buena Vista East Avenue, on the southwest and southeast corners of Haight Street at Belvedere Street, on the southeast corner of Haight Street and Cole Street, on the northwest corner of Haight Street and Cole Street, and on the northeast and southwest corners of Haight Street and Lyon Street.

- **Parking and Turn Restrictions (Moderate).** Right-turn pockets would be added in the westbound direction on Haight Street at its intersections with Fillmore Street, Masonic Avenue, and Stanyan Street. In the eastbound direction, right-turn pockets would be added on Haight Street at the intersections of Buchanan Street and Fillmore Street. A left-turn pocket would be added in the eastbound direction on Haight Street at its intersection with Masonic Avenue. All of the above noted turn pockets would be 50 feet long, with the exception of the eastbound turn pocket at Buchanan Street, which would be 120 feet long.

- A new left-turn restriction would be implemented in the westbound direction on Haight Street at the intersection with Masonic Avenue at all times. However, if the Service Improvement change for the 6 Parnassus to operate on Haight Street west of Masonic Avenue instead of its current route is not implemented, then the left-turn restriction would be modified to allow only Muni vehicles to make left turns at this intersection.

- **Traffic Signal and Stop Sign Changes (Moderate).** Traffic signals would be installed on Haight Street at the following intersections: Buchanan Street, Broderick Street, Baker/Buena Vista East Avenue and at Clayton Street, which are currently intersections with all-way stop sign controls. At the intersection of Haight Street/Buchanan Street, a transit queue jump signal would be provided to allow buses stopped at the bus zone to pass stopped traffic at this intersection.

- **Lane Modifications (Moderate).** At the intersection of Haight Street/Buchanan Street, a right-turn pocket would be added in eastbound direction to facilitate the proposed transit queue jump signal described above.

- *The following Traffic Signal and Stop Sign Changes are part of the Moderate Alternative and are not part of the Expanded Alternative.*

- **Traffic Signal and Stop Sign Changes (Moderate Only).** The all-way stop signs would be replaced with traffic signals at the following intersections with Haight Street: Laguna, Webster, Pierce, Scott, Central, and Shrader streets.

- **TTRP.71_1 Expanded Alternative**

- **Transit Stop Changes, Pedestrian Improvements, Parking and Turn Restrictions, Lane Modifications, Traffic Signal and Stop Sign Changes, and Lane Modifications (Expanded).** The Expanded Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, traffic signal and stop sign changes, and lane modifications as the Moderate Alternative, except for several traffic signal and stop sign changes noted above as Moderate Only. The Expanded Alternative also includes the following changes.

- **Traffic Signal and Stop Sign Changes (Expanded).** The Expanded Alternative would include replacement of the all-way stop signs with traffic calming measures instead of the traffic signals proposed in the Moderate Alternative at the following intersections with Haight Street: Laguna, Webster, Pierce, Scott, Central, and Shrader streets. In conjunction with removing the stop signs facing Haight Street, the traffic calming measures would be installed and would include pedestrian bulbs at all four corners of each intersection, except at Pierce Street. At the intersection of Haight and Pierce streets, there would be pedestrian bulbs on the northeast and southwest corners and six-foot-long pedestrian refuge islands on both approaches of Haight Street.

- Figure 23a shows TTRP.71_1 Expanded Alternative and describes the differences between the Moderate and Expanded Alternatives. Please see information and additional graphics illustrating the TTRP.71_1 project at the SFMTA Web site, online at http://www.sftep.com.

2.5.3 PROJECT CONSTRUCTION

The TEP is a set of projects. Some projects would require construction to implement them, such as the Service-related Capital Improvements and TTRPs; others, such as the Policy Framework and Service Improvements, with the exception of minor curb changes, striping, and signage that may be associated with new route terminus locations, would not. Construction of the Service-related Capital Improvements would include a combination of the following elements, as specified in the respective descriptions of the projects: curb and sidewalk changes, the application and removal of pavement markings, the installation or removal of parking meters and signs, the installation of overhead wire support poles and wires and underground duct banks, the installation of traffic signals and related signal control equipment, the installation of new bypass rails and switches, and the installation and relocation of curb ramps and associated utilities.

The construction of TTRPs along each TTRP corridor would include curb and sidewalk changes, the application and removal of pavement markings, the installation or removal of parking meters and signs, the installation of traffic signal poles, both with and without mast arms, with associated signal control equipment, stop signs, and traffic calming measures at intersections, the installation of pedestrian light poles, and the installation or relocation of curb ramps and the potential relocation of other utility infrastructure. At any one time only one to two blocks would be under construction along a corridor,[42] and the work would proceed along the corridor in that fashion.

Service Improvements could include curb and sidewalk changes, as well changes to pavement markings and signage. Street trees may be removed to accommodate some TEP components such as transit and pedestrian bulbs or to relocate utilities. In most cases trees removed would be replaced in nearby locations; up to about 10 trees may be removed without being replaced as a result of the TEP. Removal and replacement of street trees

[42] See Section 4.4, Air Quality, p. 4.4-37. See also BASELINE Environmental, *Final Air Quality Technical Report – Transit Effectiveness Project*, May 10, 2013, Appendix I, Attachment 5, e-mail from Cathal Hennesy, SFMTA, to Debra Dwyer, San Francisco Planning Department, May 3, 2013. A copy of this document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File 2011.0558E.

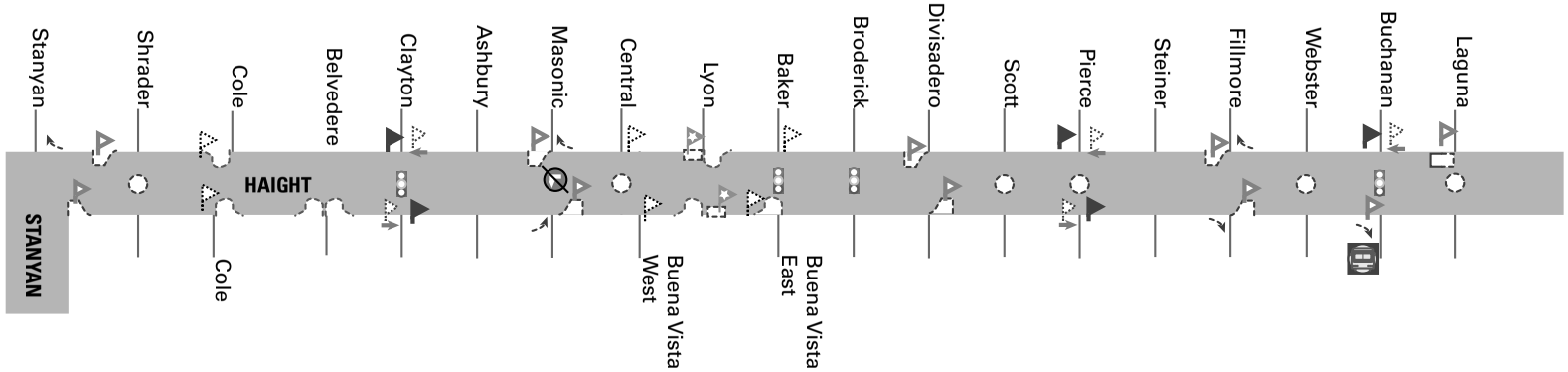
SFMTA | Municipal Transportation Agency

71, 71L HAIGHT-NORIEGA

TRAVEL TIME REDUCTION PROPOSAL Expanded Alternative

SEGMENT PROPOSALS

- Existing Stop
- Stop Removal
- Stop Relocation
- New Transit Bulb
- New Pedestrian Bulb
- Extend Bus Zone
- New Stop
- New Traffic Signal
- Remove Stop Signs on Haight Street and Replace with Traffic Calming Measure
- Turn Pocket
- Bus Queue Jump
- No Left-Turn Restriction



Moderate Alternative

The Moderate Alternative would include the same transit stop changes, pedestrian improvements, parking and turn restrictions, and traffic signal and stop sign changes as the Expanded Alternative, except that six intersections along Haight Street would be replaced with traffic signals, rather than traffic calming measures (Shrader, Central, Scott, Pierce, Webster and Laguna).

For both the Expanded and Moderate Alternative, the inbound/outbound stops at Haight/Clayton Streets would only serve the local route.

NORTH

SOURCE: SFMTA, Turnstone Consulting

TRANSIT EFFECTIVENESS PROJECT

● FIGURE 23a - TTRP.71_1 EXPANDED ALTERNATIVE

would be carried out in compliance with the City's Urban Forestry Ordinance, as stated on p. 290 of the Initial Study (Appendix 2 to this EIR, found on the Appendix CD enclosed with this EIR).

Construction of curb and sidewalk modifications would involve excavation depths of one to two feet below ground surface. Installation of traffic signals would require excavation depths of up to 9 feet. Overhead wire support poles would require excavation depths of up to 12 feet, while the associated duct banks and utility vaults would require a 6-foot-deep excavation. The installation of bypass rail is anticipated and would involve a maximum excavation of 2 feet bgs for subgrade preparation of the rail bed. After placement of the rail, a rebar-reinforced concrete road bed is formed and poured. Construction would involve the use of heavy equipment and various fuels and oils and lubricants. Paints, solvents and other chemicals would also be used. Erosion control features, such as silt fences, straw bales and other mechanical barriers would be used where necessary to prevent silt and chemicals from entering catch basins with stormwater runoff. Baker tanks[43] may be used in some construction locations to contain runoff and allow sediment to settle before discharge to the sewer system, although few construction sites for the TEP projects would be expected to be large enough to require this measure.

It is unlikely that construction of all the project-level Service-related Capital Improvements and TTRPs would occur in the same fiscal year (FY). However, there would be some overlap. The SFMTA has a five-year budget and anticipated schedule for completion of these projects outlined in the following Project Schedule section. The construction time for each capital improvement and TTRP project would be dependent on the extent of the improvements identified and is anticipated to be constructed in its entirety, rather than in phases.

Construction activities for SCI.1, the Sansome Contraflow project are anticipated to take between six and nine months. Construction activities for TTPI.1 - Persia Triangle Improvements are anticipated to take between six and 12 months. Construction activities for the OWE projects are anticipated to take between six and 12 months, depending on whether the individual project requires new poles and associated wire infrastructure.

The TTRPs vary in terms of the length of the corridor proposed for improvement as well as the number of TPS Toolkit elements being implemented. Therefore, the duration of the construction activities associated with the TTRPs within the right-of-way would also vary. It

[43] Baker tanks are portable above-ground storage tanks of varying sizes that can be delivered to a construction site to temporarily store liquids. Baker tanks are often used to temporarily store groundwater or stormwater runoff from a construction site while sediment in the water settles out. The water can then be discharged and the sediment transported off site.

is anticipated that the amount of time that it would take to construct and implement these TTRP projects would range from six to 18 months.

2.5.4 PROJECT SCHEDULE

The TEP projects would be implemented based on funding and resource availability. It is anticipated that Service Improvements would be rolled out in phases with the first group implemented in Fiscal Year (FY) 2015 and the second group in a subsequent phase. The first group of Service-related Capital Improvements would also be constructed beginning in FY 2015. The TTRPs would be constructed in groups. The anticipated schedule includes constructing TTRP.5 and TTRP.30_1 in FY 2015, TTRP.N, TTRP.8X, and TTRP.28_1 in FY 2016, and TTRP.J and TTRP.14 in FY 2017. Construction of TTRP.22_1 is currently not anticipated to begin until after FY 2017. This implementation schedule is subject to change as specific funding sources and resources are identified.

The first series of service changes to be implemented would likely be changes that only require legislation, signage, and striping changes, and that are not dependent on new Service-related Capital Improvements. Due to the lead time required for the construction of capital improvements, any service changes dependent on these projects, such as installation of overhead wire or underground infrastructure projects would be more likely to occur in the later part of implementation due to the dependence on the completion of the capital project. However, certain Service Variants could be implemented to address such issues (for example, the 22 Fillmore with motor coach service).

Systemwide capital infrastructure improvements would occur between FYs 2015 and 2019. The TTPI projects are tentatively scheduled to be constructed by FY 2016. Overhead wire expansion and implementation of the TTRPs would occur throughout between FYs 2014 and 2019. A number of the Service-related Capital Improvements would be expected to be constructed concurrently or with some degree of overlap. The specific order and timing of construction of these capital improvements and TTRPs would be dependent on available funding sources and resources as well as direction from the SFMTA Board of Directors.

2.6 INTENDED USES OF THE EIR

This EIR is both a program-level and project-specific EIR. The TEP components have been defined at different levels of detail, depending on the planning and design decisions made by the SFMTA for the TEP as of November 2011, when the Notice of Preparation of an EIR was circulated. The amount of detail available affects the level of analyses that can be prepared for some environmental topics. CEQA allows phased projects, such as the TEP, to be analyzed at different levels of detail, depending on the amount of available information. TEP components that are fully developed—the Service Improvements, seven of the Service-

related Capital Improvements, and eight of the TTRPs—are analyzed at a project-specific level of detail in the Initial Study (provided in Appendix 2 on the Appendix CD enclosed with this EIR) and in the EIR.

For TEP components that are defined at a more conceptual level—five of the Service-related Capital Improvements, the TPS Toolkit elements as applied to the Rapid Network, and nine of the TTRPs,[44] described in Section 2.5.1 in the Project Description—environmental analysis is provided at a program level, pursuant to CEQA Guidelines § 15168. In addition, issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program is identified in the CEQA Guidelines as appropriate for a program-level EIR. The Policy Framework fits within this group of types of projects and is also analyzed in the EIR at a program level. However, for many environmental analysis topics, the definition of the TEP components at a conceptual level is sufficient to allow analysis of environmental impacts at a project-specific level. All of the topics fully analyzed in the Initial Study--Land Use and Land Use Planning, Aesthetics, Population and Housing, Cultural and Paleontological Resources, Greenhouse Gas Emissions, Wind and Shadow, Recreation, Utilities and Service Systems, Public Services, Biological Resources, Geology and Soils, Hydrology and Water Quality, Hazards and Hazardous Materials, Mineral and Energy Resources, and Agricultural and Forest Resources—provide a project-level analysis for all TEP components and the indirect effects of the Policy Framework as related to TEP. In addition, as described in Chapter 4, construction air quality and noise impacts of both program-level and project-level components of the TEP would be similar and therefore are analyzed in the EIR at a project-specific level.

Following public review and comment on the Draft EIR, the Planning Department will prepare responses to written and oral comments raising environmental issues, including revisions to the Draft EIR text where appropriate, and will publish a Responses to Comments document. The Planning Commission will consider the Draft EIR and Responses to Comments documents for certification as the Final EIR. A certified Final EIR is required prior to any discretionary approvals of the proposed project.

City decision-makers, including the San Francisco Municipal Transportation Agency Board of Directors, will use the Final EIR as part of the information they will consider when deciding whether or not to approve TEP components as they are presented for decision. Other City

[44] Three of the TTRPs that were analyzed at a program level in the Draft EIR have subsequently been designed and analyzed at a project level (TTRP.L, TTRP.9, and TTRP.71_1). Therefore, both program-level and project-level analyses are provided in the EIR for these three TTRPs. The project-level analysis supplement the program-level analysis.

agencies, and some public agencies outside the City, will use the Final EIR if other discretionary actions are needed to implement components of the TEP. As TEP components that are analyzed at a program level are fully defined, each will be reviewed based on the analyses in this EIR and its Initial Study to determine whether all potential significant impacts have been identified and disclosed, whether mitigation measures in the EIR are applicable, and whether any new or substantially more severe significant impacts may result from implementation, and a determination will be made as to whether additional environmental

review is required, pursuant to *CEQA Guidelines* §§ 15168(c), 15168(d), and 15162. As explained in *CEQA Guidelines* § 15168(c)(2): "If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required." If additional environmental analysis were to be required for components of the TEP analyzed at the program level, this EIR will be used to simplify the later environmental documentation by, for example, use of incorporation by reference to deal with cumulative impacts and to cover many of the topics fully addressed in the Initial Study.

2.6.1 APPROVALS REQUIRED

The Transit Effectiveness Project is a program of components that are expected to be implemented over time, as explained in Section 2.5.4, Project Schedule. The components would be presented to decision-makers individually or in limited groups of related components. Therefore, the TTRP Moderate Alternative would not be presented to decision-makers for all corridors for a single action. In addition, the SFMTA may request approval of the TTRP Expanded Alternative for some corridors, approval of the TTRP Moderate Alternative for other corridors, or the approval of a combination of elements for the corridors from the two alternatives analyzed. Similarly, Service Variants may be presented to decision-makers for approval for some or all of the proposed Service Improvements. It is anticipated that the proposed TEP program of projects may require the following actions under existing regulations and ordinances, although approvals may vary depending on the specific TEP component being considered:

Actions by the San Francisco Planning Commission

- Certification of the Environmental Impact Report.
- Public transportation facilities in the Local Coastal Zone may require a Coastal Zone permit by the Planning Commission.

Actions by the San Francisco Planning Department

- Review of General Plan referrals from Department of Public Works related to Sidewalk Legislation

Actions by the San Francisco Municipal Transportation Agency Board of Directors

- Approval of the Transit Effectiveness Project and approval to implement changes to each transit route and related construction.
- Approval of the implementation of certain parking and traffic measures in accordance with § 201(c) of the Transportation Code.

Actions by the San Francisco Board of Supervisors

- May consider and reject route abandonments. In accordance with the City Charter regulations 8A.106 (D) and 8A.108, the San Francisco Board of Supervisors would consider approving system changes related to route abandonments.

Actions by other San Francisco Agencies

- Approval of property encroachment by the San Francisco Recreation and Park Commission.
- Approval of Sidewalk Legislation by the DPW and the San Francisco Board of Supervisors.
- Approval of construction period encroachment permits by DPW.
- Approval of Special Traffic Permit by the San Francisco Municipal Transportation Agency in instances where work does not comply with Blue Book[45] regulations or traffic routing specifications in a City Contract.

Actions by Agencies Outside of the City and County of San Francisco

- Approval of the installation of a traffic signal and transit bulb in Daly City.
- Approval of temporary construction street encroachment permits by the California Department of Transportation.

[45] SFMTA, *Regulations for Working in San Francisco Streets*, 8th Edition, January 2012. Available online at: http://www.sfmta.com/services/streets-sidewalks/construction-regulations. Accessed June 4, 2013.

CHAPTER 3: PLANS AND POLICIES

3.1 INTRODUCTION

The Initial Study discussed the compatibility of the proposed project with applicable adopted plans and policies (see Appendix 2, pp. 173-174, provided on the enclosed CD) and concluded that the proposed project would be consistent with applicable adopted plans and policies that were listed in the Initial Study published on January 23, 2013. Comments received on the Initial Study requested that the EIR evaluate consistency of the proposed project with the BART Daly City Station Access Improvement Plan, dated June 2012. This evaluation has since been done, no inconsistencies were found, and the Daly City Station Access Improvement Plan is included in the list of Plans and Policies with which the proposed project is consistent, below.

SAN FRANCISCO PLANNING CODE AND ZONING MAP

Section 203 of the San Francisco Planning Code (Planning Code) states that the Planning Code shall not limit the construction, installation or operations by any public agency of any street or transportation line, or of incidental appurtenances to any of the foregoing when located in a street, alley, or other right-of-way. As the proposed TEP would be built and operated within the public rights-of-way, the components of the TEP would not be subject to the Planning Code (require variances, special authorizations, or changes to the Planning Code or Zoning Map). Accordingly, this topic is not applicable to the project.

PLANS AND POLICIES

The TEP project was reviewed for its consistency with the following applicable plans and policies and no conflicts or inconsistencies were identified. The TEP's compatibility with plans and policies that do not relate to physical environmental issues will be considered by decision-makers in choosing whether to approve, modify, or disapprove the proposed project. Any potential conflicts identified as part of the approval process would not alter the physical environmental effects of the proposed project. The following is a list of applicable adopted plans and policies as well as relevant programs and projects against which the proposed project was reviewed for inconsistencies.

- *San Francisco General Plan*
- Proposition M, Accountable Planning Initiative
- *Transit First* policy
- San Francisco Bicycle Plan
- Better Streets Plan
- The San Francisco Bay Plan
- The Sustainability Plan for the City of San Francisco

- The San Francisco Regional Water Quality Control Board Basin Plan
- The San Francisco Congestion Management Program
- The Bay Area Air Quality Plan
- Transit Signal Priority Program
- SF*go*
- Transit Center District Plan
- Eastern Neighborhoods Area Plans
- Market and Octavia Area Plan
- Balboa Park Station Area Plan
- Glen Park Community Plan
- Rincon Hill Community Plan
- Western SoMa Community Plan
- Bay Rapid Transit District (BART) Daly City Station Access Improvement Plan

Most of the plans listed above include programs and policies that relate to the implementation of projects and improvements to better manage and improve various transportation modes and enhance access and connections to regional transit modes throughout the Muni system.

Due to the constraints of the existing public right-of-way, the City balances the needs of all transportation modes that share the right-of-way, including bicycles, pedestrians, transit and vehicles when considering improvements to public transit. Conflicts between plans that focus on a particular mode within the City right-of-way may arise; however, many of the plans and policies include discussion that indicates that implementation of programs or capital improvements would be coordinated with SFMTA transit improvements, including the TEP. Moreover, the SFMTA has and would continue to incorporate transportation-related elements of applicable plans and projects into the TEP, as feasible, including regional transit providers such as BART, SamTrans and Golden Gate Transit.

Overall, the SFMTA transit staff has and will continue to coordinate implementation of the TEP with other city and regional transportation programs and projects for non-transit modes to ensure that, on-balance, the proposed project continues to be consistent with applicable adopted plans and policies.