APPENDIX 1

MTC Guidance

MTC Resolution No. 3000, Revised – Congestion Management Program Policy

Subject: Approval of revisions to MTC's Congestion Management Program Policy to inform the Bay Area's County Transportation Agencies (CTAs) (also known as "Congestion Management Agencies" or "CMAs") on how MTC intends to make a finding of consistency between each prepared 2019 Congestion Management Program (CMP) and Plan Bay Area 2040, the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

Background: CMPs were established by State law in 1990 with the intention of creating a cooperative context for transportation planning by cities and their respective CTAs. A primary intent of CMPs is to monitor county multi-modal transportation networks and identify improvements to the performance of these multi-modal systems. The CMPs primary performance measure is vehicle delay presented as Level of Service (LOS) A through F.

The CMPs are prepared biennially (odd years). However, CMPs are not required in a county if a majority of local governments representing a majority of the population adopt resolutions electing to be exempt from this requirement (AB 2419 (Bowler) Chapter 293, Statutes of 1996). Jurisdictions throughout the state have chosen to opt out of the CMP process as provided for in the law, including San Diego, Fresno, Santa Cruz, and San Luis Obispo counties. Los Angeles County began the opt out process in 2018. MTC has encouraged local consideration of the opt out process, noting that the CMP legislation is outdated and the CMP's primary measure – LOS – has largely been superseded by other statewide priorities to reduce vehicle miles ("VMT") and reduce greenhouse gas emissions. Instead, MTC has encouraged CTAs to focus limited planning resources on Countywide Transportation Plans (CTP) as a more flexible, comprehensive, and inclusive planning process to identify and reflect local funding priorities, and to focus on coordination with MTC staff on the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

Revisions to the Guidelines
Staff revised Attachments A and B of MTC Resolution No. 3000, Revised, to reflect updated federal and state regulatory settings and the adoption of Plan Bay Area 2040, to clarify how MTC will make a finding of consistency between each prepared CMP and Plan Bay Area 2040, to update the Travel Demand Modeling Checklist, to reference the latest release of the Highway Capacity Manual, and to reflect minor updates to descriptive language.

MTC's Responsibility
For each prepared CMP, MTC's responsibilities include making a finding of consistency between the CMP and the RTP/SCS (currently "Plan Bay Area 2040"), evaluating the consistency and compatibility of the CMPs in the Bay Area, and including CMP projects into the Regional Transportation Improvement Program (RTIP). For counties that opt out of preparing a CMP, MTC will work directly with the respective CTA to reflect project priorities from an adopted

Capital Improvement Program (CIP) and are consistent with Plan Bay Area 2040 for RTIP funding.

Next Steps
In fall 2019, CTAs will submit their 2019 CMP and their respective project priorities for consideration into the 2020 RTIP. MTC will then begin its consistency review before submitting the final 2020 RTIP priorities to the California Transportation Commission by December 15, 2019. See Table 1 for a summary of the 2019 CMP review process.

Issues: The CMP legislation and ensuing process is outdated and its primary measure – LOS – is out of step with more recent statewide guidance. In response, MTC envisions a future redrafting of the CMP Policy in advance of the 2021 CMPs to re-assess what it means to be consistent with the RTP/SCS. There are two primary ways in which CTA's develop short and long-range transportation project priorities to support regional planning and programming efforts, the CMP and the CTP. Currently, six of the nine Bay Area counties prepare both a CMP and CTP, and the two counties that are not required to prepare CMPs prepare CTPs. Given this redundancy, MTC may want to seek legislative action to revisit the CMP statutes and one modern comprehensive planning process, as the CTP are also established under state statute.

Recommendation: MTC Resolution No. 3000, Revised, delegates to this Committee the responsibility for approving revisions to the CMP Guidance (MTC Resolution No. 3000, Revised). Staff recommends that the Committee approve the revisions to Attachments A and B of MTC Resolution No. 3000, Revised, for the purpose of providing guidance for the development of the 2019 CMPs consistent with Plan Bay Area 2040.

Attachments: Attachment A: Table 1: 2019 CMP Schedule
Attachment B: MTC Resolution No. 3000, Revised

Therese W. McMillan

Table 1. 2019 CMP Review Process and Schedule

Date	Activity	Responsible Party
June 14, 2019	Approval of updates to CMP Policy	MTC's Planning Committee
October 2019	CMAs submit 2019 CMP, RTIP projects summary listings, and identification of projects requiring project-level performance measure analysis to MTC. Deadline to submit Complete Streets Checklist for new projects.	CTAs
October 2019	• Submittal of CMPs for counties that prepare CMPS • Review of consistency of CMPs with Plan Bay Area 2040 (RTP/SCS)	MTC staff
November 2019	Final Project Programming Request (PPR) forms due to MTC. Final RTIP project listing and performance measure analysis due to MTC. Final PSR (or PSR equivalent), Resolution of Local Support, and Certification of Assurances due to MTC (final complete applications due)	CTAs
December 11, 2019	Programming & Allocations scheduled review of RTIP and referral to Commission for approval	MTC's Programming & Allocations Committee
December 15, 2019	2020 RTIP due to the California Transportation Commission (CTC) (PAC approved project list will be submitted)	MTC staff
December 18, 2019	MTC's scheduled Consistency Findings on 2019 CMPs MTC's scheduled approval of the 2020 RTIP	MTC Commission

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC
Revised: 06/11/99-W 05/11/01-POC
06/13/03-POC 06/10/05-POC
05/11/07-PC 05/08/09-PC
06/10/11-PC 07/12/13-PC
10/09/15-PC 06/14/19-PC

ABSTRACT

Resolution No. 3000, Revised

This resolution revises MTC's Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan (RTP).

This resolution supersedes Resolution No. 2537

Attachments A and B of this resolution were revised on June 11, 1999, to reflect federal and state legislative changes established through the passage of the Transportation Equity Act of the 21st Century and SB 45, respectively. In addition, the Modeling Checklist has been updated.

Attachments A and B of this resolution were revised on May 11, 2001, to reflect state legislative changes and to reference updated demographic and forecast data.

Attachments A and B of this resolution were revised on June 13, 2003, to reflect state legislative changes, 2001 RTP goals and policies, and to reference updated demographic and forecast data.

Attachments A and B of this resolution were revised on June 10, 2005, to reflect the updated RTP goals, as per Transportation 2030, and to reference updated demographic and forecast data.

Attachments A and B of this resolution were revised on May 11, 2007, to reflect federal legislative changes established through the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA), and to reference new State Transportation Control Measures and updated demographic and forecast data.

Attachments A and B of this resolution were revised on May 8, 2009, to reflect MTC's new RTP (Transportation 2035 Plan), an updated Travel Demand Modeling Checklist, and revised Resolution 3434 and TOD policy.

Attachments A and B of this resolution were revised on June 10, 2011, to reflect the new regional coordinated land use and transportation planning process as directed through SB 375, an updated Travel Demand Modeling Checklist, the newly released Highway Capacity Manual 2010, the Bay Area 2010 Ozone Strategy, and updates to the table noting achievement of the Transit Oriented Development requirements by Resolution No. 3434 transit extension project.

Attachments A and B of this resolution were revised on July 12, 2013, to reflect the new RTP (Plan Bay Area) and the statutory requirements in MAP-21 for RTP and air quality conformity requirements.

Attachments A and B of this resolution were revised on October 9, 2015, to reflect the final Plan Bay Area document, revisions to the Modeling Consistency Requirements and Transportation Control Measures, and to include minor updates to descriptive language.

Attachments A and B of this resolution were revised on June 14, 2019, to reflect updated federal and state regulatory settings and the Bay Area's new RTP/SCS (Plan Bay Area 2040), clarifications to the manner in which MTC will make a finding of consistency with PBA 2040, revisions to the Travel Demand Modeling Checklist, the newly released Highway Capacity Manual 2016, and to include minor updates to descriptive language.

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC

Re: Congestion Management Program Policy.

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3000

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Sections 66500 et seq; and

WHEREAS, Government Code § 65080 requires each transportation planning agency to prepare a regional transportation plan and a regional transportation improvement program directed at the achievement of a coordinated and balanced regional transportation system; and

WHEREAS, Government Code § 65089 requires a designated local agency in each urbanized county to develop, adopt, and periodically update a congestion management program for the county and its included cities unless a majority of local governments in a county and the county board of supervisors elect to be exempt; and requires that this congestion management program be developed in consultation, among others, with the regional transportation planning agency; and

WHEREAS, Government Code § 65089.2 requires that, for each congestion management program prepared, the regional transportation planning agency must make a finding that each congestion management program is consistent with the regional transportation plan, and upon making that finding shall incorporate the congestion management program into the regional transportation improvement program; and

WHEREAS, Government Code § 65082 requires that adopted congestion management programs be incorporated into the regional transportation improvement program approved by MTC; and

WHEREAS, MTC has adopted a Congestion Management Program Policy (MTC Resolution 2537, Revised) to provide guidance for all the counties and cities within the region in preparing their congestion management programs; and,

WHEREAS, MTC's Congestion Management Program Policy needs to be updated from time to time to provide further guidance, now, therefore, be it

RESOLVED, that MTC adopts the Congestion Management Program Policy, as set forth in Attachments A and B to this resolution, which are incorporated herein by reference; and, be it further

RESOLVED, that the MTC Work Program Committee is delegated the responsibility for approving amendments to Attachments A and B; and, be it further

RESOLVED, that this resolution shall be transmitted to the nine Bay Area Congestion Management Agencies for use in preparing their congestion management programs; and, be it further

RESOLVED, that MTC Resolution No. 2537, Revised is hereby superceded.

METROPOLITAN TRANSPORTATION COMMISSION

_____

Jane Baker, Chairwoman

The above resolution was entered into
by the Metropolitan Transportation
Commission at a regular meeting of the
Commission held in Oakland,
California, on June 25, 1997.

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC
Revised: 06/11/99-W 05/11/01-POC
06/13/03-POC 06/10/05-POC
05/11/07-PC 05/08/09-PC
06/10/11-PC 07/12/13-PC
10/09/15-PC 06/14/19-PC

GUIDANCE FOR CONSISTENCY OF

CONGESTION MANAGEMENT PROGRAMS

WITH THE REGIONAL TRANSPORTATION PLAN

Metropolitan Transportation Commission

June 2019

Title Page

GUIDANCE FOR CONSISTENCY OF CONGESTION MANAGEMENT PROGRAMS WITH THE REGIONAL TRANSPORTATION PLAN

TABLE OF CONTENTS

Abbreviations

AB ..... Assembly Bill
ABAG ..... Association of Bay Area Governments
BAAQMD ..... Bay Area Air Quality Management District
BCDC ..... Bay Conservation and Development Commission
CFR ..... Code of Federal Regulations
CIP ..... Capital Improvement Program
CMA ..... Congestion Management Agency
CMP ..... Congestion Management Program
CTC ..... California Transportation Commission
FAST ..... Fixing America's Surface Transportation Act
GHG ..... Greenhouse Gas (CO_2)
HCM ..... Highway Capacity Manual
ITIP ..... Interregional Transportation Improvement Program
LOS ..... Level of Service
MPO ..... Metropolitan Planning Organization
MTC ..... Metropolitan Transportation Commission
MTP ..... Metropolitan Transportation Plan
PCA ..... Priority Conservation Area
PDA ..... Priority Development Area
RMWG ..... Regional Model Working Group
RTIP ..... Regional Transportation Improvement Program
RTP/SCS ..... Regional Transportation Plan/Sustainable Communities Strategy
RTPA ..... Regional Transportation Planning Agency
SB ..... Senate Bill
TCM ..... Transportation Control Measures
TOD ..... Transit Oriented Development
TPA ..... Transit Priority Area
UGB ..... Urban Growth Boundary

I. INTRODUCTION

A. Purpose of This Guidance

The Congestion Management Program (CMP) statutes establish specific requirements for the content and development process for CMPs; the relationship between CMPs and the regional transportation planning process; Congestion Management Agency (CMA) monitoring and other responsibilities; and, the responsibilities of MTC as the Bay Area's Regional Transportation Planning Agency (RTPA) and Metropolitan Planning Organization (MPO). CMPs are not required to be prepared in counties where a majority of local governments representing a majority of the county's population and the Board of Supervisors adopt resolutions requesting to be exempt from this requirement (AB 2419 (Bowler) Chapter 293, Statutes of 1996). The following Guidance is for those counties that prepare a CMP following state statutes. For counties that opt out of preparing a CMP, MTC will work directly with the appropriate county transportation agencies to establish project priorities for funding.

CMP statutes specify responsibilities for MTC as the Bay Area's RTPA/MPO. These responsibilities include: reviewing the consistency between each CMP and the Regional Transportation Plan (RTP) – which encompasses the Bay Area's Sustainable Communities Strategy (SCS) demonstrating how the region could achieve state greenhouse gas (GHG) emission reduction targets; evaluating the consistency and compatibility of the CMPs in the Bay Area; and, including CMP projects into the Regional Transportation Improvement Program (RTIP).

The purpose of this Guidance is to focus on MTC's role in determining consistency between the CMPs and the region's RTP/SCS (herein also referred to as "Plan Bay Area 2040").

B. Legislative Requirement for Congestion Management Programs

CMPs were established as part of a bi-partisan legislative package in 1989 and approved by the voters in 1990. This legislation also increased transportation revenues and changed state transportation planning and programming processes. The specific CMP provisions were originally chartered by the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century by AB 471 (Katz); (Chapter 106, Statutes 1989). They were revised by AB 1791 (Katz) (Chapter 16, Statutes of 1990), AB 3093 (Katz) (Chapter 2.6, Statutes of 1992), AB 1963 (Katz) (Chapter 1146, Statutes of 1994), AB 2419 (Bowler) (Chapter 293, Statutes of 1996), AB 1706 (Chapter 597, Statutes of 2001), and SB 1636 (Figueroa) (Chapter 505, Section 4, Statutes of 2002), which defines and incorporates "infill opportunity zones." The provisions regarding establishing new "infill opportunity zones" have now expired, but established infill opportunities zones are still subject to the statutes.

CMP statutes establish requirements for local jurisdictions to receive certain gas tax subvention funds. Additionally, CMPs play a role in the development of specific project proposals for the RTIP.

C. The Role of CMPs in the Regional Transportation Planning Process

CMPs can play a role in the countywide and regional transportation planning processes (although these functions can be achieved without an official CMP as well):

- CMPs can be used to identify near-term projects to implement the long-range vision established in a countywide transportation plan.
- Through CMPs, the transportation investment priorities of the multiple jurisdictions in each county can be addressed in a countywide context.
- CMPs can be used to establish a link between local land use decision making and the transportation planning process.
- CMPs can be used as a building block for the federally required Congestion Management Process[1].

II. MTC's ROLE & RESPONSIBILITIES

A. MTC's Responsibilities Regarding CMPs

MTC's direct responsibilities under CMP statutes are concentrated in the following provisions:

> ***"The regional agency shall evaluate the consistency between the program (i.e., the CMP) and the regional transportation plans required pursuant to Section 65080. In the case of a multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region.*** (Section 65089.2 (a))
>
> ***The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section 65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program from inclusion in the regional transportation improvement program.*** (Section 65089.2(b))
>
> ***It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas."*** Section 65089.2.(d)(1))

B. The RTP Regulatory Setting

Federal Requirements

The primary federal requirements regarding RTPs are addressed in the metropolitan transportation planning rules in Title 23 of the Code of Federal Regulations (CFR) Part 450 and 500 and Title 49 CFR Part 613. These federal regulations have been updated to reflect the

[1]See the following link for more information on the federal Congestion Management Process, https://ops.fhwa.dot.gov/plan4ops/focus_areas/cmp.htm

metropolitan transportation planning regulations called out in 2015's federal transportation bill, Fixing America's Surface Transportation Act (FAST). Under FAST, the U.S. Department of Transportation requires that MPOs, such as MTC, prepare long-range Metropolitan Transportation Plans (MTPs) and update them every four years if they are in designated "nonattainment" or "maintenance" areas for federal air quality standards.

State Requirements

California Government Code Section 65080 sets forth the state's requirements for RTPs. Section 65080 requires MPOs located in air quality nonattainment regions update their RTPs at least every four years.

The regional agencies, the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC), assist MTC in addressing the requirements flowing from California's Sustainable Communities and Climate Protection Act (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008), which requires each of the state's 18 metropolitan areas, including the Bay Area, to reduce GHG emissions from cars and light-duty trucks. The mechanism for achieving these reductions is the preparation of an SCS.

State RTP Guidelines

The California Transportation Commission (CTC)'s RTP Guidelines, last updated in 2017, tie together federal and state regulations and CTC policy direction to guide the development of RTPs. CTC programming policy prohibits the allocation of funds to projects that are not consistent with an adopted RTP.

Section 65080 of the Government Code, as amended by SB 375, states that the RTP shall contain four distinct elements:

- A Policy Element that reflects the mobility goals, policies and objectives of the region;
- A Sustainable Communities Strategy (SCS), as established through SB 375;
- An Action Element that identifies programs and actions to implement the RTP; and
- A Financial Element that summarizes the cost of implementing the projects in the RTP in a financially constrained environment.

C. Consistency Findings with the RTP/SCS

MTC's findings for the consistency between CMPs and the RTP/SCS focus on four areas:

- Consistency with the RTP/SCS goals, growth pattern, and supporting transportation investment strategy;
- Consistency with the MTC travel demand modeling database and methodologies; and,
- Consistency with federal and state air quality plans.

1) The RTP/SCS ("Plan Bay Area 2040")

Plan Bay Area 2040, adopted in 2017, along with its predecessor – Plan Bay Area – grew out of SB 375 and serves as the Bay Area's MTP and RTP/SCS. Plan Bay Area 2040 integrates the

region's SCS into the RTP. Plan Bay Area 2040 was prepared by MTC in partnership with ABAG, BAAQMD, and BCDC and in collaboration with Caltrans, the nine county-level CMAs or substitute agencies, over two dozen Bay Area transit operators, and numerous transportation stakeholders and the public. Plan Bay Area 2040 achieves and exceeds the Bay Area's regional GHG reduction targets set forth by CARB and was prepared in compliance with the CTC's RTP Guidelines.

Goals and Targets

Plan Bay Area 2040 incorporates a set of seven goals and thirteen performance targets – one of those being CARB's GHG emissions reduction target – as quantifiable measures against which progress may be evaluated in addressing the major challenges facing the region, as shown in Table 1. CMAs should consider these goals and targets when preparing their CMPs.

To determine whether a CMP is consistent with Plan Bay Area 2040, MTC *will* first qualitatively evaluate whether the CMP is supportive or in conflict with the Plan Bay Area 2040's goals and targets shown in Table 1, below. MTC *will not* evaluate whether each CMP achieves Plan Bay Area 2040's adopted targets.

Table1. Plan Bay Area 2040 Performance Targets

Goal	#	Target
Climate Protection	**1**	Reduce per-capita GHG (CO_2) emissions from cars and light duty trucks by 15% *Statutory - Source: California Air Resources Board, as required by SB 375*
Adequate Housing	**2**	House 100% of the region's projected growth by income level without displacing current low-income residents and with no increase in in-commuters over the Plan baseline year
Healthy & Safe Communities	**3**	Reduce adverse health impacts associated with air quality, road safety, and physical inactivity by 10%
Open Space & Agricultural Preservation	**4**	Direct all non-agricultural development within the urban footprint (existing urban development and urban growth boundaries (UGBs))
Equitable Access	**5**	Decrease the share of lower-income residents' household income consumed by transportation and housing by 10%
	6	Increase the share of affordable housing in PDAs, transit priority areas (TPAs), or high-opportunity areas by 15%
	7	Do not increase the share of low- and moderate-income renter households in PDAs, TPAs, or high-opportunity areas that are at risk of displacement
Economic Vitality	**8**	Increase by 20% the share of jobs accessible within 30 minutes by auto or within 45 minutes by transit in congested conditions

	9	Increase by 38% the number of jobs in predominantly middle-wage industries
	10	Reduce per-capita delay on the Regional Freight Network by 20%
Transportation System Effectiveness	**11**	Increase non-auto mode share by 10%
	12	Reduce vehicle operating and maintenance costs due to pavement conditions by 100%
	13	Reduce per-rider transit delay due to aged infrastructure by 100%

Unless noted, the Performance Target increases or reductions are for 2040 compared to a year 2005 baseline.

Growth Pattern

In addition to reducing GHG emissions, SB 375 requires that the SCS promote compact, mixed-use commercial and residential development, and identify how the region could house its current and projected population. To meet the goals of SB 375, and the GHG reduction targets, Plan Bay Area 2040 largely reflects the foundation and regional growth pattern established in the original Plan Bay Area. Plan Bay Area 2040's core strategy is "focused growth" in existing communities along the existing transportation network. This strategy builds upon existing community characteristics and leverages existing infrastructure. Key to implementing the focused growth strategy are Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) identified, recommended, and approved by local governments.

- **Priority Development Areas (PDAs) -**
  These existing neighborhoods are nominated locally, served by public transit, and include areas that are or will be walkable and bikeable and close to public transit, jobs, schools, shopping, parks, recreation and other amenities.
- **Priority Conservation Areas (PCAs) -**
  These regionally significant open spaces which have a broad consensus for long-term protection but which face nearer-term development pressures.

In addition, MTC has adopted a Transportation and Land Use Platform that calls for supportive land use plans and policies to support transit extensions in Res. 3434. Further, MTC has adopted a Transit Oriented Development (TOD) Policy, as part of Res. 3434, that establishes specific housing thresholds for these extensions, requires station area plans and establishes corridor working groups. These regional policies and specific projects within the county should be recognized in the CMP (attached as Attachment B, Appendix C).

As a second check to determine whether a CMP is consistent with Plan Bay Area 2040, MTC will qualitatively evaluate whether the CMP is supportive versus in conflict with the Plan Bay Area 2040's growth strategy.

Investment Strategy

Plan Bay Area 2040's focused growth strategy is supported by a robust, multi-modal transportation investment strategy that enables the Bay Area to exceed its regional GHG

reduction targets. The Plan develops a blueprint for short- term and long-term transportation investments to support the plan's focused growth strategy. Investment priorities reflect a primary commitment to "Fix It First," a key emphasis area in the original Plan Bay Area as well.

Approximately 90 percent of Plan Bay Area 2040's investments focus on operating, maintaining and modernizing the existing transportation system. Plan Bay Area 2040 also directs almost two-thirds of future funding to investments in public transit, mostly to ensure that transit operators can sustain existing service levels through 2040.

- **Operate + Maintain**: This strategy includes projects that replace transit assets, pave local streets and state highways, and operate the transit system.
- **Modernize**: This strategy includes projects that improve the existing system without significantly increasing the geographical extent of the infrastructure. Electrifying Caltrain and portions of the express lane network are two major investments in this category.
- **Expand**: This strategy includes projects that extend fixed-guideway rail service or add lanes to roadways. Extending Caltrain to downtown San Francisco and BART into Silicon Valley, as well as implementing express lanes on U.S.101 in San Mateo and Santa Clara counties, are major investments in this category.

Regional Transit Expansion Program

The Regional Transit Expansion Program –adopted by the Commission as Resolution 3434– calls for a nearly $18 billion investment in new rail and bus projects that will improve mobility and enhance connectivity for residents throughout the Bay Area. Further, Plan Bay Area 2040 identifies modernization and expansion projects to increase transit capacity in core locations of the Bay Area, including the transbay corridor, peninsula corridor, within San Francisco, and within Santa Clara County. This includes projects such as extending BART to San Jose and Santa Clara, extending Caltrain to downtown San Francisco, extending VTA's light rail on the Capitol Expressway and Vasona lines, and extending SMART to Larkspur and Windsor.

RTP Financial Requirements and Projections

Under the federal transportation authorization (FAST), the actions, programs and projects in the RTP must be fiscally constrained, meaning their costs cannot exceed the forecast of public and private revenues that are reasonably expected to be available. While CMPs are not required by legislation to be fiscally constrained, recognition of financial constraints, including the costs for maintaining, rehabilitating, and operating the existing multi-modal system and the status of specific major projects, will strengthen the consistency and linkage between the regional planning process and the CMP. The CMA may submit project proposals for consideration by MTC in developing future fiscally constrained RTPs.

As a final check to determine whether a CMP is consistent with Plan Bay Area 2040, MTC will verify whether the CMP's CIP is consistent with the Plan Bay Area 2040's adopted investment strategy. The scope, schedule, and cost estimates of regionally-significant projects must be consistent with Plan Bay Area 2040's adopted project list, and non-regionally significant projects must align with a programmatic category in Plan Bay Area 2040's adopted project list.

2) Consistency with the MTC Travel Demand Modeling Databases and Methodologies

MTC's statutory requirements regarding consistent databases are as follows:

> ***The agency, (i.e., the CMA) in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model . . . The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency***. (Section 65089 (c))

MTC desires the development and implementation of consistent travel demand models, with shared input databases, to provide a common foundation for transportation policy and investment analysis.

The Bay Area Partnership's Regional Model Working Group (RMWG) serves as a forum for sharing data and expertise and providing peer review for issues involving the models developed by or for the CMAs, MTC, and other parties. The MTC Checklist for Modeling will be used to guide the consistency assessment of CMA models with the MTC model.

The Checklist is included in Attachment B, and addresses:

- Demographic/econometric forecasts;
- Pricing assumptions;
- Network assumptions;
- Travel demand methodologies; and,
- Traffic assignment methodologies.

<u>Level of Service Methodology</u>

CMP statutory requirements regarding level of service are as follows

> ***"Level of service (LOS) shall be measured by Circular 212, by the most recent version of the Highway Capacity Manual, or by a uniform methodology adopted by the agency that is consistent with the Highway Capacity Manual."*** (Section 65089 (b)

The most recently adopted highway capacity manual is Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis, or HCM 2016, or HCM6, was released in 2016. This edition incorporates the latest research on highway capacity, qualify of service, *Active Traffic and Demand Management*, and travel time reliability.

Over the last several years, the State of California Office of Planning and Research (OPR) has been in the process of developing an alternative to the LOS approach as it relates to the California Environmental Quality Act (CEQA) in response to SB 743 (Steinberg, 2013). OPR's proposed alternative is an assessment of vehicle miles traveled (VMT). In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the Guidelines section implementing SB 743 (§ 15064.3).

3) Consistency with pertinent Air Quality Plans

Transportation Control Measures (TCMs) are identified in the federal and state air quality plans to achieve and maintain the respective standards for ozone and carbon monoxide. The statutes require that the Capital Improvement Program (CIP) of the CMP conform to transportation related vehicle emission air quality mitigation measures. CMPs should promote the region's adopted TCMs for federal and state air quality plans. In addition, CMPs are encouraged to consider the benefits of GHG reductions in developing the CIP, although GHG emission reductions are not currently required in federal and state air quality plans.

A reference to the lists of federal and state TCMs is provided in Attachment B. The lists may be updated from time to time to reflect changes in the federal and state air quality plans.

In particular, TCMs that require local implementation should be identified in the CMP, specifically in the CIP.

CMPs are also required to contain provisions pertaining to parking cash-out.

> ***The city or county in which a commercial development will implement a parking cash-out program that is included in a congestion management program pursuant to subdivision (b), or in a deficiency plan pursuant to Section 65089.4, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development. (2) At the request of an existing commercial development that has implemented a parking cashout program, the city of county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.*** (Section 65089 (d)

As of January 1, 2010, cities, counties and air districts were given the option to enforce the State Parking Cash-Out statutes (Section 43845 of the Health and Safety Code), as per SB 728 (Lowenthal). This provided local jurisdictions with another tool to craft their own approaches to support multi-modal transportation systems, address congestion and greenhouse gases.

D. Consistency and Compatibility of the Programs within the Region

The CMP statutes require that, in the case of a multi-county regional transportation agency, that agency shall evaluate the consistency and compatibility of the CMPs within the region. Further, it is the Legislature's stated intention that the regional agency (i.e., MTC in the San Francisco Bay Area) resolve inconsistencies and mediate disputes between or among CMPs within a region.

To the extent useful and necessary, MTC will identify differences in methodologies and approaches between the CMPs on such issues as performance measures and land use impacts.

The CMP statutes also require that the CMA designate a system of highways and roadways which shall be subject to the CMP requirements. Consistency requires the regional continuity of the CMP designated system for facilities that cross county borders.

To determine whether a CMP is consistent with the system definition of adjoining counties, MTC will review the draft CMPs to determine whether adjacent counties have the same designations of cross border facilities.

E. Incorporation of the CMP Projects into the RTIP

State transportation statutes require that the MTC, in partnership with the state and local agencies, develop the RTIP on a biennial cycle. The RTIP is the regional program for state and federal funding, adopted by MTC and provided to CTC for the development of the State Transportation Improvement Program (STIP). In 1997, SB 45 (Statutes 1997, Chapter 622) significantly revised State transportation funding policies, delegating project selection and delivery responsibilities for a major portion of funding to regions and counties. Subsequent changes to state law (AB 2928 – Statutes 2000, Chapter 91) made the RTIP a five-year proposal of specific projects, developed for specific fund sources and programs. The RTIP is required to be consistent with the most recently adopted RTP (Plan Bay Area 2040).

The CMP statutes establish a direct linkage between CMPs that have been found to be consistent with the RTP, and the RTIP. MTC will review the projects in the CIP of the CMP for consistency with the RTP. MTC's consistency findings for projects in the CMPs will be limited to those projects that are included in the RTP, and do not extend to other projects that may be included in the CMP. Some projects may be found consistent with a program or programmatic category in the RTP. MTC, upon finding that the CMP is consistent with the RTP, shall incorporate the CMP's program of projects into the RTIP, subject to specific programming and funding requirements. If MTC finds the CMP inconsistent, it may exclude any project in the program from inclusion in the RTIP. Since the RTIP must be consistent with the RTP, projects that are not consistent with the RTP will not be included in the RTIP. MTC may include certain projects or programs in the RTIP which are not in a CIP, but which are in the RTP. In addition, SB 45 requires projects included in the Interregional Transportation Improvement Program (ITIP) to be consistent with the RTP.

MTC will establish funding bid targets for specific funds, based upon the fund estimate as adopted by the CTC. Project proposals can only be included in the RTIP within these funding bid targets. MTC will also provide information on other relevant RTIP processes and requirements, including coordination between city, county, and transit districts for project applications, schedule, evaluations and recommendations of project submittals, as appropriate for the RTIP.

As per CTC's Guidelines, MTC will evaluate the projects in the RTIP based on specific performance indicators and measures as established in the RTP and provide this evaluation to the CTC along with the RTIP. CMAs are encouraged to consider the performance measures in Plan Bay Area when developing specific project proposals for the RTIP; more details will be provided in the RTIP Policies and Procedures document, adopted by MTC for the development of the RTIP.

III. CMP PREPARATION & SUBMITTAL TO MTC

A. CMP Preparation

If prepared, the CMP shall be developed by the CMA in consultation with, and with the cooperation of, MTC, transportation providers, local governments, Caltrans, and the BAAQMD, and adopted at a noticed public hearing of the CMA. As established in SB 45, the RTIP is scheduled to be adopted by December 15 of each odd numbered year. If circumstances arise that change this schedule, MTC will work with the CMAs and substitute agencies in determining an appropriate schedule and mechanism to provide input to the RTIP.

B. Regional Coordination

In addition to program development and coordination at the county level, and consistency with the RTP, the compatibility of the CMPs with other Bay Area CMPs would be enhanced through identification of cross county issues in an appropriate forum, such as Partnership and other appropriate policy and technical committees. Discussions would be most beneficial if done prior to final CMA actions on the CMP

C. Submittal to MTC

To provide adequate review time, draft CMPs should be submitted to MTC in accordance to a schedule MTC will develop to allow sufficient time for incorporation into the RTIP for submittal to the California Transportation Commission. Final CMPs must be adopted prior to final MTC consistency findings.

D. MTC Consistency Findings for CMPs

MTC will evaluate consistency of the CMP every two years with the RTP that is in effect when the CMP is submitted; for the 2019 CMP the RTP in effect will be Plan Bay Area 2040. MTC will evaluate the consistency of draft CMPs when received, based upon the areas specified in this guidance, and will provide staff comments of any significant concerns. MTC can only make final consistency findings on CMPs that have been officially adopted.

Attachment B to MTC Resolution No. 3000 consists of:

Appendix A	Federal and State Transportation Control Measures
Appendix B	Checklist for Modeling Consistency for CMPs
Appendix C	MTC's Regional Transit Expansion Program of Projects (MTC Resolution No. 3434, revised 09/24/08)
Appendix D	MTC's Resolution No. 3434 Transit Oriented Development (TOD) Policy, revised 10/24/07

Title Page

Appendix A: Federal and State Transportation Control Measures (TCMs)

Federal TCMs:

For a list and description of current Federal TCMs, see the "Federal Ozone Attainment Plan for the 1-Hour National Ozone Standard" adopted Oct. 24, 2001, and "2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas," approved January 30, 2006.

The current Federal TCMs have been fully implemented. Refer to the "Final Transportation Air Quality Conformity Analysis for the Plan and the Proposed Final 2015 Transportation Improvement Program" at http://files.mtc.ca.gov/pdf/final_pba_and_2015_tip_air_quality_conformity_analysis.pdf (page 19) for the specific implementation steps in the advancement of these Federal TCMs.

State TCMs:

For a list and description of current State TCMs, see "Bay Area 2010 Ozone Strategy," or subsequent revisions as adopted by the Bay Area Air Quality Management.

CMAQ Evaluation and Assessment Report:

MTC participated in a federal evaluation and assessment of the direct and indirect impacts of a representative sample of Congestion Mitigation and Air Quality (CMAQ) – funded projects on air quality and congestion levels. The study estimated the impact of these projects on emissions of transportation related pollutants, including carbon monoxide (CO), ozone precursors – oxides of nitrogen (NOx), volatile organic compounds (VOCs), particulate matter (PM_{10} and $PM_{2.5}$), and carbon dioxide (CO_2) for information purposes, as well as on traffic congestion and mobility. There is also additional analysis of the selected set of CMAQ-funded projects to estimate of the cost effectiveness at reducing emissions of each pollutant. This report may be of interest to CMAs; it is available on line at:
http://www.fhwa.dot.gov/environment/cmaqpgs/safetealu1808/index.htm

or from the MTC/ABAG Library.

Appendix B: MTC Checklist for Modeling Consistency for CMPs

Overall approach

MTC's goal is to establish regionally consistent model "sets" for application by MTC and the CMAs. In the winter of 2010/2011, MTC implemented *Travel Model One* – an "activity-based" model – to replace the previous trip-based modeling tool – *BAYCAST-90* – that had been in place for the past two decades. *Travel Model One* has seen incremental updates since its implementation. Additionally, MTC has been developing the next generation of its activity-based model, called *Travel Model Two,* although it is not yet ready for application. Because the CMAs use a variety of modeling tools, these guidelines must accommodate a framework in which trip-based and activity-based models can be aligned. The approach therefore consists of a checklist to adjudge consistency across model components.

Checklist

This checklist guides the CMAs through their model development and consistency review process by providing an inventory of specific products to be developed and submitted to MTC, and by describing standard practices and assumptions.

Because of the complexity of the topic, the checklist may need additional detailed information to explain differences in methodologies or data. Significant differences will be resolved between MTC and the CMAs, taking advantage of the Regional Model Working Group (RMWG). Standard formats for model comparisons will be developed by MTC for use in future guidelines.

Incremental updates

The CMA forecasts must be updated every two years to be consistent with MTC's forecasts. Alternative approaches to fully re-running the entire model are available, including incremental approaches through the application of factors to demographic inputs and/or trip tables. Similarly, the horizon year must be the same as the TIP horizon year. However, interpolation and extrapolation approaches are acceptable, with appropriate attention to network changes. These alternatives to re-running the entire model should be discussed with MTC before the CMP is adopted by the CMA.

Defining the MTC model sets

The MTC model sets referred to below are defined as those in use on December 31st of the year preceding the CMP update.

Key Assumptions

Please report the following information.

A. General approach:

Discuss the general approach to travel demand modeling by the CMA and the CMA model's relationship to *BAYCAST-90, Travel Model One* or *Travel Model Two*.

Product: 1) Description of the above.

B. Demographic/economic/land use forecasts:

Both base and forecast year demographic/economic/land use ("land use") inputs must be consistent – though not identical – to *Plan Bay Area 2040's* traffic analysis zone (TAZ) level land use data provided by MTC/ABAG. Specifically, if CMAs wish to reallocate land use within their own county (or counties), they must consult with the affected city (or cities) as well as with MTC/ABAG. Further, the resulting deviation in the subject county (or counties) should within the ranges specified by MTC/ABAG for the following variables: population, households, jobs, and employed residents. Outside the subject county (or counties), the land use variables in the travel analysis zones used by the county must match either MTC/ABAG's estimates exactly when aggregated/disaggregated to census tracts or the county-in-question's estimates per the revision process noted above (e.g. Santa Clara county could use the revised estimates San Mateo developed through consultation with local cities and MTC/ABAG). Forecast year demand estimates should use the *Plan Bay Area 2040* land use data. CMAs may also analyze additional, alternative land use scenarios that will not be subject to consistency review.

Products: 2) A statement establishing that the differences between key ABAG land use variables (i.e., population, households, jobs, and employed residents), and those of the CMA do not differ by more than one percent at the county level for the subject county. A statement establishing that no differences exist at the TAZ-level outside the county between the MTC/ABAG forecast or the MTC/ABAG/CMA revised forecast.

3) A table comparing the MTC/ABAG land use estimates with the CMA land use estimates by county for population, households, jobs, and employed residents for both the base year and the horizon year.

4) If land use estimates within the CMA's county are modified from MTC/ABAG's projections, agendas, discussion summaries, and action items from each meeting held with cities, MTC, and/or ABAG at which the redistribution was discussed, as well as before/after census-tract-level data summaries and maps.

C. Pricing assumptions:

Use MTC's automobile operating costs, transit fares, and bridge tolls or provide an explanation for the reason such values are not used.

Product: 5) Table comparing the assumed automobile operating cost, key transit fares, and bridge tolls to MTC's values for the horizon year.

D. Network assumptions:

Use MTC's regional highway and transit network assumptions for the other Bay Area counties. CMAs should include more detailed network definition relevant to their own county in addition to the regional highway and transit networks. For the CMP horizon year, to be compared with the TIP interim year, regionally significant network changes in the base case scenario shall be limited to the current Transportation Improvement Program (TIP) for projects subject to inclusion in the TIP.

Product: 6) Statement establishing satisfaction of the above.

E. Automobile ownership:

Use *Travel Model One* automobile ownership models or forecasts or submit alternative models to MTC for review and comment.

Product: 7) County-level table comparing estimates of households by automobile ownership level (zero, one, two or more automobiles) to MTC's estimates for the horizon year.

F. Tour/trip generation:

Use *Travel Model One* tour generation models or forecasts or submit alternative models to MTC for review and comment.

Product: 8) Region-level tables comparing estimates of trip and/or tour frequency by purpose to MTC's estimates for the horizon year.

G. Activity/trip location:

Use *Travel Model One* activity location models or forecasts or submit alternative models to MTC for review and comment.

Products: 9) Region-level tables comparing estimates of average trip distance by tour/trip purpose to MTC's estimates for the horizon year.

10) County-to-county comparison of journey-to-work or home-based work flow estimates to MTC's estimates for the horizon year.

H. Travel mode choice:

Use *Travel Model One* models or forecasts or submit alternative models to MTC for review and comment.

Product: 11) Region-level tables comparing travel mode share estimates by tour/trip purpose to MTC's estimates for the horizon year.

I. Traffic assignment:

Use *Travel Model One* models or submit alternative models to MTC for review and comment.

Products: 12) Region-level, time-period-specific comparison of vehicle miles traveled and vehicle hours traveled estimates by facility type to MTC's estimates for the horizon year.

13) Region-level, time-period-specific comparison of estimated average speed on freeways and all other facilities, separately, to MTC's estimates for the horizon year.

Alternatively, CMAs may elect to utilize MTC zone-to-zone vehicle trip tables, adding network and zonal details within the county as appropriate, and then re-run the assignment. In this case, only Products 12 and 13 are applicable.

Appendix C: MTC's Regional Transit Expansion Program of Projects

Note that Resolution No. 3434, Revised, is reproduced below with the TOD Policy attached as Appendix D to Resolution No. 3000; other associated appendices are not attached here – the other appendices are available upon request from the MTC library.

Date: December 19, 2001
W.I.: 12110
Referred by: POC
Revised: 01/30/02-C 07/27/05-C
04/26/06-C 10/24/07-C
09/24/08-C

ABSTRACT

Resolution No. 3434, Revised

This resolution sets forth MTC's Regional Transit Expansion Program of Projects.

This resolution was amended on January 30, 2002 to include the San Francisco Geary Corridor Major Investment Study to Attachment B, as requested by the Planning and Operations Committee on December 14, 2001.

This resolution was amended on July 27, 2005 to include a Transit-Oriented Development (TOD) Policy to condition transit expansion projects funded under Resolution 3434 on supportive land use policies, as detailed in Attachment D-2.

This resolution was amended on April 26, 2006 to reflect changes in project cost, funding, and scope since the 2001 adoption.

This resolution was amended on October 24, 2007 to reflect changes in the Transit-Oriented Development (TOD) Policy in Attachment D-2.

This resolution was amended on September 24, 2008 to reflect changes associated with the 2008 Strategic Plan effort (Attachments B, C and D).

Further discussion of these actions are contained in the MTC Executive Director's Memorandum dated December 14, 2001, July 8, 2005, April 14, 2006, October 12, 2007 and September 10, 2008.

Date: December 19, 2001
W.I.: 12110
Referred by: POC

RE: Regional Transit Expansion Program of Projects

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3434, Revised

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Section 66500 et seq.; and

WHEREAS, MTC adopted Resolution No. 1876 in 1988 which set forth a new rail transit starts and extension program for the region; and

WHEREAS, significant progress has been made in implementing Resolution No. 1876, with new light rail service in operation in San Francisco and Silicon Valley, new BART service extended to Bay Point and Dublin/Pleasanton in the East Bay, and the BART extension to San Francisco International Airport scheduled to open in 2002; and

WHEREAS, MTC's long range planning process, including the Regional Transportation Plan and its *Transportation Blueprint for the 21st Century,* provides a framework for comprehensively evaluating the next generation of major regional transit expansion projects to meet the challenge of congestion in major corridors throughout the nine-county Bay Area; and

WHEREAS, the Commission adopted Resolution No. 3357 as the basis for assisting in the evaluations of rail and express/rapid bus projects to serve as the companion follow-up program to Resolution No. 1876; and

WHEREAS, local, regional, state and federal discretionary funds will continue to be required to finance an integrated program of new rail transit starts and extensions including those funds which are reasonably expected to be available under current conditions, and new funds which need to be secured in the future through advocacy with state and federal legislatures and the electorate; and

WHEREAS, the Regional Transit Expansion program of projects will enhance the Bay Area's transit network with an additional 140 miles of rail, 600 miles of new express bus routes, and a 58% increase in service levels in several existing corridors, primarily funded with regional and local sources of funds; and

WHEREAS, MTC recognizes that coordinated regional priorities for transit investment will best position the Bay Area to compete for limited discretionary funding sources now and in the future; now, therefore, be it

RESOLVED, that MTC adopts a Regional Transit Expansion Program of Projects, consistent with the Policy and Criteria established in Resolution No. 3357, as outlined in Attachment A, attached hereto and incorporated herein as though set forth at length; and be it further

RESOLVED, that this program of projects, as set forth in Attachment B is accompanied by a comprehensive funding strategy of local, regional, state and federal funding sources as outlined in Attachment C, attached hereto and incorporated herein as though set forth at length; and, be it further

RESOLVED, that the regional discretionary funding commitments included in this financial strategy are subject to the terms and conditions outlined in Attachment D, attached hereto and incorporated herein as though set forth at length; and, be it further

METROPOLITAN TRANSPORTATION COMMISSION

_____

Sharon J. Brown, Chair

The above resolution was entered into
by the Metropolitan Transportation
Commission at a regular meeting of the
Commission held in Oakland,
California, on December 19, 2001.

Appendix D: MTC's Regional Transit Expansion Program of Projects - TOD Policy

Res. No. 3434, TOD Policy (Attachment D-2), revised October 24, 2007, is shown below; other associated Res. 3434 appendices are available upon request from the MTC library.

Date: July 27, 2005
W.I.: 12110
Referred by: POC
Revised: 10/24/07-C

Attachment D-2
Resolution No. 3434
Page 10 of 7

MTC RESOLUTION 3434 TOD POLICY FOR REGIONAL TRANSIT EXPANSION PROJECTS

1. Purpose

The San Francisco Bay Area—widely recognized for its beauty and innovation—is projected to grow by almost two million people and one and a half million jobs by 2030. This presents a daunting challenge to the sustainability and the quality of life in the regionWhere and how we accommodate this future growth, in particular where people live and work, will help determine how effectively the transportation system can handle this growth.

The more people who live, work and study in close proximity to public transit stations and corridors, the more likely they are to use the transit systems, and more transit riders means fewer vehicles competing for valuable road space. The policy also provides support for a growing market demand for more vibrant, walkable and transit convenient lifestyles by stimulating the construction of at least 42,000 new housing units along the region's major new transit corridors and will help to contribute to a forecasted 59% increase in transit ridership by the year 2030.

This TOD policy addresses multiple goals: improving the cost-effectiveness of regional investments in new transit expansions, easing the Bay Area's chronic housing shortage, creating vibrant new communities, and helping preserve regional open space. The policy ensures that transportation agencies, local jurisdictions, members of the public and the private sector work together to create development patterns that are more supportive of transit.

There are three key elements of the regional TOD policy:

(a) Corridor-level thresholds to quantify appropriate minimum levels of development around transit stations along new corridors;

(b) Local station area plans that address future land use changes, station access needs, circulation improvements, pedestrian-friendly design, and other key features in a transit-oriented development; and

(c) Corridor working groups that bring together CMAs, city and county planning staff, transit agencies, and other key stakeholders to define expectations, timelines, roles and responsibilities for key stages of the transit project development process.

2. TOD Policy Application

The TOD policy only applies to physical transit extensions funded in Resolution 3434 (see Table 1). The policy applies to any physical transit extension project with regional discretionary funds, regardless of level of funding. Resolution 3434 investments that only entail level of service improvements or other enhancements without physically extending the system are not subject to the TOD policy requirements. Single station extensions to international airports are not subject to the TOD policy due to the infeasibility of housing development.

TABLE 1:
RESOLUTION 3434 TRANSIT EXTENSION PROJECTS SUBJECT TO CORRIDOR THRESHOLDS

Project	Sponsor	Type	Threshold met with current development?	Meets TOD Policy (with current + new development as planned)?
BART East Contra Costa Rail Extension (eBART)				
(a) Phase 1 Pittsburg to Antioch			No	Yes
(b) Future phases	BART/ CCTA	Commuter Rail	No	No
BART – Downtown Fremont to San Jose/ Santa Clara				
(a) Fremont to Berryessa	(a) BART	BART Extension	No	Not yet determined; planning is underway
(b) Berryessa to San Jose/ Santa Clara	(b) VTA		No	Not yet determined
AC Transit Berkeley/Oakland/San Leandro Bus Rapid Transit: Phase 1	AC Transit	Bus Rapid Transit	Yes	Yes
Caltrain Downtown Extension/Rebuilt Transbay Terminal	TJPA	Commuter Rail	Yes	Yes
MUNI Third Street LRT Project Phase 2 – New Central Subway	MUNI	Light Rail	Yes	Yes
Sonoma-Marin Rail				
(a) Phase 1 downtown San Rafael to downtown Santa Rosa				Not yet determined; planning is underway
(b) Futures phases tbd	SMART	Commuter Rail	No	Not yet being planned
Dumbarton Rail	SMTA, ACCMA, VTA, ACTIA, Capitol Corridor	Commuter Rail	No	Not yet determined; planning is underway
Expanded Ferry Service to Berkeley, Alameda/Oakland/Harbor Bay, Hercules, Richmond, and South San Francisco; and other improvements*	WTA	Ferry	No	Line specific

** Ferry terminals where development is feasible shall meet a housing threshold of 2500 units. MTC staff will make the determination of development feasibility on a case by case basis.*

3. Definitions and Conditions of Funding

For purposes of this policy "regional discretionary funding" consists of the following sources identified in the Resolution 3434 funding plan:

FTA Section 5309- New Starts
FTA Section 5309- Bus and Bus Facilities Discretionary
FTA Section 5309- Rail Modernization
Regional Measure 1- Rail (bridge tolls)
Regional Measure 2 (bridge tolls)
Interregional Transportation Improvement Program
Interregional Transportation Improvement Program-Intercity rail
Federal Ferryboat Discretionary
AB 1171 (bridge tolls)
CARB-Carl Moyer/AB434 (Bay Area Air Quality Management District) [1]

These regional funds may be programmed and allocated for environmental and design related work, in preparation for addressing the requirements of the TOD policy. Regional funds may be programmed and allocated for right-of-way acquisition in advance of meeting all requirements in the policy, if land preservation for TOD or project delivery purposes is essential. No regional funds will be programmed and allocated for construction until the requirements of this policy have been satisfied. See Table 2 for a more detailed overview of the planning process.

4. Corridor-Level Thresholds

Each transit extension project funded in Resolution 3434 must plan for a minimum number of housing units along the corridor. These corridor-level thresholds vary by mode of transit, with more capital-intensive modes requiring higher numbers of housing units (see Table 3). The corridor thresholds have been developed based on potential for increased transit ridership, exemplary existing station sites in the Bay Area, local general plan data, predicted market demand for TOD-oriented housing in each county, and an independent analysis of feasible development potential in each transit corridor.

[1] The Carl Moyer funds and AB 434 funds are controlled directly by the California Air Resources Board and Bay Area Air Management District. Res. 3434 identifies these funds for the Caltrain electrification project, which is not subject to the TOD policy.

TABLE 2:
REGIONAL TOD POLICY IMPLEMENTATION PROCESS FOR TRANSIT EXTENSION PROJECTS

Transit Agency Action	City Action	MTC/CMA/ABAG Action
All parties in corridors that do not currently meet thresholds (see Table 1) establish Corridor Working Group to address corridor threshold. Conduct initial corridor performance evaluation, initiate station area planning. ⇩		
Environmental Review/ Preliminary Engineering/ Right-of-Way	Conduct Station Area Plans	Coordination of corridor working group, funding of station area plans
Step 1 Threshold Check: the combination of new Station Area Plans and existing development patterns exceeds corridor		
Final Design	Adopt Station Area Plans. Revise general plan policies and zoning, environmental reviews	Regional and county agencies assist local jurisdictions in implementing station area plans
Step 2 Threshold Check: (a) local policies adopted for station areas; (b) implementation mechanisms in place per adopted Station Area Plan by the time Final Design is completed. ⇩		
Construction	Implementation (financing, MOUs) Solicit development	TLC planning and capital funding, HIP funding

TABLE 3: CORRIDOR THRESHOLDS
HOUSING UNITS – AVERAGE PER STATION AREA

Project Type	BART	Light Rail	Bus Rapid Transit	Commuter Rail	Ferry
Housing Threshold	3,850	3,300	2,750	2,200	2,500

Each corridor is evaluated for the Housing Threshold. For example, a four station commuter rail extension (including the existing end-of-the—line station) would be required to meet a corridor-level threshold of 8,800 housing units.

Threshold figures above are an average per station area for all modes except ferries based on both existing land uses and planned development within a half mile of all stations. New below market rate housing is provided a 50% bonus towards meeting housing unit threshold.

** Ferry terminals where development is feasible shall meet a housing threshold of 2500 units.*

MTC staff will make the determination of development feasibility on a case by case basis.

Meeting the corridor level thresholds requires that within a half mile of all stations, a combination of existing land uses and planned land uses meets or exceeds the overall corridor threshold for housing (listed in Table 3);

Physical transit extension projects that do not currently meet the corridor thresholds with development that is already built will receive the highest priority for the award of MTC's Station Area Planning Grants.

To be counted toward the threshold, planned land uses must be adopted through general plans, and the appropriate implementation processes must be put in place, such as zoning codes. General plan language alone without supportive implementation policies, such as zoning, is not sufficient for the purposes of this policy. Ideally, planned land uses will be formally adopted through a specific plan (or equivalent), zoning codes and general plan amendments along with an accompanying programmatic Environmental Impact Report (EIR) as part of the overall station area planning process. Minimum densities will be used in the calculations to assess achievement of the thresholds.

An existing end station is included as part of the transit corridor for the purposes of calculating the corridor thresholds; optional stations will not be included in calculating the corridor thresholds.

New below-market housing units will receive a 50 percent bonus toward meeting the corridor threshold (i.e. one planned below-market housing unit counts for 1.5 housing units for the purposes of meeting the corridor threshold. Below market for the purposes of the Resolution 3434 TOD policy is affordable to 60% of area median income for rental units and 100% of area median income for owner-occupied units);

The local jurisdictions in each corridor will determine job and housing placement, type, density, and design.

The Corridor Working Groups are encouraged to plan for a level of housing that will significantly exceed the housing unit thresholds stated here during the planning process. This will ensure that the Housing Unit Threshold is exceeded corridor-wide and that the ridership potential from TOD is maximized.

5. Station Area Plans

Each proposed physical transit extension project seeking funding through Resolution 3434 must demonstrate that the thresholds for the corridor are met through existing development and adopted station area plans that commit local jurisdictions to a level of housing that meets the threshold. This requirement may be met by existing station area plans accompanied by appropriate zoning and implementation mechanisms. If new station area plans are needed to meet the corridor threshold, MTC will assist in funding the plans. The Station Area Plans shall be conducted by local governments in coordination with transit agencies, Association of Bay Area Governments (ABAG), MTC and the Congestion Management Agencies (CMAs).

Station Area Plans are opportunities to define vibrant mixed use, accessible transit villages and quality transit-oriented development – places where people will want to live, work,

shop and spend time. These plans should incorporate mixed-use developments, including new housing, neighborhood serving retail, employment, schools, day care centers, parks and other amenities to serve the local community.

At a minimum, Station Area Plans will define both the land use plan for the area as well as the policies—zoning, design standards, parking policies, etc.—for implementation. The plans shall at a minimum include the following elements:

- Current and proposed land use by type of use and density within the ½ mile radius, with a clear identification of the number of existing and planned housing units and jobs;
- Station access and circulation plans for motorized, non-motorized and transit access. The station area plan should clearly identify any barriers for pedestrian, bicycle and wheelchair access to the station from surrounding neighborhoods (e.g., freeways, railroad tracks, arterials with inadequate pedestrian crossings), and should propose strategies that will remove these barriers and maximize the number of residents and employees that can access the station by these means. The station area and transit village public spaces shall be made accessible to persons with disabilities.
- Estimates of transit riders walking from the half mile station area to the transit station to use transit;
- Transit village design policies and standards, including mixed use developments and pedestrian-scaled block size, to promote the livability and walkability of the station area;
- TOD-oriented parking demand and parking requirements for station area land uses, including consideration of pricing and provisions for shared parking;
- Implementation plan for the station area plan, including local policies required for development per the plan, market demand for the proposed development, potential phasing of development and demand analysis for proposed development.
- The Station Area Plans shall be conducted according to the guidelines established in MTC's Station Area Planning Manual.

6. Corridor Working Groups

The goal of the Corridor Working Groups is to create a more coordinated approach to planning for transit-oriented development along Resolution 3434 transit corridors. Each of the transit extensions subject to the corridor threshold process, as identified in Table 1, will need a Corridor Working Group, unless the current level of development already meets the corridor threshold. Many of the corridors already have a transit project working group that may be adjusted to take on this role. The Corridor Working Group shall be coordinated by the relevant CMAs, and will include the sponsoring transit agency, the local jurisdictions in the corridor, and representatives from ABAG, MTC, and other parties as appropriate.

The Corridor Working Group will assess whether the planned level of development satisfies the corridor threshold as defined for the mode, and assist in addressing any deficit in meeting the threshold by working to identify opportunities and strategies at the local level. This will include the key task of distributing the required housing units to each of the affected station sites within the defined corridor. The Corridor Working Group will continue with corridor evaluation, station area planning, and any necessary refinements to

station locations until the corridor threshold is met and supporting Station Area Plans are adopted by the local jurisdictions.

MTC will confirm that each corridor meets the housing threshold prior to the release of regional discretionary funds for construction of the transit project.

7. Review of the TOD Policy

MTC staff will conduct a review of the TOD policy and its application to each of the affected Resolution 3434 corridors, and present findings to the Commission, within 12 months of the adoption of the TOD policy.

APPENDIX 2

California Government Code Concerning CMPs

GOVERNMENT CODE
SECTION 65088-65089.10

65088. The Legislature finds and declares all of the following:

(a) Although California's economy is critically dependent upon transportation, its current transportation system relies primarily upon a street and highway system designed to accommodate far fewer vehicles than are currently using the system.

(b) California's transportation system is characterized by fragmented planning, both among jurisdictions involved and among the means of available transport.

(c) The lack of an integrated system and the increase in the number of vehicles are causing traffic congestion that each day results in 400,000 hours lost in traffic, 200 tons of pollutants released into the air we breathe, and three million one hundred thousand dollars ($3,100,000) added costs to the motoring public.

(d) To keep California moving, all methods and means of transport between major destinations must be coordinated to connect our vital economic and population centers.

(e) In order to develop the California economy to its full potential, it is intended that federal, state, and local agencies join with transit districts, business, private and environmental interests to develop and implement comprehensive strategies needed to develop appropriate responses to transportation needs.

(f) In addition to solving California's traffic congestion crisis, rebuilding California's cities and suburbs, particularly with affordable housing and more walkable neighborhoods, is an important part of accommodating future increases in the state's population because homeownership is only now available to most Californians who are on the fringes of metropolitan areas and far from employment centers.

(g) The Legislature intends to do everything within its power to remove regulatory barriers around the development of infill housing, transit-oriented development, and mixed use commercial development in order to reduce regional traffic congestion and provide more housing choices for all Californians.

(h) The removal of regulatory barriers to promote infill housing, transit-oriented development, or mixed use commercial development does not preclude a city or county from holding a public hearing nor finding that an individual infill project would be adversely impacted by the surrounding environment or transportation patterns.

65088.1. As used in this chapter the following terms have the following meanings:

(a) Unless the context requires otherwise, “agency” means the agency responsible for the preparation and adoption of the congestion management program.

(b) “Bus rapid transit corridor” means a bus service that includes at least four of the following attributes:

(1) Coordination with land use planning.

(2) Exclusive right-of-way.

(3) Improved passenger boarding facilities.

(4) Limited stops.

(5) Passenger boarding at the same height as the bus.

(6) Prepaid fares.

(7) Real-time passenger information.
(8) Traffic priority at intersections.
(9) Signal priority.
(10) Unique vehicles.
(c) "Commission" means the California Transportation Commission.
(d) "Department" means the Department of Transportation.
(e) "Infill opportunity zone" means a specific area designated by a city or county, pursuant to subdivision (c) of Section 65088.4 that is within one-half mile of major transit stop or high-quality transit corridor included in a regional transportation plan. A major transit stop is as defined in Section 21064.3 of the Public Resources Code, except that, for purposes of this section, it also includes major transit stops that are included in the applicable regional transportation plan. For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.
(f) "Interregional travel" means any trips that originate outside the boundary of the agency. A "trip" means a one-direction vehicle movement. The origin of any trip is the starting point of that trip. A roundtrip consists of two individual trips.
(g) "Level of service standard" is a threshold that defines a deficiency on the congestion management program highway and roadway system which requires the preparation of a deficiency plan. It is the intent of the Legislature that the agency shall use all elements of the program to implement strategies and actions that avoid the creation of deficiencies and to improve multimodal mobility.
(h) "Local jurisdiction" means a city, a county, or a city and county.
(i) "Multimodal" means the utilization of all available modes of travel that enhance the movement of people and goods, including, but not limited to, highway, transit, nonmotorized, and demand management strategies including, but not limited to, telecommuting. The availability and practicality of specific multimodal systems, projects, and strategies may vary by county and region in accordance with the size and complexity of different urbanized areas.
(j) (1) "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. "Parking subsidy" means the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space not owned by the employer and the price, if any, charged to an employee for use of that space.
(2) A parking cash-out program may include a requirement that employee participants certify that they will comply with guidelines established by the employer designed to avoid neighborhood parking problems, with a provision that employees not complying with the guidelines will no longer be eligible for the parking cash-out program.
(k) "Performance measure" is an analytical planning tool that is used to quantitatively evaluate transportation improvements and to assist in determining effective implementation actions, considering all modes and strategies. Use of a performance measure as part of the program does not trigger the requirement for the preparation of deficiency plans.
(l) "Urbanized area" has the same meaning as is defined in the 1990 federal census for urbanized areas of more than 50,000 population.
(m) Unless the context requires otherwise, "regional agency" means the agency responsible for preparation of the regional transportation improvement program.

65088.3. This chapter does not apply in a county in which a majority of local governments, collectively comprised of the city councils and the county board of supervisors, which in total also represent a majority of the population in the county, each adopt resolutions electing to be exempt from the congestion management program.

65088.4. (a) It is the intent of the Legislature to balance the need for level of service standards for traffic with the need to build infill housing and mixed use commercial developments within walking distance of mass transit facilities, downtowns, and town centers and to provide greater flexibility to local governments to balance these sometimes competing needs.
(b) Notwithstanding any other provision of law, level of service standards described in Section 65089 shall not apply to the streets and highways within an infill opportunity zone.
(c) The city or county may designate an infill opportunity zone by adopting a resolution after determining that the infill opportunity zone is consistent with the general plan and any applicable specific plan, and is a transit priority area within a sustainable communities strategy or alternative planning strategy adopted by the applicable metropolitan planning organization.

65088.5. Congestion management programs, if prepared by county transportation commissions and transportation authorities created pursuant to Division 12 (commencing with Section 130000) of the Public Utilities Code, shall be used by the regional transportation planning agency to meet federal requirements for a congestion management system, and shall be incorporated into the congestion management system.

65089. (a) A congestion management program shall be developed, adopted, and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the department, and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county.

(b) The program shall contain all of the following elements:

(1) (A) Traffic level of service standards established for a system of highways and roadways designated by the agency. The highway and roadway system shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new state highways and principal arterials shall be designated as part of the system, except when it is within an infill opportunity zone. Level of service (LOS) shall be measured by Circular 212, by the most recent version of the Highway Capacity Manual, or by a uniform methodology adopted by the agency that is consistent with the Highway Capacity Manual.

The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department instead shall make this determination if either (i) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.

(B) In no case shall the LOS standards established be below the level of service E or the current level, whichever is farthest from level of service A except when the area is in an infill opportunity zone. When the level of service on a segment or at an intersection fails to attain the established level of service standard outside an infill opportunity zone, a deficiency plan shall be adopted pursuant to Section 65089.4.

(2) A performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. At a minimum, these performance measures shall incorporate highway and roadway system performance, and measures established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use, and economic objectives, and shall be used in the development of the capital improvement program required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4, and the land use analysis program required pursuant to paragraph (4).

(3) A travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting, and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element.

(4) A program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. This program shall measure, to the extent possible, the impact to the transportation system using the performance measures described in paragraph (2). In no case shall the program include an estimate of the costs of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credit shall only be allowed for local public and private contributions which are unreimbursed from toll revenues or other state or federal sources. The agency shall calculate the amount of the credit to be provided. The program defined under this section may require implementation through the requirements and analysis of the California Environmental Quality Act, in order to avoid duplication.

(5) A seven-year capital improvement program, developed using the performance measures described in paragraph (2) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, to mitigate regional transportation impacts identified pursuant to paragraph (4). The program shall conform to transportation-related vehicle emission air quality mitigation measures, and include any project that will

increase the capacity of the multimodal system. It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given for maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alteration. The capital improvement program may also include safety, maintenance, and rehabilitation projects that do not enhance the capacity of the system but are necessary to preserve the investment in existing facilities.

(c) The agency, in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model and shall approve transportation computer models of specific areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system that are based on the countywide model and standardized modeling assumptions and conventions. The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency.

(d) (1) The city or county in which a commercial development will implement a parking cash-out program that is included in a congestion management program pursuant to subdivision (b), or in a deficiency plan pursuant to Section 65089.4, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.

(2) At the request of an existing commercial development that has implemented a parking cash-out program, the city or county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.

(e) Pursuant to the federal Intermodal Surface Transportation Efficiency Act of 1991 and regulations adopted pursuant to the act, the department shall submit a request to the Federal Highway Administration Division Administrator to accept the congestion management program in lieu of development of a new congestion management system otherwise required by the act.

65089.1. (a) For purposes of this section, "plan" means a trip reduction plan or a related or similar proposal submitted by an employer to a local public agency for adoption or approval that is designed to facilitate employee ridesharing, the use of public transit, and other means of travel that do not employ a single-occupant vehicle.

(b) An agency may require an employer to provide rideshare data bases; an emergency ride program; a preferential parking program; a transportation information program; a parking cash-out program, as defined in subdivision (f) of Section 65088.1; a public transit subsidy in an amount to be determined by the employer; bicycle parking areas; and other noncash value programs which encourage or facilitate the use of alternatives to driving alone. An employer may offer, but no agency shall require an employer to offer, cash, prizes, or items with cash value to employees to encourage participation in a trip reduction program as a condition of approving

a plan.

(c) Employers shall provide employees reasonable notice of the content of a proposed plan and shall provide the employees an opportunity to comment prior to submittal of the plan to the agency for adoption.

(d) Each agency shall modify existing programs to conform to this section not later than June 30, 1995. Any plan adopted by an agency prior to January 1, 1994, shall remain in effect until adoption by the agency of a modified plan pursuant to this section.

(e) Employers may include disincentives in their plans that do not create a widespread and substantial disproportionate impact on ethnic or racial minorities, women, or low-income or disabled employees.

(f) This section shall not be interpreted to relieve any employer of the responsibility to prepare a plan that conforms with trip reduction goals specified in Division 26 (commencing with Section 39000) of the Health and Safety Code, or the Clean Air Act (42 U.S.C. Sec. 7401 et seq.).

(g) This section only applies to agencies and employers within the South Coast Air Quality Management District.

65089.2. (a) Congestion management programs shall be submitted to the regional agency. The regional agency shall evaluate the consistency between the program and the regional transportation plans required pursuant to Section 65080. In the case of a multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region.

(b) The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section 65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program from inclusion in the regional transportation improvement program.

(c) (1) The regional agency shall not program any surface transportation program funds and congestion mitigation and air quality funds pursuant to Section 182.6 and 182.7 of the Streets and Highways Code in a county unless a congestion management program has been adopted by December 31, 1992, as required pursuant to Section 65089. No surface transportation program funds or congestion mitigation and air quality funds shall be programmed for a project in a local jurisdiction that has been found to be in nonconformance with a congestion management program pursuant to Section 65089.5 unless the agency finds that the project is of regional significance.

(2) Notwithstanding any other provision of law, upon the designation of an urbanized area, pursuant to the 1990 federal census or a subsequent federal census, within a county which previously did not include an urbanized area, a congestion management program as required pursuant to Section 65089 shall be adopted within a period of 18 months after designation by the Governor.

(d) (1) It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas.

(2) It is the further intent of the Legislature that disputes which may arise between regional agencies, or agencies which are not within the boundaries of a multicounty regional transportation

planning agency, should be mediated and resolved by the Secretary of Business, Housing and Transportation Agency, or an employee of that agency designated by the secretary, in consultation with the air pollution control district or air quality management district within whose boundaries the regional agency or agencies are located.

(e) At the request of the agency, a local jurisdiction that owns, or is responsible for operation of, a trip-generating facility in another county shall participate in the congestion management program of the county where the facility is located. If a dispute arises involving a local jurisdiction, the agency may request the regional agency to mediate the dispute through procedures pursuant to subdivision (d) of Section 65089.2. Failure to resolve the dispute does not invalidate the congestion management program.

65089.3. The agency shall monitor the implementation of all elements of the congestion management program. The department is responsible for data collection and analysis on state highways, unless the agency designates that responsibility to another entity. The agency may also assign data collection and analysis responsibilities to other owners and operators of facilities or services if the responsibilities are specified in its adopted program. The agency shall consult with the department and other affected owners and operators in developing data collection and analysis procedures and schedules prior to program adoption. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:

(a) Consistency with levels of service standards, except as provided in Section 65089.4.

(b) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.

(c) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway level of service standards are not maintained on portions of the designated system.

65089.4. (a) A local jurisdiction shall prepare a deficiency plan when highway or roadway level of service standards are not maintained on segments or intersections of the designated system. The deficiency plan shall be adopted by the city or county at a noticed public hearing.

(b) The agency shall calculate the impacts subject to exclusion pursuant to subdivision (f) of this section, after consultation with the regional agency, the department, and the local air quality management district or air pollution control district. If the calculated traffic level of service following exclusion of these impacts is consistent with the level of service standard, the agency shall make a finding at a publicly noticed meeting that no deficiency plan is required and so notify the affected local jurisdiction.

(c) The agency shall be responsible for preparing and adopting procedures for local deficiency plan development and implementation responsibilities, consistent with the requirements of this section. The deficiency plan shall include all of the following:

(1) An analysis of the cause of the deficiency. This analysis shall include the following:

(A) Identification of the cause of the deficiency.

(B) Identification of the impacts of those local jurisdictions

within the jurisdiction of the agency that contribute to the deficiency. These impacts shall be identified only if the calculated traffic level of service following exclusion of impacts pursuant to subdivision (f) indicates that the level of service standard has not been maintained, and shall be limited to impacts not subject to exclusion.

(2) A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements.

(3) A list of improvements, programs, or actions, and estimates of costs, that will (A) measurably improve multimodal performance, using measures defined in paragraphs (1) and (2) of subdivision (b) of Section 65089, and (B) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved nonmotorized transportation facilities, high occupancy vehicle facilities, parking cash-out programs, and transportation control measures. The air quality management district or the air pollution control district shall establish and periodically revise a list of approved improvements, programs, and actions that meet the scope of this paragraph. If an improvement, program, or action on the approved list has not been fully implemented, it shall be deemed to contribute to significant improvements in air quality. If an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district or air pollution control district.

(4) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000), that shall be implemented, consisting of improvements identified in paragraph (2), or improvements, programs, or actions identified in paragraph (3), that are found by the agency to be in the interest of the public health, safety, and welfare. The action plan shall include a specific implementation schedule. The action plan shall include implementation strategies for those jurisdictions that have contributed to the cause of the deficiency in accordance with the agency's deficiency plan procedures. The action plan need not mitigate the impacts of any exclusions identified in subdivision (f). Action plan strategies shall identify the most effective implementation strategies for improving current and future system performance.

(d) A local jurisdiction shall forward its adopted deficiency plan to the agency within 12 months of the identification of a deficiency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following that hearing, the agency shall either accept or reject the deficiency plan in its entirety, but the agency may not modify the deficiency plan. If the agency rejects the plan, it shall notify the local jurisdiction of the reasons for that rejection, and the local jurisdiction shall submit a revised plan within 90 days addressing the agency's concerns. Failure of a local jurisdiction to comply with the schedule and requirements of this section shall be considered to be nonconformance for the purposes of Section 65089.5.

(e) The agency shall incorporate into its deficiency plan procedures, a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within the boundaries of the agency.

(1) If, according to the agency's methodology, it is determined that more than one local jurisdiction is responsible for causing a deficient segment or intersection, all responsible local

jurisdictions shall participate in the development of a deficiency plan to be adopted by all participating local jurisdictions.

(2) The local jurisdiction in which the deficiency occurs shall have lead responsibility for developing the deficiency plan and for coordinating with other impacting local jurisdictions. If a local jurisdiction responsible for participating in a multi-jurisdictional deficiency plan does not adopt the deficiency plan in accordance with the schedule and requirements of paragraph (a) of this section, that jurisdiction shall be considered in nonconformance with the program for purposes of Section 65089.5.

(3) The agency shall establish a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities of this section.

(f) The analysis of the cause of the deficiency prepared pursuant to paragraph (1) of subdivision (c) shall exclude the following:

(1) Interregional travel.

(2) Construction, rehabilitation, or maintenance of facilities that impact the system.

(3) Freeway ramp metering.

(4) Traffic signal coordination by the state or multi-jurisdictional agencies.

(5) Traffic generated by the provision of low-income and very low income housing.

(6) (A) Traffic generated by high-density residential development located within one-fourth mile of a fixed rail passenger station, and

(B) Traffic generated by any mixed use development located within one-fourth mile of a fixed rail passenger station, if more than half of the land area, or floor area, of the mixed use development is used for high density residential housing, as determined by the agency.

(g) For the purposes of this section, the following terms have the following meanings:

(1) "High density" means residential density development which contains a minimum of 24 dwelling units per acre and a minimum density per acre which is equal to or greater than 120 percent of the maximum residential density allowed under the local general plan and zoning ordinance. A project providing a minimum of 75 dwelling units per acre shall automatically be considered high density.

(2) "Mixed use development" means development which integrates compatible commercial or retail uses, or both, with residential uses, and which, due to the proximity of job locations, shopping opportunities, and residences, will discourage new trip generation.

65089.5. (a) If, pursuant to the monitoring provided for in Section 65089.3, the agency determines, following a noticed public hearing, that a city or county is not conforming with the requirements of the congestion management program, the agency shall notify the city or county in writing of the specific areas of nonconformance. If, within 90 days of the receipt of the written notice of nonconformance, the city or county has not come into conformance with the congestion management program, the governing body of the agency shall make a finding of nonconformance and shall submit the finding to the commission and to the Controller.

(b) (1) Upon receiving notice from the agency of nonconformance, the Controller shall withhold apportionments of funds required to be apportioned to that nonconforming city or county by Section 2105 of the Streets and Highways Code.

(2) If, within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by the agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.

(3) If the Controller is not notified by the agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld pursuant to this section to the agency.

(c) The agency shall use funds apportioned under this section for projects of regional significance which are included in the capital improvement program required by paragraph (5) of subdivision (b) of Section 65089, or in a deficiency plan which has been adopted by the agency. The agency shall not use these funds for administration or planning purposes.

65089.6. Failure to complete or implement a congestion management program shall not give rise to a cause of action against a city or county for failing to conform with its general plan, unless the city or county incorporates the congestion management program into the circulation element of its general plan.

65089.7. A proposed development specified in a development agreement entered into prior to July 10, 1989, shall not be subject to any action taken to comply with this chapter, except actions required to be taken with respect to the trip reduction and travel demand element of a congestion management program pursuant to paragraph (3) of subdivision (b) of Section 65089.

65089.9. The study steering committee established pursuant to Section 6 of Chapter 444 of the Statutes of 1992 may designate at least two congestion management agencies to participate in a demonstration study comparing multimodal performance standards to highway level of service standards. The department shall make available, from existing resources, fifty thousand dollars ($50,000) from the Transportation Planning and Development Account in the State Transportation Fund to fund each of the demonstration projects. The designated agencies shall submit a report to the Legislature not later than June 30, 1997, regarding the findings of each demonstration project.

65089.10. Any congestion management agency that is located in the Bay Area Air Quality Management District and receives funds pursuant to Section 44241 of the Health and Safety Code for the purpose of implementing paragraph (3) of subdivision (b) of Section 65089 shall ensure that those funds are expended as part of an overall program for improving air quality and for the purposes of this chapter.

APPENDIX 3

Congestion Management Program Roadway Network Segmentation and Changes

CMP NETWORK - ARTERIALS

Rationale for Segmentation

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
1st Street					
Market-Harrison					
3rd Street					
Jamestown-Evans *		x	x		
Evans-China Basin		x			
China Basin-Market		x		x	
4th Street					
Market-Harrison					x
Harrison-3rd St					x
5th Street					
Market-Brannan					
6th Street					
Market-Brannan					
7th Street					
Brannan-Market					
8th Street					
Market-Bryant					
9th Street					
Brannan-Market					
10th Street					
Market-Brannan					
19th Avenue/Park Presidio Blvd					
U.S.101-Lake		x			
Lake-Lincoln		x	x		
Lincoln-Sloat			x		
Sloat-J.Serra			x		
Alemany Blvd					
C & C limit-Lyell *		x			
Lyell-Bayshore		x			
Army Street					
Guerrero-Kansas *	x	x			x
Kansas-Bryant *					x
Bryant-3rd St.					x
Bay Street					
Van Ness-Embarcadero					
Bayshore Blvd					
Army-Industrial *			x		x
Industrial- C & C limit			x		x
Beale/Davis					
Clay-Mission					
Brannan Street					
Division-9th St					
6th St-5th St					
Broadway					
Gough-Larkin	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Larkin-Powell (Tunnel)	x	x			
Powell-Montgomery		x			
Montgomery-Embarcadero			x		
Brotherhood Way					
J.Serra-Alemany					
Bryant Street					
Division-4th St					x
4th St-Embarcadero					x
Bush Street					
Masonic-Gough	x				
Gough-Market *	x		x		
Castro/Divisadero Street					
Pine-Geary			x		
Geary-14th St	x		x		
14th St-Market	x		x		
Clay Street					
Kearny-Davis					
Columbus Avenue					
North Point-Greenwich				x	
Greenwich-Montgomery			x		
Drumm Street					
Washington-Market					
Duboce Avenue					
Market-Mission *	x				
Mission-Potrero	x				
The Embarcadero					
Townsend-North Point					
Evans Avenue					
Army-3rd St *					
Fell Street					
Gough-Laguna					x
Laguna-Stanyan					x
Franklin Street					
Market-Pine			x		
Pine-Lombard	x				
Fremont Street					
Harrison-Market *					
Fulton Street					
Masonic-Arguello		x	x		
Arguello-Park Presidio *		x	x		
Geary Blvd					
Market-Gough	x	x			
Gough-Arguello		x			
Arguello-25th Ave			x		
25th Ave-Great Hwy	x		x		

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Geneva Avenue					
Phelan-Cayuga	x				
Cayuga-Paris	x				
Paris-Santos	x				
Golden Gate Avenue					
Masonic-Franklin	x	x	x		
Franklin-Market	x	x	x		
Gough Street					
Pine-Geary			x		
Geary-Golden Gate *	x				
Golden Gate-Market	x				
San Jose Avenue/Guerrero					
Army-29th St	x	x			
29th St-Monterey Blvd					x
Harrison Street					
Embarcadero-1st St *					x
1st St-4th St					x
4th St-8th St					x
8th St-13th St					x
Hayes Street					
Market-Gough					
Howard Street					
Embarcadero-S.Van Ness					
Junipero Serra Blvd					
Sloat-19th Ave *		x	x		
19th Ave-Brotherhood Way			x		
Brotherhood-C & C limit			x		
Kearny Street					
Market-Columbus					
King Street					
6th St-Embarcadero					
Lincoln Blvd/Kezar Drive					
19th Ave-5th Ave	x				
5th Ave-Stanyan	x				
Lombard Street					
Francisco-Van Ness *					
Main Street					
Mission-Market					
Market/Portola					
Sloat-Santa Clara	x				
Santa Clara-Clipper *	Grade Change				
Clipper-Castro	x				
Castro-Guerrero	x				
Guerrero-Van Ness			x	x	
Van Ness-Drumm	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Masonic Avenue					
Pine-Geary			x		
Geary-Page			x		
Mission/Otis					
Embarcadero-3rd St	x				
3rd St-9th St	x				
9th St-14th St	x				
14th St-Army *	x				
Army-Ocean *			x		
Ocean-Sickles	x				
Montgomery Street					
Broadway-Bush					
North Point Street					
Van Ness-Columbus			x		
Columbus-Embarcadero			x		
O'Farrell Street					
Gough-Mason *	x				
Mason-Market	x				
Oak Street					
Stanyan-Divisadero *	x		x		
Divisadero-Laguna	x		x		x
Laguna-Franklin					x
Ocean Avenue					
19th Ave-Miramar *	x				
Miramar-I-280	x				
Pine Street					
Market-Kearny	x				
Kearny-Leavenworth	x				
Leavenworth-Franklin	x				
Franklin-Presidio	x				
Potrero Avenue					
Division-21st St	x			x	
21st St-Army	x			x	
Skyline Drive					
Sloat-City & County limit					
Sloat Boulevard					
Skyline-J.Serra					
Stanyan Street					
Fulton-Turk					
Sutter Street					
Market-Mason *	x				
Mason-Gough	x				
Gough-Divisadero	x		x		
Turk Street					
Market-Hyde	x				
Hyde-Gough	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Hyde-Gough	x				
Gough-Divisadero	x				
Divisadero-Stanyan			x		
Van Ness Avenue					
Lombard-Washington	Sig.	Syst.	Change		
Washington-GoldenGate Av *	x				
Golden Gate Ave-13th St *					x
13th St-Army					x
Washington Street					
Kearny-Drumm					
West Portal Avenue					
Sloat-Ulloa					

* indicates change in segment boundary.

CMP NETWORK - FREEWAYS

Rationale for Segmentation

Freeway	Split	Off-ramp	On-ramp
I-280			
C & C limit- U.S. 101	x		
101/280 -6th/Brannan	x		
U.S.101			
C & C limit- I-280	x		
I-280- I-80	x		
I-80- Fell/Laguna	x		
I-80			
U.S. 101- Fremont		x	
Fremont- Treasure Island		x	

Table II
Rationale for Changes to Arterial Segmentation
Since 1991

Third Street	Eliminated Fairfax Street as a break point. Evans Avenue is the new break point because of the change in speed limit and because Evans is a major cross street.
Alemany Boulevard	Lyell Street is a necessary break point because of a speed limit change.
Army Street (César Chávez)	Because of the size of the U.S. 101 interchange at Army Street circle, a break point was established on each side of it. One is at Kansas Street and a second is at Bryant Street.
Bayshore Boulevard	Industrial is a necessary break point because of nearby off and on-ramps.
Bush Street	Gough is the best divider to break Bush into two segments because land use changes occur at Gough and because it is a major cross street.
Duboce Avenue	Folsom Street was eliminated as a break point and replaced with Mission Street, because of the presence of on and off ramps to 101.
Evans Avenue and Fremont Street	The 1991 intermediate segment limits could not be justified and were eliminated (no apparent change in traffic flow conditions)
Fulton Street	Arguello was identified as an intermediate segment limit because it is a major cross street and because of a speed limit change.
Harrison Street	Eliminated 2nd Street and substituted First Street is the first break point because of the I-80 on-ramp.
Junipero Serra Boulevard	The first segment boundary is 19th Avenue instead of Holloway, as justified by the change in speed limit and also because 19th Avenue is a major cross street.
Lombard Street	Eliminated intermediate segment boundaries because land uses and traffic conditions are uniform along this street.
Market Street	Established a new segment boundary at Clipper because of a change in grade on each side of Clipper. Eliminated unjustified breaks at Danvers, Sanchez and Gough.
Mission Street	Eliminated intermediate boundaries between 14th and Army and between Army and Ocean to better reflect land use.
O'Farrell Street	Eliminated intermediate segment boundaries at Van Ness, Leavenworth and Taylor, which created segments too short for accurate measurement. Mason is the new break point because of land use changes.
Van Ness Avenue	Added Golden Gate Avenue as an intermediate segment boundary because of land use changes (start of the Civic Center area).

METROPOLITAN
TRANSPORTATION
COMMISSION

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WEB www.mtc.ca.gov

January 10, 2007 REC'D JAN 12 2007

Ms. Tilly Chang
Deputy Director for Planning
San Francisco Transportation Authority
100 Van Ness Avenue, 26th floor
San Francisco, CA 94102

RE: San Francisco CMP Segment Modification

Dear Tilly:

Thank you for the letter dated January 4, 2007 regarding CMP monitoring on Brannan Street. After reviewing your letter and the CMP monitoring map for the area, MTC supports the proposed changes to make monitoring on Brannan in this area consistent with SFCTA's standard CMP segment definitions while continuing to monitor Brannan Street consistent with overall CMP guidance.

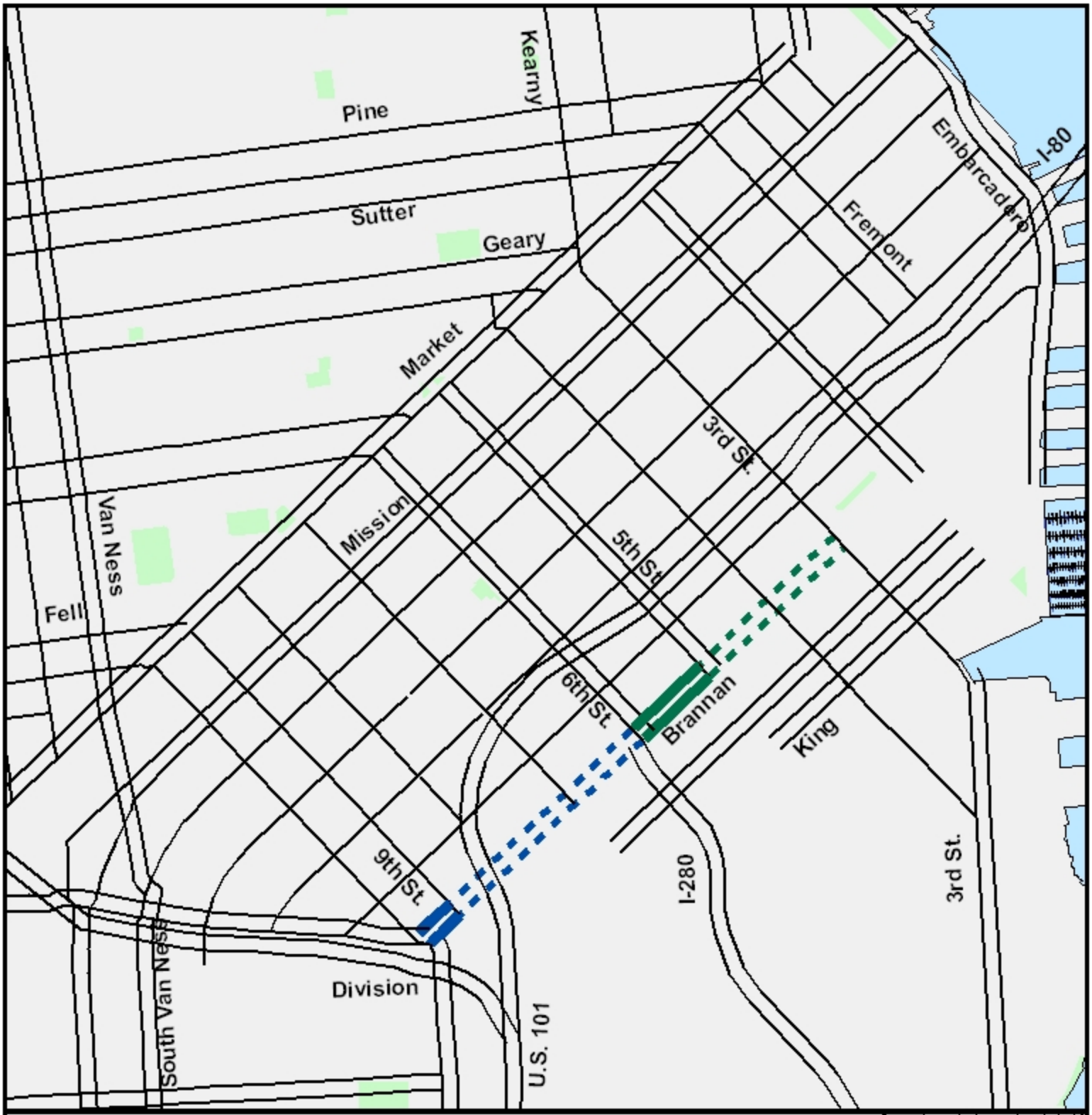
MTC expects monitoring on Brannan will take place on Brannan from Division to 6th Street and from 6th Street to 3rd Street effective spring 2007. Please let me know if there are any questions.

Yours truly,

Doug Johnson

J:\Section\Planning\djohnson\SFCTA\CMP_modifications_Jan_2007.doc

cc: Sean Co, MTC
Valerie Knepper, MTC
Doug Kimsey, MTC



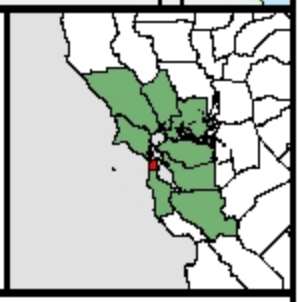
Existing Brannan Street segment from Division to 9th

New Brannan Street segment from Division to 6th

Existing Brannan Street segment from 6th to 5th

New Brannan Street segment from 6th to 3rd

Two-way street segments are represented by two parallel lines.



Proposed new CMP monitoring segments

San Francisco County Congestion Management Program

Miles

0 0.125 0.25 0.5

This map is intended for planning purposes only.

Map Produced: 11/27/2006 KNS

N

APPENDIX 4

San Francisco Board of Supervisors Resolution Adopting Infill Opportunity Zones

[Resolution establishing Infill Opportunity Zones for Congestion Management Planning in the City and County of San Francisco under California Government Code Section 65088.]

Resolution establishing Infill Opportunity Zones for Congestion Management Planning in the City and County of San Francisco under California Government Code Section 65088.

WHEREAS, State Senate Bill 1636 ("SB 1636") allows local jurisdictions to designate eligible areas as Infill Opportunity Zones ("IOZs") so that Congestion Management Program ("CMP") requirements better support local land use and transportation policies, pursuant to California Government Code Section 65088.4; and

WHEREAS, The San Francisco County Transportation Authority ("Authority") and the City and County of San Francisco ("City") seek to reform the City's approach to analyzing transportation impacts pursuant to the California Environmental Quality Act ("CEQA"), to better support local land use and transportation polices, by measuring Automobile Trips Generated ("ATG") rather than Level of Service ("LOS"); and

WHEREAS, The adoption of an IOZ in the City would provide strong support for the Authority and the City's effort to replace LOS with ATG for CEQA transportation impact purposes; and

WHEREAS, The adoption of an IOZ in the City would allow the Authority, as Congestion Management Agency ("CMA"), to better support the City's Transit First Policy, land use planning efforts, compact land use pattern, and multimodal transportation system through CMP practices; and

WHEREAS, SB 1636 requires that any IOZ designation be made no later than December 31, 2009; and

WHEREAS, The IOZ designation is consistent with the San Francisco General Plan ("General Plan") because: (1) it will further the goals of the City's Transit First Policy as articulated in General Plan; (2) it will directly support policy objectives of the General Plan, including, but not limited to, Objectives 1, 2, 3, 10, 11, 12, 14, 15, 18, and 19 of the Transportation Element; and (3) it will compliment City efforts to promote infill housing and mixed-use commercial developments in proximity to multimodal transportation infrastructure; and

WHEREAS, The Board of Supervisors finds the City to be eligible for IOZ designation in the area identified by the Authority in the IOZ Map ("IOZ Map") on file with the Clerk of the Board of Supervisors in File No. 091335 , which is hereby declared to be a part of this motion as if set forth fully herein; and

WHEREAS, The Board of Supervisors' eligibility findings are supported by analysis conducted by Authority staff, which is on file with the Clerk of the Board of Supervisors in File No. 091335 , and which is hereby declared to be a part of this motion as if set forth fully herein; now, therefore, be it

RESOLVED, That the Board of Supervisors finds that the IOZ designation is, on balance, consistent with the General Plan; and be it

FURTHER RESOLVED, That the eligible portion of the City identified by the Authority in the IOZ Map is hereby designated an IOZ within the meaning of California Government Code Section 65088.

City and County of San Francisco
Tails
Resolution

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 091335 **Date Passed:** December 08, 2009

Resolution establishing Infill Opportunity Zones for Congestion Management Planning in the City and County of San Francisco under California Government Code Section 65088.

December 08, 2009 Board of Supervisors - ADOPTED

Ayes: 11 - Alioto-Pier, Avalos, Campos, Chiu, Chu, Daly, Dufty, Elsbernd, Mar, Maxwell and Mirkarimi

File No. 091335

I hereby certify that the foregoing Resolution was ADOPTED on 12/8/2009 by the Board of Supervisors of the City and County of San Francisco.

Angela Calvillo
Clerk of the Board

18 December 2009
Date Approved

Mayor Gavin Newsom

APPENDIX 5

Level of Service Monitoring Methodology & Results

KEY TOPICS

- LOS Standard and Exempt Facilities
- CMP Network Changes
- Methodology
- Travel Speed Results
- LOS F Segments
- Travel Time Reliability Results
- Future Monitoring Considerations

The San Francisco County Transportation Authority (Transportation Authority) has updated their Congestion Management Program (CMP) every two years since 1991. The Transportation Authority monitors roadway performance with Level of Service (LOS) along its CMP network, which includes all state highways, principal arterials and several other roads as defined in previous LOS monitoring efforts[1]. The Transportation Authority ensures that LOS measurement methods used by its contractors, Caltrans, or other agencies involved in monitoring the CMP network are consistent with State law.

The 2021 LOS monitoring effort was conducted on behalf of the Transportation Authority by the University of Kentucky.

1 For more details about CMP network, please reference to Chapter 3 of the main report.

A5.1 LOS Standards and Exempt Facilities

LOS E was the adopted standard in the initial (1991) CMP Monitoring. Since 1991, CMP Monitoring has been conducted biannually to ensure that the facilities within CMP network are operated at LOS E or better.

The Transportation Authority is mandated to prepare a deficiency plan or monitoring follow-up, depending on the applicable exemption, to improve the performance of the facilities operated at F. The criteria to qualify for the exemption is outlined as below

- Facilities that were already operating at LOS F at the time of baseline monitoring, conducted to develop the first CMP in 1991, are legislatively exempt from the LOS standards.
- CMP segments that are within a designated Infill Opportunity Zone (IOZ) are also exempt from LOS conformance requirements.

For LOS monitoring purposes, the CMP segments are categorized by exempt or non-exempt status:

- **Exempt** – segments which either: a) were at LOS F during the first monitoring cycle (1991 or 1992/93) or b) are located within an IOZ and are legislatively exempted from the LOS E standard.
- **Non-exempt** – all other segments. If a non-exempt segment fails for three consecutive CMP cycles, it is classified as deficient.

Since 2005, monitoring has included the exempt facilities in addition to the rest of the CMP network. Figures A5-1 and A5-2 show segments that are exempt from LOS standards because they were found to be LOS F in the inaugural CMP cycle, while Figure A5-3 shows the portions of the CMP network that are within San Francisco's Infill Opportunity Zone and are therefore exempt from LOS standards, as well.

Figure A5-1. Segments Exempt in AM Due to Monitoring at LOS F in Inaugural Cycle

Figure A5-2. Segments Exempt in PM Due to Monitoring at LOS F in Inaugural Cycle

Figure A5-3. Segments Exempt Due to Location with Infill Opportunity Zone

A5.2 CMP Network Changes

The CMP network is described in detail in Chapter 3 of the main report. There are no changes to the CMP network from 2019 to 2021.

A5.3 Methodology

Since the 2013 CMP update, automobile LOS monitoring was conducted using commercial speed data from INRIX where available, and floating car runs were made to collect data for all other CMP segments for which INRIX data coverage was insufficient. In the 2013, 2015, and 2017 cycles, INRIX provides travel time data at one-minute intervals on a unique set of roadway segments called Traffic Message Channels (TMCs). In the 2019 cycle, the TMC-based travel time data was discontinued, and instead the data was provided at a spatially finer-granular level, i.e. XD segments. In this monitoring cycle, the XD-based travel time data was used. Same as the processing method used in the previous cycles, the XD-based speeds were aggregated to CMP segments spatially and the peak periods temporally. LOS was assigned based on the average speed observed in the AM and PM peak periods using both 1985 and 2000 Highway Capacity Manual (HCM) methodologies. Section 3.4 provides a detailed description of data processing steps.

The 1985 Highway Capacity Manual (HCM) methodology has been adopted since the baseline monitoring cycle. It is necessary to maintain 1985 HCM for historical comparisons, identifying exempt segments, and monitoring potential network deficiencies. Since 2009, all the arterial segments were also evaluated using the HCM 2000 classification. Therefore, both the HCM 1985 and 2000 results are presented below.

For freeways, only HCM 1985 LOS was calculated, as the HCM 2000 methodology requires traffic density information for all unique freeway segments and ramps. Collection of comprehensive freeway traffic densities is beyond the scope of the CMP monitoring effort.

In addition to LOS, a new metric called buffer time index (BTI) which reflects auto travel time reliability was reported in this monitoring cycle. The idea behind the metric is that travel times vary significantly during different times of the day and from day to day, and travelers remember these unexpected long delays experienced during their commutes and would therefore budget extra time (i.e. buffer time) for the trip in order to reach destination on time. The buffer time here is calculated as the difference between the 95th percentile travel time and the average travel time. Buffer time index is the buffer time divided by the average travel time. It indicates the amount of extra time required to be on-time 95 percent of the time, or in other words, late in only one day per month (20 working days).

A5.3.1 MONITORING TIMES

This section summarizes the monitoring days and the conditions that may affect the regular traffic pattern during the 2021 CMP Monitoring. The INRIX data collected, starting on April 6, 2021 and ending on May 20, 2021, was utilized to calculate the average speed reported against a CMP segment. The monitoring was conducted on Tuesdays, Wednesdays and Thursdays. This left 21 days for monitoring. The morning (AM) peak period was from 7:00 a.m. to 9:00 a.m. and the afternoon (PM) peak period was from 4:30 p.m. to 6:30 p.m.

These monitoring times were also used for transit speed monitoring (see Appendix 8).

Public Holidays and School Breaks

While there were some public holidays during the spring of 2021, none occurred on Tuesdays, Wednesdays and Thursdays. Due to the COVID-19 pandemic, local schools were closed for in-person classes during this period.

Special Events

The major events in San Francisco County were reviewed to see if they occurred during the Tuesday, Wednesday, and Thursday peak periods. Most events did not occur within the monitoring times.

Major league baseball (SF Giants) were the notable exception. Games started at 12:45 p.m. or at 6:45 p.m. Both timeslots were deemed to impact on the afternoon peak period. However, due to the frequency of these events, the data collected from these days were retained in the dataset (Figure A5-4).

Figure A5-4. Planned events in San Francisco County, Spring 2021

APRIL 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9 Giants home 1:35pm	10 Giants home 1:05pm
11 Giants home 1:05pm	12 Giants home 6:45pm	13 Giants home 6:45pm	14 Giants home 12:45pm	15	16	17
18	19	20	21	22 Giants home 6:45pm	23 Giants home 6:45pm	24 Giants home 6:05pm
25 Giants home 1:05pm	26 Giants home 6:45pm	27 Giants home 6:45pm	28 Giants home 6:45pm	29	30	

MAY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			Giants home 6:45pm			1
2	3	4	5	6	7 Giants home 7:15pm	8 Giants home 6:05pm
9 Giants home 1:05pm	10	11 Giants home 6:45pm	12 Giants home 12:45pm	13	14	15
16	17 Giants home 6:45pm	18 Giants home 6:45pm	19 Giants home 6:45pm	20 Giants home 12:45pm	21 Giants home 7:15pm	22 Giants home 1:05pm
23 Giants home 1:05pm	24	25	26	27	28	29
30 Giants home 1:05pm	31					

Construction Events

Community service announcements were reviewed to identify significant construction impacts during the spring monitoring period. Sources of data included:

- Government websites (including SF Public works);
- Specific construction project websites (including Central Subway and the Transbay Center);
- Social Media feeds (including 511 SF Bay traffic updates); and
- PeMS lane closure database.

Both long-term and short-term events were investigated. Short-term construction or maintenance events include events that had a short duration impact on the CMP segment. INRIX data collected during the work could be identified and excluded from the analysis, and there would still be enough remaining data to successfully record the performance of the CMP segment. In the 2021 analysis, no short-term event was identified from above listed sources.

Additionally, the following segments experienced major and ongoing construction throughout the entire monitoring period. In these instances, even on the segment that remained open, there would not be enough alternative days to provide a suitable sample size if all days impacted by construction were removed. Therefore, corresponding data was retained in the analysis. Segments impacted by ongoing construction and maintenance are listed in Table A5-1.

Table A5-1. Long-term construction and maintenance projects during LOS monitoring

DESCRIPTIONS	CORRESPONDING IMPACTED ROADS CMP SEGMENTS
Van Ness Improvement Project	222: Van Ness/S. Van Ness NB from 13th to Golden Gate 223: Van Ness/S. Van Ness NB from Golden Gate to Washington 224: Van Ness/S. Van Ness NB from Washington to Lombard 225: Van Ness/S. Van Ness SB from Lombard to Washington 226: Van Ness/S. Van Ness SB from Washington to Golden Gate 227: Van Ness/S. Van Ness SB from Golden Gate to 13th
19th Avenue (CA Route 1) Combined City Project	23: 19th Ave/Park Presidio NB from Junipero Serra to Sloat 24: 19th Ave/Park Presidio NB from Sloat to Lincoln 29: 19th Ave/Park Presidio SB from Lincoln to Sloat 30: 19th Ave/Park Presidio SB from Sloat to Junipero Serra
"Hairball" Segment F/G Widening and Regrade Project	67: Cesar Chavez EB from Bryant to Kansas 70: Cesar Chavez WB from Kansas to Bryant

Weather Events

There was no significant weather event observed during the monitoring period (source: Weather Underground Historical Weather Data www.wunderground.com). Therefore, all INRIX data records for the monitoring period were retained in the analysis.

A5.3.2 COMMERCIAL SPEED DATA

Since the adoption of the 2009 CMP update, there has been a proliferation of archived commercial speed data. This data is collected through real-time GPS monitoring of a variety of sources such as delivery vehicles, navigational devices, and highway performance monitoring systems, and obtained from a third-party vendor – INRIX.

As part of the 2011 CMP update, the Transportation Authority explored the reliability of this new data source by comparing results computed from this source to those computed from floating car runs. The analysis found that, although the INRIX data speeds were somewhat higher, on average, than the floating car speeds, the difference was within the typical range of variation for floating car results and that commercial speed data and floating vehicle data were equally acceptable for meeting CMP legislative requirements. For more details about the pros and cons of using commercial speed data, refer to the 2013 CMP report.

In 2013, MTC contracted with INRIX to obtain region wide commercial speed data and has made the data available to the Congestion Management Agency (CMA) and other local governments free of charge for planning and monitoring purposes. The data available from INRIX was in the form of traffic message channel (TMC) links.

In 2019, MTC renewed the contract with INRIX with a major change that the speed data would be on the XD segments, whose length are typically much shorter than those of TMC segments. Due to this segmentation change, the aggregated CMP speeds from XD links and TMC links were found to be inconsistent even with the same underlying data sources. To make "apples-to-apples" comparison, both 2017 and 2019 speeds based on XD speeds were calculated and reported, and the congestion trends from 2017 to 2019 were derived from them.

Same as 2019, the current monitoring cycle used the XD-based speed data to derive and report auto LOS and reliability metrics.

A5.3.3 SUPPLEMENTAL TRAVEL TIME RUNS

Floating car surveys were conducted on CMP segments with insufficient INRIX speed coverage. The surveys were conducted using conventional methodologies. Drivers were instructed to follow road rules including the speed limit, traffic signals and not blocking intersections. GPS coordinates were recorded as the floating car travels along the CMP segment. The temporal aggregation of multiple floating car runs on the corresponding CMP segment was performed in the same manner as for the INRIX data, explained in Section 3.4 below.

A5.3.4 PROCESSING

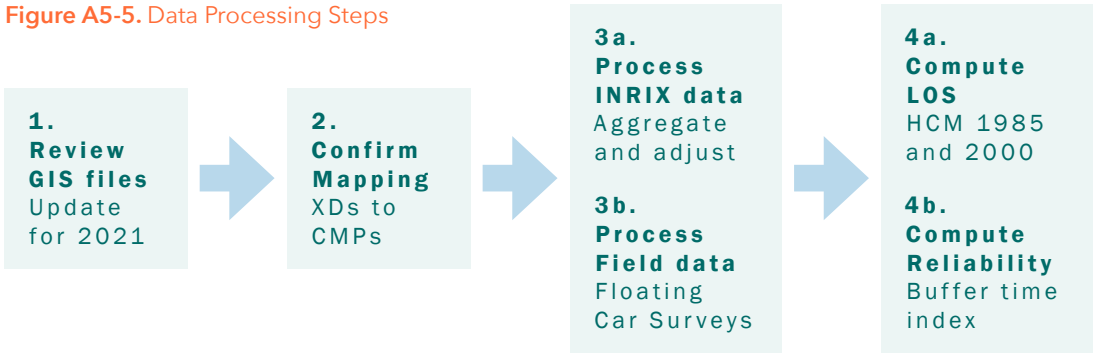
The data processing was performed to ultimately obtain automobile LOS and reliability for each CMP segment during the morning and afternoon peak periods. The data

processing consists of four steps as shown in Figure A5-5. The following provides more details on the data processing procedure:

- The ArcGIS shapefile was reviewed to prepare the base map of the CMP network for conflating the XD links against CMP segments;
- In this step, INRIX XD links were mapped to CMP segments to establish a relationship between XD links and CMP segment. In the cases where the ends of the CMP did not align with the ends of the XDs, travel time was interpolated linearly by using the overlapping portion;
- In the cleansing process, INRIX data points based on historical data or can be affected by the conditions mentioned earlier in Section 3.1 were dropped and will not be used in the LOS and reliability analysis. With the floating car data, the first and last timestamps from the GPS readings when entering and exiting the CMP segment were identified and the CMP travel time was calculated;
- In addition, in cases where multiple XD links spanned a single CMP segment, the travel times were summed and then aggregated spatially to obtain the required average peak period speeds by CMP segment. To ensure the aggregated speed was representative of the traffic condition on the whole CMP segment, a minimum spatial coverage requirement was applied. Based on the remaining aggregated one-minute speeds, the average and 5th percentile speeds for each CMP segment during the AM and PM monitoring periods were calculated.
- Finally, LOS and BTI were calculated. LOS was assigned based upon the peak period speed. For the methodology of LOS assignment, please refer to the section below. BTI was derived as

$$\text{BTI} = 100 \times \frac{\text{95th percentile travel time} - \text{average travel time}}{\text{avereage travel time}} = 100 \times \left(\frac{\text{average speed}}{\text{5th percentile speed}} - 1 \right)$$

Figure A5-5. Data Processing Steps



A5.3.5 LOS ASSIGNMENT

This section discusses the methodology for assigning a LOS (A to F) to each CMP segment for both morning and afternoon peak periods. The LOS assignments for arterials and freeways are consistent with previous reporting periods and legislative requirements from the California Government Code. Firstly, each CMP segment was classified as either an arterial or a freeway. The methodology slightly differs depending on this classification, as follows.

Arterials

LOS for arterial segments was assigned twice using both 1985 and 2000 Highway Capacity Manual (HCM) methodologies. Both methods required identifying the class of the street (HCM 1985 Class I, II or III; HCM 2000 Class I, II, III or IV). Class was determined according to the free flow speed of the road. For example, the free flow speed may be the average speed at 6am when traffic volumes are light and travel speeds are not influenced by interactions with other vehicles.

For the HCM 1985 and 2000, the classification of streets was taken from previous LOS monitoring reports. Then, by knowing the average travel speed in the morning and afternoon peak periods and the class of the street, the LOS could be assigned according to the HCM 1985 and HCM 2000 methodologies. Refer to Tables A5-2 and A5-3 for the LOS look up tables.

Freeways

Freeways followed a similar methodology as arterials; however, it was not necessary to assign a class of freeway. The HCM-1985 method was used to calculate LOS for all freeway CMP segments. By knowing the average speed of the freeway in the morning and afternoon peaks, Table A5-4 was used to assign a LOS in each time period.

Table A5-2. Arterial LOS Assignment, HCM 1985

ARTERIAL CLASS	I	II	III
Range of Free Flow Speed (mph)	45 to 35	35 to 30	35 to 25
Typical Free Flow Speed (mph)	40	33	27
LEVEL OF SERVICE	**AVERAGE TRAVEL SPEED (MPH)**		
A	≥ 35	≥ 30	≥ 25
B	≥ 28	≥ 24	≥ 19
C	≥ 22	≥ 18	≥ 13
D	≥ 17	≥ 14	≥ 9
E	≥ 13	≥ 10	≥ 7
F	< 13	< 10	< 7

Source: Table 11-1, Highway Capacity Manual, 1985

Table A5-3. Urban Street LOS Assignment, HCM 2000

URBAN STREET CLASS	I	II	III	IV
Range of Free Flow Speed (mph)	55 to 45	45 to 35	35 to 30	35 to 25
Typical Free Flow Speed (mph)	50	40	35	30
LEVEL OF SERVICE	**AVERAGE TRAVEL SPEED (MPH)**			
A	> 42	> 35	> 30	> 25
B	> 34 – 42	> 28 – 35	> 24 – 30	> 19 – 25
C	> 27 – 34	> 22 – 28	> 18 – 24	> 13 – 19
D	> 21 – 27	> 17 – 22	> 14 – 18	> 9 – 13
E	> 16 – 21	> 13 – 17	> 10 – 14	> 7 – 9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: Exhibit 15-2, Highway Capacity Manual 2000 (U.S. Customary Units)

Table A5-4. Freeway Segments, HCM 1985

LEVEL OF SERVICE	DENSITY (PC/MI/LN)	SPEED (MPH)	V/C RATIO	SATURATION FLOW (PCPHPL)
A	≤ 12	≥ 60	0.35	700
B	≤ 20	≥ 55	0.58	1,000
C	≤ 30	≥ 49	0.75	1,500
D	≤ 42	≥ 41	0.90	1,800
E	≤ 67	≥ 30	1.00	2,000
F	> 67	< 30	-	-

Source: Adapted from Table 4-1, Special Report 209, HCM 1985

A5.4 Travel Speed Results

Attachments 5.1 through 5.3 present the LOS monitoring results for all segments on arterials and freeways in the CMP network. For arterials, the results are presented for both the 1985 and 2000 HCM methodologies. The information includes segment length, direction of travel, time of day (morning and afternoon peak), average operating speed measured, and LOS results for all monitoring cycles.

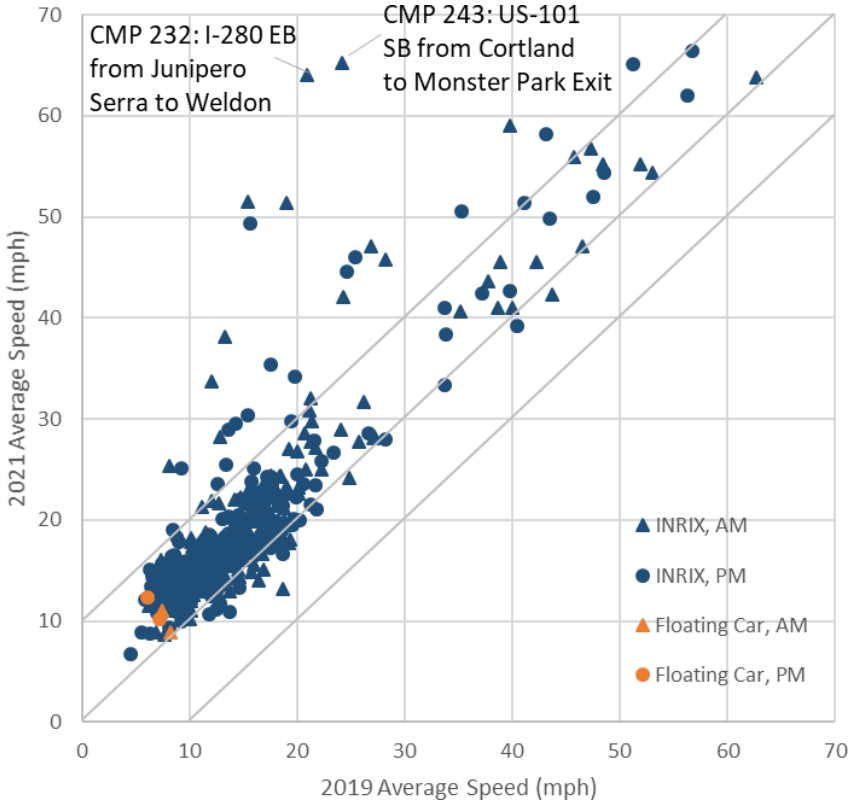
The comparison between speeds collected in the recent years can be used to determine current day variations. Tables A5-5 presents summary statistics on the peak period speeds. There was a significant increase in the average network speeds in 2021 compared to previous cycles which is documented in Chapter 4. The statistical analysis shows the increase is statistically significant at the 95% confidence level in either AM period (z = -5.5, p = 1.5E-08, one-tailed) or PM period (z = -5.4, p = 3.3E-08, one-tailed).

Table A5-5. 2021 CMP Average Travel Speed Results Summary Statistics

	NUMBER OF SEGMENTS	AVERAGE SPEED	STANDARD DEVIATION	MINIMUM SPEED	MAXIMUM SPEED
AM	269	24.54	2.58	8.62	65.28
PM	269	22.54	2.38	6.68	66.42

Figure A5-6 presents the change in CMP average speeds between 2019 and 2021. The diagonal line from the lower left to the upper right means no change has been observed. As can be seen, most points are at the upper left of the diagonal line, indicating the speeds in 2021 were higher than these in 2019. Parallel to the diagonal line are two lines depicting the range of ±10 mph in speed difference. Most points fall within these two lines, indicating the change in speeds on most of the segments are not very significant. Obvious exceptions are observed on CMP 232 I-280 EB from Junipero Serra to Weldon and 243 US-101 SB from Cortland to Monster Park Exit in the AM period, whose speeds improved from 20.9 mph and 24.2 mph in 2019 to 64 mph and 65.3 mph in 2021, respectively.

Figure A5-6. Comparison of 2019 and 2021 CMP Segment Speeds



1.1 LOS F Segments

Tables A5-6 and A5-7 present the segments operated at LOS F (1985 HCM method) during the 2021 Monitoring. As noted above, the Transportation Authority uses the 1985 HCM for calculating LOS when making historical comparisons to the baseline cycle.

As shown in Table A5-6, there was only 1 CMP segment operating at LOS F during the morning peak period in 2019, compared to 15 segments in 2019 using the same XD speed data. The segment was on freeway US-101 NB from I-80 to Market. It was exempt because it was measured LOS F during the baseline 1991 monitoring cycle and therefore did not constituting a deficiency.

Table A5-7 shows there were 6 CMP segments that had LOS F during the afternoon peak based on HCM 1985 in 2021 monitoring cycle. In comparison, there were 18 segments in 2019. All 6 segments (1 arterial and 5 freeway were exempt because they were measured LOS F during the baseline 1991 monitoring cycle and therefore did not constituting a deficiency.

Figure A5-7 visualizes the number of segments operating at LOS F in 2019 and 2021 based on INRIX XD speeds. The number of 2021 LOS F segments on arterial significantly reduced from 15 to 1 during morning and afternoon peak periods. The number of 2021 LOS F segments on freeway decrease by 6 and 2 during the morning and afternoon peak periods, respectively.

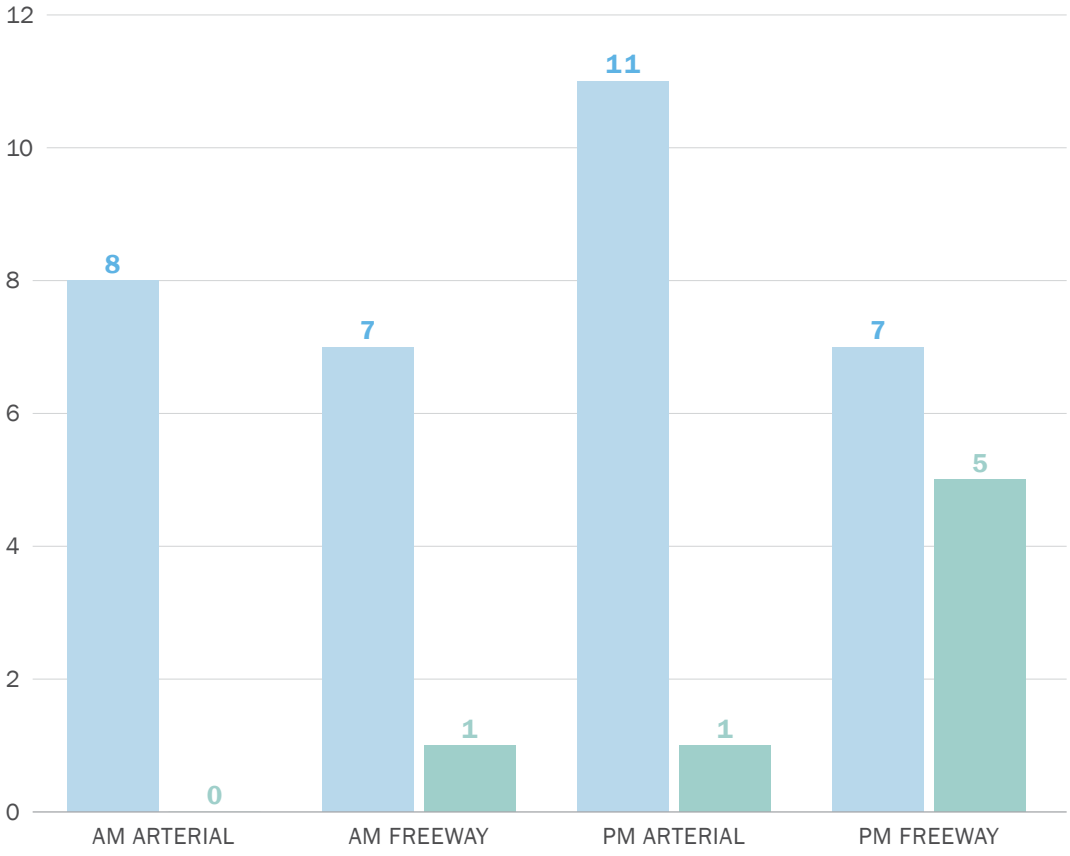
Table A5-6. 2021 Roadway Monitoring Results – LOS F Segments (1985 HCM), AM Peak

NAME	FROM	TO	DIR.	LOS	AVE SPEED/ LOS (1991)	IOZ (YES/ NO)	STATUS / COMMENTS
US-101	I-80	Market	N	F	18.7/F	-	Exempt: Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.

Table A5-7. 2021 Roadway Monitoring Results – LOS F Segments (1985 HCM), PM Peak

NAME	FROM	TO	DIR.	LOS	AVE SPEED/ LOS (1991)	IOZ (YES/ NO)	STATUS / COMMENTS
1st St	Market	Harrison	S	F	1.2/F	-	**Exempt:** Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.
US-101	Cortland	I-80	N	F	24.6/F	-	**Exempt:** Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.
US-101	I-80	Market	N	F	12.2/F	-	**Exempt:** Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.
I-80	Fremont Exit	US-101	W	F	18.6/F	-	**Exempt:** Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.
US-101	Market	I-80	S	F	18.8/F	-	**Exempt:** Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.
I-80	US-101	Fremont Exit	N	F	19/F	-	**Exempt:** Segment monitored at LOS F during the baseline monitoring and therefore does not constitute a deficiency.

Figure A5-7. Change in the Number of LOS F Segments between 2019 and 2021



A5.5 Travel Time Reliability Results

Auto travel time reliability represented by Buffer Time Index (BTI) was a new metric added in this cycle. Unlike LOS, which indicates the congestion condition based on average speed, BTI provides additional information on variability of travel times experienced by travelers over the certain period of time. It is useful in that travelers can budget extra amount of time in accordance with BTI to ensure on-time arrival for 95 percent of time. In addition to 2021, BTI was calculated for 2017 and 2019 to reveal performance trend over time.

Table A5-8 presents summary statistics on the peak period BTI in 2021. It shows during the 2021 monitoring cycle, overall travel time reliability was slightly worse in the AM peak period than the PM peak period. On average, travelers needed to allocate additional 21.6% and 18.6% of their average travel time in the AM and PM to ensure 95% on-time arrival. Attachment 5.4 presents the reliability monitoring results for all segments in the CMP network.

Table A5-8. 2021 CMP Travel Time Reliability Results Summary Statistics

	NUMBER OF SEGMENTS	AVERAGE BTI	MINIMUM BTI	MAXIMUM BTI
AM	269	21.6%	5.3%	136.6%
PM	269	18.6%	3.4%	134.7%

Attachment 5.1: AM CMP Segments Level of Service Monitoring (1991 – 2021)

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2021 LOS CHANGES
1st St	Market	Harrison	S	3	0.48			15.1	C							12.5	D	11.2	D	20.8	B	16.3	C	14.2	C	13.8	C	18.5	C	11.8	D	12.8	D	13.4	C	11.6	D	17.0	C	D to C
2nd St	Brannan	Market	N	3	0.72															10.1	D	10.8	D	12.2	D	13.9	C	11.1	D	9.7	D	9.6	D	10.4	D	8.8	E	14.3	C	E to C
	Market	Brannan	S	3	0.72															14.3	C	18.6	C	16.3	C	20.8	B	9.6	D	11.9	D	10.6	D	10.5	D	10.9	D	14.1	C	D to C
3rd St	Jamestown	Evans	N	3	1.62			25.4	B							23.5	B			17.9	C	20.5	B	24.6	B	23.9	B	18.1	C	17.1	C	15.3	C	15.3	C	12.8	D	15.6	C	D to C
	Evans	Terry Francois	N	3	2.36	10.3	D	24	B							23.6	B			24.7	B	23.1	B	28.4	A	27.6	A	20.9	B	17.5	C	16.2	C	16.9	C	13.6	C	18.1	C	
	Terry Francois	Market	N	3	1.05	12.1	D	12.1	D	15.3	C			10.8	D	9.2	D	6.2	F	8.1	E	9.7	D	20.0	B	15.1	C	13.6	C	12.1	D	10.6	D	10.7	D	10.9	D	14.4	C	D to C
	Terry Francois	Evans	S	3	2.36	10.3	D	24.1	B							23.8	B			20.2	B	28.9	A	28.6	A	27.3	A	21.7	B	18.7	C	17.5	C	17.8	C	14.0	C	18.8	C	
	Evans	Jamestown	S	3	1.62			22.3	C							20.9	B			23.7	B	21.9	B	23.2	B	25.4	A	19.2	B	18.4	C	15.9	C	15.8	C	11.3	D	15.3	C	D to C
4th St / Stockton	O'Farrell	Harrison	S	3	0.56			11.6	D	8.1	E	14.6	C							11.3	D	9.4	D	13.4	C	17.0	C	13.6	C	13.9	C	11	D	10.8	D	10.4	D	13.1	C	D to C
	Harrison	Channel	S	3	0.60																	16.0	C	13.8	C	16.8	C	12.8	D	11.4	D	7.6	E	8.7	E	9.7	D	13.5	C	D to C
5th St	Brannan	Market	N	3	0.72	7.9	E	10.5	D	10.7	D	12.1	D	10.5	D	11.8	D	8.6	E	10.9	D	11.8	D	14.7	C	16.3	C	9.5	D	10.0	D	8.7	E	10.7	D	10.1	D	13.1	C	D to C
	Market	Brannan	S	3	0.72	7.9	E	11.6	C							9.9	D	10.6	D	11.8	D	11.4	D	19.3	B	16.1	C	11.7	D	10.8	D	11.4	D	11.2	D	10.6	D	14.1	C	D to C
6th St	Brannan	Market	N	3	0.72			13.8	C							4.7	F	5.5	F	12.6	D	10.3	D	11.2	D	15.7	C	13.6	C	10.6	D	10.4	D	10.6	D	10.5	D	14.7	C	D to C
	Market	Brannan	S	3	0.72			22.4	B							10	D	8.3	E	13.6	C	14.2	C	15.1	C	16.5	C	17.5	C	14.6	C	12.3	D	12.4	D	11.2	D	21.3	B	D to B
7th St	Brannan	Market	N	3	0.72	8.9	E	13.9	C					14.2	C			6.8	F	13.4	C	19.1	B	18.9	C	19.3	B	15.4	C	10.8	D	8.6	E	8.9	E	10.1	D	13.2	C	D to C
8th St	Market	Bryant	S	3	0.60			17.1	C					17.7	C			15.9	C	16.6	C	18.7	C	15.0	C	17.9	C	15.9	C	13.5	C	12	D	12.2	D	12.6	D	12.8	D	
9th St	Brannan	Market	N	3	0.72	9.9	D	12.5	D	13.3	C					10.3	D	9.6	D	14.2	C	13.0	C	11.4	D	13.8	C	14.4	C	10.2	D	9.1	D	9.2	D	10.0	D	10.2	D	
10th St	Market	Brannan	S	3	0.73	12.1	D	20.5	B							16.3	C	9.7	D	17	C	26.1	A	21.9	B	21.4	B	23.8	B	18.1	C	16.5	C	17.3	C	16.4	C	20.9	B	C to B
16th St	Market	Mission	E	3	0.74															19	B	18.5	C	12.1	D	13.7	C	16.3	C	13.1	C	9.3	D	9.8	D	7.8	E	15.1	C	E to C
	Mission	Potrero	E	3	0.67															15.9	C	13.6	C	14.1	C	13.6	C	14.7	C	13.3	C	10.2	D	10.9	D	10.7	D	15.0	C	D to C
	Potrero	Mission	W	3	0.67															13.4	C	11.5	D	13.5	C	12.1	D	14.1	C	13.0	C	11.8	D	12.0	D	12.0	D	14.4	C	D to C
	Mission	Market	W	3	0.74															12.9	D	13.7	C	13.4	C	12.7	D	16.0	C	13.3	C	10.5	D	11.6	D	10.9	D	13.0	D	
19th Ave / Park Presidio	Junipero Serra	Sloat	N	3	1.25			19.2	B					23.1	B					22.1	B	16.4	C	18.2	C	16.9	C	15.7	C	17.6	C	17.8	C	19.3	B	17.2	C	22.6	B	C to B
	Sloat	Lincoln	N	3	2.13	11.1	D	19.2	B					15	C					17.9	C	18.6	C	13.8	C	15.4	C	17.0	C	13.1	C	13.4	C	13.7	C	15.7	C	20.9	B	C to B
	Lincoln	Lake	N	3	1.85			21.9	B					19.7	B					19.9	B	20.4	B	19.9	B	22.1	B	24.5	B	21.7	B	19.9	B	20.0	B	19.2	B	27.0	A	B to A
	Lake	US-101	N	1	1.18			38.8	A							28.6	B			34.7	B	44.0	A	45.3	A	43.6	A	49.6	A	37.4	A	45.2	A	44.4	A	43.7	A	42.3	A	
	US-101	Lake	S	1	1.26			38.3	A							47.2	A			42.2	A	40.3	A	40.7	A	24.4	C	42.9	A	39.7	A	32.1	B	35.2	A	26.9	C	47.0	A	C to A
	Lake	Lincoln	S	3	1.85			20.9	B					22	B					25.1	A	26.1	A	26.3	A	28.1	A	26.4	A	22.8	B	22	B	22.1	B	21.2	B	27.7	A	B to A
	Lincoln	Sloat	S	3	2.13	11.1	D	17.2	C					18.4	C					21.8	B	22.2	B	19.2	B	19.3	B	17.8	C	17.4	C	18.1	C	18.9	C	18.8	C	21.2	B	C to B
	Sloat	Junipero Serra	S	3	1.25			20.2	B					21.2	B					20.2	B	17.2	C	21.6	B	23.6	B	23.8	B	23.2	B	24.9	B	30.1	A	27.1	A	28.1	A	
Alemany	Junipero Serra	Lyell	E	3	2.95			25.6	B							20	C			20.9	B	21.5	B	28.3	A	23.2	B	23.0	B	20.0	B	16.5	C	16.7	C	18.5	C	24.4	B	C to B
	Lyell	Bay Shore	E	3	1.59			28.5	A							19	C			23.7	B	28.5	A	26.1	A	28.5	A	29.7	A	22.3	B	21.3	B	20.1	B	21.3	B	29.8	A	B to A
	Bay Shore	Lyell	W	3	1.57			35.4	A							28.4	A			37.5	A	25.4	A	30.7	A	28.1	A	29.8	A	31.2	A	28.2	A	29.4	A	27.2	A	28.2	A	
	Lyell	Junipero Serra	W	3	3.03			25.6	B							15.1	C			19.1	B	21.4	B	25.3	A	21.4	B	25.9	A	22.4	B	15.3	C	15.0	C	17.3	C	21.1	B	C to B
Bay	Van Ness	Embarcadero	E	3	1.07	12.7	D	22.4	B							16.8	C			19.7	B	21.0	B	18.9	C	14.1	C	21.3	B	14.8	C	13.8	C	14.5	C	15.4	C	22.8	B	C to B
	Embarcadero	Van Ness	W	3	1.07	12.7	D	19.7	B							22.8	B			18.3	C	19.6	B	19.3	B	20.1	B	20.6	B	17.1	C	16	C	16.5	C	15.4	C	19.1	B	C to B
Bayshore	County Line	Industrial	N	3	2.27			20.9	B							25.3	B			18.4	C	26.2	A	17.4	C	19.1	B	13.9	C	10.8	D	12.3	D	11.5	D	12.0	D	21.9	B	D to B
	Industrial	Cesar Chavez	N	3	0.83			20.2	B							14.8	C			11.2	D	19.0	B	17.5	C	12.6	D	15.8	C	16.2	C	15.1	C	13.4	C	11.1	D	17.9	C	D to C
	Jerrold	Industrial	S	3	0.80			21	B							17.5	C			17.6	C	29.9	A	25.4	A	19.4	B	22.1	B	24.4	B	19.3	B	23.2	B	19.0	C	23.1	B	C to B
	Industrial	County Line	S	3	2.26			27.4	A							23.3	B			25.7	A	30.1	A	27.8	A	24.1	B	24.5	B	22.5	B	19.3	B	19.2	B	17.7	C	24.1	B	C to B
Beale/Davis	Clay	Mission	S	3	0.32			11.3	D	10	D	16.6	C	16.6	C					15.6	C	14.1	C	12.8	D	12.3	D	8.8	E	9.2	D	9.3	D	11.4	D	9.7	D	14.2	C	D to C
Brannan	Division	6th	E	3	0.54																	15.7	C	13.8	C	11.7	D	20.3	B	16.2	C	18.9	C	13.5	C	11.8	D	15.8	C	D to C
	6th	3rd	E	3	0.51																	21.8	B	15.8	C	14.7	C	19.3	B	13.2	C	10.8	D	11.3	D	10.1	D	15.8	C	D to C
	3rd	6th	W	3	0.52																	15.9	C	17.0	C	12.8	D	20.4	B	14.4	C	12.4	D	13.2	C	13.6	C	16.6	C	
	6th	Division	W	3	0.54																	16.3	C	16.9	C	14.1	C	22.9	B	15.9	C	12.2	D	11.6	D	10.3	D	13.8	C	D to C

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2021 LOS CHANGES
Broadway	Gough	Larkin	E	3	0.36			19.2	B					9	D	10.6	D	12.3	D	11.4	D	14.7	C	15.1	C	16.3	C	8.8	E	11.6	D	10	D	11.5	D	10.9	D	17.1	C	D to C
	Larkin	Powell	E	1	0.55			22.5	B					15.1	E	16.6	E	16.3	E	36.8	A	18.2	D	32.8	B	23.2	C	14.0	E	8.4	F	21.5	D	12.8	F	12.0	F	33.7	B	F to B
	Powell	Montgomery	E	3	0.35			16.8	C					8	E	10.9	D	11.8	D	13.9	C	15.4	C	20.1	B	15.8	C	11.4	D	11.2	D	8.2	E	12.4	D	11.5	D	18.2	C	D to C
	Montgomery	Embarcadero	E	3	0.35			11.2	D	9.4	D	15.1	C	12.2	E	11.6	D	8.8	F	10.8	D	11.3	D	13.9	C	15.3	C	11.3	D	9.9	D	8.1	E	11.7	D	10.2	D	17.9	C	D to C
	Embarcadero	Montgomery	W	3	0.35			17.7	C					14.8	C	11.2	D	12.1	D	17	C	17.5	C	19.9	B	17.1	C	12.7	D	17.1	C	10.8	D	13.3	C	10.5	D	14.7	C	D to C
	Montgomery	Powell	W	3	0.35			15.2	C					10	D	8.9	E	13.5	C	14.5	C	11.5	D	13.3	C	11.7	D	11.1	D	11.2	D	9.2	D	11.7	D	11.6	D	15.3	C	D to C
	Powell	Larkin	W	1	0.55			35.6	A					16	E	20	D	16.3	E	34.1	B	34.6	B	32.9	B	31.6	B	27.8	C	33.1	B	31.3	B	25.3	C	21.1	D	30.9	B	D to B
	Larkin	Gough	W	3	0.36			10.6	D	11.2	D	12.9	D	15.2	C	17.1	C	14.4	C	14.4	C	17.9	C	19.5	B	15.0	C	11.6	D	8.8	E	15.1	C	16.2	C	15.7	C	14.8	C	
Brotherhood	Junipero Serra	Alemany	E	3	0.43																	21.3	B	25.8	A	29.2	A	28.7	A	23.0	B	24.4	B	23.3	B	22.3	B	24.9	B	
	Alemany	Junipero Serra	W	3	0.47																	31.8	A	29.7	A	28.8	A	28.7	A	23.3	B	24	B	24.5	B	24.0	B	29.0	A	B to A
Bryant	Division	4th	E	3	0.99	7.7	E	12.2	D	13.2	C			12.9	D	13.2	C			12.2	D	11.2	D	13.1	C	19.4	B	15.9	C	14.9	C	11.7	D	12.3	D	11.1	D	16.4	C	D to C
	4th	Embarcadero	E	3	0.77			21.8	B					14.4	C					18.3	C			21.2	B	18.9	C	21.5	B	16.6	C	12	D	12.5	D	11.7	D	16.4	C	D to C
Bush	Masonic	Gough	E	3	1.24			17.3	C							22.4	B			18.2	C	17.2	C	18.0	C	23.3	B	20.4	B	16.6	C	15.7	C	15.4	C	17.0	C	18.7	C	
	Gough	Market	E	3	1.45	3.2	F	10.9	D	9.6	D	11.4	D	11.6	D	12.6	D	8.7	E	10.7	D	11.7	D	10.9	D	13.8	C	16.4	C	12.1	D	10.4	D	11.4	D	10.4	D	16.0	C	D to C
Castro / Divisadero	Market	14th	N	3	0.32			17.5	C					11.9	D	10.1	D	10.7	D	16	C	9.0	E	14.8	C	15.6	C	14.0	C	12.5	D	10.4	D	10.7	D	10.8	D	14.0	C	D to C
	14th	Geary	N	3	1.13	4.5	F	14	C					10.6	D	11.2	D	8.8	E	11.2	D	11.3	D	15.0	C	14.9	C	14.4	C	11.7	D	10	D	9.9	D	9.4	D	12.3	D	
	Geary	Pine	N	3	0.27			10.8	D	7.7	E	7.5	E	7.4	E	7.3	E	8.4	E	7.1	E	6.1	F	11.1	D	8.1	E	13.0	C	10.3	D	7.9	E	9.4	D	8.8	E	12.6	D	E to D
	Pine	Geary	S	3	0.27			14.2	C					13.2	C	7.3	E	7.8	E	11.7	D	15.6	C	14.5	C	13.0	D	13.6	C	11.1	D	12.1	D	12.3	D	9.7	D	12.9	D	
	Geary	14th	S	3	1.13			14.8	C					14	C	11.5	D	9.8	D	12.3	D	15.8	C	16.6	C	12.8	D	14.9	C	11.7	D	12.3	D	12.4	D	12.0	D	13.5	C	D to C
	14th	Market	S	3	0.32			11.9	D	10.4	D	13.3	C	14.2	C					10.3	D	16.4	C	9.9	D	16.0	C	15.0	C	12.5	D	11.6	D	12.0	D	11.4	D	15.0	C	D to C
Cesar Chavez	Guerrero	Bryant	E	3	0.76			19	B							14.3	C			16.6	C	17.2	C	18.8	C	17.0	C	17.4	C	12.7	D	12.6	D	13.6	C	13.3	C	18.3	C	
	Bryant	Kansas	E	3	0.38			19.9	B							28.9	A			28.3	A	31.3	A	20.5	B	26.9	A	26.2	A	20.8	B	24.9	B	20.1	B	20.8	B	25.0	B	
	Kansas	3rd	E	3	0.80			17.6	C							19.5	B			25	A	16.4	C	18.6	C	19.9	B	20.4	B	18.0	C	14.3	C	14.3	C	14.8	C	19.7	B	C to B
	3rd	Kansas	W	3	0.80			19.4	B							18.8	C			22.1	B	20.1	B	18.6	C	23.0	B	21.4	B	17.6	C	15	C	14.4	C	13.2	C	18.2	C	
	Kansas	Bryant	W	3	0.38			17.7	C							31.9	A			30.1	A	26.2	A	23.5	B	25.3	A	22.8	B	20.4	B	19.8	B	17.5	C	17.1	C	19.3	B	C to B
	Bryant	Guerrero	W	3	0.75			19.6	B							16.2	C			19.3	B	16.0	C	13.8	C	14.8	C	15.2	C	13.1	C	9.4	D	10.3	D	9.6	D	13.2	C	D to C
Clay	Kearny	Davis	E	3	0.38	11.7	D	3.7	E					12.5	D	10.6	D	9.2	D	10.8	D	14.3	C	19.1	B	19.0	B	12.4	D	9.9	D	10.7	D	10.7	D	10.1	D	12.0	D		
Columbus	Montgomery	Greenwich	N	3	0.67			14	C					14.9	C					13.3	C	14.3	C	14.9	C	12.6	D	13.3	C	12.4	D	11.6	D	12.0	D	10.7	D	13.9	C	D to C
	Greenwich	North Point	N	3	0.42			22.6	B					9.1	D	18.2	C			18.8	C	16.6	C	10.6	D	10.5	D	13.6	C	12.5	D	11.5	D	10.9	D	8.7	E	13.7	C	E to C
	North Point	Greenwich	S	3	0.42			18.6	C					16.9	C					15.9	C	12.5	D	18.7	C	18.4	C	13.4	C	12.8	D	11	D	11.0	D	9.3	D	14.4	C	D to C
	Greenwich	Montgomery	S	3	0.67			16.3	C					11.1	D	9.2	D	9.3	D	11.7	D	12.3	D	11.6	D	12.0	D	12.9	D	11.8	D	11.2	D	11.7	D	10.8	D	16.6	C	D to C
Doyle / Lombard / Richardson	County Line	SF Cemetery	E	1	1.16			45.2	A											27.3	C	38.3	A	42.7	A			32.3	B	25.4	C	30.8	B	43.6	A	45.8	A	55.9	A	
	SF Cemetery	Lyon/Francisco	E	1	0.93			34.2	B											28.3	B	19.3	D	12.5	F			25.0	C	15.3	E	17.8	D	15.0	E	13.3	E	38.1	A	E to A
	Lyon/Francisco	Van Ness	E	3	1.29			22.2	B							13.7	C			20.9	B	21.2	B	20.8	B	19.2	B	19.8	B	19.0	B	18.6	C	17.7	C	17.6	C	24.5	B	C to B
	Van Ness	Lyon/Francisco	W	3	1.29			19.7	B							16.9	C			16.6	C	18.3	C	17.7	C	16.6	C	20.4	B	16.4	C	13.5	C	14.3	C	9.2	D	15.6	C	D to C
	Lyon/Francisco	SF Cemetery	W	1	0.96			47.7	A											31.4	B	40.3	A	37.8	A			37.5	A	32.3	B	46.1	A	39.9	A	37.8	A	43.6	A	
	SF Cemetery	County Line	W	1	1.15			43.3	A											28.7	B	41.3	A	44.1	A			39.3	A	35.1	A	48.3	A	50.7	A	52.0	A	55.3	A	
Drumm	Market	Washington	N	3	0.22			19.9	B							23	B			12.9	D	13.1	C	16.8	C	16.1	C	11.2	D	13.0	D	9	D	10.0	D	8.1	E	12.6	D	E to D
	Washington	Market	S	3	0.22			5.3	F	5.3	F					22	B			8.4	E	11.6	D	8.7	E	20.3	B	6.8	F	7.5	E	7	E	8.4	E	6.9	F	8.9	E	F to E
Duboce / Division	Market	Mission	E	3	0.35			7.7	E	9.1	D	3	F	8.8	E	5.5	F	5.8	F	12	D			9.7	D	16.6	C	19.6	B	13.3	C	9.2	D	9.5	D	8.4	E	15.5	C	E to C
	Mission	Potrero	E	3	0.66	9.9	D	12	D	11.5	D	10.4	D	12.6	D	13	C			15.1	C			13.8	C	23.5	B	12.7	D	13.7	C	11.3	D	16.5	C	11.5	D	18.8	C	D to C
	Potrero	Mission	W	3	0.66	9.9	D	17.1	C							11.3	D	5.8	F	12.7	D			12.8	D	18.0	C	11.8	D	13.5	C	11	D	14.4	C	13.6	C	15.6	C	
	Mission	Market	W	3	0.35			10.7	D	11.7	D	9.4	D	13.5	C					14.7	C			14.6	C	14.1	C	16.6	C	11.2	D	8.4	E	8.6	E	8.0	E	12.3	D	E to D
Embarcadero	Townsend	North Point	N	3	2.16			21.2	B							14.5	C			12.3	D	22.4	B	21.1	B	20.4	B	17.5	C	16.0	C	13.2	C	14.4	C	14.9	C	18.2	C	
	North Point	Townsend	S	3	2.16			15.2	C							13.8	C			16.6	C	17.3	C	13.2	C	14.1	C	16.1	C	14.3	C	13.2	C	14.3	C	12.9	D	17.7	C	D to C
Evans	Cesar Chavez	3rd	S	3	0.73			16.3	C							20.4	B			16.1	C	16.9	C	20.7	B	15.7	C	14.8	C	12.8	D	10.4	D	16.6	C	15.7	C	19.9	B	C to B
	3rd	Cesar Chavez	N	3	0.73			19.9	B							17	C			28.4	A	24.8	B	22.5	B	15.9	C	15.3	C	13.4	C	16.5	C	14.9	C	14.1	C	16.2	C	
Fell	Gough	Market	E	3	0.29			11.6	D	12	D	4.3	F	8.1	E	7.6	E	6.1	F	7.7	E	8.8	E	11.4	D	8.7	E	17.8	C	9.1	D	8.1	E	8.3	E	6.2	F	11.5	D	F to D
	Gough	Laguna	W	3	0.18			26.7	A							11.8	D	11.1	D	7.2	E	6.2	F	12.9	D	15.2	C	17.5	C	14.2	C	9.8	D	11.2	D	12.3	D	14.9	C	D to C
	Laguna	Stanyan	W	3	1.56			19	B							24.5	B	16.2	C	23.2	B	27.9	A	26.4	A	26.3	A	23.8	B	20.0	B	20.5	B	20.0	B	19.4	B	18.1	C	B to C

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2021 LOS CHANGES
Folsom	13th	8th	E	3	0.49															10.2	D					18.2	C	19.4	B	14.8	C	12.5	D	12.5	D	11.8	D	14.4	C	D to C
	8th	4th	E	3	0.69															24.8	B	13.3	C	14.9	C	17.0	C	18.1	C	12.6	D	12.8	D	13.3	C	13.4	C	13.6	C	
	4th	1st	E	3	0.52															19.5	B	17.0	C	20.7	B	18.8	C	18.9	C	15.1	C	11.7	D	11.8	D	9.4	D	12.9	D	
	1st	Embarcadero	E	3	0.34															11.5	D	18.6	C	13.2	C	10.8	D	16.4	C	12.2	D	7	E	7.2	E	6.2	F	12.9	D	F to D
Franklin	Market	Pine	N	3	1.06	8.5	E	13.3	C							11.5	D	9	D	13.5	C	16.9	C	14.9	C	12.7	D	15.6	C	11.1	D	9.9	D	10.1	D	10.4	D	12.5	D	
	Pine	Lombard	N	3	0.83			14	C							26.3	A			18.3	C	18.3	C	20.5	B	21.1	B	21.0	B	17.8	C	18	C	18.6	C	18.5	C	18.6	C	
Fremont	Harrison	Market	N	3	0.48			6.4	F							11.3	D	10.7	D	12.4	D	12.7	D	12.9	D	13.6	C	16.3	C	11.2	D	9.6	D	9.8	D	9.5	D	12.1	D	
Fulton	Park Presidio	10th Ave	E	3	0.20			16.7	C							15.2	C					30.8	A	27.2	A	24.5	B	21.7	B	19.3	B	18.3	C	17.6	C	16.2	C	21.5	B	C to B
	10th Ave	Arguello	E	3	0.53			22.4	B							16.3	C					29.5	A	19.2	B	17.0	C	18.1	C	16.4	C	15.6	C	18.4	C	16.9	C	21.5	B	C to B
	Arguello	Masonic	E	3	0.66	9.8	D	18.6	C							11.5	D	9.9	D	15	C	12.5	D	16.2	C	13.4	C	15.6	C	14.5	C	13.4	C	13.7	C	12.7	D	17.6	C	D to C
	Masonic	Arguello	W	3	0.66			15.9	C							16.2	C			18.5	C	23.5	B	20.4	B	16.5	C	18.2	C	17.1	C	15.2	C	16.0	C	15.0	C	16.9	C	
	Arguello	10th Ave	W	3	0.53			22	B							28.7	A					21.8	B	27.3	A	17.4	C	19.8	B	20.7	B	19.9	B	19.9	B	20.1	B	22.6	B	
	10th Ave	Park Presidio	W	3	0.20			14.2	C							10.4	D	6.4	F			16.6	C	15.4	C	11.8	D	19.1	B	19.6	B	17	C	18.5	C	19.1	B	22.6	B	
Geary	Great Hwy	25th Ave	E	3	1.78			24.2	B							23.5	B	16.4	C	21.5	B	25.3	A	25.0	B	23.1	B	18.3	C	14.4	C	17.5	C	19.4	B	20.2	B	23.2	B	
	25th Ave	Arguello	E	3	1.42			21.6	B					10.6	D	20.7	B	10.3	D	16.7	C	25.1	A	23.9	B	20.3	B	16.7	C	13.6	C	14.7	C	15.5	C	16.2	C	22.3	B	C to B
	Arguello	Gough	E	3	1.91			25.3	A					24.6	B			15	C	23.6	B	23.4	B	28.5	A	22.2	B	20.5	B	16.4	C	19.6	B	18.8	C	17.0	C	22.5	B	C to B
	Kearny	Gough	W	3	1.18			12.3	D	15.4	C			7.2	E	15.2	C	9.5	D	15	C	14.2	C	15.1	C	14.1	C	13.4	C	11.2	D	10.3	D	10.9	D	9.4	D	13.3	C	D to C
	Gough	Arguello	W	3	1.92			23.8	B					24.7	B			15.4	C	17.7	C	20.2	B	20.1	B	20.3	B	21.0	B	16.2	C	17.5	C	17.0	C	16.7	C	18.8	C	
	Arguello	25th Ave	W	3	1.42			21.3	B					13.7	C			11	D	15.5	C	23.0	B	22.1	B	19.8	B	16.4	C	14.2	C	13.4	C	13.8	C	12.3	D	15.9	C	D to C
	25th Ave	Great Hwy	W	3	1.79			28.3	A							26	A	14.7	C	23.3	B	24.3	B	23.9	B	24.5	B	18.3	C	15.4	C	16.8	C	18.6	C	18.8	C	20.0	B	C to B
Geneva	Ocean	Cayuga	E	3	0.56			15	C							20.4	B			14.7	C	13.3	C	8.8	E	11.9	D	13.8	C	10.9	D	10.1	D	11.6	D	10.2	D	17.4	C	D to C
	Cayuga	Paris	E	3	0.33	10.4	D	11.7	D	13	C					16.1	D	8.8	E	11.8	D	11.1	D	13.4	C	15.3	C	14.7	C	11.7	D	12.4	D	12.3	D	11.0	D	17.4	C	D to C
	Paris	Santos	E	3	1.19			29.7	A							25	B			27.2	A	21.2	B	20.6	B	22.9	B	22.6	B	15.8	C	18.6	C	19.3	B	18.1	C	22.9	B	C to B
	Santos	Paris	W	3	1.19			27.4	A							27.3	A			26.7	A	22.8	B	23.4	B	22.7	B	20.0	B	16.6	C	18.4	C	17.9	C	16.4	C	22.3	B	C to B
	Paris	Cayuga	W	3	0.33	10.4	D	11.6	D	13.3	C					18.7	C			10.4	D	9.9	D	8.2	E	8.7	E	12.9	D	10.7	D	8.5	E	9.5	D	9.0	E	16.5	C	E to C
	Cayuga	Ocean	W	3	0.53			4.5	F	15.5	C					15	C			11	D	6.9	F	9.6	D	8.8	E	13.6	C	10.2	D	8.2	E	9.2	D	8.3	E	14.8	C	E to C
Golden Gate	Masonic	Franklin	E	3	1.37			19.3	B							17.2	C			26.3	A	15.9	C	17.0	C	15.4	C	13.6	C	12.1	D	17.1	C	14.5	C	13.7	C	13.0	D	C to D
	Franklin	Market	E	3	0.65	12.2	D	16.9	C							13.2	C			12.2	D	12.4	D	10.7	D	12.3	D	10.9	D	8.1	E	10.2	D	8.0	E	7.6	E	12.7	D	E to D
Gough	Pine	Geary	S	3	0.26	9.5	D	25.6	A							28.4	A			21.5	B	23.6	B	20.6	B	16.4	C	19.1	B	13.5	C	13.2	C	13.3	C	15.0	C	16.0	C	
	Geary	Golden Gate	S	3	0.33			20.1	B							20.1	B	20.9	B	15.3	C	22.5	B	23.2	B	19.1	B	16.8	C	12.7	D	9.6	D	10.8	D	10.4	D	16.0	C	D to C
	Golden Gate	Market	S	3	0.54	8.3	E	12.8	D	11.1	D	6.5	F	18.9	C			8.9	E	15.4	C	13.8	C	15.7	C	15.9	C	16.0	C	10.5	D	11	D	9.5	D	10.0	D	15.3	C	D to C
Guerrero / San Jose	Monterey	29th	N	1	1.17			17.3	C							33.8	B			28.3	B	27.3	C	25.6	C	24.4	C	21.2	D	12.7	F	13.4	E	12.5	F	12.9	F	28.2	B	F to B
	29th	Cesar Chavez	N	3	0.29	6.2	F	19.3	B							15.2	C			22.6	C	19.9	B	24.5	B	10.2	D	17.1	C	15.1	C	12.5	D	16.3	C	12.3	D	18.4	C	D to C
	Cesar Chavez	29th	S	3	0.28			26.3	A							20.5	B			19.9	C	22.4	B	21.2	B	12.2	D	20.7	B	15.6	C	14.6	C	15.6	C	12.2	D	16.6	C	D to C
	29th	Monterey	S	1	1.17			23.7	B							31.6	B			23.1	C	26.1	C	30.3	B	30.0	B	27.8	C	24.3	C	24.7	C	25.3	C	21.3	D	32.1	B	D to B
Harrison	Embarcadero	1st	W	3	0.34			34.8	A							13.8	C			18.6	C	12.7	D	20.1	B	17.5	C	17.4	C	13.6	C	9.3	D	9.9	D	9.7	D	14.9	C	D to C
	1st	4th	W	3	0.52			27.6	A							15.2	C			17.3	C	24.4	B	11.4	D	14.0	C	17.8	C	12.3	D	11.2	D	10.7	D	10.9	D	14.9	C	D to C
	4th	8th	W	3	0.69			28.9	A							26.2	A			19.1	B	16.0	C	15.8	C	19.5	B	17.9	C	17.2	C	16.9	C	17.1	C	14.3	C	14.2	C	
	8th	Division	W	3	0.40			14.4	C							13.6	C			14.3	C	15.3	C	13.3	C	14.4	C	15.8	C	14.0	C	10.1	D	10.1	D	10.1	D	12.4	D	
Hayes	Market	Gough	W	3	0.39			10.2	D	11.1	D	11.6	D	23.3	B			9.4	D	16.6	B	18.0	C	12.4	D	12.5	D	15.3	C	12.9	D	9.1	D	8.5	E	9.3	D	12.3	D	
Howard	Embarcadero	S Van Ness	W	3	2.11			14.9	C							14.2	C			15.6	D	16.2	C	14.2	C	15.0	C	16.2	C	13.3	C	10.9	D	10.7	D	10.2	D	12.7	D	
Junipero Serra	County Line	Brotherhood	N	1	0.29			40.4	A							33.3	B			39	A	45.8	A	40.0	A	44.1	A	27.0	C	27.0	C	18.7	D	15.0	E	15.4	E	51.5	A	E to A
	Brotherhood	19th	N	1	0.34	9.7	D	23.8	C							36.7	A			32.8	B	29.2	B	22.1	C	10.8	F	12.8	F	13.1	E	10.2	F	11.1	F	8.2	F	25.4	C	F to C
	19th	Sloat	N	1	1.21			27	C							19.4	D	17.3	D	18.8	D	24.7	C	24.9	C	19.8	D	21.6	D	20.6	D	22.9	C	23.0	C	20.7	D	28.6	B	D to B
	Sloat	19th	S	1	1.21			32.4	B							20.9	D	18.9	D	18.7	D	16.1	E	22.1	C	10.8	F	25.3	C	21.6	D	23.4	C	23.2	C	20.0	D	26.8	C	D to C
	19th	Brotherhood	S	1	0.33			19.9	B							30.7	B			43	A	39.4	A	39.6	A	42.3	A	42.7	A	39.3	A	42.8	A	45.3	A	42.3	A	45.6	A	
	Brotherhood	County Line	S	1	0.30			41.9	A							38.7	A			40.4	A	42.5	A	43.5	A	44.1	A	49.0	A	48.7	A	54.6	A	51.5	A	48.4	A	55.2	A	
Kearny	Market	Columbus	N	3	0.65	6.3	F	13.7	C					8.8	E	12.9	D	5.4	F	14.1	C	13.7	C	13.8	C	14.7	C	11.7	D	8.6	E	7.5	E	7.7	E	8.0	E	11.8	D	E to D
King	4th	2nd	E	3	0.34																	20.9	B					14.9	C	12.4	D	13	C	13.0	D	13.9	C	18.0	C	
	2nd	4th	W	3	0.34																	18.3	C					15.9	C	13.6	C	11.7	D	11.5	D	12.7	D	21.6	B	D to B

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2021 LOS CHANGES
Lincoln / Kezar	19th Ave	5th Ave	E	3	0.83			22.6	B							11.4	D	13.4	C	17.2	C	23.9	B	22.4	B	26.9	A	20.2	B	15.4	C	17.7	C	17.7	C	14.7	C	22.3	B	C to B
	5th Ave	Stanyan	E	3	0.70			10.7	D	12.2	D	23.4	B							20.3	B	11.9	D	20.3	B	21.1	B	16.0	C	16.7	C	13.2	C	14.3	C	15.5	C	20.4	B	C to B
	Stanyan	5th Ave	W	3	0.70			31.7	A							9.9	D	15.4	C	25	A	25.4	A	24.4	B	24.3	B	25.5	A	24.4	B	24	B	24.4	B	24.8	B	24.2	B	
	5th Ave	19th Ave	W	3	0.83			25.2	A							10.6	D	13.8	C	26.3	A	27.7	A	25.9	A	29.2	A	23.6	B	21.6	B	18.2	C	18.7	C	19.0	B	22.9	B	
Main	Mission	Market	N	3	0.12			9.9	D	9.8	D	8.4	E	11.5	D	11.8	D	9.1	D	13.9	C	16.8	C	10.7	D	21.7	B	12.0	D	5.3	F	8.9	E	9.1	D	9.3	D	12.6	D	
Market / Portola	Sloat	Santa Clara	E	3	0.43			16	C					18.9	C					13.8	C	16.8	C	20.3	B	25.1	A	21.8	B	14.0	C	13.4	C	13.7	C	14.2	C	22.0	B	C to B
	Santa Clara	Burnett	E	3	1.34			24.1	B					33	A					18.6	C	20.5	B	19.5	B	18.5	C	21.0	B	15.9	C	15.7	C	16.3	C	15.9	C	21.5	B	C to B
	Burnett	Castro	E	3	1.62	7	F	33	A					22	B					20.9	B	25.4	A	26.5	A	21.1	B	23.5	B	18.8	C	20	B	18.3	C	18.3	C	24.3	B	C to B
	Castro	Guerrero	E	3	0.79	8.7	E	20	B											13.2	C	10.1	D	15.7	C	9.2	D	13.6	C	10.4	D	12.8	D	13.2	C	12.4	D	16.4	C	D to C
	Guerrero	Van Ness	E	3	0.43	8.3	E	16.3	C					9.3	D	16.2	C			6.7	F	8.9	E	16.0	C	12.9	D	16.2	C	10.6	D	9.9	D	9.8	D	9.5	D	13.0	C	D to C
	Van Ness	Drumm	E	3	1.77	9.6	D	14.4	C							8.4	E	9.8	D	9.3	D	12.0	D	12.5	D	11.6	D	12.3	D	10.1	D	7.5	E	7.2	E	7.5	E	11.0	D	E to D
	Drumm	Van Ness	W	3	1.77	9.6	D	15.3	C							12	D	11.4	D	12.8	D	13.6	C	14.9	C	15.7	C	13.1	C	11.8	D	7.1	E	7.9	E	8.2	E	8.8	E	
	Van Ness	Guerrero	W	3	0.43	8.3	E	17.8	C					7.3	E	23.3	B			13.6	C	13.9	C	14.2	C	13.8	C	15.2	C	14.3	C	13.7	C	13.7	C	12.6	D	13.8	C	D to C
	Guerrero	Castro	W	3	0.79			18.8	B											16.9	C	15.7	C	15.1	C	12.5	D	17.7	C	15.1	C	12.4	D	12.7	D	12.8	D	16.9	C	D to C
	Castro	Burnett	W	3	1.63			28	B					27.5	B					22.6	B	25.1	A	25.3	A	22.4	B	23.3	B	19.9	B	21.3	B	22.0	B	19.0	B	23.3	B	
	Burnett	Santa Clara	W	3	1.34			22.8	B					30.2	A					19	B	22.0	B	21.2	B	23.5	B	20.3	B	18.5	C	16.9	C	18.4	C	16.8	C	23.3	B	C to B
	Santa Clara	Sloat	W	3	0.43			13.2	C					9.5	D	18.2	C			19.6	B	16.2	C	10.4	D	12.5	D	18.6	C	15.4	C	13.6	C	14.3	C	14.7	C	19.6	B	C to B
Masonic	Page	Geary	N	3	0.79	10	D	13.1	C							11.3	D	9.4	D	15.4	C	16.3	C	19.9	B	12.8	D	20.2	B	12.3	D	14.6	C	15.0	C	11.6	D	15.3	C	D to C
	Geary	Bush/Euclid	N	3	0.20	8.5	E	14.6	C							9.7	D	7.9	E	14.2	C	23.8	B	27.0	A	15.4	C	23.1	B	15.7	C	17.6	C	16.8	C	15.0	C	17.9	C	
	Presidio	Geary	S	3	0.29	8.5	E	11.2	D	15.7	C					10.3	D	7.7	E	13.5	C	18.3	C	19.7	B	10.0	D	17.5	C	14.9	C	16.5	C	16.8	C	16.1	C	17.6	C	
	Geary	Page	S	3	0.79	10	D	16.4	C							14.8	C			11.8	D	16.2	C	17.2	C	11.1	D	19.2	B	14.3	C	13.5	C	14.1	C	12.3	D	15.3	C	D to C
Mission / Otis	Sickles	Ocean	N	3	1.45			21.1	B					26.5	A					26.3	A	21.8	B	22.2	B	21.8	B	16.8	C	13.5	C	13.4	C	13.3	C	11.4	D	17.7	C	D to C
	Ocean	Cesar Chavez	N	3	1.95			20.3	B					20.4	B	18.3	C			18.1	C	14.8	C	19.3	B	17.2	C	14.2	C	13.1	C	11.9	D	12.9	D	12.4	D	18.2	C	D to C
	Cesar Chavez	14th	N	3	1.39	10.9	D	19.8	B					14.3	C					13.6	C	14.6	C	18.5	C	15.7	C	13.7	C	12.7	D	11.4	D	11.6	D	9.5	D	13.2	C	D to C
	14th	9th	N	3	0.65			12	D	11.3	D	11	D	10	D	8.1	E	8.2	E	11	D	11.5	D	15.1	C	16.3	C	14.3	C	12.4	D	10.3	D	10.8	D	9.6	D	14.0	C	D to C
	9th	3rd	N	3	0.98			13.7	C					13.4	C			9.1	D	18.4	C	13.0	D	17.1	C	16.2	C	16.2	C	13.2	C	14	C	14.4	C	13.2	C	14.8	C	
	3rd	Embarcadero	N	3	0.74	9.7	D	8.9	E	10.8	D	11.2	D	8.2	E	8.7	E	8.6	E	11.8	D	10.2	D	17.3	C	12.2	D	14.7	C	10.1	D	7.5	E	8.6	E	7.0	F	12.8	D	F to D
	Embarcadero	3rd	S	3	0.74	9.7	D	8	E	10.8	D	14.3	C	10.7	D	9.7	D	10.7	D	13.2	C	13.1	C	13.8	C	10.1	D	14.7	C	10.5	D	8.7	E	9.2	D	8.4	E	13.4	C	E to C
	3rd	9th	S	3	0.98			16.9	C					16.2	C			8.4	E	16.3	C	16.6	C	15.5	C	15.4	C	16.7	C	14.4	C	13	C	13.2	C	12.9	D	14.6	C	D to C
	9th	14th	S	3	0.68	9.7	D	12.8	D	12.8	D	10.7	D	11.7	D	8.7	E	5.8	F	14.1	C	15.2	C	15.8	C	19.4	B	14.4	C	12.0	D	10.5	D	9.8	D	9.1	D	14.7	C	D to C
	14th	Cesar Chavez	S	3	1.39	10.9	D	17.9	C					14.8	C					16	C	13.5	C	17.9	C	15.0	C	14.1	C	13.2	C	14	C	14.2	C	12.7	D	15.0	C	D to C
	Cesar Chavez	Ocean	S	3	1.95			17.6	C					19.6	B					18.9	C	16.7	C	20.1	B	18.8	C	16.2	C	14.6	C	12.9	D	13.2	C	12.1	D	16.7	C	D to C
	Ocean	Sickles	S	3	1.45			20.8	B					31.8	A					20.7	B	25.3	A	22.3	B	22.0	B	17.2	C	15.6	C	16	C	16.8	C	15.9	C	18.1	C	
Montgomery	Broadway	Bush	S	3	0.51	6.2	F	6.5	F							9.3	D	8.5	E	10.2	D	11.7	D	14.1	C	11.1	D	14.1	C	10.3	D	8.9	E	9.6	D	8.5	E	11.0	D	E to D
North Point	Van Ness	Columbus	E	3	0.38			15.2	C							12.5	D	10.8	D	18.9	C	13.1	C	17.5	C	18.9	C	14.4	C	13.3	C	13.2	C	13.4	C	17.2	C	17.9	C	
	Columbus	Embarcadero	E	3	0.61			14.9	C							15.4	C			17.6	C	23.5	B	18.7	C	22.2	B	21.4	B	12.2	D	13	C	14.2	C	13.8	C	16.3	C	
	Embarcadero	Columbus	W	3	0.61			16	C							13.9	C			18.9	C	21.4	B	15.7	C	18.6	C	15.2	C	13.9	C	12.5	D	12.9	D	12.6	D	15.8	C	D to C
	Columbus	Van Ness	W	3	0.38			15.3	C							13.7	C			17.6	C	17.0	C	16.2	C	16.1	C	16.0	C	12.7	D	11.8	D	8.9	E	8.5	E	13.6	C	E to C
Oak	Stanyan	Divisadero	E	3	0.92			23.1	B							23.5	B			27.7	A	25.4	A	23.6	B	25.0	A	19.7	B	17.0	C	19.3	B	19.7	B	18.5	C	19.7	B	C to B
	Divisadero	Fillmore	E	3	0.37											25.2	A			24.7	B	26.7	A	19.7	B	20.4	B	14.9	C	12.6	D	11.5	D	8.1	E	10.4	D	16.2	C	D to C
	Fillmore	Laguna	E	3	0.27	8.2	0									8.8	E	15.3	C	16.5	C	21.4	B	17.0	C	8.8	E	11.8	D	12.9	D	7.1	E	8.1	E	10.4	D	16.2	C	D to C
	Laguna	Franklin	E	3	0.27			20	B							7.5	E	7	E	14.8	C	12.4	D	15.1	C	17.0	C	13.4	C	9.1	D	9.9	D	10.3	D	10.0	D	16.2	C	D to C
Ocean	19th Ave	Miramar	E	3	1.11			19.5	B							7.6	E	11.4	D	14.3	C	13.6	C	18.7	C	13.9	C	15.0	C	14.5	C	13.6	C	14.0	C	12.8	D	16.5	C	D to C
	Miramar	Howth	E	3	0.48											7.6	E	8.2	E	12.6	D	12.9	D	11.1	D	11.4	D	14.1	C	11.9	D	11.9	D	11.9	D	12.0	D	14.7	C	D to C
	Howth	Miramar	W	3	0.48			9.4	D	16.3	C					8.6	E	8.4	E	13.4	C	11.3	D	14.8	C	15.8	C	13.4	C	11.4	D	10.1	D	9.1	D	10.9	D	14.9	C	D to C
	Miramar	19th Ave	W	3	1.11			15.4	C							9.2	D	8.2	E	13.8	C	13.4	C	11.1	D	14.6	C	14.3	C	13.3	C	11.2	D	11.2	D	12.0	D	16.2	C	D to C
Octavia	Market	Fell	N	3	0.27															8.7	E	10.6	D	11.0	D	10.1	D	5.8	F	7.3	E	8.1	E	8.2	E	7.7	E	8.6	E	
	Fell	Market	S	3	0.28															14.5	C	6.8	F	10.4	D	7.5	E	3.3	F	2.8	F	7.5	E	8.5	E	7.3	E	16.0	C	E to C
O'Farrell	Gough	Mason	E	3	0.85			16.6	C							13.5	C			11.9	D	12.7	D	13.4	C	12.2	D	14.6	C	11.9	D	10.2	D	9.7	D	9.0	E	12.5	D	E to D
	Mason	Market	E	3	0.28			18.7	C							10.9	D	8.3	E	8.2	E	9.1	D	11.6	D	9.6	D	13.3	C	9.9	D	8.8	E	9.9	D	8.1	E	12.5	D	E to D

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2021 LOS CHANGES
Pine	Market	Kearny	W	3	0.38	4.6	F	9.9	D	7.3	E	8.1	E	8.3	E	7.9	E	7.2	E	7.5	E	7.3	E	8.8	E	10.5	D	6.9	F	7.4	E	6.5	F	7.6	E	6.8	F	14.3	C	F to C
	Kearny	Leavenworth	W	3	0.63			16.2	C							15.6	C			13.4	C	25.2	A	18.2	C	24.1	B	15.2	C	17.6	C	14.2	C	13.6	C	14.7	C	14.3	C	
	Leavenworth	Franklin	W	3	0.46			17.2	C							9.4	D	9.4	D	12.3	D	18.3	C	17.7	C	17.7	C	13.5	C	7.5	E	9.9	D	11.9	D	11.5	D	15.3	C	D to C
	Franklin	Presidio	W	3	1.27			20	B							20.4	B			23.7	B	21.0	B	21.3	B	21.8	B	17.3	C	17.1	C	16.1	C	20.0	B	19.3	B	17.7	C	B to C
Potrero	Cesar Chavez	21st	N	3	0.61			25.2	A					15.5	C					17.8	C	26.6	A	21.2	B	23.5	B	15.2	C	10.4	D	14	C	15.1	C	16.9	C	15.1	C	
	21st	Division	N	3	0.80			21.4	B					18.3	C					17.7	C	26.5	A	22.5	B	24.3	B	19.0	C	19.5	B	11.7	D	14.8	C	14.4	C	18.9	C	
	Division	21st	S	3	0.80			24.8	B					18.2	C					21.5	B	20.5	B	23.9	B	19.0	B	19.2	B	14.4	C	15.5	C	15.5	C	15.4	C	17.9	C	
	21st	Cesar Chavez	S	3	0.60			20.1	B					13.5	C					19.1	B	25.5	A	22.0	B	23.3	B	17.2	C	14.5	C	17.3	C	16.4	C	18.1	C	21.4	B	C to B
Skyline	County Line	Sloat	N	3	1.94			43.7	A							41.8	A			49	C	46.8	A	46.7	A	44.5	A	38.1	A	34.8	A	35.4	A	30.0	A	38.9	A	45.6	A	
	Sloat	County Line	S	3	1.94			41.6	A							41.6	A			48.7	C	39.2	A	42.1	A	40.6	A	41.0	A	32.4	A	34.6	A	32.9	A	35.2	A	40.6	A	
Sloat	Skyline	Junipero Serra	E	1	1.38			19.8	D	21.5	D	14.5	E	18.1	D	23.4	C			22.8	C	18.2	D	22.6	C	19.0	D	24.3	C	23.0	C	20.3	D	21.5	D	21.7	D	27.1	C	D to C
	Junipero Serra	Skyline	W	1	1.38			23.3	C							23.5	C			29.8	B	26.1	C	26.7	C	32.0	B	27.7	C	24.0	C	24.9	C	25.4	C	25.7	C	27.7	C	
Stanyan	Fulton	Turk	N	3	0.20			12.2	D	12.8	D	13.2	C					13.7	C	15.7	C	16.6	C	15.6	C	14.2	C	18.2	C	14.1	C	14	C	14.9	C	13.8	C	15.8	C	
	Turk	Fulton	S	3	0.20			11.6	D	7.4	E	16.7	C					11.7	D	16.6	C	12.3	D	11.1	D	11.2	D	19.2	B	16.2	C	13.5	C	14.3	C	15.9	C	15.5	C	
Sutter	Divisadero	Gough	E	3	0.82			13.9	C							12.4	D	16.1	C	15.7	C	14.6	C	16.2	C	14.5	C	15.9	C	10.9	D	11	D	11.6	D	11.1	D	13.0	C	D to C
	Market	Mason	W	3	0.56			11.6	D	10.2	D	13.2	C					11.2	D	11.2	D	16.9	C	17.5	C	17.8	C	13.4	C	12.6	D	8.9	E	9.1	D	9.2	D	11.7	D	
	Mason	Gough	W	3	0.82	9	D	12.3	D	13.4	C					14.5	C			12.8	D	8.6	E	8.9	E	10.5	D	11.2	D	10.6	D	11.4	D	10.3	D	9.4	D	12.2	D	
	Gough	Divisadero	W	3	0.82			14.1	C							15.5	C			15.1	C	15.3	C	15.0	C	13.6	C	13.4	C	11.5	D	11.2	D	12.0	D	12.0	D	13.3	C	D to C
Townsend	7th	2nd	E	3	0.86															16.6	C	15.8	C	19.6	B	17.3	C	17.2	C	14.1	C	11.2	D	11.6	D	11.2	D	17.4	C	D to C
	2nd	7th	W	3	0.86															18.9	C	17.9	C	18.4	C	13.9	C	17.5	C	12.4	D	10.4	D	11.2	D	10.1	D	18.2	C	D to C
Turk	Stanyan	Divisadero	E	3	0.91			21	B							15.5	C			17.7	C	20.8	B	18.0	C	17.7	C	17.7	C	15.7	C	12.8	D	13.6	C	12.2	D	18.2	C	D to C
	Market	Hyde	W	3	0.38			10.9	D	11.6	D	11.2	D	11.7	D	8.1	E	11.7	D	16.9	C	12.4	D	14.7	C	12.8	D	10.3	D	12.6	D	10.5	D	10.7	D	8.6	E	11.0	D	E to D
	Hyde	Gough	W	3	0.46			14.1	C							10.1	D	8	E	11.2	D	14.0	C	12.8	D	12.8	D	14.1	C	12.6	D	10.3	D	10.3	D	8.5	E	11.0	D	E to D
	Gough	Divisadero	W	3	0.82			22.1	B							22.4	B			24.4	B	28.4	A	19.8	B	19.7	B	21.5	B	17.4	C	16.5	C	16.9	C	16.8	C	16.6	C	
	Divisadero	Stanyan	W	3	0.91			17.1	C							23.1	B			17.1	C	20.0	B	21.3	B	16.3	C	18.4	C	18.4	C	16.3	C	19.0	B	17.7	C	20.2	B	C to B
Van Ness / S VanNess	Cesar Chavez	13th	N	3	1.49																	17.0	C	20.1	B	18.4	C	18.8	C	16.0	C	15.1	C	15.6	C	15.6	C	17.2	C	
	13th	Golden Gate	N	3	0.81			15.9	C					18.2	C			7.3	E	11.8	D	14.6	C	15.0	C	20.2	B	13.9	C	13.0	C	8.9	E	9.1	D	9.4	D	12.3	D	
	Golden Gate	Washington	N	3	0.84			13.6	C					10.4	D	10.4	D	6.9	F	11.5	D	11.9	D	15.2	C	16.8	C	12.1	D	11.1	D	10.2	D	10.3	D	9.1	D	12.3	D	
	Washington	Lombard	N	3	0.58			11.9	D	14.3	D	12.1	D	9.4	D	12.6	D	6.9	F	9.2	D	10.2	D	13.6	C	11.3	D	13.1	C	12.7	D	10	D	10.5	D	8.7	E	12.5	D	E to D
	Lombard	Washington	S	3	0.58	4.5	F	18.2	C					7.6	E	12.2	D	13.4	C	12.7	D	17.8	C	16.4	C	16.4	C	12.2	D	13.0	C	11.3	D	11.9	D	12.1	D	16.1	C	D to C
	Washington	Golden Gate	S	3	0.84			15	C					9.2	D	7.3	E	9.4	D	16.1	C	17.2	C	21.2	B	21.6	B	14.1	C	12.8	D	11.6	D	12.0	D	13.8	C	16.0	C	
	Golden Gate	13th	S	3	0.80			17.3	C					16.6	C			7.4	E	12.7	D	11.8	D	15.7	C	14.0	C	15.3	C	11.7	D	10.7	D	11.0	D	7.7	E	15.6	C	E to C
	13th	Cesar Chavez	S	3	1.49	12.6	D	15.7	C					16.8	C			16	C	19.2	B	19.8	B	17.9	C	12.8	D	16.3	C	15.1	C	15	C	14.8	C	15.7	C	18.0	C	
Washington	Drumm	Kearny	W	3	0.44			14.2	C					7.9	E	30.5	A			17.1	C	14.9	C	14.6	C	12.8	D	10.1	D	11.8	D	9.6	D	10.8	D	10.2	D	11.0	D	
West Portal	Sloat	Ulloa	N	3	0.54			17.8	C							14.8	C			18.7	C	15.3	C	15.5	C	16.8	C	14.4	C	15.9	C	11.5	D	10.5	D	14.5	C	15.0	C	
	Ulloa	Sloat	S	3	0.54			16.1	C							12.4	D	12.1	D	16.1	C	15.1	C	17.5	C	17.4	C	17.2	C	14.8	C	15.8	C	10.9	D	16.4	C	14.0	C	
FREEWAY SEGMENTS INBOUND																																						
I-280	Junipero Serra	Weldon	E	Fwy	4.03	22.9	F	43	E	27.3	F					43.2	D	43.6	D	31.9	E	56.7	B	47.6	D	37.5	E	35.2	E	29.9	F	24.7	F	21.4	F	20.9	F	64.0	A	F to A
	Weldon	6th/Brannan	N	Fwy	3.51			29.1	F							30.5	E	31.2	E	27.7	F	34.3	E	41.6	D	28.1	F	35.4	E	36.8	E	33.9	E	30.0	E	28.2	F	45.8	D	F to D
US-101	County Line	Cortland	N	Fwy	2.31	10.9	F	47.2	F	31	F	30.1	E	35.7	F	44.8	D	37.1	D	57.5	F	59.0	F	50.6	C	43.0	C	25.9	F	25.8	F	20.7	F	21.8	F	19.0	F	51.4	C	F to C
	Cortland	I-80	N	Fwy	1.90	21.4	F	21.2	F							28.1	B	27.8	B	38	E	35.4	E	41.7	F	36.9	F	29.6	F	28.2	F	25.9	F	25.8	F	26.3	F	31.7	E	F to E
	I-80	Market	N	Fwy	1.27	18.7	F	45.4	E	44.8	E	37.6	E	36.9	E					20.9	F	21.9	F	13.9	F	24.6	F	23.6	F	21.4	F	12.3	F	18.6	F	13.1	F	
I-80	Treasure Island	Fremont Exit	W	Fwy	2.71	17.5	F	32.2	E	26.5	F					28.8	F	22.3	F	36.8	E	34.4	E	50.8	C	44.5	D	46.4	D	42.2	D	46	D	38.4	E	40.0	E	41.0	D	E to D
	Fremont Exit	US-101	W	Fwy	1.70	48.1	D	33.3	E	37.9	E	32.7	E	40.4	E	25.9	F	24	F	51.6	A	50.0	C	55.3	B	48.7	D	50.4	C	49.5	C	46.4	D	43.4	D	46.6	D	47.1	D	
FREEWAY SEGMENTS OUTBOUND																																						
I-280	6th/Brannan	Weldon	S	Fwy	3.47			51.9	D	46.4	D	54.8	C			47.3	C	41	D	69	A	60.0	B	62.9	A	55.1	B	58.1	B	57.9	B	55.9	B	58.0	B	53.0	C	54.4	C	
	Weldon	Junipero Serra	S	Fwy	4.07	55.7	C	57.5	B							51.5	C	50.5	C	65.5	A	66.5	A	65.2	A	60.6	A	64.3	A	63.5	A	64.8	A	64.1	A	62.6	A	63.9	A	
US-101	Market	I-80	S	Fwy	1.17	13.5	F	17.9	F											12	F	46.9	D	40.3	E	41.3	D	26.1	F	33.2	E	31.2	E	36.2	E	24.3	F	42.1	D	F to D
	I-80	Cortland	S	Fwy	1.97	45.8	E	53.6	D	36.4	E	42.3	E	44.7	D	40.1	E	31.7	E	40.3	E	54.8	C	54.6	C	51.8	C	40.9	E	46.5	D	40.8	E	39.7	E	39.8	E	59.0	B	E to B
	Cortland	Monster Park Exit	S	Fwy	2.30	53.3	D	45.6	E	36.3	E	34.1	E	39	E	33.3	E	31.6	E	45.8	D	48.3	D	54.2	C	48.7	D	31.5	E	32.3	E	24.7	F	24.6	F	24.2	F	65.3	A	F to A
I-80	US-101	Fremont Exit	E	Fwy	1.74	18.6	F	53.6	D	36	E	32.4	E	28.8	F	16.3	F	24.9	F	12.3	F	38.1	E	48.1	D	48.5	D	36.8	E	34.7	E	42.3	D	37.1	E	38.7	E	40.9	E	
	Fremont Exit	Treasure Island	E	Fwy	2.70	50.6	D	50.8	D	39.9	E	40.3	E	30.5	F	36.5	E	20.2	F	43.7	D	50.2	C	56.0	B	51.4	C	44.2	D	46.6	D	58.7	B	51.2	C	47.3	D	56.7	B	D to B

Attachment 5.2: PM CMP Segments Level of Service Monitoring (1991 – 2021)

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2019 LOS CHANGES
1st St	Market	Harrison	S	3	0.48	1.2	F	15.5	C							2.1	F	2.6	F	4.2	F	12.8	D	13.1	C	18.2	C	13.2	C	4.8	F	4.3	F	4.3	F	4.5	F	6.7	F	
2nd St	Brannan	Market	N	3	0.72															9.5	D	11.8	D	10.4	D	13.3	C	3.1	F	5.3	F	6.6	F	7.9	E	8.5	E	11.9	D	E to D
	Market	Brannan	S	3	0.72															13.4	C	11.9	D	10.6	D	12.2	D	6.0	F	6.9	F	11.1	D	9.5	D	8.7	E	14.2	C	E to C
3rd St	Jamestown	Evans	N	3	1.62			18.5	C							20.2	B			12.5	D	21.6	B	22.1	B	24.0	B	17.8	C	17.8	C	16	C	15.9	C	11.7	D	16.9	C	D to C
	Evans	Terry Francois	N	3	2.36	10.3	D	18.5	C							20.5	B			24	B	26.1	A	30.1	A	30.0	A	20.4	B	14.1	C	13.8	C	13.9	C	11.2	D	17.7	C	D to C
	Terry Francois	Market	N	3	1.05	12.1	D	8.8	D	11.6	D	10.2	D	11.7	D	11.6	D	7.3	E	12.7	D	11.3	D	16.1	C	12.9	D	12.8	D	9.7	D	8.8	E	8.9	E	10.6	D	14.4	C	D to C
	Terry Francois	Evans	S	3	2.36	10.3	D	17	C							20.2	B			21.8	B	30.7	A	27.8	A	29.5	A	20.5	B	16.6	C	17.9	C	18.0	C	14.4	C	19.7	B	C to B
	Evans	Jamestown	S	3	1.62			17.6	C							18.1	C			15.8	C	22.2	B	22.3	B	22.7	B	18.7	C	17.5	C	15.6	C	15.2	C	11.4	D	14.9	C	D to C
4th St / Stockton	O'Farrell	Harrison	S	3	0.56	4.7	F	8.4	E	10.5	D	10.5	D	5.9	F	10.5	D	9.8	D	8.9	E	9.1	D	8.5	E	15.1	C	11.5	D	9.8	D	9.8	D	10.1	D	7.3	E	10.5	D	E to D
	Harrison	Channel	S	3	0.60																	14.1	C	14.3	C	14.9	C	12.6	D	8.7	E	7.3	E	8.0	E	8.0	E	11.6	D	E to D
5th St	Brannan	Market	N	3	0.72	7.9	E	12.7	D	7.7	E	11.3	D	7.6	E	16.5	C			9.8	D	9.5	D	15.6	C	15.7	C	4.0	F	6.5	F	3.5	F	7.9	E	7.5	E	12.0	D	E to D
	Market	Brannan	S	3	0.72	7.9	E	13.5	C							5.2	F	6.3	F	9.3	D	11.2	D	13.1	C	13.8	C	5.4	F	6.7	F	7	E	8.1	E	7.7	E	12.7	D	E to D
6th St	Brannan	Market	N	3	0.72			12.7	D	7.6	E	11.2	D	9	D	6.4	F	6.6	F	12.7	D	11.7	D	11.1	D	11.0	D	12.1	D	7.5	E	7.6	E	7.8	E	7.7	E	13.8	C	E to C
	Market	Brannan	S	3	0.72	6.7	F	11.5	D	12	D	9.4	D	9.5	D	6.8	F	4.4	F	12.9	D	10.9	D	12.3	D	9.6	D	11.8	D	11.0	D	10.4	D	10.6	D	8.8	E	18.3	C	E to C
7th St	Brannan	Market	N	3	0.72	8.9	E	16.8	C					13.7	C			10.4	D	15.4	C	14.9	C	16.4	C	20.9	B	13.7	C	8.3	E	8.3	E	8.5	E	8.8	E	13.4	C	E to C
8th St	Market	Bryant	S	3	0.60			15.8	C					15.7	C			13	C	15.9	C	21.2	B	17.0	C	23.8	B	15.9	C	8.4	E	8.4	E	8.7	E	11.8	D	10.7	D	
9th St	Brannan	Market	N	3	0.72	9.9	D	12.4	D	9.7	D	13.8	C	11.2	D	9.1	D	11.8	D	13.3	C	11.2	D	14.6	C	13.4	C	12.9	D	8.7	E	7.7	E	7.6	E	7.4	E	12.0	D	E to D
10th St	Market	Brannan	S	3	0.73	12.1	D	20.5	B							13.7	C			16.4	C	20.9	B	16.3	C	20.4	B	20.5	B	13.4	C	13.7	C	14.3	C	14.2	C	17.5	C	
16th St	Market	Mission	E	3	0.74															11	D	10.5	D	10.7	D	11.9	D	14.9	C	13.5	C	9.2	D	9.0	D	7.7	E	11.9	D	E to D
	Mission	Potrero	E	3	0.67															13.1	C	9.8	D	12.8	D	11.7	D	14.8	C	11.9	D	7.9	E	8.3	E	7.9	E	13.0	C	E to C
	Potrero	Mission	W	3	0.67															11.2	D	13.6	C	15.2	C	13.4	C	12.5	D	11.1	D	9.5	D	10.1	D	8.3	E	13.7	C	E to C
	Mission	Market	W	3	0.74															10.6	D	14.1	C	12.3	D	8.4	E	17.0	C	11.7	D	10.1	D	10.7	D	10.6	D	14.3	C	D to C
19th Ave / Park Presidio	Junipero Serra	Sloat	N	3	1.25			17.5	C					21.5	B					14.8	C	16.0	C	13.5	C	23.2	B	16.9	C	15.2	C	17	C	18.9	C	17.2	C	24.2	B	C to B
	Sloat	Lincoln	N	3	2.13	11.1	D	21	B					18.6	B					21.6	B	24.0	B	23.0	B	21.4	B	17.4	C	19.5	B	18.9	C	19.2	B	18.2	C	21.7	B	C to B
	Lincoln	Lake	N	3	1.85			25.4	A					19.8	B					27.2	A	27.2	A	28.5	A	29.3	A	28.1	A	22.9	B	19.3	B	15.0	C	13.6	C	28.9	A	C to A
	Lake	US-101	N	1	1.18			35.9	A							15.6	E			34.7	B	44.2	A	46.0	A	43.0	A	44.6	A	17.7	D	40.8	A	39.5	A	40.5	A	39.2	A	
	US-101	Lake	S	1	1.26			36.4	A							34.5	B			35.4	A	42.7	A	35.2	A	30.9	B	42.9	A	38.0	A	22.8	C	24.1	C	24.6	C	44.5	A	C to A
	Lake	Lincoln	S	3	1.85			26.4	A					20.3	B					24.1	B	15.8	C	19.8	B	24.6	B	19.0	B	16.4	C	13.6	C	13.7	C	12.7	D	15.9	C	D to C
	Lincoln	Sloat	S	3	2.13	11.1	D	21.9	B					17.5	C					20.5	B	24.3	B	23.6	B	27.7	A	20.2	B	19.8	B	20.5	B	21.1	B	19.3	B	19.5	B	
	Sloat	Junipero Serra	S	3	1.25			18.4	C					11.9	D			11.9	D	9.9	D	16.9	C	12.1	D	17.7	C	18.2	C	15.8	C	16.6	C	20.4	B	21.3	B	21.5	B	
Alemany	Junipero Serra	Lyell	E	3	2.95			29.5	B							20.8	B			20.4	B	18.6	C	22.4	B	22.0	B	24.3	B	19.9	B	16.8	C	17.3	C	17.2	C	22.2	B	C to B
	Lyell	Bay Shore	E	3	1.59			32.9	A							12.7	D	14.7	C	32.1	A	23.7	B	29.9	A	30.2	A	33.0	A	29.2	A	26.4	A	25.1	A	28.2	A	28.0	A	
	Bay Shore	Lyell	W	3	1.57	4.6	F	30.8	A							23.3	B			32.4	A	23.4	B	31.4	A	24.7	B	31.2	A	27.6	A	24.4	B	25.2	A	23.3	B	26.7	A	B to A
	Lyell	Junipero Serra	W	3	3.03			22.1	C							23.9	B			19.5	B	19.8	B	22.2	B	22.5	B	29.6	A	22.2	B	15.7	C	16.0	C	14.5	C	20.5	B	C to B
Bay	Van Ness	Embarcadero	E	3	1.07	12.7	D	16.8	C							12.1	E			13.4	C	18.2	C	16.5	C	18.2	C	20.7	B	15.6	C	13.3	C	13.5	C	13.5	C	17.8	C	
	Embarcadero	Van Ness	W	3	1.07	12.7	D	12	D	15.7	C					13.1	D	13.5	C	18.7	C	18.6	C	16.2	C	16.4	C	19.9	B	14.9	C	14.4	C	14.6	C	14.6	C	20.5	B	C to B
Bayshore	County Line	Industrial	N	3	2.27			22.6	B							33.9	A			22	B	20.7	B	21.5	B	23.1	B	23.1	B	20.2	B	18.9	C	19.3	B	17.5	C	24.2	B	C to B
	Industrial	Cesar Chavez	N	3	0.83			26.4	A							16.4	C			13.1	C	22.1	B	14.4	C	15.5	C	17.6	C	17.3	C	15.2	C	15.2	C	13.1	C	20.1	B	C to B
	Jerrold	Industrial	S	3	0.80			21	B							28.4	A			21.1	B	19.1	B	22.3	B	15.3	C	20.5	B	19.3	B	16.2	C	16.7	C	14.6	C	22.0	B	C to B
	Industrial	County Line	S	3	2.26			22	B							26.4	A			19.7	B	27.0	A	26.3	A	21.8	B	25.5	A	20.6	B	17.7	C	18.3	C	15.8	C	23.7	B	C to B
Beale / Davis	Clay	Mission	S	3	0.32			13.4	C							8.4	E	8.4	E	14.6	C	10.7	D	11.2	D	11.7	D	5.2	F	5.4	F	8.1	E	8.4	E	6.4	F	13.4	C	F to C
Brannan	Division	6th	E	3	0.54																	11.6	D	13.7	C	13.6	C	14.7	C	9.9	D	15.7	C	11.2	D	9.0	E	13.3	C	E to C
	6th	3rd	E	3	0.51																	9.9	D	10.3	D	17.2	C	14.1	C	8.5	E	7.3	E	7.7	E	7.0	E	13.4	C	E to C
	3rd	6th	W	3	0.52																	8.6	E	14.0	C	16.4	C	16.9	C	11.0	D	7.9	E	8.6	E	8.4	E	16.4	C	E to C
	6th	Division	W	3	0.54																	17.2	C	9.8	D	8.8	E	21.1	B	14.4	C	9.9	D	10.4	D	10.1	D	14.3	C	D to C

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2019 LOS CHANGES
Broadway	Gough	Larkin	E	3	0.36			14.6	C					14.2	C	10	D	12	D	11.5	D	10.2	D	10.5	D	10.2	D	12.8	D	10.5	D	9.2	D	11.3	D	10.4	D	14.7	C	D to C
	Larkin	Powell	E	1	0.55			38.9	A					25.5	C	11	F	12.7	F	26.1	C	31.8	B	36.1	A	33.6	B	25.2	C	29.8	B	24.1	C	18.3	D	19.4	D	29.7	B	D to B
	Powell	Montgomery	E	3	0.35			16.3	C					12.4	D	10.4	D	11.2	D	12.8	D	11.2	D	13.3	C	14.2	C	9.0	E	10.6	D	9.5	D	11.0	D	9.8	D	14.7	C	D to C
	Montgomery	Embarcadero	E	3	0.35			13.1	C					8.4	E	7.9	E	7.2	E	9	D	9.4	D	14.7	C	13.2	C	6.8	F	5.0	F	8.9	E	9.5	D	8.1	E	15.4	C	E to C
	Embarcadero	Montgomery	W	3	0.35			15.4	C					9.6	D	4.4	F	6.9	F	10.1	D	13.1	C	14.9	C	13.3	C	9.9	D	10.5	D	9.6	D	10.9	D	8.6	E	13.1	C	E to C
	Montgomery	Powell	W	3	0.35	6.2	F	8.4	E	9.2	D	12.5	D	8.5	E	8.3	E	10.2	D	8	E	10.1	D	7.7	E	11.8	D	6.6	F	5.3	F	4.6	F	9.3	D	8.9	E	14.0	C	E to C
	Powell	Larkin	W	1	0.55			24.7	C					25.3	C	11	F	10.6	F	32.7	B	31.0	B	32.3	B	29.6	B	25.5	C	27.8	C	27.3	C	22.1	C	15.5	E	30.4	B	E to B
	Larkin	Gough	W	3	0.36	7.7	E	14.6	C					7.8	E	9.9	D	8.8	E	7.3	E	10.9	D	11.3	D	11.1	D	12.6	D	8.1	E	7.1	E	12.6	D	11.5	D	14.4	C	D to C
Brotherhood	Junipero Serra	Alemany	E	3	0.43																	21.0	B	26.6	A	24.6	B	29.4	A	22.0	B	21.7	B	21.7	B	20.6	B	23.6	B	
	Alemany	Junipero Serra	W	3	0.47																	26.2	A	33.4	A	31.5	A	31.6	A	24.8	B	25.4	A	27.0	A	26.7	A	28.5	A	
Bryant	Division	4th	E	3	0.99	7.7	E	11.8	D	9.8	D	12.8	D	15.7	C	10.6	D	9.6	D	13.3	C	8.8	E	12.7	D	14.3	C	13.9	C	8.6	E	8	E	8.4	E	8.3	E	13.1	C	E to C
	4th	Embarcadero	E	3	0.77			13.2	C							9.5	D	10.2	D	19.5	B	16.0	C	15.7	C	14.0	C	18.2	C	13.3	C	10.1	D	9.5	D	10.9	D	14.0	C	D to C
Bush	Masonic	Gough	E	3	1.24			20	B							20.5	B			19	B	19.6	B	21.2	B	21.9	B	22.7	B	19.1	B	17.1	C	16.3	C	17.7	C	17.6	C	
	Gough	Market	E	3	1.45	3.2	F	10.1	D	11.5	D	11.7	D	11.6	D	10.2	D	9.2	D	12.5	D	13.9	C	14.3	C	11.3	D	16.0	C	10.5	D	9.1	D	9.3	D	9.1	D	13.4	C	D to C
Castro / Divisadero	Market	14th	N	3	0.32	7.7	E	16.7	C					12.1	D	16.1	C			15.2	C	10.0	D	15.7	C	15.2	C	14.7	C	12.8	D	11.9	D	12.4	D	11.9	D	13.9	C	D to C
	14th	Geary	N	3	1.13	4.5	F	12.8	D	11.2	D	12.3	D	11.8	D	11.1	D	9.5	D	9.4	D	13.8	C	12.3	D	11.6	D	14.0	C	11.4	D	10.6	D	10.6	D	9.9	D	12.3	D	
	Geary	Pine	N	3	0.27			8.4	E	13.5	C			9.8	D	14.6	C			7.5	E	10.3	D	10.7	D	9.2	D	13.7	C	11.4	D	9.4	D	9.8	D	9.4	D	12.3	D	
	Pine	Geary	S	3	0.27			11.6	D	8.1	E	11	D	8.3	E	12.6	D	7.9	E	11.7	D	8.6	E	13.5	C	10.1	D	13.0	C	10.2	D	9.3	D	9.7	D	8.8	E	10.9	D	E to D
	Geary	14th	S	3	1.13			15.7	C					11.4	D	12.1	D	8.2	E	12.3	D	9.4	D	11.1	D	10.3	D	12.7	D	9.6	D	9.6	D	10.1	D	9.5	D	10.4	D	
	14th	Market	S	3	0.32			13.8	C					14.3	C	17.3	C			12	D	11.6	D	15.2	C	11.6	D	13.4	C	10.5	D	9.7	D	10.1	D	9.8	D	11.2	D	
Cesar Chavez	Guerrero	Bryant	E	3	0.76			20.7	B							15.1	C			18.2	C	14.1	C	15.1	C	10.6	D	15.6	C	10.8	D	9.9	D	11.0	D	10.5	D	13.0	D	
	Bryant	Kansas	E	3	0.38			26.7	B							8.5	E			31.4	A	30.7	A	27.6	A	30.0	A	27.8	A	21.2	B	21.8	B	17.7	C	17.3	C	23.0	B	C to B
	Kansas	3rd	E	3	0.80			17.3	C							12	D	15.1	C	19.5	B	22.8	B	25.4	A	22.8	B	22.2	B	18.1	C	16.1	C	15.8	C	16.1	C	22.4	B	C to B
	3rd	Kansas	W	3	0.80			16.3	C											21.1	B	16.3	C	22.3	B	19.5	B	23.7	B	18.7	C	17.1	C	16.3	C	16.4	C	21.4	B	C to B
	Kansas	Bryant	W	3	0.38			17.5	C											30.4	A	30.4	A	21.0	B	23.4	B	23.6	B	19.4	B	18.3	C	17.1	C	16.3	C	21.3	B	C to B
	Bryant	Guerrero	W	3	0.75			16.5	C							15.8	C			18.8	C	12.8	D	16.8	C	11.6	D	16.2	C	12.2	D	10.3	D	11.0	D	10.7	D	14.3	C	D to C
Clay	Kearny	Davis	E	3	0.38	11.7	D	7	E	8.7	E	10.4	D	10.4	D	9.4	D	6.5	F	8.7	E	16.3	C	11.7	D	16.2	C	6.6	F	8.7	E	8.2	E	8.8	E	8.3	E	11.6	D	E to D
Columbus	Montgomery	Greenwich	N	3	0.67	6.3	F	12.8	D	12.9	D	10.3	D	11.1	D	15	C			12.8	D	21.0	B	14.1	C	12.7	D	12.4	D	12.5	D	11.9	D	12.4	D	12.2	D	16.4	C	D to C
	Greenwich	North Point	N	3	0.42			13.4	C					16.2	C					13.3	C	16.8	C	9.2	D	13.4	C	13.3	C	12.6	D	12.4	D	11.6	D	10.5	D	15.3	C	D to C
	North Point	Greenwich	S	3	0.42			15.2	C					17.7	C					15.9	C	12.5	D	13.3	C	14.0	C	11.5	D	10.8	D	8.8	E	9.1	D	7.9	E	12.8	D	E to D
	Greenwich	Montgomery	S	3	0.67	6.3	F	16	C					10.2	D	9.3	D	8.7	E	9.2	D	10.4	D	7.1	E	12.3	D	11.9	D	10.2	D	8.9	E	9.5	D	8.6	E	13.2	C	E to C
Doyle / Lombard / Richardson	County Line	SF Cemetery	E	1	1.16			55.3	A													21.7	D	39.8	A	39.8	A			34.1	B	39.9	A	39.4	A	48.7	A	48.6	A	54.4	A	
	SF Cemetery	Lyon/Francisco	E	1	0.93			32.3	B											23.8	C	32.7	B	35.8	A			38.9	A	35.1	A	29.7	B	20.9	D	19.8	D	34.2	B	D to B
	Lyon/Francisco	Van Ness	E	3	1.29			16.4	C							14.8	C			14.5	C	15.7	C	18.2	C	15.3	C	18.7	C	13.8	C	12.1	D	13.4	C	11.9	D	18.6	C	D to C
	Van Ness	Lyon/Francisco	W	3	1.29			20.5	B							22.4	B			15.3	C	16.0	C	15.7	C	16.4	C	18.0	C	13.3	C	13.4	C	14.2	C	13.3	C	18.3	C	
	Lyon/Francisco	SF Cemetery	W	1	0.96			43.9	A											23.5	C	35.2	A	39.4	A			26.0	C	13.0	E	40.2	A	36.0	A	37.2	A	42.4	A	
	SF Cemetery	County Line	W	1	1.15			32.6	B											24.2	C	38.8	A	41.0	A			22.4	C	14.2	E	37.3	A	38.8	A	35.3	A	50.6	A	
Drumm	Market	Washington	N	3	0.22			12.8	D	13.5	C					24.7	B			11.7	D	11.2	D	16.2	C	17.2	C	8.0	E	6.3	F	8.3	E	8.8	E	7.2	E	13.1	C	E to C
	Washington	Market	S	3	0.22			9.3	D	3.6	F					17.4	C			9.7	D	6.1	F	7.6	E	17.7	C	5.5	F	6.0	F	7.6	E	7.2	E	8.1	E	9.3	D	E to D
Duboce / Division	Market	Mission	E	3	0.35			10	D	15.4	C					7.5	E	6.3	F	9.4	D			14.8	C	16.7	C	22.5	B	15.5	C	11.3	D	10.9	D	9.3	D	12.6	D	
	Mission	Potrero	E	3	0.66	9.9	D	14.1	C							14.2	C			14.1	C			13.3	C	18.5	C	10.5	D	10.7	D	10.2	D	12.4	D	11.5	D	14.1	C	D to C
	Potrero	Mission	W	3	0.66	9.9	D	16.4	C							12	D	7.1	E	9.4	D			9.6	D	16.2	C	8.6	E	7.2	E	7.1	E	12.1	D	7.5	E	15.7	C	E to C
	Mission	Market	W	3	0.35	6.3	F	6.2	F							7.4	E	6	F	6.5	F			10.6	D	9.6	D	14.7	C	8.3	E	6.5	F	6.5	F	7.0	E	13.4	C	E to C
Embarcadero	Townsend	North Point	N	3	2.16			9	D	16.4	C					14.7	C			16	C	15.2	C	14.0	C	8.9	E	14.0	C	11.8	D	12.8	D	13.5	C	14.1	C	17.6	C	
	North Point	Townsend	S	3	2.16			16.7	C							6.4	F	12.3	D	15.2	C	18.5	C	20.2	B	17.6	C	13.8	C	9.0	D	9.3	D	10.1	D	10.3	D	14.3	C	D to C
Evans	Cesar Chavez	3rd	S	3	0.73			21.4	B							15.4	C			19.1	B	21.8	B	21.6	B	17.5	C	16.8	C	13.1	C	13.8	C	17.2	C	16.4	C	22.6	B	C to B
	3rd	Cesar Chavez	N	3	0.73			20.3	B							15.2	C			23.8	B	22.7	B	20.1	B	21.5	B	16.9	C	12.2	D	24.6	B	16.8	C	16.0	C	21.1	B	C to B
Fell	Gough	Market	E	3	0.29			13.5	C							9.4	D	8.3	E	7	E	18.4	C	12.6	D	12.9	D	18.6	C	12.0	D	8.9	E	9.2	D	6.7	F	11.6	D	F to D
	Gough	Laguna	W	3	0.18	5.6	F	13.3	C	7.3	E	8.2	E	12	D	7.8	E	7.4	E	16.9	C	11.8	D	9.0	E	9.3	D	17.2	C	12.7	D	10.1	D	10.2	D	11.1	D	15.8	C	D to C
	Laguna	Stanyan	W	3	1.56			20.7	B							23.5	B			19.6	B	23.1	B	23.7	B	24.1	B	22.5	B	19.1	B	18.7	C	20.2	B	18.7	C	16.6	C	

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2019 LOS CHANGES
Folsom	13th	8th	E	3	0.49															18	C					14.6	C	18.4	C	13.4	C	9.4	D	9.5	D	9.5	D	12.7	D	
	8th	4th	E	3	0.69															18.8	C	21.2	B	17.2	C	19.4	B	17.3	C	9.5	D	8.2	E	8.8	E	8.3	E	11.4	D	E to D
	4th	1st	E	3	0.52															18.3	C	20.0	B	15.0	C	16.9	C	14.8	C	6.4	F	7.8	E	8.2	E	7.3	E	10.7	D	E to D
	1st	Embarcadero	E	3	0.34															10	D	17.0	C	12.1	D	12.1	D	16.0	C	11.4	D	7.5	E	7.6	E	7.0	E	10.7	D	E to D
Franklin	Market	Pine	N	3	1.06	8.5	E	18.8	C							14.6	C			14.5	C	15.9	C	15.6	C	13.4	C	17.9	C	12.0	D	10.3	D	10.7	D	10.9	D	14.1	C	D to C
	Pine	Lombard	N	3	0.83			16.4	C							7.3	E	7.7	E	17.5	C	21.7	B	23.8	B	20.8	B	21.3	B	16.1	C	16.7	C	17.1	C	17.5	C	17.2	C	
Fremont	Harrison	Market	N	3	0.48			9.3	D	10.6	D	16.6	C			3.2	F	5.2	F	14.1	C	10.5	D	10.1	D	10.6	D	16.8	C	8.9	E	7.8	E	8.3	E	9.9	D	13.6	C	D to C
Fulton	Park Presidio	10th Ave	E	3	0.20																			25.7	A	25.0	B	23.4	B	20.6	B	19.1	B	17.1	C	17.3	C	18.9	C	
	10th Ave	Arguello	E	3	0.53																			23.5	B	15.0	C	18.6	C	17.4	C	14.3	C	17.8	C	18.5	C	18.9	C	
	Arguello	Masonic	E	3	0.66	9.8	D	13.2	C							14.8	C			15	C	10.9	D	13.6	C	12.2	D	14.8	C	15.2	C	12.2	D	11.9	D	11.1	D	16.4	C	D to C
	Masonic	Arguello	W	3	0.66			18.9	C							14.7	C			20.7	B	23.9	B	20.6	B	13.8	C	18.0	C	15.8	C	13.1	C	13.9	C	13.3	C	16.2	C	
	Arguello	10th Ave	W	3	0.53																			22.1	B	17.7	C	18.1	C	17.6	C	16.1	C	15.3	C	14.8	C	20.1	B	C to B
	10th Ave	Park Presidio	W	3	0.20																			8.5	E	11.3	D	18.1	C	14.7	C	13.5	C	14.5	C	13.9	C	20.1	B	C to B
Geary	Great Hwy	25th Ave	E	3	1.78			26.2	A							20.1	B	16	C	23.6	B	23.0	B	21.4	B	23.8	B	18.2	C	14.0	C	15.6	C	17.9	C	18.2	C	19.7	B	C to B
	25th Ave	Arguello	E	3	1.42			21.5	B					15	C			8.4	E	14.9	C	21.0	B	22.9	B	21.5	B	16.9	C	12.8	D	14.7	C	15.6	C	15.3	C	17.2	C	
	Arguello	Gough	E	3	1.91	11.3	D	22.6	B					20.7	B			14.7	C	22.4	B	27.4	A	20.3	B	20.1	B	18.5	C	14.9	C	17.6	C	17.6	C	14.5	C	18.4	C	
	Kearny	Gough	W	3	1.18	6.7	F	9.9	D	14.4	C			15.9	C	23.8	B	10	D	12.2	D	12.1	D	10.1	D	12.9	D	12.0	D	10.2	D	7.9	E	8.3	E	8.8	E	12.8	D	E to D
	Gough	Arguello	W	3	1.92			23.1	B					21.2	B			13.3	C	19.1	B	20.5	B	25.0	B	25.1	A	22.3	B	15.0	C	18.5	C	18.5	C	17.0	C	20.0	B	C to B
	Arguello	25th Ave	W	3	1.42	11.3	D	20.3	B					15.8	C			10.6	D	15.1	C	18.1	C	17.0	C	17.1	C	15.9	C	11.8	D	13.3	C	14.2	C	14.3	C	17.1	C	
	25th Ave	Great Hwy	W	3	1.79			23.9	B							29.4	A	12.7	D	21	B	23.3	B	22.0	B	22.7	B	16.9	C	15.0	C	17.1	C	18.0	C	18.0	C	19.9	B	C to B
Geneva	Ocean	Cayuga	E	3	0.56			12	D	17.2	C					14.6	C			12.9	D	11.6	D	8.4	E	12.9	D	14.2	C	9.6	D	10	D	10.1	D	9.2	D	15.1	C	D to C
	Cayuga	Paris	E	3	0.33	10.4	D	12.1	D	10.5	D	15.5	C							8.8	E	9.2	D	10.8	D	11.5	D	14.4	C	10.7	D	10.6	D	11.1	D	9.9	D	15.1	C	D to C
	Paris	Santos	E	3	1.19			20.5	B							22.1	B			21	B	20.5	B	21.2	B	22.0	B	22.4	B	15.6	C	19.1	B	20.0	B	18.7	C	21.4	B	C to B
	Santos	Paris	W	3	1.19			22.6	B							31.3	A			25.2	A	21.2	B	23.6	B	23.4	B	20.4	B	15.5	C	17.5	C	17.0	C	15.0	C	21.7	B	C to B
	Paris	Cayuga	W	3	0.33	10.4	D	12.3	D	10.7	D	11.9	D	12.8	D	12.7	D	10.6	D	10.1	D	9.7	D	10.5	D	8.1	E	13.2	C	10.8	D	9.5	D	10.3	D	9.7	D	16.0	C	D to C
	Cayuga	Ocean	W	3	0.53	6.7	F	10.4	D	12	D	9.6	D	14.2	C					7.9	E	6.9	F	9.2	D	10.2	D	13.1	C	9.7	D	9.1	D	10.0	D	9.7	D	14.4	C	D to C
Golden Gate	Masonic	Franklin	E	3	1.37			20.4	B							16	C			25.9	A	20.1	B	18.9	C	13.8	C	16.1	C	15.5	C	14.9	C	15.4	C	14.7	C	13.3	C	
	Franklin	Market	E	3	0.65	12.2	D	15.2	C							14.3	C			11.7	D	12.0	D	12.8	D	8.9	E	9.5	D	3.5	F	6.2	F	7.2	E	6.8	F	12.2	D	F to D
Gough	Pine	Geary	S	3	0.26	9.5	D	21.8	B							6.5	F	6.3	F	11.4	D	9.6	D	24.3	B	23.0	B	18.4	C	12.6	D	11.6	D	12.0	D	12.5	D	11.1	D	
	Geary	Golden Gate	S	3	0.33			17.1	C							15.8	C	9.4	D	13.6	C	9.7	D	18.3	C	20.2	B	14.7	C	9.5	D	6.5	F	6.9	F	8.0	E	11.1	D	E to D
	Golden Gate	Market	S	3	0.54	8.3	E	16.4	C							7.6	E	6.4	F	7	E	7.2	E	8.7	E	12.3	D	12.6	D	7.9	E	8.1	E	8.3	E	8.8	E	11.1	D	E to D
Guerrero / San Jose	Monterey	29th	N	1	1.17			30.8	B							41.2	A			27	C	26.3	C	23.7	C	24.2	C	27.0	C	14.5	E	15.1	E	14.0	E	14.3	E	29.5	B	E to B
	29th	Cesar Chavez	N	3	0.29			12.6	D	7.9	E	17.8	C			15.6	C			14.1	C	16.4	C	20.0	B	12.7	D	18.9	C	14.1	C	14.4	C	17.4	C	12.8	D	14.0	C	D to C
	Cesar Chavez	29th	S	3	0.28			24	B							24.9	A			20.1	B	20.5	B	14.3	C	20.8	B	18.7	C	12.7	D	9.7	D	8.9	E	6.3	F	15.1	C	F to C
	29th	Monterey	S	1	1.17			21.6	D	23	C					26.8	C			27.7	C	37.7	A	26.0	C	27.6	C	27.2	C	21.9	D	19.1	D	19.9	D	16.0	E	25.1	C	E to C
Harrison	Embarcadero	1st	W	3	0.34			11.4	D	11.6	D	9.6	D	9.4	D	14.5	C			14.3	C	8.0	E	11.9	D	12.8	D	14.6	C	7.6	E	5.3	F	6.0	F	6.6	F	14.3	C	F to C
	1st	4th	W	3	0.52			20.5	B							14	C			20	B	22.4	B	16.7	C	18.9	C	16.5	C	13.1	C	7.8	E	8.3	E	9.4	D	14.3	C	D to C
	4th	8th	W	3	0.69	12.7	D	19.1	B							16	C			19	B	19.0	C	11.6	D	14.9	C	16.0	C	14.3	C	13.7	C	14.1	C	12.7	D	13.9	C	D to C
	8th	Division	W	3	0.40			13.6	C							13	C			12.4	D	12.7	D	13.2	C	11.6	D	16.1	C	12.8	D	10.5	D	10.7	D	10.6	D	12.8	D	
Hayes	Market	Gough	W	3	0.39	5.6	F	11.7	D	15.7	C					10.9	D	7.1	E	11.8	D	13.3	C	9.6	D	8.8	E	11.5	D	11.2	D	7.5	E	7.2	E	7.9	E	11.9	D	E to D
Howard	Embarcadero	S Van Ness	W	3	2.11	5.4	F	13.6	C							13	C			12.7	D	14.6	C	12.6	D	12.2	D	15.5	C	11.1	D	9.3	D	9.9	D	9.4	D	13.3	C	D to C
Junipero Serra	County Line	Brotherhood	N	1	0.29			40.4	A							26.3	B			41.8	A	41.0	A	35.6	A	47.1	A	26.0	C	20.8	D	17.4	D	14.1	E	15.7	E	49.4	A	E to A
	Brotherhood	19th	N	1	0.34			19.1	D	21.7	D	23.6	D	26.5	C					16.2	E	16.4	E	15.2	E	10.5	F	13.8	E	12.9	F	10.7	F	11.8	F	9.2	F	25.1	C	F to C
	19th	Sloat	N	1	1.21			20.5	D	18.9	D	12.8	F	19.3	D	14.4	E	14.6	E	11.8	F	15.5	E	22.8	C	22.0	D	24.6	C	20.5	D	24.7	C	24.8	C	21.6	D	27.9	C	D to C
	Sloat	19th	S	1	1.21			18	D	20.6	D	11.8	F	12	F	18.1	D	14.7	E	18.8	D	14.9	E	16.7	E	16.8	E	26.3	C	18.5	D	20.4	D	20.2	D	17.5	D	23.0	C	D to C
	19th	Brotherhood	S	1	0.33			22.1	C							16.6	E	19	D	35.3	A	40.4	A	39.2	A	40.3	A	38.0	A	34.0	B	37.3	A	42.5	A	39.7	A	42.7	A	
	Brotherhood	County Line	S	1	0.30			48.1	A							26.3	B			39.2	A	44.5	A	39.6	A	45.3	A	50.6	A	48.9	A	53.6	A	49.9	A	47.5	A	52.0	A	
Kearny	Market	Columbus	N	3	0.65	6.3	F	12.9	D	10.8	D	9.2	D	9.1	D	8.1	E	7.2	E	11.7	D	11.2	D	13.0	C	14.8	C	11.9	D	8.9	E	8.3	E	8.3	E	9.0	D	12.7	D	
King	4th	2nd	E	3	0.34																	21.7	B					13.9	C	11.5	D	12.3	D	12.7	D	12.1	D	15.7	C	D to C
	2nd	4th	W	3	0.34																	7.7	E					12.0	D	8.7	E	8	E	8.0	E	8.5	E	19.0	B	E to B

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2019 LOS CHANGES
Lincoln / Kezar	19th Ave	5th Ave	E	3	0.83			16.4	C							14.5	C			12.3	D	24.0	B	23.1	B	20.6	B	21.5	B	18.9	C	18	C	16.7	C	16.6	C	19.7	B	C to B
	5th Ave	Stanyan	E	3	0.70			22.8	B							14	C			22.8	B	21.8	B	21.7	B	22.8	B	22.0	B	21.1	B	20	B	20.2	B	20.3	B	19.9	B	
	Stanyan	5th Ave	W	3	0.70			21.3	B							9.8	D	9.9	D	23.6	B	18.1	C	29.1	A	24.8	B	21.4	B	18.6	C	20.9	B	21.1	B	19.7	B	20.1	B	
	5th Ave	19th Ave	W	3	0.83	11.3	D	20.8	B							12	D	9.1	D	22.7	B	12.8	D	12.9	D	18.9	C	18.0	C	16.4	C	14.5	C	15.2	C	14.4	C	17.5	C	
Main	Mission	Market	N	3	0.12			9.8	D	8.4	E	6.7	F	7.7	E	5.4	F	7.5	E	14.4	C	16.3	C	19.3	B	14.3	C	3.2	F	5.0	F	11	D	6.7	F	8.4	E	13.1	C	E to C
Market / Portola	Sloat	Santa Clara	E	3	0.43			16.5	C					15.9	C					21	B	16.0	C	20.2	B	21.1	B	22.1	B	16.5	C	15.1	C	15.3	C	15.7	C	21.4	B	C to B
	Santa Clara	Burnett	E	3	1.34			23.6	B					37.4	A					20.6	B	22.2	B	24.0	B	20.0	B	23.1	B	20.2	B	19	B	19.8	B	19.9	B	22.2	B	
	Burnett	Castro	E	3	1.62			34.1	A					30.9	A					22	B	24.5	B	22.0	B	23.5	B	24.6	B	20.9	B	21.4	B	21.0	B	21.8	B	21.0	B	
	Castro	Guerrero	E	3	0.79			15	C					9.2	0	14.8	C			10	D	10.6	D	9.9	D	10.3	D	13.9	C	11.4	D	10	D	10.4	D	11.0	D	13.8	C	D to C
	Guerrero	Van Ness	E	3	0.43	8.3	E	17.9	C					7.4	E	6.7	F	9	D	7	E	10.5	D	12.1	D	14.8	C	20.3	B	12.2	D	9.1	D	8.3	E	7.8	E	12.5	D	E to D
	Van Ness	Drumm	E	3	1.77	9.6	D	12.9	D	6.3	F					8.7	E	9.3	D	11	D	9.2	D	9.5	D	10.6	D	11.9	D	8.9	E	6.4	F	6.4	F	6.1	F	12.3	D	F to D
	Drumm	Van Ness	W	3	1.77	9.6	D	15.5	C							10	D	7.4	E	9.9	D	11.5	D	13.5	C	12.1	D	11.7	D	9.4	D	5.6	F	7.4	E	7.3	E	10.2	D	E to D
	Van Ness	Guerrero	W	3	0.43	8.3	E	12.5	D	8	E	10.8	D	11.1	D	24.8	B			12.1	D	8.3	E	12.2	D	11.3	D	12.9	D	10.9	D	11	D	11.6	D	10.4	D	15.1	C	D to C
	Guerrero	Castro	W	3	0.79			16.5	C					11.5	0	13.2	C			19.4	B	15.0	C	15.1	C	12.7	D	16.0	C	13.0	C	15.4	C	15.8	C	13.6	C	17.0	C	
	Castro	Burnett	W	3	1.63			27	A					24.7	B					28	A	28.4	A	26.7	A	30.1	A	26.3	A	21.9	B	21.2	B	22.0	B	21.7	B	23.4	B	
	Burnett	Santa Clara	W	3	1.34			19.6	B					35.7	A					24	B	22.0	B	20.4	B	21.4	B	22.0	B	17.2	C	16.4	C	18.1	C	16.2	C	22.7	B	C to B
	Santa Clara	Sloat	W	3	0.43	11.8	D	22.2	B					18.4	C					14.8	C	7.9	E	8.3	E	14.0	C	19.5	B	13.5	C	13.3	C	14.0	C	13.6	C	20.4	B	C to B
Masonic	Page	Geary	N	3	0.79	10	D	13.6	C							11.9	D	7.3	E	13.8	C	14.7	C	18.8	C	17.2	C	17.8	C	12.7	D	12.4	D	12.6	D	11.1	D	13.8	C	D to C
	Geary	Bush/Euclid	N	3	0.20	8.5	E	21.5	B							15.1	C			15.5	C	24.7	B	27.0	A	22.4	B	24.1	B	15.8	C	16.8	C	17.0	C	16.7	C	17.9	C	
	Presidio	Geary	S	3	0.29	8.5	E	9.3	D	12.7	D	16.9	C							11.4	D	10.5	D	14.5	C	9.2	D	15.9	C	9.5	D	11.1	D	11.4	D	7.8	E	13.0	D	E to D
	Geary	Page	S	3	0.79	10	D	13.4	C							16.3	C			11.1	D	12.5	D	16.9	C	13.5	C	19.2	B	13.4	C	12.6	D	12.7	D	12.8	D	11.8	D	
Mission / Otis	Sickles	Ocean	N	3	1.45			18.1	C					22	B					23	B	19.8	B	22.4	B	20.3	B	17.3	C	14.2	C	14.1	C	14.2	C	12.4	D	16.7	C	D to C
	Ocean	Cesar Chavez	N	3	1.95			17.3	C					18.5	C					19.1	B	15.3	C	17.8	C	16.3	C	14.1	C	13.9	C	13.3	C	14.0	C	12.8	D	16.3	C	D to C
	Cesar Chavez	14th	N	3	1.39	10.9	D	10.5	D	12.3	D	13	C	14.7	C					12.6	D	13.8	C	13.9	C	14.2	C	11.8	D	11.1	D	9.6	D	9.7	D	9.4	D	12.3	D	
	14th	9th	N	3	0.65			12.2	D	9.9	D	9.2	D	10.5	D	8.5	D	8.3	E	12.3	D	12.6	D	13.3	C	12.2	D	14.7	C	13.3	C	9.2	D	9.8	D	9.4	D	13.7	C	D to C
	9th	3rd	N	3	0.98			19.9	B					13.5	C	9.7	D	9.8	D	12.7	D	14.2	C	13.7	C	12.4	D	15.1	C	10.3	D	10.1	D	10.5	D	10.0	D	13.6	C	D to C
	Embarcadero	3rd	S	3	0.74	9.7	D	7.6	D	13	C			10.7	D	9.7	D	8.6	E	13.4	C	11.3	D	13.9	C	11.0	D	12.8	D	9.3	D	7.3	E	7.7	E	7.5	E	12.9	D	E to D
	3rd	9th	S	3	0.98			19.1	B					12.1	D	12.3	D	8.4	E	18.3	C	13.2	C	15.1	C	14.4	C	14.5	C	11.1	D	11.4	D	11.7	D	10.7	D	13.0	C	D to C
	9th	14th	S	3	0.68	9.7	D	14.9	C					16.7	C					12.9	D	13.4	C	13.4	C	13.5	C	12.4	D	10.9	D	10.5	D	9.2	D	9.2	D	13.0	C	D to C
	14th	Cesar Chavez	S	3	1.39	10.9	D	14.9	C					13.2	C					13.3	C	13.4	C	15.2	C	13.8	C	12.8	D	11.5	D	10.5	D	10.8	D	9.6	D	13.6	C	D to C
	Cesar Chavez	Ocean	S	3	1.95			15.6	C					14.7	C					14.7	C	14.5	C	13.8	C	15.5	C	13.3	C	11.8	D	11.1	D	11.2	D	10.0	D	15.2	C	D to C
	Ocean	Sickles	S	3	1.45			15.1	C					24.9	B					21.3	B	16.6	C	20.3	B	19.4	B	15.9	C	13.8	C	14.4	C	13.1	C	12.5	D	17.2	C	D to C
Montgomery	Broadway	Bush	S	3	0.51	6.2	F	2.4	F							12.4	D	8.2	E	8.2	E	5.5	F	9.2	D	7.2	E	12.8	D	5.5	F	5	F	6.1	F	5.6	F	8.9	E	F to E
North Point	Van Ness	Columbus	E	3	0.38			15.4	C							7.4	E	11	D	11.4	D	15.0	C	15.5	C	14.4	C	9.3	D	8.9	E	9.7	D	9.2	D	12.7	D	15.4	C	D to C
	Columbus	Embarcadero	E	3	0.61			14.5	C							11.4	D	9.9	D	12.8	D	20.3	B	15.9	C	16.3	C	17.7	C	8.4	E	9.3	D	11.4	D	15.0	C	16.6	C	
	Embarcadero	Columbus	W	3	0.61			16.9	C							12.2	D	10.3	D	19.5	B	21.3	B	15.8	C	20.2	B	18.0	C	12.4	D	15.8	C	14.6	C	17.4	C	18.4	C	
	Columbus	Van Ness	W	3	0.38	8.5	E	20.9	B							10.4	D	9.8	D	19.5	B	12.6	D	16.4	C	13.2	C	10.4	D	13.2	C	12.2	D	9.5	D	9.1	D	14.8	C	D to C
Oak	Stanyan	Divisadero	E	3	0.92			23.1	B							13	C	11.8	D	16.2	C	13.5	C	11.8	D	16.4	C	21.1	B	20.6	B	20.6	B	20.9	B	19.6	B	19.5	B	
	Divisadero	Fillmore	E	3	0.37											16.9	C			24.6	B	26.7	A	25.3	A	26.4	A	23.8	B	18.7	C	19.2	B	8.6	E	12.1	D	12.5	D	
	Fillmore	Laguna	E	3	0.27	8.2	E									15.3	C	15.7	C	23.8	B	27.8	A	22.3	B	24.5	B	16.6	C	12.4	D	6.2	F	8.6	E	12.1	D	12.5	D	
	Laguna	Franklin	E	3	0.27			21.6	B							15.6	C			23	B	27.4	A	21.5	B	22.6	B	17.9	C	11.0	D	8.8	E	10.1	D	9.8	D	12.5	D	
Ocean	19th Ave	Miramar	E	3	1.11			17.1	C							9.4	D	12.5	D	12.4	D	14.9	C	12.9	D	12.8	D	13.8	C	13.8	C	12	D	12.4	D	11.7	D	15.5	C	D to C
	Miramar	Howth	E	3	0.48	0.8	F	21	B							10.7	D	13.2	C	14.2	C	13.7	C	14.8	C	12.7	D	14.2	C	11.1	D	10.7	D	11.0	D	10.6	D	13.2	C	D to C
	Howth	Miramar	W	3	0.48	6.1	F	14.9	C							9.1	D	11.2	D	8.4	E	10.7	D	13.0	D	11.9	D	12.5	D	8.6	E	8	E	7.9	E	7.9	E	13.9	C	E to C
	Miramar	19th Ave	W	3	1.11			14.6	C							8.8	E	10.3	D	12.5	D	15.4	C	12.4	D	14.5	C	14.2	C	13.1	C	11.8	D	12.0	D	12.1	D	15.9	C	D to C
Octavia	Market	Fell	N	3	0.27															8.2	E	14.5	C	16.1	C	13.6	C	10.9	D	10.4	D	10.3	D	10.5	D	9.3	D	10.0	D	
	Fell	Market	S	3	0.28															14.2	C	12.6	D	11.6	D	9.9	D	9.8	D	4.0	F	6.8	F	7.5	E	7.2	E	14.2	C	E to C
O'Farrell	Gough	Mason	E	3	0.85	5.7	F	13.7	C							12.6	D	14.6	C	9.9	D	10.0	D	11.2	D	11.2	D	13.3	C	10.8	D	8.6	E	8.6	E	8.4	E	11.2	D	E to D
	Mason	Market	E	3	0.28	6.9	F	7.9	E							4.2	F	6.7	F	6.7	F	6.1	F	9.0	E	8.0	E	12.5	D	8.5	E	6.8	F	7.9	E	7.2	E	11.2	D	E to D

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AVE SPEED 91	LOS 91	AVE SPEED 92/3	LOS 92/3	AVE SPEED 95	LOS 95	AVE SPEED 97	LOS 97	AVE SPEED 99	LOS 99	AVE SPEED 2001	LOS 2001	AVE SPEED 2004	LOS 2004	AVE SPEED 2006	LOS 2006	AVE SPEED 2007	LOS 2007	AVE SPEED 2009	LOS 2009	AVE SPEED 2011	LOS 2011	AVE SPEED 2013	LOS 2013	AVE SPEED 2015	LOS 2015	AVE SPEED 2017 (TMC)	LOS 2017 (TMC)	AVE SPEED 2017 (XD)	LOS 2017 (XD)	AVE SPEED 2019	LOS 2019	AVE SPEED 2021	LOS 2021	2019 LOS CHANGES
Pine	Market	Kearny	W	3	0.38	4.6	F	10.8	D	7.3	E	10.3	D	6.7	F	8	E	4.3	F	8.9	E	5.9	F	8.9	E	13.2	C	4.3	F	6.7	F	5.4	F	6.9	F	6.7	F	13.1	C	F to C
	Kearny	Leavenworth	W	3	0.63			12.9	D	19.8	B					17.1	C			16.2	C	13.6	C	16.8	C	16.2	C	12.1	D	13.8	C	9.1	D	12.6	D	12.7	D	13.1	C	D to C
	Leavenworth	Franklin	W	3	0.46	4.8	F	13.2	C							9.4	D	6.5	F	12.6	D	10.9	D	14.3	C	14.5	C	8.5	E	5.2	F	6	F	9.3	D	9.1	D	15.5	C	D to C
	Franklin	Presidio	W	3	1.27			15.3	C							19.2	B			20.3	B	23.4	B	22.4	B	22.0	B	14.5	C	16.7	C	13.7	C	18.8	C	18.4	C	17.9	C	
Potrero	Cesar Chavez	21st	N	3	0.61			23.8	B					14.5	C					17	C	23.6	B	18.8	C	21.3	B	15.1	C	7.7	E	12.9	D	14.2	C	14.0	C	16.8	C	
	21st	Division	N	3	0.80			21.4	B					19.3	B					14.9	C	21.3	B	15.6	C	23.2	B	15.3	C	6.3	F	13.5	C	13.5	C	12.3	D	17.3	C	D to C
	Division	21st	S	3	0.80			22.6	B					18.8	C					16.5	C	20.5	B	25.2	A	22.6	B	14.0	C	8.5	E	15.7	C	16.3	C	13.3	C	16.4	C	
	21st	Cesar Chavez	S	3	0.60	4.8	F	13.7	C					19.1	B					15.5	C	15.8	C	19.4	B	18.0	C	8.5	E	3.9	F	17.3	C	13.9	C	11.0	D	15.6	C	D to C
Skyline	County Line	Sloat	N	3	1.94			44.9	A							42.6	A			49.3	A	41.7	A	46.8	A	42.2	A	42.6	A	35.8	A	35.8	A	29.1	A	33.7	A	41.0	A	
	Sloat	County Line	S	3	1.94			42.1	A							36.6	A			47.1	A	37.8	A	38.1	A	38.3	A	38.5	A	30.9	A	34.6	A	33.3	A	33.8	A	38.4	A	
Sloat	Skyline	Junipero Serra	E	1	1.38			19.2	D	24.9	C					19.9	D	18.4	D	25.9	C	17.6	D	20.7	D	17.7	D	25.4	C	22.6	C	19.9	D	21.7	D	20.1	D	24.5	C	D to C
	Junipero Serra	Skyline	W	1	1.38			23.2	C							27.4	C			24.8	C	27.2	C	26.9	C	29.6	B	29.5	B	24.7	C	24.6	C	24.1	C	22.3	C	25.8	C	
Stanyan	Fulton	Turk	N	3	0.20	4.6	F	10.8	D	11.6	D	16.8	C							15.9	C	12.0	D	12.6	D	15.6	C	18.3	C	13.3	C	13.2	C	14.0	C	12.7	D	15.4	C	D to C
	Turk	Fulton	S	3	0.20			7.6	D	10.5	D	8	E	13.3	C					18.9	C	6.4	F	9.2	D	8.6	E	15.9	C	11.5	D	9.9	D	10.4	D	13.7	C	10.9	D	C to D
Sutter	Divisadero	Gough	E	3	0.82			15.4	C							12.8	C			15.8	C	15.9	C	15.5	C	13.4	C	15.2	C	12.0	D	11	D	10.9	D	9.4	D	12.9	D	
	Market	Mason	W	3	0.56			7.3	E	12.4	D	12.7	D	8	E	12.7	C			11.6	D	13.5	C	11.3	D	12.7	D	11.9	D	10.4	D	8	E	8.1	E	8.1	E	12.5	D	E to D
	Mason	Gough	W	3	0.82	9	D	17	C							14.6	C			13.3	C	12.4	D	14.6	C	11.8	D	12.3	D	10.9	D	10.8	D	10.4	D	10.8	D	13.0	D	
	Gough	Divisadero	W	3	0.82			16.6	C							14.3	C			13.3	C	15.6	C	14.9	C	13.6	C	13.0	C	11.8	D	11.2	D	11.8	D	12.2	D	14.1	C	D to C
Townsend	7th	2nd	E	3	0.86															21.3	B	16.8	C	11.9	D	15.9	C	17.2	C	8.4	E	9	D	9.6	D	8.6	E	16.5	C	E to C
	2nd	7th	W	3	0.86															18.7	C	18.0	C	12.8	D	11.4	D	16.5	C	9.4	D	9.1	D	10.1	D	9.0	D	17.9	C	D to C
Turk	Stanyan	Divisadero	E	3	0.91			14.9	C							16.4	C			18.4	C	19.1	B	17.2	C	17.2	C	19.5	B	17.9	C	13.9	C	14.8	C	13.6	C	18.6	C	
	Market	Hyde	W	3	0.38			14.9	C							7.3	E	8.3	E	12.8	D	13.3	C	11.1	D	11.4	D	13.4	C	12.5	D	9.2	D	9.7	D	8.5	E	11.5	D	E to D
	Hyde	Gough	W	3	0.46	8.7	E	14.9	C							9.1	D	11.3	D	10.5	D	10.6	D	9.3	D	11.3	D	14.6	C	12.0	D	9.9	D	10.2	D	8.6	E	11.5	D	E to D
	Gough	Divisadero	W	3	0.82			27.1	A							18	C			19.3	B	21.7	B	19.4	B	18.3	C	22.1	B	16.7	C	15.9	C	16.3	C	16.1	C	16.5	C	
	Divisadero	Stanyan	W	3	0.91			19.2	B							14.6	C			21.3	B	18.9	C	25.6	A	17.4	C	19.4	B	17.4	C	15.8	C	17.4	C	17.9	C	18.8	C	
Van Ness / S VanNess	Cesar Chavez	13th	N	3	1.49			22.4	B					16.9	C	26.1	0			16.3	C	15.5	C	14.7	C	13.9	C	18.5	C	14.7	C	14.6	C	14.8	C	15.1	C	16.6	C	
	13th	Golden Gate	N	3	0.81			13.7	C					18.3	C			6.6	F	10.2	D	12.8	D	14.7	C	13.7	C	13.4	C	9.7	D	8.5	E	8.7	E	7.6	E	15.0	C	E to C
	Golden Gate	Washington	N	3	0.84			15.1	C					11.4	D	12.8	D	9.8	D	16.6	C	16.9	C	17.4	C	21.9	B	14.8	C	11.7	D	13.6	C	13.7	C	13.3	C	16.6	C	
	Washington	Lombard	N	3	0.58			13.2	C					18	C	26.1	0	9.2	D	22.4	B	26.6	A	26.4	A	24.5	B	17.6	C	16.4	C	15.5	C	16.1	C	16.6	C	18.6	C	
	Lombard	Washington	S	3	0.58			17.7	C					14.5	C	12.8	0	11.7	D	13.5	C	19.9	B	12.4	D	17.1	C	13.7	C	12.3	D	11.4	D	11.9	D	10.4	D	13.1	C	D to C
	Washington	Golden Gate	S	3	0.84	4.6	F	11.7	D	7	E	8.4	E	9.7	D	10	D	9.8	D	8	E	10.4	D	12.2	D	11.5	D	12.8	D	9.8	D	7.9	E	8.2	E	9.2	D	11.6	D	
	Golden Gate	13th	S	3	0.80	4.6	F	6.9	F					23.1	B			5	F	9.1	D	12.7	D	12.3	D	16.5	C	14.2	C	7.8	E	6.9	F	7.3	E	7.5	E	11.7	D	E to D
	13th	Cesar Chavez	S	3	1.49	12.6	0	18.2	C					18.9	C					20.2	B	20.4	B	17.1	C	18.7	C	19.0	B	15.1	C	14.7	C	14.8	C	13.8	C	15.5	C	
Washington	Drumm	Kearny	W	3	0.44			10.3	D	12.5	D	8	E	9.5	D	18.4	C			14.1	C	15.2	C	11.3	D	14.9	C	8.1	E	9.1	D	10.9	D	10.0	D	9.5	D	11.3	D	
West Portal	Sloat	Ulloa	N	3	0.54			17.1	C							11.6	D	10	D	15.1	C	15.1	C	12.6	D	15.4	C	13.7	C	11.6	D	12.3	D	9.5	D	12.1	D	12.9	D	
	Ulloa	Sloat	S	3	0.54			18.2	C							11.3	D	8	E	17.1	C	15.4	C	15.2	C	16.7	C	13.4	C	14.3	C	13	C	10.2	D	11.5	D	13.2	C	D to C
FREEWAY SEGMENTS INBOUND																																						
I-280	Junipero Serra	Weldon	E	Fwy	4.03	54.9	C	59.1	B							45	D	43.7	D	67.4	A	60.4	A	64.6	A	61.3	A	65.9	A	63.8	A	65	A	63.3	A	56.7	B	66.4	A	B to A
	Weldon	6th/Brannan	N	Fwy	3.51			46.3	A	51	E	48.6	E	38.6	E	38.9	E	42.3	F	25.5	F	50.8	C	41.8	C	35.6	F	36.3	E	32.1	E	26.4	F	23.6	F	25.5	F	46.0	D	F to D
US-101	County Line	Cortland	N	Fwy	2.31	20.6	B	72.4	B							43.2	A	40.1	C	55.2	D	63.9	F	49.1	E	49.0	F	53.1	C	51.3	C	52.4	C	53.2	C	51.3	C	65.2	A	C to A
	Cortland	I-80	N	Fwy	1.90	24.6	E	45.8	E	31.8	E	40.9	E	6.2	F	24	F	17.8	F	53.1	C	48.6	D	23.6	F	18.3	F	13.3	F	12.8	F	14.8	F	13.8	F	12.6	F	23.5	F	
	I-80	Market	N	Fwy	1.27	12.2	F	15.3	F							8.2	F	13.5	F	32.6	E	22.8	F	30.5	E	31.8	E	24.6	F	20.6	F	12.4	F	13.5	F	25.4	F		
I-80	Treasure Island	Fremont Exit	W	Fwy	2.71	27.5	F	26.3	F							31.6	E	21.7	F	41.9	D	21.9	F	26.8	F	30.3	E	23.8	F	19.5	F	20.3	F	17.9	F	17.5	F	35.4	E	F to E
	Fremont Exit	US-101	W	Fwy	1.70	18.6	F	21.5	F							24.9	F	13.8	F	22.4	F	18.2	F	24.5	F	19.9	F	17.4	F	15.9	F	16.7	F	16.0	F	14.3	F	19.4	F	
FREEWAY SEGMENTS OUTBOUND																																						
I-280	6th/Brannan	Weldon	S	Fwy	3.47			22.9	F							30.9	E	28.5	F	29.8	F	54.8	C	54.5	C	41.5	D	37.8	E	36.4	E	39	E	35.4	E	41.1	D	51.4	C	D to C
	Weldon	Junipero Serra	S	Fwy	4.07	51.9	D	56.6	B							44.5	D	31.4	E	54.3	C	53.5	C	45.7	D	50.6	C	52.1	C	48.4	D	45.4	D	45.7	D	43.1	D	58.2	B	D to B
US-101	Market	I-80	S	Fwy	1.17	18.8	F	13.4	F							14.9	F	8.9	F	18.9	F	21.3	F	13.1	F	13.4	F	12.6	F	14.3	F	16.0	F	14.1	F	15.8	F		
	I-80	Cortland	S	Fwy	1.97	31.6	E	46.3	D	47.2	D	35.5	E	32.4	E	44.4	D	21.4	F	30.3	E	45.2	D	45.6	D	46.9	D	49.6	C	43.3	D	46.7	D	46.8	D	43.5	D	49.8	C	D to C
	Cortland	Monster Park Exit	S	Fwy	2.30	48.1	D	51.1	D	30.8	E	39.2	E	49	D	41.6	D	30.5	E	52.2	C	49.8	C	55.2	B	51.3	C	59.4	B	58.3	B	59.4	B	58.6	B	56.3	B	62.0	A	B to A
I-80	US-101	Fremont Exit	E	Fwy	1.74	19	F	25.9	F							14.8	F	10	F	8.9	F	19.6	F	7.0	F	10.8	F	9.7	F	7.6	F	7.2	F	6.9	F	6.4	F	8.7	F	
	Fremont Exit	Treasure Island	E	Fwy	2.70	29.3	F	37.7	E	34.6	E	45.6	E	23.1	F	21.6	F	14.6	F	41.5	D	45.7	D	36.0	E	32.0	E	35.2	E	33.4	E	36	E	31.8	E	33.8	E	33.3	E	

Attachment 5.3: Average Speed and LOS for all Arterial HCM 2000 Segments (2009 – 2021)

ROUTE NAME	START INTERSECTION	END INTERSECTION	DIR	LENGTH (MI)	HCM 2000 CLASS	2009				2011				2013				2015				2017 (TMC)				2017 (XD)				2019				2021			
						AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS
1st St	Market	Harrison	S	0.48	4	14.2	C	13.1	C	13.8	C	18.2	C	18.5	C	13.2	C	11.8	D	4.8	F	12.8	D	4.3	F	13.42	C	4.3	F	11.6	D	4.5	F	17.0	C	6.7	F
2nd St	Brannan	Market	N	0.72	4	12.2	D	10.4	D	13.9	C	13.3	C	11.1	D	3.1	F	9.7	D	5.3	E	9.6	D	6.6	E	10.42	D	7.9	E	8.8	E	8.5	E	14.3	C	11.9	D
	Market	Brannan	S	0.72	4	16.3	C	10.6	D	20.8	B	12.2	D	9.6	D	6.0	F	11.9	D	6.9	E	10.6	D	11.1	D	10.52	D	9.5	D	10.9	D	8.7	E	14.1	C	14.2	C
3rd St	Jamestown	Evans	N	1.62	4	24.6	B	22.1	B	23.9	B	24.0	B	18.1	C	17.8	C	17.1	C	17.8	C	15.3	C	16.0	C	15.33	C	15.9	C	12.8	D	11.7	D	15.6	C	16.9	C
	Evans	Terry Francois	N	2.33	3	28.4	B	30.1	A	27.6	B	30.0	A	20.9	B	20.4	B	17.5	D	14.1	D	16.2	D	13.8	E	16.86	D	13.9	E	13.6	E	11.2	E	18.1	C	17.7	D
	Terry Francois	Berry	N	0.11	3	21.3	C	21.3	C	16.2	D	21.4	C																								
	Berry	Market	N	0.97	4	19.9	B	15.7	C	15.0	C	12.3	D																								
	Terry Francois	Evans	S	2.33	3	28.6	B	27.8	B	27.3	B	29.5	B	21.7	B	20.5	B	18.7	C	16.6	D	17.5	D	17.9	D	17.77	D	18.0	C	14.0	E	14.4	D	18.8	C	19.7	C
	Evans	Jamestown	S	1.62	4	23.2	B	22.3	B	25.4	A	22.7	B	19.2	B	18.7	C	18.4	C	17.5	C	15.9	C	15.6	C	15.80	C	15.2	C	11.3	D	11.4	D	15.3	C	14.9	C
4th St / Stockton	O'farrell	Harrison	S	0.56	4	13.4	C	8.5	E	17.0	C	15.1	C	13.6	C	11.5	D	13.9	C	9.8	D	11.0	D	9.8	D	10.79	D	10.1	D	10.4	D	7.3	E	13.1	C	10.5	D
	Harrison	Channel	S	0.62	4	13.8	C	14.3	C	16.8	C	14.9	C	12.8	D	12.6	D	11.4	D	8.7	E	7.6	E	7.3	E	8.72	E	8.0	E	9.7	D	8.0	E	13.5	C	11.6	D
5th St	Brannan	Market	N	0.72	4	14.7	C	15.6	C	16.3	C	15.7	C	9.5	D	4.0	F	10.0	D	6.5	E	8.7	E	3.5	F	10.69	D	7.9	E	10.1	D	7.5	E	13.1	C	12.0	D
	Market	Brannan	S	0.72	4	19.3	B	13.2	C	16.1	C	13.8	C	11.7	D	5.4	F	10.8	D	6.7	E	11.4	D	7.0	E	11.20	D	8.1	E	10.6	D	7.7	E	14.1	C	12.7	D
6th St	Brannan	Market	N	0.72	4	11.2	D	11.1	D	15.7	C	11.0	D	13.6	C	12.1	D	10.6	D	7.5	E	10.4	D	7.6	E	10.64	D	7.8	E	10.5	D	7.7	E	14.7	C	13.8	C
	Market	Brannan	S	0.72	4	15.1	C	12.3	D	16.5	C	9.6	D	17.5	C	11.8	D	14.6	C	11.0	D	12.3	D	10.4	D	12.38	D	10.6	D	11.2	D	8.8	E	21.3	B	18.3	C
7th St	Brannan	Market	N	0.72	4	18.9	C	16.4	C	19.3	B	20.9	B	15.4	C	13.7	C	10.8	D	8.3	E	8.6	E	8.3	E	8.88	E	8.5	E	10.1	D	8.8	E	13.2	C	13.4	C
8th St	Market	Bryant	S	0.60	3	15.0	D	17.0	D	17.9	D	23.8	C	15.9	C	15.9	C	13.5	E	8.4	E	12.0	E	8.4	E	12.15	E	8.7	F	12.6	E	11.8	E	12.8	E	10.7	E
9th St	Brannan	Market	N	0.72	4	11.4	D	14.6	C	13.8	C	13.4	C	14.4	C	12.9	D	10.2	D	8.7	E	9.1	D	7.7	E	9.19	D	7.6	E	10.0	D	7.4	E	10.2	D	12.0	D
10th St	Market	Brannan	S	0.73	3	21.9	C	16.3	D	21.4	C	20.4	C	23.8	B	20.5	B	18.1	C	13.4	E	16.5	D	13.7	E	17.31	D	14.3	D	16.4	D	14.2	D	20.9	C	17.5	D
16th St	Market	Mission	E	0.74	4	12.1	D	10.7	D	13.7	C	11.9	D	16.3	C	14.9	C	13.1	C	13.5	C	9.3	D	9.2	D	9.83	D	9.0	D	7.8	E	7.7	E	15.1	C	11.9	D
	Mission	Potrero	E	0.67	4	14.1	C	12.8	D	13.6	C	11.7	D	14.7	C	14.8	C	13.3	C	11.9	D	10.2	D	7.9	E	10.93	D	8.3	E	10.7	D	7.9	E	15.0	C	13.0	C
	Potrero	Mission	W	0.67	4	13.5	C	15.2	C	12.1	D	13.4	C	14.1	C	12.5	D	13.0	C	11.1	D	11.8	D	9.5	D	12.01	D	10.1	D	12.0	D	8.3	E	14.4	C	13.7	C
	Mission	Market	W	0.74	4	13.4	C	12.3	D	12.7	D	8.4	E	16.0	C	17.0	C	13.3	C	11.7	D	10.5	D	10.1	D	11.61	D	10.7	D	10.9	D	10.6	D	13.0	D	14.3	C
19th Ave / Park Presidio	Junipero Serra	Sloat	N	1.25	3	18.2	C	12.1	E	16.9	D	17.7	D	15.7	C	16.9	C	17.6	D	15.2	D	17.8	D	17.0	D	19.33	C	18.9	C	17.2	D	17.2	D	22.6	C	24.2	B
	Sloat	Lincoln	N	2.13	3	13.8	E	23.6	C	15.4	D	27.7	B	17.0	C	17.4	C	13.1	E	19.5	C	13.4	E	18.9	C	13.70	E	19.2	C	15.7	D	18.2	C	20.9	C	21.7	C
	Lincoln	Fulton	N	0.93	2	20.0	D	32.5	B	22.3	C	30.1	B																								
	Fulton	Lake	N	0.91	3	19.8	C	25.3	B	22.0	C	28.5	B																								
	Lake	Us 101	N	1.21	1	45.3	A	46.0	A	43.6	A	43.0	A	49.6	A	44.6	A	37.4	B	17.7	E	45.2	A	40.8	B	44.40	A	39.5	B	43.7	A	40.5	B	42.3	A	39.2	B
	Us 101	Lake	S	1.32	1	40.7	B	35.2	B	24.4	D	30.9	C	42.9	A	42.9	A	39.7	B	38.0	B	32.1	C	22.8	D	35.21	B	24.1	D	26.9	D	24.6	D	47.0	A	44.5	A
	Lake	Fulton	S	0.91	3	24.0	B	21.7	C	25.6	B	23.4	C																								
	Fulton	Lincoln	S	0.93	2	29.0	B	18.2	D	30.9	B	25.8	C																								
	Lincoln	Sloat	S	2.13	3	19.2	C	23.0	C	19.3	C	21.4	C	17.8	C	20.2	B	17.4	D	19.8	C	18.1	C	20.5	C	18.86	C	21.1	C	18.8	C	19.3	C	21.2	C	19.5	C
	Sloat	Junipero Serra	S	1.25	3	21.6	C	13.5	E	23.6	C	23.2	C	23.8	B	18.2	C	23.2	C	15.8	D	24.9	B	16.6	D	30.08	A	20.4	C	27.1	B	21.3	C	28.1	B	21.5	C
Alemany	County Line	Lyell	E	3.01	2	28.3	B	22.4	C	23.2	C	22.0	C																								
	Lyell	Bayshore	E	1.59	2	26.1	C	29.9	B	28.5	B	30.2	B	29.7	A	33.0	A	22.3	C	29.2	B	21.3	D	26.4	C	20.06	D	25.1	C	21.3	D	28.2	B	29.8	B	28.0	B
	Bayshore	Lyell	W	1.51	2	30.7	B	31.4	B	28.1	B	24.7	C	29.8	A	31.2	A	31.2	B	27.6	C	28.2	B	24.4	C	29.41	B	25.2	C	27.2	C	23.3	C	28.2	B	26.7	C
	Lyell	County Line	W	3.03	2	25.3	C	22.2	C	21.4	D	22.5	C	25.9	A	29.6	A	22.4	C	22.2	C	15.3	E	15.7	E	14.97	E	16.0	E	17.3	D	14.5	E	21.1	D	20.5	D
Bay	Van Ness	Embarcadero	E	1.08	4	18.9	C	16.5	C	14.1	C	18.2	C	21.3	B	20.7	B	14.8	C	15.6	C	13.8	C	13.3	C	14.45	C	13.5	C	15.4	C	13.5	C	22.8	B	17.8	C
	Embarcadero	Van Ness	W	1.08	4	19.3	B	16.2	C	20.1	B	16.4	C	20.6	B	19.9	B	17.1	C	14.9	C	16.0	C	14.4	C	16.49	C	14.6	C	15.4	C	14.6	C	19.1	B	20.5	B
Bayshore	County Line	Industrial	N	2.26	3	17.4	D	21.5	C	19.1	C	23.1	C	13.9	C	23.1	B	10.8	E	20.2	C	12.3	E	18.9	C	11.50	E	19.3	C	12.0	E	17.5	D	21.9	C	24.2	B
	Industrial	Cesar Chavez	N	0.83	3	17.5	D	14.4	D	12.6	E	15.5	D	15.8	C	17.6	C	16.2	D	17.3	D	15.1	D	15.2	D	13.42	E	15.2	D	11.1	E	13.1	E	17.9	D	20.1	C
	Cesar Chavez	Industrial	S	0.83	3	25.4	B	22.3	C	19.4	C	15.3	D																								
	Industrial	County Line	S	2.26	3	27.8	B	26.3	B	24.1	B	21.8	C	24.5	B	25.5	A	22.5	C	20.6	C	19.3	C	17.7	D	19.20	C	18.3	C	17.7	D	15.8	D	24.1	B	23.7	C
Beale/Davis	Clay	Mission	S	0.33	4	12.8	D	11.2	D	12.3	D	11.7	D	8.8	E	5.2	F	9.2	D	5.4	E	9.3	D	8.1	E	11.44	D	8.4	E	9.7	D	6.4	F	14.2	C	13.4	C

ROUTE NAME	START INTERSECTION	END INTERSECTION	DIR	LENGTH (MI)	HCM 2000 CLASS	2009				2011				2013				2015				2017 (TMC)				2017 (XD)				2019				2021			
						AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS
Brannan	10th	6th	E	0.54	4	13.8	C	13.6	C	11.7	D	13.6	C																								
	6th	3rd	E	0.52	4	15.8	C	10.3	D	14.7	C	17.2	C	19.3	B	14.1	C	13.2	C	8.5	E	10.8	D	7.3	E	11.35	D	7.7	E	10.1	D	7.0	E	15.8	C	13.4	C
	3rd	6th	W	0.52	4	17.0	C	14.0	C	12.8	D	16.4	C	20.4	B	16.9	C	14.4	C	11.0	D	12.4	D	7.9	E	13.20	C	8.6	E	13.6	C	8.4	E	16.6	C	16.4	C
	6th	10th	W	0.54	4	16.9	C	9.8	D	14.1	C	8.8	E																								
Broadway	Gough	Larkin	E	0.36	4	15.1	C	10.5	D	16.3	C	10.2	D	8.8	E	12.8	D	11.6	D	10.5	D	10.0	D	9.2	D	11.48	D	11.3	D	10.9	D	10.4	D	17.1	C	14.7	C
	Larkin	Powell	E	0.55	1	32.8	C	36.1	B	23.2	D	33.6	C	14.0	E	25.2	C	8.4	E	29.8	C	21.5	D	24.1	D	12.77	F	18.3	E	12.0	F	19.4	E	33.7	C	29.7	C
	Powell	Montgomery	E	0.35	4	20.1	B	13.3	C	15.8	C	14.2	C	11.4	D	9.0	E	11.2	D	10.6	D	8.2	E	9.5	D	12.45	D	11.0	D	11.5	D	9.8	D	18.2	C	14.7	C
	Montgomery	Embarcadero	E	0.35	4	13.9	C	14.7	C	15.3	C	13.2	C	11.3	D	6.8	F	9.9	D	5.0	F	8.1	E	8.9	E	11.75	D	9.5	D	10.2	D	8.1	E	17.9	C	15.4	C
	Embarcadero	Montgomery	W	0.35	4	19.9	B	14.9	C	17.1	C	13.3	C	12.7	D	9.9	D	17.1	C	10.5	D	10.8	D	9.6	D	13.28	C	10.9	D	10.5	D	8.6	E	14.7	C	13.1	C
	Montgomery	Powell	W	0.35	4	13.3	C	7.7	E	11.7	D	11.8	D	11.1	D	6.6	F	11.2	D	5.3	E	9.2	D	4.6	F	11.67	D	9.3	D	11.6	D	8.9	E	15.3	C	14.0	C
	Powell	Larkin	W	0.55	1	32.9	C	32.3	C	31.6	C	29.6	C	27.8	C	25.5	C	33.1	C	27.8	C	31.3	C	27.3	C	25.31	D	22.1	D	21.1	D	15.5	F	30.9	C	30.4	C
	Larkin	Gough	W	0.36	4	19.5	B	11.3	D	15.0	C	11.1	D	11.6	D	12.6	D	8.8	E	8.1	E	15.1	C	7.1	E	16.16	C	12.6	D	15.7	C	11.5	D	14.8	C	14.4	C
Brotherhood	Junipero Serra	Alemany	E	0.44	3	25.8	B	26.6	B	29.2	B	24.6	B	28.7	A	29.4	A	23.0	C	22.0	C	24.4	B	21.7	C	23.30	C	21.7	C	22.3	C	20.6	C	24.9	B	23.6	C
	Alemany	Junipero Serra	W	0.47	3	29.7	B	33.4	A	28.8	B	31.5	A	28.7	A	31.6	A	23.3	C	24.8	B	24.0	B	25.4	B	24.53	B	27.0	B	24.0	B	26.7	B	29.0	B	28.5	B
Bryant	Division	4th	E	0.99	3	13.1	E	12.7	E	19.4	C	14.3	D	15.9	C	13.9	C					11.7	E	8.0	E	12.33	E	8.4	F	11.1	E	8.3	F	16.4	D	13.1	E
	4th	2nd	E	0.34	3	24.5	B	19.1	C	26.4	B	20.9	C																								
	2nd	Embarcadero	E	0.43	4	19.2	B	13.7	C	15.5	C	11.1	D																								
Bush	Masonic	Gough	E	1.24	3	18.0	C	21.2	C	23.3	C	21.9	C	20.4	B	22.7	B	16.6	D	19.1	C	15.7	D	17.1	D	15.39	D	16.3	D	17.0	D	17.7	D	18.7	C	17.6	D
	Gough	Market	E	1.46	3	10.9	E	14.3	D	13.8	E	11.3	E	16.4	C	16.0	C	12.1	E	10.5	E	10.4	E	9.1	E	11.44	E	9.3	F	10.4	E	9.1	F	16.0	D	13.4	E
Castro / Divisadero	Market	14th	N	0.32	4	14.8	C	15.7	C	15.6	C	15.2	C	14.0	C	14.7	C					10.4	D	11.9	D	10.68	D	12.4	D	10.8	D	11.9	D	14.0	C	13.9	C
	14th	Geary	N	1.13	4	15.0	C	12.3	D	14.9	C	11.6	D	14.4	C	14.0	C	11.7	D	11.4	D	10.0	D	10.6	D	9.95	D	10.6	D	9.4	D	9.9	D	12.3	D	12.3	D
	Geary	Pine	N	0.27	4	11.1	D	10.7	D	8.1	E	9.2	D	13.0	C	13.7	C	10.3	D	11.4	D	7.9	E	9.4	D	9.36	D	9.8	D	8.8	E	9.4	D	12.6	D	12.3	D
	Pine	Geary	S	0.27	4	14.5	C	13.5	C	13.0	D	10.1	D	13.6	C	13.0	C	11.1	D	10.2	D	12.1	D	9.3	D	12.26	D	9.7	D	9.7	D	8.8	E	12.9	D	10.9	D
	Geary	14th	S	1.13	4	16.6	C	11.1	D	12.8	D	10.3	D	14.9	C	12.7	D	11.7	D	9.6	D	12.3	D	9.6	D	12.44	D	10.1	D	12.0	D	9.5	D	13.5	C	10.4	D
	14th	Market	S	0.32	4	9.9	D	15.2	C	16.0	C	11.6	D	15.0	C	13.4	C	12.5	D	10.5	D	11.6	D	9.7	D	12.01	D	10.1	D	11.4	D	9.8	D	15.0	C	11.2	D
Cesar Chavez	Guerrero	South Van Ness	E	0.36	4	20.3	B	13.5	C	14.6	C	10.7	D																								
	South Van Ness	Evans	E	1.03	4	18.6	C	22.1	B	22.6	B	16.8	C																								
	Evans	Pennsylvania	E	0.27	4	21.3	B	30.8	A	24.3	B	24.0	B																								
	Pennsylvania	3rd	E	0.26	4	17.5	C	20.5	B	15.8	C	22.4	B																								
	3rd	Pennsylvania	W	0.26	4	13.6	C	16.3	C	21.0	B	11.6	D																								
	Pennsylvania	Evans	W	0.27	4	22.2	B	25.7	A	23.6	B	26.9	A																								
	Evans	South Van Ness	W	1.03	4	21.2	B	22.7	B	23.4	B	23.4	B																								
	South Van Ness	Guerrero	W	0.36	4	10.9	D	13.7	C	11.2	D	8.0	E																								
Clay	Kearny	Davis	E	0.38	4	19.1	B	11.6	D	19.0	B	16.2	C	12.4	D	6.6	F	9.9	D	8.7	E	10.7	D	8.2	E	10.69	D	8.8	E	10.1	D	8.3	E	12.0	D	11.6	D
Columbus	Montgomery	Greenwich	N	0.67	4	14.9	C	14.1	C	12.6	D	12.7	D	13.3	C	12.4	D	12.4	D	12.5	D	11.6	D	11.9	D	11.96	D	12.4	D	10.7	D	12.2	D	13.9	C	16.4	C
	Greenwich	North Point	N	0.42	4	10.6	D	9.2	D	10.5	D	13.4	C	13.6	C	13.3	C	12.5	D	12.6	D	11.5	D	12.4	D	10.85	D	11.6	D	8.7	E	10.5	D	13.7	C	15.3	C
	North Point	Greenwich	S	0.42	4	18.7	C	13.3	C	18.4	C	14.0	C	13.4	C	11.5	D	12.8	D	10.8	D	11.0	D	8.8	E	11.00	D	9.1	D	9.3	D	7.9	E	14.4	C	12.8	D
	Greenwich	Montgomery	S	0.67	4	11.6	D	7.1	E	12.0	D	12.3	D	12.9	D	11.9	D	11.8	D	10.2	D	11.2	D	8.9	E	11.66	D	9.5	D	10.8	D	8.6	E	16.6	C	13.2	C
Doyle / Richardson / Lombard	Francisco	Broderick	S	0.19	3	14.9	D	18.9	C	16.1	D	15.2	D																								
	Broderick	Pierce	S	0.28	3	23.3	C	20.4	C	23.0	C	16.3	D																								
	Pierce	Laguna	S	0.46	3	25.1	B	21.1	C	22.6	C	18.8	C																								
	Laguna	Van Ness	S	0.36	3	19.1	C	14.3	D	15.8	D	12.0	E																								
	Van Ness	Laguna	N	0.36	3	12.1	E	11.7	E	13.3	E	12.6	E																								
	Laguna	Pierce	N	0.46	3	22.1	C	17.6	D	22.7	C	21.4	C																								
	Pierce	Broderick	N	0.28	3	21.6	C	16.9	D	12.6	E	18.1	C																								
	Broderick	Francisco	N	0.19	3	20.9	C	22.0	C	23.5	C	14.8	D																								

ROUTE NAME	START INTERSECTION	END INTERSECTION	DIR	LENGTH (MI)	HCM 2000 CLASS	2009				2011				2013				2015				2017 (TMC)				2017 (XD)				2019				2021			
						AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS
Drumm	Market	Washington	N	0.22	4	16.8	C	16.2	C	16.1	C	17.2	C	11.2	D	8.0	E	13.0	D	6.3	E	9.0	D	8.3	E	9.96	D	8.8	E	8.1	E	7.2	E	12.6	D	13.1	C
	Washington	Market	S	0.22	4	8.7	E	7.6	E	20.3	B	17.7	C	6.7	F	5.5	F	7.5	E	6.0	E	7.0	E	7.6	E	8.38	E	7.2	E	6.9	F	8.1	E	8.9	E	9.3	D
Duboce / Division	Market	Mission	E	0.35	4	9.7	D	14.8	C	16.6	C	16.7	C	19.6	B	22.5	B	13.3	C	15.5	C	9.2	D	11.3	D	9.51	D	10.9	D	8.4	E	9.3	D	15.5	C	12.6	D
	Mission	Brannan	E	0.66	4	13.8	C	13.3	C	23.5	B	18.5	C																								
	Brannan	Mission	W	0.66	4	12.8	D	9.6	D	18.0	C	16.2	C																								
	Mission	Market	W	0.35	4	14.6	C	10.6	D	14.1	C	9.6	D	16.6	C	14.7	C	11.2	D	8.3	E	8.4	E	6.5	E	8.57	E	6.5	F	8.0	E	7.0	E	12.3	D	13.4	C
Embarcadero	Townsend	Bay	N	2.06	3	20.9	C	21.0	C	20.6	C	17.5	D																								
	Bay	North Point	N	0.10	4	26.7	A	11.4	D	16.8	C	21.0	B																								
	North Point	Bay	S	0.10	4	13.7	C	11.6	D	9.0	D	17.5	C																								
	Bay	Townsend	S	2.06	3	13.2	E	14.2	D	14.5	D	8.7	F																								
Evans	3rd	Cesar Chavez	N	0.73	4	22.5	B	20.1	B	15.9	C	21.5	B	15.3	C	16.9	C	13.4	C	12.2	D	16.5	C	24.6	B	14.89	C	16.8	C	14.1	C	16.0	C	16.2	C	21.1	B
	Cesar Chavez	3rd	S	0.73	4	20.7	B	21.6	B	15.7	C	17.5	C	14.8	C	16.8	C	12.8	D	13.1	C	10.4	D	13.8	C	16.62	C	17.2	C	15.7	C	16.4	C	19.9	B	22.6	B
Fell	Gough	10th	E	0.29	4	11.4	D	12.6	D	8.7	E	12.9	D																								
	Franklin	Gough	W	0.09	4	15.1	C	4.3	F	13.2	C	3.8	F																								
	Gough	Laguna	W	0.18	3	12.9	E	9.0	F	15.2	D	9.3	F	17.5	C	17.2	C	14.2	D	12.7	E	9.8	E	10.1	E	11.17	E	10.2	E	12.3	E	11.1	E	14.9	D	15.8	D
	Laguna	Stanyan	W	1.56	3	26.4	B	23.7	C	26.3	B	24.1	B	23.8	B	22.5	B	20.0	C	19.1	C	20.5	C	18.7	C	19.96	C	20.2	C	19.4	C	18.7	C	18.1	C	16.6	D
Folsom	11th	8th	E	0.31	3	17.2	D	16.9	D	18.0	D	14.7	D																								
	8th	4th	E	0.69	3	14.9	D	17.2	D	17.0	D	19.4	C	18.1	C	17.3	C	12.6	E	9.5	E	12.8	E	8.2	E	13.30	E	8.8	F	13.4	E	8.3	F	13.6	E	11.4	E
	4th	1st	E	0.52	3	20.7	C	15.0	D	18.8	C	16.9	D	18.9	C	14.8	C	15.1	D	6.4	E	11.7	E	7.8	E	11.80	E	8.2	F	9.4	F	7.3	F	12.9	E	10.7	E
	1st	Embarcadero	E	0.34	3	13.2	E	12.1	E	10.8	E	12.1	E	16.4	C	16.0	C	12.2	E	11.4	E	7.0	E	7.5	E	7.22	F	7.6	F	6.2	F	7.0	F	12.9	E	10.7	E
Franklin	Market	Pine	N	1.06	4	14.9	C	15.6	C	12.7	D	13.4	C	15.6	C	17.9	C	11.1	D	12.0	D	9.9	D	10.3	D	10.12	D	10.7	D	10.4	D	10.9	D	12.5	D	14.1	C
	Pine	Lombard	N	0.83	4	20.5	B	23.8	B	21.1	B	20.8	B	21.0	B	21.3	B	17.8	C	16.1	C	18.0	C	16.7	C	18.63	C	17.1	C	18.5	C	17.5	C	18.6	C	17.2	C
Fremont	Harrison	Market	N	0.48	4	12.9	D	10.1	D	13.6	C	10.6	D	16.3	C	16.8	C	11.2	D	8.9	E	9.6	D	7.8	E	9.80	D	8.3	E	9.5	D	9.9	D	12.1	D	13.6	C
Fulton	Park Presidio	Arguello	E	0.74	3	20.9	C	24.1	B	18.6	C	16.9	D																								
	Arguello	Masonic	E	0.66	4	16.2	C	13.6	C	13.4	C	12.2	D	15.6	C	14.8	C	14.5	C	15.2	C	13.4	C	12.2	D	13.67	C	11.9	D	12.7	D	11.1	D	17.6	C	16.4	C
	Masonic	Arguello	W	0.66	4	20.4	B	20.6	B	16.5	C	13.8	C	18.2	C	18.0	C	17.1	C	15.8	C	15.2	C	13.1	C	16.02	C	13.9	C	15.0	C	13.3	C	16.9	C	16.2	C
	Arguello	Park Presidio	W	0.74	3	22.5	C	15.4	D	15.4	D	15.3	D																								
Geary	Great Hwy.	25th Avenue	E	1.78	4	25.0	B	21.4	B	23.1	B	23.8	B	18.3	C	18.2	C	14.4	C	14.0	C	17.5	C	15.6	C	19.36	B	17.9	C	20.2	B	18.2	C	23.2	B	19.7	B
	25th Avenue	Arguello	E	1.42	4	23.9	B	22.9	B	20.3	B	21.5	B	16.7	C	16.9	C	13.6	C	12.8	D	14.7	C	14.7	C	15.54	C	15.6	C	16.2	C	15.3	C	22.3	B	17.2	C
	Arguello	Collins	E	0.48	4	27.7	A	13.2	C	18.4	C	15.2	C																								
	Collins	Gough	E	1.41	3	28.7	B	24.7	B	23.8	C	22.5	C																								
	Kearny	Gough	W	1.18	4	15.1	C	10.1	D	14.1	C	12.9	D	13.4	C	12.0	D	11.2	D	10.2	D	10.3	D	7.9	E	10.93	D	8.3	E	9.4	D	8.8	E	13.3	C	12.8	D
	Gough	Collins	W	1.41	3	19.4	C	25.3	B	19.4	C	25.8	B																								
	Collins	Arguello	W	0.48	4	22.7	B	24.1	B	23.3	B	23.1	B																								
	Arguello	25th Avenue	W	1.42	4	22.1	B	17.0	C	19.8	B	17.1	C	16.4	C	15.9	C	14.2	C	11.8	D	13.4	C	13.3	C	13.80	C	14.2	C	12.3	D	14.3	C	15.9	C	17.1	C
	25th Avenue	Great Hwy.	W	1.78	4	23.9	B	22.0	B	24.5	B	22.7	B	18.3	C	16.9	C	15.4	C	15.0	C	16.8	C	17.1	C	18.60	C	18.0	C	18.8	C	18.0	C	20.0	B	19.9	B
Geneva	Ocean	Cayuga	E	0.56	4	8.8	E	8.4	E	11.9	D	12.9	D	13.8	C	14.2	C	10.9	D	9.6	D	10.1	D	10.0	D	11.61	D	10.1	D	10.2	D	9.2	D	17.4	C	15.1	C
	Cayuga	Paris	E	0.33	4	13.4	C	10.8	D	15.3	C	11.5	D	14.7	C	14.4	C	11.7	D	10.7	D	12.4	D	10.6	D	12.28	D	11.1	D	11.0	D	9.9	D	17.4	C	15.1	C
	Paris	Moscow	E	0.36	4	15.8	C	13.4	C	15.0	C	17.4	C																								
	Moscow	Santos	E	0.83	3	23.8	C	28.5	B	29.7	B	24.8	B																								
	Santos	Moscow	W	0.83	3	24.5	B	27.7	B	27.1	B	25.6	B																								
	Moscow	Paris	W	0.36	4	21.3	B	17.7	C	16.4	C	19.6	B																								
	Paris	Cayuga	W	0.33	4	8.2	E	10.5	D	8.7	E	8.1	E	12.9	D	13.2	C	10.7	D	10.8	D	8.5	E	9.5	D	9.47	D	10.3	D	9.0	E	9.7	D	16.5	C	16.0	C
	Cayuga	Ocean	W	0.56	4	9.6	D	9.2	D	8.8	E	10.2	D	13.6	C	13.1	C	10.2	D	9.7	D	8.2	E	9.1	D	9.15	D	10.0	D	8.3	E	9.7	D	14.8	C	14.4	C
Golden Gate	Masonic	Divisadero	E	0.46	4	16.0	C	16.5	C	13.3	C	13.5	C																								
	Divisadero	Franklin	E	0.91	3	17.6	D	20.5	C	16.7	D	14.0	D																								
	Franklin	Market	E	0.65	4	10.7	D	12.8	D	12.3	D	8.9	E	10.9	D	9.5	D	8.1	E	3.5	F	10.2	D	6.2	E	8.02	E	7.2	E	7.6	E	6.8	F	12.7	D	12.2	D

ROUTE NAME	START INTERSECTION	END INTERSECTION	DIR	LENGTH (MI)	HCM 2000 CLASS	2009				2011				2013				2015				2017 (TMC)				2017 (XD)				2019				2021			
						AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS
Gough	Pine	Geary	S	0.26	4	20.6	B	24.3	B	16.4	C	23.0	B	19.1	B	18.4	C	13.5	C	12.6	D	13.2	C	11.6	D	13.27	C	12.0	D	15.0	C	12.5	D	16.0	C	11.1	D
	Geary	Golden Gate	S	0.33	4	23.2	B	18.3	C	19.1	B	20.2	B	16.8	C	14.7	C	12.7	D	9.5	D	9.6	D	6.5	E	10.82	D	6.9	F	10.4	D	8.0	E	16.0	C	11.1	D
	Golden Gate	Market	S	0.53	4	15.7	C	8.7	E	15.9	C	12.3	D	16.0	C	12.6	D	10.5	D	7.9	E	11.0	D	8.1	E	9.46	D	8.3	E	10.0	D	8.8	E	15.3	C	11.1	D
Guerrero / San Jose	Monterey	Randall	N	0.89	1	27.5	C	30.4	C	26.2	D	30.9	C																								
	Randall	29th	N	0.29	2	21.3	D	14.2	E	20.0	D	14.6	E																								
	29th	Cesar Chavez	N	0.29	4	24.5	B	20.0	B	10.2	D	12.7	D	17.1	C	18.9	C	15.1	C	14.1	C	12.5	D	14.4	C	16.29	C	17.4	C	12.3	D	12.8	D	18.4	C	14.0	C
	Cesar Chavez	29th	S	0.29	4	21.2	B	14.3	C	12.2	D	20.8	B	20.7	B	18.7	C	15.6	C	12.7	D	14.6	C	9.7	D	15.57	C	8.9	E	12.2	D	6.3	F	16.6	C	15.1	C
	29th	Randall	S	0.29	2	16.6	E	12.1	F	17.8	D	15.0	E																								
	Randall	Monterey	S	0.89	1	41.6	B	41.9	B	38.7	B	38.2	B																								
Harrison	Embarcadero	2nd	W	0.51	3	14.5	D	13.4	E	13.8	E	13.7	E																								
	2nd	4th	W	0.34	3	12.8	E	16.3	D	17.9	D	20.8	C																								
	4th	8th	W	0.69	3	15.8	D	11.6	E	19.5	C	14.9	D	17.9	C	16.0	C					16.9	D	13.7	E	17.05	D	14.1	D	14.3	D	12.7	E	14.2	D	13.9	E
	8th	10th	W	0.21	3	12.8	E	13.5	E	12.1	E	13.2	E																								
	10th	Division/13th	W	0.19	4	13.9	C	13.0	D	18.5	C	10.2	D																								
Hayes	Market	Gough	W	0.39	4	12.4	D	9.6	D	12.5	D	8.8	E	15.3	C	11.5	D	12.9	D	11.2	D	9.1	D	7.5	E	8.51	E	7.2	E	9.3	D	7.9	E	12.3	D	11.9	D
Howard	Embarcadero	South Van Ness	W	2.11	3	14.2	D	12.6	E	15.0	D	12.2	E																								
J. Serra	County Line	Brotherhood	N	0.31	1	40.0	B	35.6	B	44.1	A	47.1	A	27.0	C	26.0	C	27.0	C	20.8	E	18.7	E	17.4	E	15.00	F	14.1	F	15.4	F	15.7	F	51.5	A	49.4	A
	Brotherhood	19th	N	0.31	1	22.1	D	15.2	F	10.8	F	10.5	F	12.8	F	13.8	E	13.1	E	12.9	E	10.2	E	10.7	E	11.13	F	11.8	F	8.2	F	9.2	F	25.4	D	25.1	D
	19th	Sloat	N	1.21	2	24.9	C	22.8	C	19.8	D	22.0	D	21.6	D	24.6	C	20.6	D	20.5	D	22.9	C	24.7	C	22.99	C	24.8	C	20.7	D	21.6	D	28.6	B	27.9	C
	Sloat	19th	S	1.21	2	17.8	D	16.7	E	21.4	D	16.8	E	25.3	C	26.3	C	21.6	D	18.5	D	23.4	C	20.4	D	23.20	C	20.2	D	20.0	D	17.5	D	26.8	C	23.0	C
	19th	Brotherhood	S	0.31	1	39.6	B	39.2	B	42.3	A	40.3	B	42.7	A	38.0	A	39.3	B	34.0	B	42.8	A	37.3	B	45.27	A	42.5	A	42.3	A	39.7	B	45.6	A	42.7	A
	Brotherhood	County Line	S	0.31	1	43.5	A	39.6	B	44.1	A	45.3	A	49.0	A	50.6	A	48.7	A	48.9	A	54.6	A	53.6	A	51.50	A	49.9	A	48.4	A	47.5	A	55.2	A	52.0	A
Kearny	Market	Columbus	N	0.65	4	13.8	C	13.0	C	14.7	C	14.8	C	11.7	D	11.9	D	8.6	E	8.9	E	7.5	E	8.3	E	7.71	E	8.3	E	8.0	E	9.0	D	11.8	D	12.7	D
King	5th	2nd	E	0.52	4	19.2	B	17.8	C	22.2	B	19.8	B																								
	2nd	5th	W	0.52	4	24.2	B	18.5	C	21.3	B	8.3	E																								
Lincoln / Kezar	19th Avenue	5th Ave.	E	0.83	3	22.4	C	23.1	C	26.9	B	20.6	C	20.2	B	21.5	B	15.4	D	18.9	C	17.7	D	18.0	C	17.71	D	16.7	D	14.7	D	16.6	D	22.3	C	19.7	C
	5th Ave.	Martin Luther King Jr Dr	E	0.22	3	22.8	C	21.0	C	29.3	B	18.9	C																								
	Martin Luther King Jr Dr	Stanyan	E	0.48	4	19.4	B	22.0	B	18.6	C	25.2	A																								
	Stanyan	Martin Luther King Jr Dr	W	0.48	4	28.4	A	29.2	A	32.7	A	25.1	A																								
	5th Ave.	19th Avenue	W	0.83	3	25.9	B	12.9	E	29.2	B	18.9	*	23.6	B	18.0	C	21.6	C	16.4	D	18.2	C	14.5	D	18.67	C	15.2	D	19.0	C	14.4	D	22.9	C	17.5	D
Main	Mission	Market	N	0.12	4	10.7	D	19.3	B	21.7	B	14.3	*	12.0	D	3.2	F	5.3	E	5.0	F	8.9	E	11.0	D	9.13	D	6.7	F	9.3	D	8.4	E	12.6	D	13.1	C

ROUTE NAME	START INTERSECTION	END INTERSECTION	DIR	LENGTH (MI)	HCM 2000 CLASS	2009				2011				2013				2015				2017 (TMC)				2017 (XD)				2019				2021			
						AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS
Market / Portola	Sloat	Vicente	E	0.43	3	20.3	C	20.2	C	25.1	B	21.1	C																								
	Vicente	Burnett	E	1.34	3	19.5	C	24.0	C	18.5	C	20.0	C																								
	Burnett	Eureka	E	1.43	3	29.8	B	23.4	C	28.7	B	24.5	B																								
	Eureka	Castro	E	0.19	4	14.5	C	14.9	C	7.0	E	18.1	C																								
	Castro	Laguna	E	0.79	3	15.7	D	9.9	F	9.2	F	10.3	E																								
	Laguna	Franklin	E	0.32	3	17.7	D	11.0	E	13.6	E	16.3	D																								
	Franklin	Van Ness	E	0.11	4	12.5	D	17.2	C	11.3	D	11.7	D																								
	Van Ness	Drumm	E	1.77	4	12.5	D	9.5	D	11.6	D	10.6	D	12.3	D	11.9	D	10.1	D	8.9	E	7.5	E	6.4	E	7.22	E	6.4	F	7.5	E	6.1	F	11.0	D	12.3	D
	Drumm	Van Ness	W	1.77	4	14.9	C	13.5	C	15.7	C	12.1	D	13.1	C	11.7	D	11.8	D	9.4	D	7.1	E	5.6	E	7.92	E	7.4	E	8.2	E	7.3	E	8.8	E	10.2	D
	Van Ness	Franklin	W	0.11	4	23.9	B	10.1	D	22.8	B	12.8	D																								
	Franklin	Laguna	W	0.32	3	12.4	E	13.1	E	12.1	E	10.9	E																								
	Laguna	Castro	W	0.79	3	15.1	D	15.1	D	12.5	E	12.7	E																								
	Castro	Eureka	W	0.19	4	21.8	B	25.6	A	28.0	A	22.8	B																								
	Eureka	Burnett	W	1.43	3	25.9	B	26.9	B	21.8	C	31.4	A																								
	Burnett	Vicente	W	1.34	3	21.2	C	20.4	C	23.5	C	21.4	C																								
	Vicente	Sloat	W	0.43	3	10.4	E	8.3	F	12.5	E	14.0	D																								
Masonic	Page	Geary	N	0.79	3	19.9	C	18.8	C	12.8	E	17.2	D	20.2	B	17.8	C	12.3	E	12.7	E	14.6	D	12.4	E	15.03	D	12.6	E	11.6	E	11.1	E	15.3	D	13.8	E
	Geary	Bush/Euclid	N	0.19	3	27.0	B	27.0	B	15.4	D	22.4	C	23.1	B	24.1	B	15.7	D	15.8	D	17.6	D	16.8	D	16.81	D	17.0	D	15.0	D	16.7	D	17.9	D	17.9	D
	Presidio	Geary	S	0.29	3	19.7	C	14.5	D	10.0	E	9.2	F	17.5	C	15.9	C	14.9	D	9.5	E	16.5	D	11.1	E	16.76	D	11.4	E	16.1	D	7.8	F	17.6	D	13.0	E
	Geary	Page	S	0.79	3	17.2	D	16.9	D	11.1	E	13.5	E	19.2	B	19.2	B	14.3	D	13.4	E	13.5	E	12.6	E	14.15	D	12.7	E	12.3	E	12.8	E	15.3	D	11.8	E
Mission / Otis	Sickles	Ocean	N	1.45	4	22.2	B	22.4	B	21.8	B	20.3	B	16.8	C	17.3	C	13.5	C	14.2	C	13.4	C	14.1	C	13.25	C	14.2	C	11.4	D	12.4	D	17.7	C	16.7	C
	Ocean	Cesar Chavez	N	1.95	4	19.3	B	17.8	C	17.2	C	16.3	C	14.2	C	14.1	C	13.1	C	13.9	C	11.9	D	13.3	C	12.93	D	14.0	C	12.4	D	12.8	D	18.2	C	16.3	C
	Cesar Chavez	14th	N	1.39	4	18.5	C	13.9	C	15.7	C	14.2	C	13.7	C	11.8	D					11.4	D	9.6	D	11.59	D	9.7	D	9.5	D	9.4	D	13.2	C	12.3	D
	14th	9th	N	0.65	4	15.1	C	13.3	C	16.3	C	12.2	D	14.3	C	14.7	C					10.3	D	9.2	D	10.76	D	9.8	D	9.6	D	9.4	D	14.0	C	13.7	C
	9th	3rd	N	0.98	4	17.1	C	13.7	C	16.2	C	12.4	D	16.2	C	15.1	C					14.0	C	10.1	D	14.37	C	10.5	D	13.2	C	10.0	D	14.8	C	13.6	C
	3rd	Embarcadero	N	0.74	4	17.3	C	13.0	D	12.2	D	10.9	D	14.7	C	14.3	C	10.1	D	8.3	E	7.5	E	6.7	E	8.57	E	7.3	E	7.0	F	5.9	F	12.8	D	12.1	D
	Embarcadero	3rd	S	0.74	4	13.8	C	13.9	C	10.1	D	11.0	D	14.7	C	12.8	D					8.7	E	7.3	E	9.25	D	7.7	E	8.4	E	7.5	E	13.4	C	12.9	D
	3rd	9th	S	0.98	4	15.4	C	15.1	C	15.4	C	14.4	C	16.7	C	14.5	C					13.0	C	11.4	D	13.24	C	11.7	D	12.9	D	10.7	D	14.6	C	13.0	C
	9th	14th	S	0.68	4	15.8	C	13.4	C	19.4	B	13.5	C	14.4	C	12.4	D					10.5	D	10.5	D	9.84	D	9.2	D	9.1	D	9.2	D	14.7	C	13.0	C
	14th	Cesar Chavez	S	1.39	4	17.9	C	15.2	C	15.0	C	13.8	C	14.1	C	12.8	D	13.2	C	11.5	D	14.0	C	10.5	D	14.22	C	10.8	D	12.7	D	9.6	D	15.0	C	13.6	C
	Cesar Chavez	Ocean	S	1.95	4	20.1	B	13.8	C	18.8	C	15.5	C	16.2	C	13.3	C	14.6	C	11.8	D	12.9	D	11.1	D	13.21	C	11.2	D	12.1	D	10.0	D	16.7	C	15.2	C
	Ocean	Sickles	S	1.45	4	22.3	B	20.3	B	22.0	B	19.4	B	17.2	C	15.9	C	15.6	C	13.8	C	16.0	C	14.4	C	16.80	C	13.1	C	15.9	C	12.5	D	18.1	C	17.2	C
Montgomery	Broadway	Bush	S	0.51	4	14.1	C	9.2	D	11.1	D	7.2	E	14.1	C	12.8	D	10.3	D	5.5	E	8.9	E	5.0	E	9.61	D	6.1	F	8.5	E	5.6	F	11.0	D	8.9	E
North Point	Van Ness	Columbus	E	0.38	4	17.5	C	15.5	C	18.9	C	14.4	C	14.4	C	9.3	D	13.3	C	8.9	E	13.2	C	9.7	D	13.43	C	9.2	D	17.2	C	12.7	D	17.9	C	15.4	C
	Columbus	Embarcadero	E	0.61	4	18.7	C	15.9	C	22.2	B	16.3	C	21.4	B	17.7	C	12.2	D	8.4	E	13.0	C	9.3	D	14.21	C	11.4	D	13.8	C	15.0	C	16.3	C	16.6	C
	Embarcadero	Columbus	W	0.61	4	15.7	C	15.8	C	18.6	C	20.2	B	15.2	C	18.0	C	13.9	C	12.4	D	12.5	D	15.8	C	12.88	D	14.6	C	12.6	D	17.4	C	15.8	C	18.4	C
	Columbus	Van Ness	W	0.38	4	16.2	C	16.4	C	16.1	C	13.2	C	16.0	C	10.4	D	12.7	D	13.2	C	11.8	D	12.2	D	8.95	E	9.5	D	8.5	E	9.1	D	13.6	C	14.8	C
Oak	Stanyan	Lyon	E	0.64	3	24.4	B	26.0	B	27.0	B	27.0	B																								
	Lyon	Divisadero	E	0.27	3	21.9	C	15.4	D	21.5	C	16.4	D																								
	Divisadero	Fillmore	E	0.37	3	19.7	C	25.3	B	20.4	C	26.4	B	14.9	C	23.8	B	12.6	E	18.7	C	11.5	E	19.2	C	8.05	F	8.6	F	10.4	E	12.1	E	16.2	D	12.5	E
	Fillmore	Laguna	E	0.27	3	17.0	D	22.3	C	8.8	F	24.5	B	11.8	D	16.6	C	12.9	E	12.4	E	7.1	E	6.2	E	8.05	F	8.6	F	10.4	E	12.1	E	16.2	D	12.5	E
	Laguna	Franklin	E	0.27	3	15.1	D	11.8	E	17.0	D	16.4	D	13.4	C	17.9	C	9.1	E	11.0	E	9.9	E	8.8	E	10.29	E	10.1	E	10.0	E	9.8	F	16.2	D	12.5	E
Ocean	19th Avenue	Miramar	E	1.11	4	18.7	C	12.9	D	13.9	C	12.8	D	15.0	C	13.8	C	14.5	C	13.8	C	13.6	C	12.0	D	13.95	C	12.4	D	12.8	D	11.7	D	16.5	C	15.5	C
	Miramar	Howth	E	0.48	4	11.1	D	14.8	C	11.4	D	12.7	D	14.1	C	14.2	C	11.9	D	11.1	D	11.9	D	10.7	D	11.91	D	11.0	D	12.0	D	10.6	D	14.7	C	13.2	C
	Howth	Miramar	W	0.48	4	14.8	C	13.0	D	15.8	C	11.9	D	13.4	C	12.5	D	11.4	D	8.6	E	10.1	D	8.0	E	9.11	D	7.9	E	10.9	D	7.9	E	14.9	C	13.9	C
	Miramar	19th Avenue	W	1.11	4	11.1	D	12.3	D	14.6	C	14.5	C	14.3	C	14.2	C	13.3	C	13.1	C	11.2	D	11.8	D	11.23	D	12.0	D	12.0	D	12.1	D	16.2	C	15.9	C

ROUTE NAME	START INTERSECTION	END INTERSECTION	DIR	LENGTH (MI)	HCM 2000 CLASS	2009				2011				2013				2015				2017 (TMC)				2017 (XD)				2019				2021			
						AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS	AM SPEED	AM LOS	PM SPEED	PM LOS
Octavia	Octavia	Fell	N	0.28	4	11.0	D	16.1	C	10.1	D	13.6	C																								
	Fell	Octavia	S	0.28	4	10.4	D	11.6	D	7.5	E	9.9	D																								
O'Farrell	Gough	Mason	E	0.85	4	13.4	C	11.2	D	12.2	D	11.2	D	14.6	C	13.3	C	11.9	D	10.8	D	10.2	D	8.6	E	9.68	D	8.6	E	9.0	E	8.4	E	12.5	D	11.2	D
	Mason	Market	E	0.28	4	11.6	D	9.0	E	9.6	D	8.0	E	13.3	C	12.5	D	9.9	D	8.5	E	8.8	E	6.8	E	9.92	D	7.9	E	8.1	E	7.2	E	12.5	D	11.2	D
Pine	Market	Kearny	W	0.38	3	8.8	F	8.9	F	10.5	E	13.2	E	6.9	F	4.3	F	7.4	E	6.7	E	6.5	E	5.4	E	7.56	F	6.9	F	6.8	F	6.7	F	14.3	D	13.1	E
	Kearny	Leavenworth	W	0.63	3	18.2	C	16.8	D	24.1	B	16.2	D	15.2	C	12.1	D	17.6	D	13.8	E	14.2	D	9.1	E	13.61	E	12.6	E	14.7	D	12.7	E	14.3	D	13.1	E
	Leavenworth	Franklin	W	0.46	3	17.7	D	14.3	D	17.7	D	14.5	D	13.5	C	8.5	E	7.5	E	5.2	E	9.9	E	6.0	E	11.90	E	9.3	F	11.5	E	9.1	F	15.3	D	15.5	D
	Franklin	Presidio	W	1.27	3	21.3	C	22.4	C	21.8	C	22.0	C	17.3	C	14.5	C	17.1	D	16.7	D	16.1	D	13.7	E	20.04	C	18.8	C	19.3	C	18.4	C	17.7	D	17.9	D
Potrero	Cesar Chavez	21st	N	0.62	4	21.2	B	18.8	C	23.5	B	21.3	B	15.2	C	15.1	C	10.4	D	7.7	E	14.0	C	12.9	D	15.06	C	14.2	C	16.9	C	14.0	C	15.1	C	16.8	C
	21st	Division	N	0.80	4	22.5	B	15.6	C	24.3	B	23.2	B	19.0	C	15.3	C	19.5	B	6.3	E	11.7	D	13.5	C	14.84	C	13.5	C	14.4	C	12.3	D	18.9	C	17.3	C
	Division	21st	S	0.80	4	23.9	B	25.2	A	19.0	B	22.6	B	19.2	B	14.0	C	14.4	C	8.5	E	15.5	C	15.7	C	15.48	C	16.3	C	15.4	C	13.3	C	17.9	C	16.4	C
	21st	Cesar Chavez	S	0.62	4	22.0	B	19.4	B	23.3	B	18.0	C	17.2	C	8.5	E	14.5	C	3.9	F	17.3	C	17.3	C	16.44	C	13.9	C	18.1	C	11.0	D	21.4	B	15.6	C
Skyline	County Line	Sloat	N	1.94	1	46.7	A	46.8	A	44.5	A	42.2	A	38.1	A	42.6	A	34.8	B	35.8	B	35.4	B	35.8	B	29.97	C	29.1	C	38.9	B	33.7	C	45.6	A	41.0	B
	Sloat	County Line	S	1.94	1	42.1	A	38.1	B	40.6	B	38.3	B	41.0	A	38.5	A	32.4	C	30.9	C	34.6	B	34.6	B	32.88	C	33.3	C	35.2	B	33.8	C	40.6	B	38.4	B
Sloat	Skyline	Junipero Serra	E	1.37	2	22.6	C	20.7	D	19.0	D	17.7	D	24.3	C	25.4	C	23.0	C	22.6	C	20.3	D	19.9	D	21.51	D	21.7	D	21.7	D	20.1	D	27.1	C	24.5	C
	Junipero Serra	Skyline	W	1.37	2	26.7	C	26.9	C	32.0	B	29.6	B	27.7	C	29.5	B	24.0	C	24.7	C	24.9	C	24.6	C	25.44	C	24.1	C	25.7	C	22.3	C	27.7	C	25.8	C
Stanyan	Fulton	Turk	N	0.20	4	15.6	C	12.6	D	14.2	C	15.6	C	18.2	C	18.3	C	14.1	C	13.3	C	14.0	C	13.2	C	14.86	C	14.0	C	13.8	C	12.7	D	15.8	C	15.4	C
	Turk	Fulton	S	0.20	4	11.1	D	9.2	D	11.2	D	8.6	E	19.2	B	15.9	C	16.2	C	11.5	D	13.5	C	9.9	D	14.28	C	10.4	D	15.9	C	13.7	C	15.5	C	10.9	D
Sutter	Divisadero	Gough	E	0.82	4	16.2	C	15.5	C	14.5	C	13.4	C	15.9	C	15.2	C	10.9	D	12.0	D	11.0	D	11.0	D	11.56	D	10.9	D	11.1	D	9.4	D	13.0	C	12.9	D
	Market	Mason	W	0.56	4	17.5	C	11.3	D	17.8	C	12.7	D	13.4	C	11.9	D	12.6	D	10.4	D	8.9	E	8.0	E	9.09	D	8.1	E	9.2	D	8.1	E	11.7	D	12.5	D
	Mason	Gough	W	0.82	4	8.9	E	14.6	C	10.5	D	11.8	D	11.2	D	12.3	D	10.6	D	10.9	D	11.4	D	10.8	D	10.30	D	10.4	D	9.4	D	10.8	D	12.2	D	13.0	D
	Gough	Divisadero	W	0.82	4	15.0	C	14.9	C	13.6	C	13.6	C	13.4	C	13.0	C	11.5	D	11.8	D	11.2	D	11.2	D	11.99	D	11.8	D	12.0	D	12.2	D	13.3	C	14.1	C
Townsend	7th	2nd	E	0.86	4	19.6	B	11.9	D	17.3	C	15.9	C	17.2	C	17.2	C					11.2	D	9.0	D	11.60	D	9.6	D	11.2	D	8.6	E	17.4	C	16.5	C
	2nd	7th	W	0.86	4	18.4	C	12.8	D	13.9	C	11.4	D	17.5	C	16.5	C					10.4	D	9.1	D	11.24	D	10.1	D	10.1	D	9.0	D	18.2	C	17.9	C
Turk	Stanyan	Divisadero	E	0.91	4	18.0	C	17.2	C	17.7	C	17.2	C	17.7	C	19.5	B	15.7	C	17.9	C	12.8	D	13.9	C	13.58	C	14.8	C	12.2	D	13.6	C	18.2	C	18.6	C
	Market	Hyde	W	0.38	4	14.7	C	11.1	D	12.8	D	11.4	D	10.3	D	13.4	C	12.6	D	12.5	D	10.5	D	9.2	D	10.68	D	9.7	D	8.6	E	8.5	E	11.0	D	11.5	D
	Hyde	Van Ness	W	0.27	4	18.1	C	9.2	D	16.8	C	12.2	D																								
	Van Ness	Gough	W	0.18	3	8.8	F	9.5	F	9.4	F	10.3	E																								
	Gough	Divisadero	W	0.82	3	19.8	C	19.4	C	19.7	C	18.3	C	21.5	B	22.1	B	17.4	D	16.7	D	16.5	D	15.9	D	16.88	D	16.3	D	16.8	D	16.1	D	16.6	D	16.5	D
	Divisadero	Stanyan	W	0.91	4	21.3	B	25.6	A	16.3	C	17.4	C	18.4	C	19.4	B	18.4	C	17.4	C	16.3	C	15.8	C	19.01	B	17.4	C	17.7	C	17.9	C	20.2	B	18.8	C
Van Ness / S. Van Ness	Cesar Chavez	13th	N	1.49	4	20.1	B	14.7	C	18.4	C	13.9	C	18.8	C	18.5	C	16.0	C	14.7	C	15.1	C	14.6	C	15.62	C	14.8	C	15.6	C	15.1	C	17.2	C	16.6	C
	13th	Golden Gate	N	0.79	4	15.0	C	14.7	C	20.2	B	13.7	C	13.9	C	13.4	C	13.0	C	9.7	D	8.9	E	8.5	E	9.06	D	8.7	E	9.4	D	7.6	E	12.3	D	15.0	C
	Golden Gate	Washington	N	0.84	4	15.2	C	17.4	C	16.8	C	21.9	B	12.1	D	14.8	C	11.1	D	11.7	D	10.2	D	13.6	C	10.33	D	13.7	C	9.1	D	13.3	C	12.3	D	16.6	C
	Washington	Lombard	N	0.58	4	13.6	C	26.4	A	11.3	D	24.5	B	13.1	C	17.6	C	12.7	D	16.4	C	10.0	D	15.5	C	10.46	D	16.1	C	8.7	E	16.6	C	12.5	D	18.6	C
	Lombard	Washington	S	0.58	4	16.4	C	12.4	D	16.4	C	17.1	C	12.2	D	13.7	C	13.0	C	12.3	D	11.3	D	11.4	D	11.91	D	11.9	D	12.1	D	10.4	D	16.1	C	13.1	C
	Washington	Golden Gate	S	0.84	4	21.2	B	12.2	D	21.6	B	11.5	D	14.1	C	12.8	D	12.8	D	9.8	D	11.6	D	7.9	E	11.99	D	8.2	E	13.8	C	9.2	D	16.0	C	11.6	D
	Golden Gate	13th	S	0.79	4	15.7	C	12.3	D	14.0	C	16.5	C	15.3	C	14.2	C	11.7	D	7.8	E	10.7	D	6.9	E	11.01	D	7.3	E	7.7	E	7.5	E	15.6	C	11.7	D
	13th	Cesar Chavez	S	1.49	4	17.9	C	17.1	C	12.8	D	18.7	C	16.3	C	19.0	B	15.1	C	15.1	C	15.0	C	14.7	C	14.76	C	14.8	C	15.7	C	13.8	C	18.0	C	15.5	C
Washington	Drumm	Kearny	W	0.44	4	14.6	C	11.3	D	12.8	D	14.9	C	10.1	D	8.1	E	11.8	D	9.1	D	9.6	D	10.9	D	10.75	D	10.0	D	10.2	D	9.5	D	11.0	D	11.3	D
West Portal	Sloat	Ulloa	N	0.54	4	15.5	C	12.6	D	16.8	C	15.4	C	14.4	C	13.7	C	15.9	C	11.6	D	11.5	D	12.3	D	10.48	D	9.5	D	14.5	C	12.1	D	15.0	C	12.9	D
	Ulloa	Sloat	S	0.54	4	17.5	C	15.2	C	17.4	C	16.7	C	17.2	C	13.4	C	14.8	C	14.3	C	15.8	C	13.0	C	10.91	D	10.2	D	16.4	C	11.5	D	14.0	C	13.2	C

Attachment 5.4: CMP Segments Auto Travel Time Reliability (2017 – 2021)

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AM			PM		
						BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021	BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021
1st St	Market	Harrison	S	3	0.482	44%	35%	21%	42%	74%	34%
2nd St	Brannan	Market	N	3	0.722	38%	36%	19%	57%	33%	19%
	Market	Brannan	S	3	0.722	54%	31%	28%	33%	38%	19%
3rd St	Jamestown	Evans	N	3	1.624	26%	26%	19%	29%	31%	18%
	Evans	Terry Francois	N	3	2.360	30%	26%	17%	56%	32%	12%
	Terry Francois	Market	N	3	1.049	42%	41%	22%	44%	34%	16%
	Terry Francois	Evans	S	3	2.361	23%	24%	17%	29%	17%	15%
	Evans	Jamestown	S	3	1.624	32%	28%	18%	30%	24%	15%
4th St/ Stockton	O'Farrell	Harrison	S	3	0.564	39%	45%	14%	41%	35%	15%
	Harrison	Channel	S	3	0.597	39%	44%	13%	40%	45%	14%
5th St	Brannan	Market	N	3	0.722		32%	19%		39%	20%
	Market	Brannan	S	3	0.722		35%	18%		30%	27%
6th St	Brannan	Market	N	3	0.723	57%	44%	34%	59%	33%	38%
	Market	Brannan	S	3	0.723	27%	38%	12%	31%	49%	15%
7th St	Brannan	Market	N	3	0.723	51%	52%	22%	46%	44%	13%
8th St	Market	Bryant	S	3	0.603	36%	39%	16%	70%	60%	18%
9th St	Brannan	Market	N	3	0.723	50%	43%	27%	67%	50%	9%
10th St	Market	Brannan	S	3	0.727	33%	32%	23%	47%	38%	25%
16th St	Market	Mission	E	3	0.736	48%	48%	26%	44%	34%	14%
	Mission	Potrero	E	3	0.666	51%	32%	18%	36%	32%	16%
	Potrero	Mission	W	3	0.666	28%	34%	21%	45%	42%	16%
	Mission	Market	W	3	0.736	28%	33%	18%	44%	28%	10%
19th Ave/ Park Presidio	Junipero Serra	Sloat	N	3	1.249	26%	36%	16%	34%	30%	15%
	Sloat	Lincoln	N	3	2.129	51%	55%	34%	29%	29%	23%
	Lincoln	Lake	N	3	1.846	28%	28%	16%	153%	32%	13%
	Lake	US-101	N	1	1.185	12%	11%	11%	21%	51%	9%
	US-101	Lake	S	1	1.259	84%	87%	11%	116%	78%	11%
	Lake	Lincoln	S	3	1.846	31%	32%	14%	69%	28%	57%
	Lincoln	Sloat	S	3	2.129	30%	27%	18%	19%	21%	23%
	Sloat	Junipero Serra	S	3	1.249	47%	25%	13%	32%	30%	28%
Alemany	Junipero Serra	Lyell	E	3	2.949	43%	23%	14%	63%	17%	11%
	Lyell	Bay Shore	E	3	1.592	39%	51%	15%	19%	23%	14%
	Bay Shore	Lyell	W	3	1.566	35%	14%	12%	28%	13%	12%
	Lyell	Junipero Serra	W	3	3.027	39%	22%	14%	32%	20%	7%
Bay	Van Ness	Embarcadero	E	3	1.075	54%	51%	12%	26%	25%	12%
	Embarcadero	Van Ness	W	3	1.075	26%	31%	12%	41%	33%	14%
Bayshore	County Line	Industrial	N	3	2.265	39%	55%	16%	36%	37%	11%
	Industrial	Cesar Chavez	N	3	0.830	52%	59%	23%	46%	47%	13%
	Jerrold	Industrial	S	3	0.803	48%	36%	16%	36%	40%	15%
	Industrial	County Line	S	3	2.261	23%	32%	13%	35%	33%	12%
Beale/Davis	Clay	Mission	S	3	0.325			19%			12%

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AM			PM		
						BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021	BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021
Brannan	Division	6th	E	3	0.544	39%	26%	13%	41%	41%	21%
	6th	3rd	E	3	0.511	62%	37%	15%	45%	41%	17%
	3rd	6th	W	3	0.516	48%	32%	19%	47%	54%	17%
	6th	Division	W	3	0.544	41%	32%	25%	48%	33%	28%
Broadway	Gough	Larkin	E	3	0.364	55%	49%	14%	37%	36%	23%
	Larkin	Powell	E	1	0.548	113%	81%	21%	67%	31%	14%
	Powell	Montgomery	E	3	0.355	43%	52%	26%	38%	37%	18%
	Montgomery	Embarcadero	E	3	0.348	42%	34%	28%	42%	34%	18%
	Embarcadero	Montgomery	W	3	0.348	74%	45%	23%	34%	54%	19%
	Montgomery	Powell	W	3	0.355	64%	53%	19%	41%	53%	14%
	Powell	Larkin	W	1	0.548	33%	34%	29%	30%	25%	12%
	Larkin	Gough	W	3	0.364	45%	36%	14%	35%	20%	11%
Brotherhood	Junipero Serra	Alemany	E	3	0.429	37%	40%	24%	49%	45%	22%
	Alemany	Junipero Serra	W	3	0.471	51%	49%	21%	50%	33%	18%
Bryant	Division	4th	E	3	0.993	26%	37%	16%	52%	48%	22%
	4th	Embarcadero	E	3	0.773	59%	45%	14%	102%	45%	22%
Bush	Masonic	Gough	E	3	1.243	37%	26%	12%	26%	20%	11%
	Gough	Market	E	3	1.455	33%	33%	14%	30%	21%	14%
Castro/ Divisadero	Market	14th	N	3	0.322	53%	48%	27%	24%	43%	16%
	14th	Geary	N	3	1.134	33%	29%	23%	28%	28%	11%
	Geary	Pine	N	3	0.265	33%	28%	26%	23%	19%	12%
	Pine	Geary	S	3	0.265	35%	27%	17%	37%	28%	21%
	Geary	14th	S	3	1.134	32%	30%	18%	52%	24%	14%
	14th	Market	S	3	0.322	34%	28%	25%	44%	25%	24%
Cesar Chavez	Guerrero	Bryant	E	3	0.755	68%	49%	38%	36%	41%	28%
	Bryant	Kansas	E	3	0.375	34%	33%	18%	35%	37%	15%
	Kansas	3rd	E	3	0.795	40%	51%	23%	46%	36%	18%
	3rd	Kansas	W	3	0.797	56%	48%	21%	41%	34%	13%
	Kansas	Bryant	W	3	0.378	41%	41%	20%	42%	29%	14%
	Bryant	Guerrero	W	3	0.755	36%	38%	30%	35%	33%	19%
Clay	Kearny	Davis	E	3	0.379		27%	20%		41%	16%
Columbus	Montgomery	Greenwich	N	3	0.671	23%	27%	26%	35%	31%	17%
	Greenwich	North Point	N	3	0.424	25%	25%	25%	22%	25%	15%
	North Point	Greenwich	S	3	0.424	41%	28%	14%	27%	26%	16%
	Greenwich	Montgomery	S	3	0.671	45%	33%	19%	36%	29%	20%
Doyle/ Lombard/ Richardson	County Line	SF Cemetery	E	1	1.158	56%	20%	7%	12%	10%	6%
	SF Cemetery	Lyon/Francisco	E	1	0.926	63%	49%	19%	73%	84%	49%
	Lyon/Francisco	Van Ness	E	3	1.290	36%	28%	13%	35%	33%	21%
	Van Ness	Lyon/Francisco	W	3	1.290	34%	39%	43%	42%	38%	22%
	Lyon/Francisco	SF Cemetery	W	1	0.958	20%	20%	14%	43%	165%	10%
	SF Cemetery	County Line	W	1	1.147	9%	8%	8%	140%	204%	3%
Drumm	Market	Washington	N	3	0.216			14%			19%
	Washington	Market	S	3	0.217			28%			17%

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AM			PM		
						BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021	BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021
Duboce/ Division	Market	Mission	E	3	0.348	68%	50%	41%	44%	41%	26%
	Mission	Potrero	E	3	0.662		41%	31%		73%	29%
	Potrero	Mission	W	3	0.662	58%	58%	32%	76%	69%	23%
	Mission	Market	W	3	0.349	57%	45%	34%	51%	43%	21%
Embarcadero	Townsend	North Point	N	3	2.165	46%	35%	27%	33%	21%	10%
	North Point	Townsend	S	3	2.165	27%	25%	15%	45%	32%	16%
Evans	Cesar Chavez	3rd	S	3	0.725		57%	17%		60%	13%
	3rd	Cesar Chavez	N	3	0.725		48%	24%		34%	24%
Fell	Gough	Market	E	3	0.293	65%	35%	44%	49%	53%	30%
	Gough	Laguna	W	3	0.182	48%	36%	24%	49%	28%	13%
	Laguna	Stanyan	W	3	1.563	29%	20%	21%	26%	24%	21%
Folsom	13th	8th	E	3	0.487	38%	29%	16%	51%	35%	15%
	8th	4th	E	3	0.687	44%	36%	14%	43%	44%	15%
	4th	1st	E	3	0.516	40%	39%	17%	93%	53%	19%
	1st	Embarcadero	E	3	0.345	37%	33%	17%	40%	29%	19%
Franklin	Market	Pine	N	3	1.061	45%	43%	37%	34%	26%	27%
	Pine	Lombard	N	3	0.831	32%	28%	16%	21%	17%	15%
Fremont	Harrison	Market	N	3	0.481	53%	52%	35%	43%	39%	24%
Fulton	Park Presidio	10th Ave	E	3	0.205	40%	30%	20%	56%	30%	18%
	10th Ave	Arguello	E	3	0.533	53%	34%	20%	61%	25%	18%
	Arguello	Masonic	E	3	0.659	47%	37%	13%	136%	29%	14%
	Masonic	Arguello	W	3	0.659	23%	32%	21%	68%	26%	16%
	Arguello	10th Ave	W	3	0.533	33%	24%	19%	70%	36%	18%
	10th Ave	Park Presidio	W	3	0.205	38%	37%	19%	59%	34%	18%
Geary	Great Hwy	25th Ave	E	3	1.778	18%	19%	11%	24%	18%	11%
	25th Ave	Arguello	E	3	1.418	35%	38%	23%	30%	33%	12%
	Arguello	Gough	E	3	1.914	26%	26%	17%	26%	24%	13%
	Kearny	Gough	W	3	1.176	25%	29%	10%	30%	31%	17%
	Gough	Arguello	W	3	1.915	25%	31%	15%	30%	21%	11%
	Arguello	25th Ave	W	3	1.423	21%	29%	18%	30%	21%	12%
	25th Ave	Great Hwy	W	3	1.788	20%	20%	16%	23%	25%	11%
Geneva	Ocean	Cayuga	E	3	0.559	51%	34%	16%	47%	31%	16%
	Cayuga	Paris	E	3	0.329	32%	40%	16%	27%	35%	16%
	Paris	Santos	E	3	1.188	33%	32%	14%	24%	27%	10%
	Santos	Paris	W	3	1.188	26%	38%	17%	35%	40%	11%
	Paris	Cayuga	W	3	0.329	58%	39%	18%	33%	40%	11%
	Cayuga	Ocean	W	3	0.528	49%	36%	24%	28%	32%	10%
Golden Gate	Masonic	Franklin	E	3	1.373		20%	11%		17%	11%
	Franklin	Market	E	3	0.654		34%	13%		30%	15%
Gough	Pine	Geary	S	3	0.256	60%	38%	34%	89%	57%	39%
	Geary	Golden Gate	S	3	0.330	80%	63%	34%	39%	56%	39%
	Golden Gate	Market	S	3	0.541	27%	36%	29%	35%	37%	37%

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AM			PM		
						BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021	BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021
Guerrero/ San Jose	Monterey	29th	N	1	1.170	35%	35%	29%	42%	44%	11%
	29th	Cesar Chavez	N	3	0.286	63%	64%	26%	59%	32%	16%
	Cesar Chavez	29th	S	3	0.284	42%	41%	26%	79%	67%	34%
	29th	Monterey	S	1	1.166	28%	33%	17%	43%	35%	35%
Harrison	Embarcadero	1st	W	3	0.343	40%	41%	15%	61%	69%	20%
	1st	4th	W	3	0.516	64%	42%	15%	71%	44%	20%
	4th	8th	W	3	0.687	34%	29%	14%	25%	30%	14%
	8th	Division	W	3	0.399	42%	41%	13%	47%	29%	17%
Hayes	Market	Gough	W	3	0.392	25%	39%	23%	27%	26%	19%
Howard	Embarcadero	S Van Ness	W	3	2.109	25%	24%	13%	23%	26%	13%
Junipero Serra	County Line	Brotherhood	N	1	0.289	85%	98%	19%	28%	46%	19%
	Brotherhood	19th	N	1	0.339	52%	47%	54%	42%	28%	40%
	19th	Sloat	N	1	1.211	36%	31%	17%	28%	18%	14%
	Sloat	19th	S	1	1.211	29%	19%	18%	33%	30%	14%
	19th	Brotherhood	S	1	0.334	11%	8%	13%	13%	15%	12%
	Brotherhood	County Line	S	1	0.296	11%	8%	11%	15%	12%	13%
Kearny	Market	Columbus	N	3	0.647	47%	40%	31%	30%	24%	27%
King	4th	2nd	E	3	0.345	65%	35%	29%	48%	38%	22%
	2nd	4th	W	3	0.345	85%	41%	14%	66%	51%	20%
Lincoln/ Kezar	19th Ave	5th Ave	E	3	0.831	56%	50%	21%	40%	32%	13%
	5th Ave	Stanyan	E	3	0.699	40%	40%	55%	26%	25%	15%
	Stanyan	5th Ave	W	3	0.700	19%	23%	15%	29%	22%	12%
	5th Ave	19th Ave	W	3	0.830	42%	31%	20%	45%	32%	17%
Main	Mission	Market	N	3	0.122	83%		14%	34%		19%
Market/ Portola	Sloat	Santa Clara	E	3	0.431	71%	98%	22%	47%	43%	13%
	Santa Clara	Burnett	E	3	1.339	44%	33%	15%	29%	30%	11%
	Burnett	Castro	E	3	1.624	34%	34%	15%	26%	23%	10%
	Castro	Guerrero	E	3	0.794	45%	34%	27%	33%	36%	14%
	Guerrero	Van Ness	E	3	0.432	49%	43%	36%	47%	44%	14%
	Van Ness	Drumm	E	3	1.772	19%	25%		18%	20%	
	Drumm	Van Ness	W	3	1.772	14%	18%		25%	15%	
	Van Ness	Guerrero	W	3	0.432	37%	42%	20%	38%	37%	16%
	Guerrero	Castro	W	3	0.794	49%	48%	13%	35%	30%	13%
	Castro	Burnett	W	3	1.625	31%	29%	11%	32%	65%	8%
	Burnett	Santa Clara	W	3	1.339	34%	31%	15%	47%	35%	11%
	Santa Clara	Sloat	W	3	0.431	43%	49%	15%	56%	43%	20%
Masonic	Page	Geary	N	3	0.788	31%	34%	27%	26%	26%	13%
	Geary	Bush/Euclid	N	3	0.201	82%	46%	29%	41%	44%	20%
	Presidio	Geary	S	3	0.292	54%	61%	27%	55%	52%	40%
	Geary	Page	S	3	0.788	32%	25%	17%	75%	32%	18%

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AM			PM		
						BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021	BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021
Mission/Otis	Sickles	Ocean	N	3	1.448	28%	16%	17%	28%	16%	12%
	Ocean	Cesar Chavez	N	3	1.948	37%	30%	15%	24%	20%	13%
	Cesar Chavez	14th	N	3	1.392	29%	18%	18%	24%	18%	11%
	14th	9th	N	3	0.649	44%	36%	15%	39%	38%	12%
	9th	3rd	N	3	0.979	37%	27%	17%	36%	33%	13%
	3rd	Embarcadero	N	3	0.736	50%	32%	16%	37%	29%	21%
	Embarcadero	3rd	S	3	0.736	27%	28%	22%	32%	24%	18%
	3rd	9th	S	3	0.979	31%	34%	18%	34%	28%	12%
	9th	14th	S	3	0.683	29%	55%	17%	36%	47%	12%
	14th	Cesar Chavez	S	3	1.392	23%	22%	12%	32%	20%	14%
	Cesar Chavez	Ocean	S	3	1.948	31%	18%	13%	28%	23%	11%
	Ocean	Sickles	S	3	1.448		21%	13%		20%	14%
Montgomery	Broadway	Bush	S	3	0.507	35%		14%	52%		16%
North Point	Van Ness	Columbus	E	3	0.383		37%	28%		38%	19%
	Columbus	Embarcadero	E	3	0.614		39%	36%		43%	26%
	Embarcadero	Columbus	W	3	0.614		38%	18%		35%	15%
	Columbus	Van Ness	W	3	0.383		42%	24%		39%	23%
Oak	Stanyan	Divisadero	E	3	0.917	42%	37%	25%	32%	25%	13%
	Divisadero	Fillmore	E	3	0.366	61%	59%	48%	44%	46%	25%
	Fillmore	Laguna	E	3	0.274	61%	59%	48%	44%	46%	25%
	Laguna	Franklin	E	3	0.273	65%	53%	48%	49%	36%	25%
Ocean	19th Ave	Miramar	E	3	1.110	30%	21%	17%	22%	20%	12%
	Miramar	Howth	E	3	0.484	40%	40%	21%	33%	38%	16%
	Howth	Miramar	W	3	0.484	41%	55%	16%	44%	43%	13%
	Miramar	19th Ave	W	3	1.110	36%	33%	16%	25%	20%	11%
Octavia	Market	Fell	N	3	0.272	51%	40%	22%	40%	30%	24%
	Fell	Market	S	3	0.278	36%	32%	34%	45%	36%	18%
O'Farrell	Gough	Mason	E	3	0.847	32%	32%	14%	29%	25%	12%
	Mason	Market	E	3	0.283	31%	31%	14%	39%	33%	12%
Pine	Market	Kearny	W	3	0.383	35%	36%	30%	29%	24%	19%
	Kearny	Leavenworth	W	3	0.628	36%	55%	30%	40%	39%	19%
	Leavenworth	Franklin	W	3	0.456		44%	27%		33%	20%
	Franklin	Presidio	W	3	1.266		19%	19%		19%	11%
Potrero	Cesar Chavez	21st	N	3	0.606	37%	35%	28%	47%	31%	25%
	21st	Division	N	3	0.795	33%	28%	18%	34%	29%	15%
	Division	21st	S	3	0.795	26%	23%	19%	32%	41%	17%
	21st	Cesar Chavez	S	3	0.601	35%	25%	17%	56%	73%	56%
Skyline	County Line	Sloat	N	3	1.944	52%	64%	12%	43%	41%	11%
	Sloat	County Line	S	3	1.944	57%	18%	11%	26%	44%	7%
Sloat	Skyline	Junipero Serra	E	1	1.378	36%	41%	14%	27%	25%	10%
	Junipero Serra	Skyline	W	1	1.379	55%	23%	15%	54%	21%	12%
Stanyan	Fulton	Turk	N	3	0.198	49%	29%	22%	56%	31%	19%
	Turk	Fulton	S	3	0.200	59%	77%	20%	74%	82%	37%

NAME	FROM	TO	TRAVEL DIR	CLASS	DIST. (MI)	AM			PM		
						BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021	BUFFER INDEX 2017	BUFFER INDEX 2019	BUFFER INDEX 2021
Sutter	Divisadero	Gough	E	3	0.822	31%	20%	9%	19%	15%	17%
	Market	Mason	W	3	0.564	33%	22%	17%	32%	21%	25%
	Mason	Gough	W	3	0.821	30%	21%	12%	30%	22%	15%
	Gough	Divisadero	W	3	0.822	21%	16%	11%	22%	16%	8%
Townsend	7th	2nd	E	3	0.859	43%	48%	16%	49%	37%	10%
	2nd	7th	W	3	0.860	28%	32%	22%	35%	39%	12%
Turk	Stanyan	Divisadero	E	3	0.912	38%	25%	14%	31%	24%	10%
	Market	Hyde	W	3	0.376	37%	38%	23%	39%	31%	15%
	Hyde	Gough	W	3	0.456	41%	44%	23%	31%	29%	15%
	Gough	Divisadero	W	3	0.822	32%	43%	13%	33%	26%	9%
	Divisadero	Stanyan	W	3	0.912	32%	35%	14%	54%	23%	13%
Van Ness/S VanNess	Cesar Chavez	13th	N	3	1.488	25%	19%	17%	26%	25%	15%
	13th	Golden Gate	N	3	0.808	40%	51%	32%	39%	42%	16%
	Golden Gate	Washington	N	3	0.840	36%	38%	23%	44%	40%	18%
	Washington	Lombard	N	3	0.576	45%	57%	25%	37%	43%	16%
	Lombard	Washington	S	3	0.576	51%	44%	34%	50%	38%	19%
	Washington	Golden Gate	S	3	0.840	67%	88%	23%	66%	45%	24%
	Golden Gate	13th	S	3	0.795	74%	48%	20%	49%	52%	28%
	13th	Cesar Chavez	S	3	1.488	16%	20%	16%	23%	25%	17%
Washington	Drumm	Kearny	W	3	0.444		26%	11%		27%	13%
West Portal	Sloat	Ulloa	N	3	0.535		26%	16%		26%	18%
	Ulloa	Sloat	S	3	0.535			16%			20%
FREEWAY SEGMENTS INBOUND											
I-280	Junipero Serra	Weldon	E	Fwy	4.026	36%	59%	13%	7%	13%	4%
	Weldon	6th/Brannan	N	Fwy	3.515	37%	54%	79%	39%	55%	41%
US-101	County Line	Cortland	N	Fwy	2.311	52%	51%	137%	34%	53%	5%
	Cortland	I-80	N	Fwy	1.902	29%	44%	102%	78%	92%	90%
	I-80	Market	N	Fwy	1.269	41%	52%	54%	59%	83%	73%
I-80	Treasure Island	Fremont Exit	W	Fwy	2.710	44%	44%	41%	32%	27%	135%
	Fremont Exit	US-101	W	Fwy	1.705	50%	49%	17%	27%	25%	40%
FREEWAY SEGMENTS OUTBOUND											
I-280	6th/Brannan	Weldon	S	Fwy	3.470	10%	9%	7%	66%	32%	12%
	Weldon	Junipero Serra	S	Fwy	4.072	8%	9%	5%	26%	25%	18%
US-101	Market	I-80	S	Fwy	1.166	96%	51%	24%	51%	50%	33%
	I-80	Cortland	S	Fwy	1.968	119%	90%	12%	48%	49%	16%
	Cortland	Monster Park Exit	S	Fwy	2.298	38%	60%	5%	19%	20%	4%
I-80	US-101	Fremont Exit	E	Fwy	1.739	80%	77%	125%	62%	39%	22%
	Fremont Exit	Treasure Island	E	Fwy	2.700	19%	20%	13%	47%	64%	48%

APPENDIX 6

Deficiency Plans

KEY TOPICS

- Legislative Requirements
- Legislative Intent and Application to San Francisco
- Deficiency Planning Process
- Special Issues

A6.1 Legislative Requirements

The Transportation Authority, as Congestion Management Agency (CMA), is required by state law to ascertain the City's conformance with the CMP, including Deficiency Plans prepared by City departments. If the LOS of roadways on the CMP is not maintained to the established standard and they are not exempt from LOS standards, state CMP legislation requires that the local jurisdiction develop a Deficiency Plan to improve operating conditions on the segment.[1]

Deficiency Plans must contain the following components:

- An analysis of the causes of the deficiency;
- A list of improvements that would have to be made to remedy the deficiency, including cost estimates;
- A list of proposed improvements; and
- An implementation plan including a schedule.[2]

The Deficiency Plan must "measurably improve multimodal performance" on the designated CMP roadway network, and "contribute to significant improvements in air quality." Proposed improvements must be drawn from an inventory of acceptable actions compiled by the air quality management district. The statutes also require that the city or county forward the Deficiency Plan to the CMA, which must hold a public hearing within 60 days of receipt of the Deficiency Plan, and either accept or reject it, but not modify it. Rejection of a Deficiency Plan by the CMA will result in a finding of non-conformance with the CMP.

Unfortunately, the statutes make no provisions for funding City departments' deficiency plans, and similarly, CMAs do not receive state funding for their activities. In the absence of dedicated funding, the deficiency planning process has been designed to use existing data and coordinate with the City's budgetary process.

A6.2 Legislative Intent and Application to San Francisco

This section provides background information on Deficiency Plans and their applicability to San Francisco.

1 California Government Code section 65089.4(a) states *"A local jurisdiction shall prepare a Deficiency Plan when highway or roadway level of service standards are not maintained on segments or intersections of the designated system. The Deficiency Plan shall be adopted by the city or county at a noticed public hearing."*

2 65089.4(c)

A6.2.1 ABOUT DEFICIENCY PLANS

In 1990, the California voters approved Proposition 111, increasing the gasoline tax by nine cents per gallon of gasoline sold in the state. The year prior to Proposition 111's approval, the State Legislature approved AB 471 (Katz), the original CMP legislation.[1] AB 471 required all local jurisdictions to maintain the adopted LOS standard on all CMP roadways or risk losing their Proposition 111 gas tax revenues. The Legislature then revised the original legislation to allow jurisdictions to continue to receive their share of Proposition 111 gas tax moneys when the level of service (LOS) on a CMP road segment or intersection falls below LOS "E" provided local jurisdictions prepared Deficiency Plans for those segments. Deficiency Planning requirements do not apply for CMP segments that are exempt from the LOS standard.

The intent of Deficiency Plans, therefore, is to allow development to continue as long as any resulting traffic congestion is "offset." Deficiency Plans are reactive solutions applied after the impacts to LOS are actually measured.

The Deficiency Plan legislation offers local jurisdictions two alternatives:

1. Eliminate the problem (correct the deficiency where it manifests itself). This is known as direct remediation; or
2. Implement other actions that improve the overall performance of the CMP network, even if the actions do not directly improve the original deficiency. These are known as offsetting actions.

A Deficiency Plan may include both remediation and offsetting actions. Direct mitigation involves removing the deficiency such that the LOS is improved above LOS F. Direct mitigations of LOS impacts may have prohibitive costs, regulatory obstacles, or overwhelming environmental consequences. Offsetting actions provide alternative compensations that may leave the facility no less deficient from an LOS perspective, but provide improvements in other part of the system. Offsetting actions, as opposed to direct remediation, include capital improvements, transportation programs, services, or other activities that improve the average countywide level of service.

One major legislative change to the deficiency plan process is SB 1636 (Figueroa), which was enacted in September 2002 and then amended by SB 743 (Steinberg) in 2013. This bill allows local jurisdictions to designate areas meeting certain land use and transportation requirements as Infill Opportunity Zones (IOZs). Network segments within these zones would be exempt from automobile LOS standards.

1 The 1989 CMP legislation was part of the AB 471 legislation known as the Katz-Kopp-Baker-Campbell Transportation Blueprint for the 21st Century. Voter approval of Proposition 111 on June 5, 1990 effectively enacted the CMP legislation into law.

In December 2009, the Board of Supervisors adopted a resolution designating all eligible areas of San Francisco as an IOZ. CMP network segments within a designated IOZ are exempt from deficiency planning requirements.

A6.2.2 DEFICIENCY PLANS AND ENVIRONMENTAL REVIEW

Deficiency Plans are distinct from City processes for review of development projects pursuant to the California Environmental Act (CEQA) and do not replace local Transportation Impact Analyses (TIAs). The San Francisco Planning Department requires project sponsors to prepare TIAs for projects that may have significant negative impacts on transportation conditions. The City's TIA guidelines include some analyses that may be relevant for preparing CMP deficiency plans. However, while environmental analysis conducted pursuant to CEQA may provide information useful in the preparation of Deficiency Plans, these Plans serve a separate and distinct purpose. The Deficiency Plan process should avoid duplicating past CEQA analyses; these guidelines should not create additional review processes for individual development or public construction projects.

One fundamental difference between a TIA and the CMP is that a TIA forecasts the severity of a project's expected impacts on facilities, while a Deficiency Plan implements actions to mitigate – or offset – problems already detected (i.e., deficiencies actually measured on a facility). A TIA or EIR is prepared prior to project implementation, in an attempt to predict a project's future negative impacts.

A TIA or EIR considers the cumulative impacts on a transportation facility of a proposed project in combination with other foreseeable similar projects. The Deficiency Plan, because its focus is on a facility rather than an individual project, considers multiple causes of the existing deficiency.

A6.3 Deficiency Planning Process

This overview accompanies the flow charts in Figures A6-1, A6-2, and A6-3. These three figures represent the Deficiency Plan process from detection through Transportation Authority Board approval of the Plan.

A6.3.1 DEFICIENCY DETECTION AND CITY NOTIFICATION

See Figure A6-1. The Transportation Authority monitors the CMP roadway network and reports a potential deficiency when the level of service (LOS) on any non-exempted segment of the CMP roadway network measures LOS F. LOS F is defined by travel speeds below a threshold set by the 1985 HCM for any of three specified arterial types.

The Transportation Authority determines whether a reported deficiency may have been caused by external, exempt, or temporary causes. State legislation requiring Deficiency

Plans has specifically exempted the trips generated by specific activities [Government Code § 65089.4. (f)]. Exempt activities are:

- Inter-regional travel (i.e., pass through trips which have neither origin or destination in San Francisco);
- Construction, rehabilitation, or maintenance of facilities that impact the CMP roadway network;
- Impact of freeway ramp metering;
- Traffic signal coordination by the state or multi-jurisdictional agencies;
- Traffic generated by low- and very low-income housing;
- Traffic generated by high-density residential or mixed-use development located within a quarter mile of a fixed passenger rail station[1]; and
- Roadway segments located within infill opportunity zones.

A detected deficiency may be corrected when a roadway improvement already programmed in the CIP increases the capacity of the deficient roadway. If the lead department determines that the effects of any CIP improvement scheduled to begin within the seven year time horizon of the CIP will remove the deficiency, the Transportation Authority – after review – can make a Finding of No Deficiency. The lead department, however, must demonstrate this CIP improvements will be completed and functioning within ten years of the current CIP.

If any trips are exempt and if the deficiency still exists after removing the exempt trips from the deficient roadway segment, a Deficiency Plan must be prepared. The Transportation Authority will consult with MTC to determine whether external or pass through trips may have caused the deficiency. It will also review all relevant CEQA traffic analysis and/or TIAs of recently completed projects. It will then use the San Francisco Travel Demand Forecasting Model, GIS analysis, sketch planning techniques, and other means to isolate and examine the cause(s) in more detail. If modeling suggests that a deficiency is not caused by any of the above, then the Transportation Authority Board must adopt a finding of "Deficiency" and notify the City (Mayor's Office) of the nature and cause of the deficiency.

The Mayor's Office assigns a City department to act as the lead department for the preparation of a Deficiency Plan. The timelines in Figure A6-1 assume that LOS is

1 "High density residential development" means a minimum of 24 dwelling units per acre and equal to 120 percent of the maximum density allowed under the local general plan and zoning ordinance, or a minimum density of 75 dwelling units per acre. "Mixed use development" must have more than one half the land area or floor area used for high-density housing.

monitored in September and October, and that all follow up verification monitoring is completed by the following April. This schedule allows City Departments to incorporate funding requests for Deficiency Plan activities into the City's budget process in April and May.

A6.3.2 DEFICIENCY ANALYSIS AND REMEDIATION PLAN PREPARATION

Once the cause(s) of the deficiency have been determined, State law [Government Code § 65089.4 (c) (2)] requires that the lead department identify:

> "A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements."

The lead department will use sketch-planning methods consistent with both MTC and Transportation Authority practices and data to estimate the effects of capacity improvements on the level of service and whether the improvements provide capacity at an order-of-magnitude commensurate with the deficiency.

State law requires that a Deficiency Plan first seek direct action to correct a roadway LOS deficiency by preparing a Remediation Plan. The lead department prepares a Remediation Plan that includes: a) a description of the causes of the deficiency; b) a list of all improvements necessary to fully remediate the problem on the deficient roadway itself; and c) an estimate of the cost and available funding for those improvements. The lead department includes a statement as to the feasibility of the Remediation Plan (Section 4.2.1). A Remediation Plan usually involves adding sufficient capacity to the roadway to allow traffic to flow at LOS "E" or better. The Remediation Plan should include any relevant projects included in the CIP or CEQA mitigation measures included in specific EIRs as mitigation requirements. A proposed Remediation Plan may include improvements already specified and funded in an EIR, the CIP, or developer exactions or dedications found to be relevant, including scheduled implementation, project characteristics, and funding sources. This gives the City credit for any required EIR mitigation measures to remediate the deficiency.

The lead department should also prepare cost estimates for improvements to mitigate the deficiency as well as of the funding sources.

If the lead department finds that the package of remediation measures is feasible, it must prepare an Implementation Plan.

The lead department submits the Remediation Plan and an Implementation Plan to the Transportation Authority for evaluation and approval. The Transportation Authority will evaluate Deficiency Plans based on effectiveness, financial feasibility, environmental

compatibility, and consistency with the City's transportation planning priorities and policies. If the lead department finds it cannot remediate the deficiency and the Transportation Authority concurs, the lead department prepares a Deficiency Plan (presented in Figure A6-3).

The resulting Remediation Plan must include estimates of the following:

- Extra roadway capacity needed to remove the deficiency;
- Total costs of the capacity increases; and
- Improvements already funded through the CIP or developer exactions or dedications.

The Transportation Authority evaluates the feasibility of the Remediation Plan and accepts or rejects the lead department's findings. Within 30 days of receiving the Remediation Plan from the lead department, the Transportation Authority evaluates the adequacy of the Plan conclusions according to the following three criteria:

1. **Effectiveness:** Are the proposed improvements adding sufficient capacity to the roadway in question to increase the LOS to level "E" or better?
2. **Financially Reasonable:** Are the cost estimates for the proposed improvement reasonably accurate?
3. **Implementability:** In environmental, regulatory, and community terms? Is the Plan consistent with the General Plan?

The Lead Department prepares an Implementation Plan, identifying responsible departments, funding sources, and regulatory authority. If the Transportation Authority accepts the Implementation Plan, the Transportation Authority modifies the CIP to conform to reflect the remediation measures. All departments called upon to implement portions of the Remediation Plan must enter into an inter-agency agreement stating each department's responsibility and funding sources. If the Transportation Authority finds that the Remediation Plan is feasible, the lead department will prepare an Implementation Plan If the Transportation Authority finds that the Remediation Plan is not feasible, the lead department will prepare a Deficiency Plan Action List.

A6.3.3 DEFICIENCY PLAN EVALUATION AND APPROVAL

If the Transportation Authority determines that the Remediation Plan is infeasible, the lead department prepares a list of offsetting actions that will improve the system-wide multimodal level of service but may have only limited effect on the deficient facility itself.

The lead department prepares a Deficiency Plan Action List. The lead department may select actions that have some direct mitigating effect on the deficiency; and/or actions that will improve system-wide LOS (as measured by the multi-modal performance measures). The Bay Area Air Quality Management District (BAAQMD) has prepared a list of approved Deficiency Plan actions. The CMP legislation requires that all Deficiency Plan actions come from that list.

The lead department may choose to prepare (or Transportation Authority may request) one or more alternative action plans to explore alternative approaches.

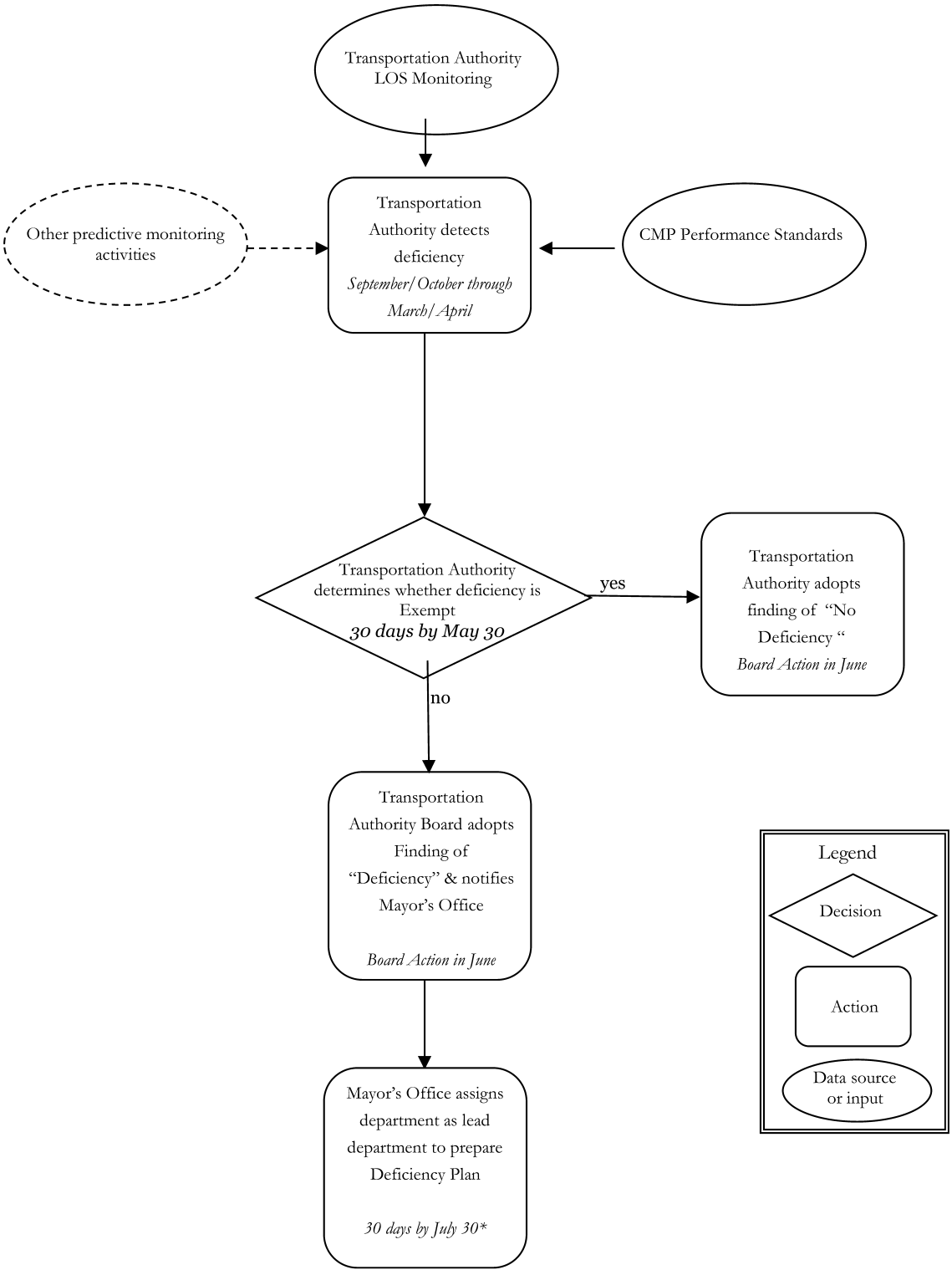
For deficiencies caused by large projects, some of the analysis required in these steps may have been completed through the projects' EIRs. While the analysis and any other relevant documentation may be used verbatim for the Deficiency Plan or Implementation Plan, the Final Deficiency Plan documentation must conform to the requirements outlined in the six steps above and described in more detail below.

The lead department has 60 days to prepare a Preferred Action Plan List. Each action on the list must show its estimated capital (or start-up) and operating (or on-going) costs. The lead department submits this list to the Transportation Authority for its consideration.

The Transportation Authority will review this proposed list and approve or reject it. The Transportation Authority will evaluate the preferred Deficiency Plan Action List, including each action's estimated cost within 30 days of submittal by the lead department. The Transportation Authority evaluates the effectiveness of the Action Plan and confirms General Plan consistency with the Planning Department. If the Transportation Authority accepts the lead department's proposed list of Deficiency Plan actions, the lead department prepares an Implementation Plan and submits this plan for the Transportation Authority's approval.

The Transportation Authority evaluates Implementation Plans using similar adequacy criteria as for Remediation Plans (Figure A6-2). If the Transportation Authority accepts the Implementation Plan, the Transportation Authority Board will hold a noticed public meeting and adopt a Finding of Conformance. If the Transportation Authority and the lead department are unable to agree on an Implementation Plan, the lead department may either try again, or submit its Final Deficiency Plan (including its Implementation Plan) to the Transportation Authority Board for Board action. If the Transportation Authority Board issues a Finding of Non-Conformance, the Transportation Authority must notify the State Controller to withhold funds. The funds are held in escrow for 12 months and then turned over to the Transportation Authority (as the City's Congestion Management Agency). Deficiency Plans must be completed within one year of the CMA's official notice of a deficiency.

Figure A6-1: Deficiency Detection and City Notification



Go to Figure 2

Figure A6-2: Deficiency Analysis and Mitigation Plan Preparation

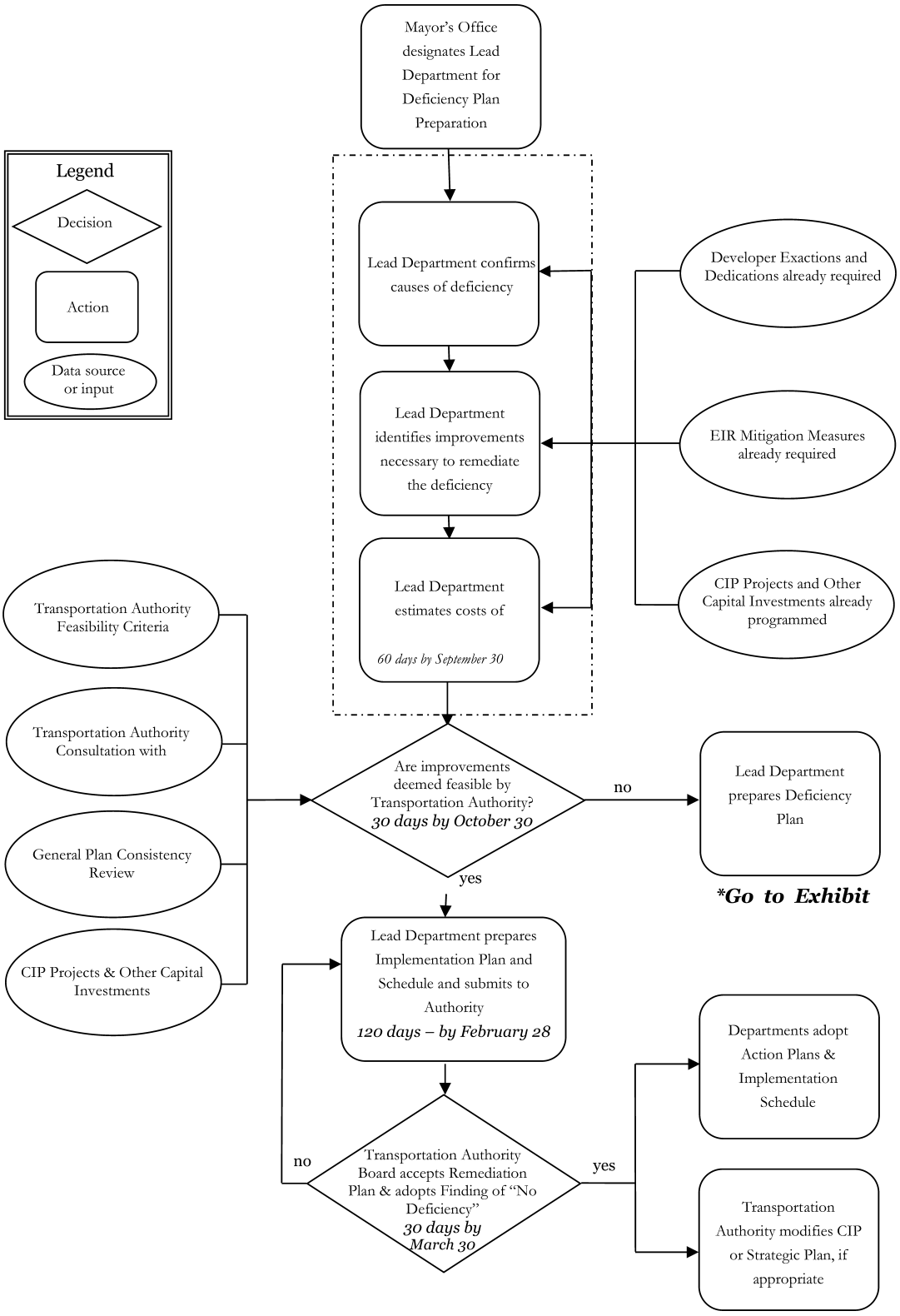
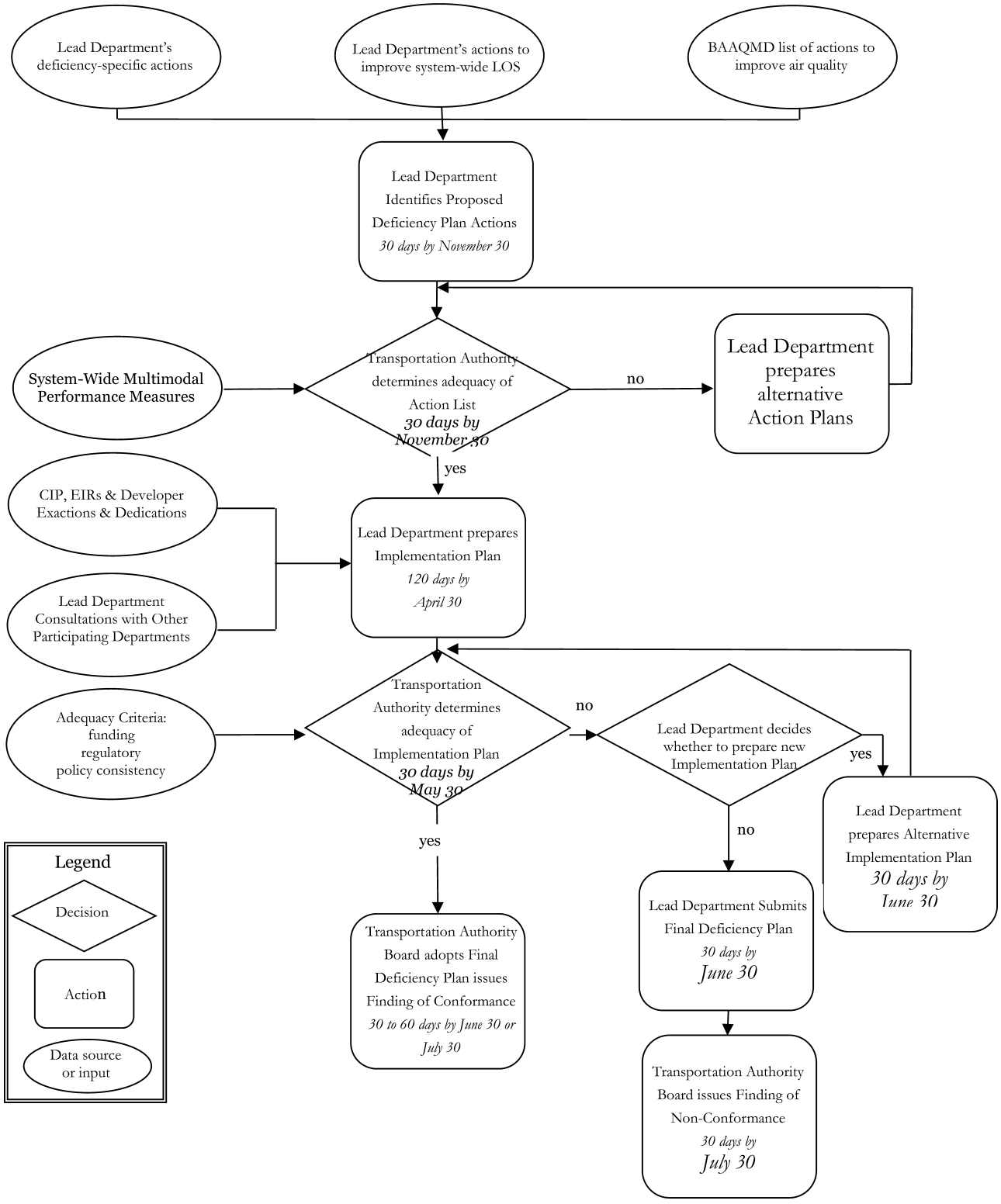


Figure A6-3: Deficiency Plan Evaluation and Approval



A6.3.4 ADEQUACY CRITERIA

The CMP legislation, as amended, includes three transit performance measures (in addition to the LOS performance measure) for the evaluation of current and future system performance and the effectiveness of Deficiency Action Plans [Government Code § 65089. (b)(2)]: transit frequency, routing, and service coordination among separate operators.

As required by CMP legislation, the Transportation Authority has developed multimodal performance measures beyond the traditional roadway Level of Service (LOS) measures. Our emphasis has been on user-based measures that help explain mode choice in the City. The Transportation Authority Board adopted the first set of multimodal performance measures in August 1998 (see Chapter 4). These include bicycle and pedestrian safety, transit speed and reliability and other measures. After these measures have been further refined and fully tested, they will then be used to evaluate the proposed list of Deficiency Plan Actions. Additional measures may be developed in the future.

A6.3.5 IMPLEMENTATION PLAN

The Transportation Authority requires the lead department to prepare an Implementation Plan within 90 days of the Transportation Authority's finding as part of the Deficiency Plan Document. The Implementation Plan identifies the responsible implementing department(s) for each action, and the sources of funding.

I. Implementation Plan Development

The lead department is responsible for developing the Implementation Plan. For each action in the Deficiency Plan, the lead department must specify the following:

1. The final cost of the actions and the sources of capital (up-front) and operating (on-going) funds. Note any correspondence with EIR mitigation measures or CIP projects.
2. A monitoring program that conforms to CEQA monitoring requirements.
3. An implementation schedule. All actions must be implemented within the seven-year time horizon for the current CIP. If a Deficiency Plan action is programmed for funding in the sixth or seventh year of the CIP, it will need to be fully implemented within three years of its initiation in order to be considered a feasible action within the Deficiency Plan's ten-year horizon.
4. Identification of city departments responsible for the action's funding, implementation, and on-going operations.

5. Clear identification of all departments responsible for implementation, therefore, is essential for the Transportation Authority's approval of the Final Deficiency Plan. One way for partner agencies to demonstrate this would be through an interdepartmental agreement among all responsible implementing departments stating each department's agreement to fulfill their responsibilities for implementing Deficiency Plan actions.

II. Identification of Funding

The Implementation Plan must include a detailed funding plan.

III. Implementation Plan and Deficiency Plan Approval

Within 30 days of submittal by the lead department, the Transportation Authority will either accept or reject the Implementation Plan. The Transportation Authority will make its determination based on the required elements of the Implementation Plan discussed in 4.4.1. Implementation Plans without a funding plan will be rejected. Once the Transportation Authority has approved the Implementation Plan, the lead department will have additional 30 days to finalize and submit the Final Deficiency Plan for Transportation Authority Board approval. Upon submittal of the final Deficiency Plan by the lead department, the Transportation Authority Board will hold a noticed public meeting and either approve or reject it within 30 days. If the Transportation Authority rejects the Implementation Plan, the lead department may either propose an alternative Implementation Plan within 30 days, or choose to submit the Final Deficiency Plan with the Implementation Plan as is. In the latter case, the Transportation Authority will notify the Mayor's Office of its intent to reject the Final Deficiency Plan due to Implementation Plan inadequacy.

If the Transportation Authority Board rejects the Final Deficiency Plan and issues a finding of non-conformance, pursuant to the State law (Government Code 65089.5), the Transportation Authority must submit its findings to MTC and the State Controller for the withholding of State funds.

IV. Deficiency Plan Document Structure

A Deficiency Plan Report must include the following sections:

1.0 Introduction Identification of the Deficiency's Causes, including:

1.1 Description of the Deficiency (i.e., road segment;

1.2 Description of the adjacent facilities;

1.3 Analysis of the causes of the deficiency;

1.4 Description of the existing traffic conditions within the boundaries;

1.5 Projection of future transportation conditions for at least the next 10 years; and

1.6 A map of the area, the deficiency, and adjacent facilities and transit routes.

2.0 Remediation Plan, consisting of:

2.1 An estimate of the extra roadway capacity needed to remove the deficiency;

2.2 An estimate of the total costs (operating and capital) of the capacity improvements; and

2.3 A description of improvements that are already programmed through individual project conditions of approval, the CIP, or developer exactions or dedications.

3.0 List of Actions, broken out into:

3.1 Deficiency-Specific Action; and

3.2 Global Actions To Improve System-wide LOS.

4.0 Implementation Plan, specifying the following:

4.1 The final cost of the actions and the sources of capital (up-front) and operating (on-going) funds;

4.2 A monitoring program to verify the action's implementation;

4.3 A schedule for implementation; and

4.4 Identification of city departments responsible for the action's funding, implementation, and on-going support/operation.

5.0 Identification of Other Departments' Responsibilities for Implementation

6.0 Identification of Funding

A6.4 Special Issues

The following sections discuss special circumstances where the Deficiency Plan process, as described in Section 4.0, may have to be modified. Treatment of these issues is not intended to be exhaustive.

A6.4.1 MULTI-COUNTY DEFICIENCY PLANS

Deficiencies may occur because of the activities of other counties or they may occur on a regional facility (e.g., the Bay Bridge). Under such circumstances, the Transportation Authority will take the lead in coordinating the preparation of a

Deficiency Plan, following MTC's process and mutual agreements with other agencies. More specifically, the Transportation Authority will coordinate with other congestion management agencies (CMAs) and regional agencies (e.g., MTC, BAAQMD, ABAG, etc.). The Transportation Authority may request the Mayor's Office to designate other city departments to prepare the Remediation Plan, Deficiency Plan Action List, or the Implementation Plan. Furthermore, other departments may be designated as the responsible agencies for the implementation of the Deficiency Plan.

A6.4.2 DEFICIENCY PLANS ADDRESSING MULTIPLE DEFICIENCIES

The Mayor's Office may request that the lead department prepare a Deficiency Plan that covers more than one deficient roadway segment.

Multiple deficiencies may be likely if an area or transportation corridor is impacted by large land use projects (e.g., Mission Bay), significant transportation infrastructure projects (e.g., demolition of the Central Freeway), or pronounced socioeconomic trends (e.g., increased commuting from the East Bay). When multiple deficiencies are within close geographical proximity, distributed along a single corridor (or parallel facility), or are functionally related, the Transportation Authority may encourage a single area-wide, or corridor Deficiency Plan.

The process would be similar to that described in Section 4.0. Nevertheless, the lead department must:

1. Review relevant EIRs for their assessment of impact and proposed mitigation measures;
2. Perform modeling of traffic within the area or corridor to determine the effectiveness of the Remediation Plan improvements;
3. Consider funding and/or regulatory feasibility of the proposed Implementation Plan; and
4. Coordinate with the CIP and other transportation programming and/or planning documents designed to address transportation planning for a subarea of the city, a specific corridor, or multiple facilities or modes.

A6.4.3 FUTURE DEFICIENCIES

The legislation does not require that local jurisdictions address future anticipated deficiencies. Deficiency Plans are only based on actual CMP network conditions.

Future changes to the transportation infrastructure or services may cause deficiencies. There are many potential causes of deficiencies, particularly changes to the transportation infrastructure in the City as well as land use changes.

The Planning Department is responsible for land use planning and development management. This role, stipulated in the City Charter, gives the Planning Department direct or oversight responsibility for every land use project from its initial design stages through environmental impact analysis, to final completion. Large-scale projects may have major impacts. Examples of such projects include, but are not limited to:

- Mission Bay;
- Rincon Point South Beach Redevelopment Area;
- Candlestick Point and Hunters Point Shipyard Development Plan; and
- Revised South of Market Specific Plan.

In addition, the Planning Department oversees preparation of Transportation Impact Analyses (TIAs) and its Office of Environmental Review (OER) coordinates CEQA review and EIR preparation for development projects. All of these documents are intended to anticipate the impacts of a proposed project on the transportation system; thus, they have direct relevance to the Deficiency Plan if a project's impacts cause a deficiency.

APPENDIX 7

Transit Frequency And Coverage Standards

APPENDIX 7

TRANSIT FREQUENCY AND COVERAGE STANDARDS

Table A7-1

Transit Service
Frequency and Coverage Standards
MUNI

Frequency Standard (headway in minutes)

Route Type	Day	Weekday Evening	Late Night
Rapid/Frequent	10	15	20
Grid	20	20	30
Connector	30	30	--
Specialized		Based on demand	

Route Type	Day	Weekend Evening	Late Night
Rapid	12	15	20
Grid	20	20	30
Circulator	30	30	--

Coverage Standard

All residential neighborhoods in San Francisco should be within a quarter of a mile of a Muni bus stop or rail line stop.

AC TRANSIT

Frequency Standard (headway in minutes)

SERVICE TYPE	TIME PERIOD
	Peak
Transbay Routes	21-30

Coverage Standard

Transbay routes provide service to downtown San Francisco via the Bay Bridge Corridor, and to peninsula destinations via the San Mateo and Dumbarton Bridge Corridors. AC Transit will provide extensive

commuter Transbay bus service where rail and road are approaching capacity. Non-peak service will be provided as justified by patronage. Peak period frequency standard is LOS D (21-30 minutes) while peak frequency goal is LOS C (15-20 minutes). Span of service on the Bay Bridge Corridor is LOS B (17-18 hours daily) with stop spacing of 1/2 to 2/3 mile depending on density or local operation.

Table A7-1 (cont.)

BART

Frequency Standard (headway in minutes)

LINE

TIME PERIOD	Pittsburg/ Bay Point	Dublin/ Pleasanton	Fremont-Daly City	Richmond-Millbrae	Downtown San Francisco (Combined)
Weekday Peak	5	15	15	15	2.7
Weekday Mid-day	15	15	15	15	3.8
Weekday Night	20	20	--	20	6.7
Saturday Day	20	20	20	20	5.0
Saturday Night	20	20	--	--	10.0
Sunday/Holiday all day	20	20	--	--	10.0

Coverage Standard

BART rail service is provided between the hours of 4:00 a.m. and approximately 1:30 a.m. Monday through Friday, 6 a.m. to approximately 1:30 a.m. on Saturdays, and 8 a.m. to approximately 1:30 a.m. on Sundays and major holidays. Closings for individual stations are timed with the schedule for the last train beginning at approximately midnight.

BART has eight stations in San Francisco: Four spaced a half mile apart on Market Street and four at variable distances in the central and southern areas of the City.

CALTRAIN

Frequency Standard

Three trains per hour during peak periods, supplemented by Baby Bullet express service twice per hour during peak periods.

Sixty-minute headways on weekday midday, evening, and weekend service. Weekend service is supplemented by two Baby Bullet express trains.

Coverage Standard

The Caltrain system operates on a 77.2-mile route between San Francisco and Gilroy. There are 33 stations in the 19 cities that Caltrain serves, including two in San Francisco. San Francisco is also directly served by the Bayshore Caltrain station, located immediately south of the City/County limits in San Mateo County

Table A7-1 (cont.)

GOLDEN GATE TRANSIT

Frequency Standard (headway in minutes)

	TIME PERIOD	
	Peak	**Base**
SERVICE TYPE		
Commute Bus	60 (peak direction only)	
Basic Service Bus	60	60
Larkspur Ferry	2 hrs	2 hrs
Sausalito Ferry	2 hrs	2 hrs.
Tiburon Ferry	2 hrs	

Coverage Standard

Commute bus routes operate weekdays, primarily in the peak travel direction, between residential areas in Marin and Sonoma Counties and the San Francisco Financial District and Civic Center.
Basic service routes operate all day, seven days a week, between the Transbay Terminal and Civic Center in San Francisco and various suburban centers within Marin and Sonoma Counties.

Commute bus service will be considered in the commute and/or reverse-commute directions along service corridors with a demonstrated or projected daily ridership that supports at least two round-trips carrying 30 passengers per trip on average (120 passengers per day) when resources are available to improve service.

On ferries, improved headways will be considered in cases where the maximum load factor is exceeded and resources are available to improve service.

SAMTRANS

Frequency Standard (headway in minutes)

	TIME PERIOD	
SERVICE TYPE	**Peak**	**Off-Peak**
Coastal	90	90
Community	60	--
Local	60	60
Multi-City	60	60
Mainline	30	60

Coverage Standard

SamTrans' goal is to ensure 70 percent of county residents live within walking distance (i.e., one quarter mile) of a bus stop. Transit access is determined by mapping all active bus stops within the system and

then calculating the population (based on 2010 Census data) within one-quarter mile radii of those stops. This information is then compared to the total county population.

Table A7-2: Muni Service Standards and Goals 1999-2018

STANDARD	FY 99/00 Actual	FY 02/03 Goal	FY 02/03 Actual	FY 03/04 Goal	FY 03/04 Actual	FY 04/05 Goal	FY 04/05 Actual	FY 05/06 Goal	FY 05/06 Actual	FY 06/07 Goal	FY 06/07 Actual
Vehicles that run on time	46%	75%	71%	85%	68%	85%	71%	85%	69%	85%	71%
Scheduled service hours delivered	95.6%	97.5%	94.5%	98.5%	97.3%	98.5%	94.3%	98.5%	94.2%	98.5%	94.3%
Vehicles too full to board	0.2%	<5%	1.6%	<5%	2.1%	<5%	0.4%	<5%	1.60%	<5%	1.30%
Peak period load factors (% of capacity)	Various	<85%	2 lines exceeded goal	<85%	3 lines exceeded goal	<85%	6 lines exceeded goal	<85%	7 lines exceeded goal	<85%	14.9% of lines exceeded goal
Actual headways vs. scheduled	45%	85%	75%	85%	69%	85%	69%	85%	60%	85%	61%
Percentage of transit trips with <2 min bunching on Rapid Network											
Percentage of transit trips with +5 min gaps on Rapid Network											
Vehicle availability	99.6%	98.5%	99.6%	98.5%	99.0%	98.5%	98.4%	98.5%	98.3%	98.5%	99.1%

Sources: San Francisco Municipal Railway FY2008 – FY2027 Short Range Transit Plan, 2008, Prop E Annual Reports, Monthly Strategic Plan Metrics Reports.

Table A7-2: Muni Service Standards and Goals 1999-2018, Continued

STANDARD	FY 08/09 Goal	FY 08/09 Actual	FY 09/10 Goal	FY 09/10 Actual	FY 10/11 Goal	FY 10/11 Actual	FY 11/12 Goal	FY 11/12 Actual	FY 12/13 Goal	FY 12/13 Actual
Vehicles that run on time	85%	73.30%	85%	73.50%	85%	73%	85%	61.1%	85%	60%
Scheduled service hours delivered	98.5%	97%	98.5%	96.6	98.5%	97%	98.5%	96.8%	98.5%	97%
Vehicles too full to board	<5%	AM Peak: 3.9% PM Peak: 2.8%	N/A	AM Peak: 4.5% PM Peak: 4.4%	<4%	AM Peak: 5.2 % PM Peak: 8.3%	<4%	AM Peak: 5.9% PM Peak: 7.1%	<4%	AM Peak: 7.4% PM Peak: 8.6%
Peak period load factors (% of capacity)	<85%	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP
Actual headways vs. scheduled	85%	60.2%	>85%	60.1%	>85%	64.7%	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping
Percentage of transit trips with <2 min bunching on Rapid Network							Measure in Development	3.9%	Measure in Development	4.0%
Percentage of transit trips with +5 min gaps on Rapid Network							Measure in Development	19.5%	Measure in Development	17.8%
Vehicle availability	99.0%	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP

Sources: San Francisco Municipal Railway FY2008 – FY2027 Short Range Transit Plan, 2008, Prop E Annual Reports, Monthly Strategic Plan Metrics Reports.

Table A7-2: Muni Service Standards and Goals 1999-2018, Continued

STANDARD	FY 13/14 Goal	FY 13/14 Actual	FY 14/15 Goal	FY 14/15 Actual	FY 15/16 Goal	FY 15/16 Actual	FY 16/17 Goal	FY 16/17 Actual	FY 17/18 Goal	FY 17/18 Actual
Vehicles that run on time	85%	60%	85%	57%	85%	61%	85%	60%	85%	57%
Scheduled service hours delivered	98.5%	96.20%	98.5%	98%	98.5%	99%	98.5%	99%	98.5%	98.1%
Vehicles too full to board	<4%	AM Peak: 7.4% PM Peak: 8.3%	<4%	AM Peak: 4.7% PM Peak: 5.6%	<4%	AM Peak: 3.4% PM Peak: 4.1%	<4%	AM Peak: 2.1% PM Peak: 2.5%	<4%	AM: N/A PM: N/A
Peak period load factors (% of capacity)	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP
Actual headways vs. scheduled	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping	Replaced by Bunching / Gapping
Percentage of transit trips with <2 min bunching on Rapid Network	Measure in Development	4.0%	Measure in Development	4.8%	Measure in Development	5.4%	Measure in Development	6.0%	Measure in Development	5.9%
Percentage of transit trips with +5 min gaps on Rapid Network	Measure in Development	18.6%	Measure in Development	17.2%	Measure in Development	16.9%	Measure in Development	18.9%	Measure in Development	18.1%
Vehicle availability	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP	TBD in Next SRTP

Sources: San Francisco Municipal Railway FY2008 – FY2027 Short Range Transit Plan, 2008, Prop E Annual Reports, Monthly Strategic Plan Metrics Reports.

APPENDIX 8

Transit Monitoring Methology & Results

KEY TOPICS

- Methodology
- Transit Speed Results
- Discussion

Photo credit: SFMTA Photo Library

A8.1 Methodology

The transit speed monitoring was conducted using Automatic Vehicle Location (AVL) /Automatic Passenger Count (APC) data from the San Francisco Municipal Transportation Agency (SFMTA), which tracks transit speeds, boardings, and alightings on SFMTA buses. SFMTA rail vehicles are not included. SFMTA has APC counters on a significant portion of the bus fleet at any given time, and rotates the counters between vehicles periodically to collect data on every bus run.

The APC data is valuable for detailed service planning purposes. For broader system performance monitoring and planning purposes, such as the CMP, the APC data can be aggregated to a weekday peak period and have a relatively large sample set. APC data have been used to report transit speeds since CMP 2011 cycle. In 2011, transit speeds were reported on CMP segments for the afternoon peak alone; since the 2013 CMP update, the monitoring effort included both morning and afternoon peak results.

In 2019, the format of the APC data was changed as the SFMTA implemented a new radio-based APC system. The most impactful change from the CMP monitoring perspective was that no records would be generated when a bus passes-by scheduled bus stops, as opposed to generating interpolated time-tramps for the skipped stops

as the older system did. To deal with this issue, the processing method was updated to base calculations on individual trips instead of transit stop pairs. This was done by first mapping transit stop pairs to CMP segments as previously did and then aggregating the speeds from the matched transit stop pairs to individual transit trips. Those trip level speeds were lastly processed to compute transit performance measures, including average speed, standard deviation, and coefficient of variation, for CMP segments during AM and PM periods. This approach better reflects overall transit speeds on a CMP, and is less susceptible to the impact of localized factors such as traffic signal between stop pairs.

During the analysis, the generated intermediate dataset provided stop-to-stop travel time and speed, inclusive of bus dwell time[1]. Specifically, dwell time was assigned to the "upstream" stop: the segment-level data represents upstream stop-arrival point to downstream stop-arrival point. In this way, the processed data corresponds with the travel time and through-speed experience by a transit rider as the rider passes multiple stops while on-board. (This is comparable to the manner in which automobile speed is reported by including fully-stopped intersection delay in the calculation of through-travel speed). The stop-to-stop travel time results with inclusion of upstream dwell time are then aggregated to get travel time of transit trips that are overlapping with the CMP segments.

Following the above methodology, the LOS monitoring consultants (University of Kentucky) processed one and a half months of APC data collected on Muni's bus fleet. Muni light rail vehicles are not currently equipped with APCs, and were thus not included in the analysis. The raw APC transit data utilized corresponded to the same morning and afternoon peak periods as the Automobile LOS monitoring. The date range used in the analysis was April 6, 2021 to May 20, 2021. The monitoring days were examined through a similar data cleansing, considering same special events, construction and weather events as in auto monitoring.

A8.2 Results

Attachment 8.1 and 8.2 present the Average Transit Speeds for the 2021 morning and afternoon peak periods. The results also include the 2019 morning and afternoon transit speeds for comparison.

Overall results for 2021, as shown in Table A8-1, indicate the average speed improved significantly form 2019 (detailed results are presented in Chapter 4). The changes in the transit speeds compared to 2019 were shown to be statistically significant at 0.05 level using one-tail hypothesis test.

1 Note that door dwell time was excluded for few bus stop pairs to filter out the layover time corresponding to end of the line operations.

Table A8-1. Transit Results Summary Statistics

	NUMBER OF SEGMENTS	AVERAGE SPEED	STANDARD DEVIATION	MINIMUM SPEED	MAXIMUM SPEED
AM Peak Period	115	11.2	2.5	5.2	23.2
PM Peak Period	120	11.1	2.7	5.1	32.6

In 2021, 115 and 120 CMP segments were mapped to CMP segments and reported transit speeds and variabilities during the AM and PM peak, respectively. In the 2019 results, there were 121 and 118 CMP segments in the AM and PM Peak, respectively. The comparable numbers in 2021 attest to SFMTA's efforts in restoring transit service that was significantly reduced during early days of the COVID-19 pandemic.

A8.3 Discussion

This section examines the slowest segments, the least reliable segments, and the segments with the highest auto-to-transit speed ratios. Finally, the results of 2019 and 2021 are compared.

A8.3.1 SLOWEST TRANSIT SEGMENTS

In 2021, all CMP segments that had APC data had transit speeds over 5 mph. The slowest transit speed during the AM period was 5.2 mph, which was observed on Columbus St between North Point and Greenwich. During the PM period, the slowest transit speed was 5.1 mph on Geneva from Cayuga to Paris. In comparison, there were 5 and 14 CMP segments with under 5 mph transit speed in 2019 AM and PM period, respectively.

A8.3.2 LEAST RELIABLE TRANSIT SEGMENTS

Tables A8-4 and A8-5 represents CMP segments with the least reliable transit speeds in the morning and afternoon peak periods. In order to fairly compare the variability of speeds for segments that are fast on average and those that are slow on average, a reliability measure is needed that would not favor one or the other. If the standard deviation alone was used, segments that have higher absolute standard deviations (i.e. most commonly segments with higher average speeds) would be ranked higher than segments that are slower on average. To prevent this, the Coefficient of Variation (CV), the ratio between the standard deviation and the average, is used to measure reliability. The CV is expressed as a percentage of the mean speed, thus both segments with high and low average speeds can be compared on the same scale. Segments with a CV of 30% or higher, indicating that speeds vary from average by more than 30% on about one in three trips, are shown below.

Table A8-4. Least Reliable Transit Segments (CV>30%), AM Peak

CMP ID	NAME	FROM	TO	DIR	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	CV	SAMPLE
9	4th St/Stockton	O'Farrell	Harrison	S	6.28	2.24	35.72	588
21	16th St	Potrero	Mission	W	9.60	4.39	45.68	393
39	Bayshore	Jerrold	Industrial	S	12.02	3.67	30.50	38
48	Broadway	Powell	Montgomery	E	8.52	3.29	38.58	82
91	Evans	Cesar Chavez	3rd	S	9.73	3.61	37.14	81
138	Junipero Serra	Brotherhood	19th	N	12.45	4.02	32.27	53
155	Market/Portola	Guerrero	Van Ness	E	9.20	3.05	33.18	240
163	Masonic	Page	Geary	N	11.65	3.81	32.67	143
173	Mission/Otis	Embarcadero	3rd	S	5.56	2.04	36.72	50
181	North Point	Columbus	Embarcadero	E	9.81	4.05	41.33	113
188	Ocean	19th Ave	Miramar	E	13.24	4.04	30.50	43
201	Potrero	21st	Division	N	11.86	3.71	31.30	60
222	Van Ness/S Van Ness	13th	Golden Gate	N	7.62	2.56	33.58	53
230	West Portal	Sloat	Ulloa	N	9.21	3.20	34.80	94
231	West Portal	Ulloa	Sloat	S	6.93	2.11	30.43	57

Table A8-5. Least Reliable Transit Segments (CV>30%), PM Peak

CMP ID	NAME	FROM	TO	DIR	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	CV	SAMPLE
5	3rd St	Evans	Terry Francois	N	11.08	3.63	32.79	118
21	16th St	Potrero	Mission	W	9.32	3.91	41.93	447
91	Evans	Cesar Chavez	3rd	S	10.73	3.91	36.43	52
104	Fulton	10th Ave	Arguello	E	9.28	2.89	31.12	117
108	Fulton	10th Ave	Park Presidio	W	8.45	3.02	35.73	92
117	Geneva	Cayuga	Paris	E	5.15	1.91	37.17	191
130	Guerrero/San Jose	29th	Monterey	S	32.61	14.41	44.18	21
134	Harrison	8th	Division	W	6.64	2.51	37.82	11
141	Junipero Serra	19th	Brotherhood	S	12.93	3.90	30.19	101
143	Kearny	Market	Columbus	N	6.81	2.21	32.49	266
158	Market/Portola	Van Ness	Guerrero	W	7.34	2.49	33.86	279
166	Masonic	Geary	Page	S	7.97	2.94	36.92	173
172	Mission/Otis	3rd	Embarcadero	N	6.59	2.02	30.72	593
173	Mission/Otis	Embarcadero	3rd	S	5.71	3.18	55.65	112
180	North Point	Van Ness	Columbus	E	6.63	3.25	49.02	12
181	North Point	Columbus	Embarcadero	E	11.87	3.61	30.41	126
183	North Point	Columbus	Van Ness	W	7.83	2.92	37.24	122
190	Ocean	Howth	Miramar	W	5.23	2.08	39.75	11
201	Potrero	21st	Division	N	11.31	3.69	32.67	44

Relative to 2019, there are considerably more number of segments with CV above 30% in the morning and afternoon peak periods. There are 15 segments in the AM in 2021 compared to 7 in 2019, while there are 19 segments in the PM in 2021 compared to 6 in 2019. Among these, 2 and 6 segments in the morning and afternoon peak had low sample size (<50). The most unreliable segment in monitoring period was Sunset Blvd from Noriega to Taraval with a CV value of 48.6%. The close second was 16th St from Potrero to Mission with a CV value above 45.7%. The most unreliable segment in the afternoon peak period was Mission St from Embarcadero to 3rd St with a CV value of 55.7%. The next three most unreliable segments were Sunset Blvd from Taraval to Yorba and from Noriega to Taraval, and North Point from Van Ness to Columbus, all with a CV value above 45%.

Since it is theoretically possible for segments to be reliably fast, reliably slow, unreliably fast, or unreliably slow, the ideal comparison of these results would show the results in two dimensions at the same time, as is shown in Figures A8-1 and A8-2 below. Most CMP segments with speed less than 15 mph fall into 5 – 40% CV range, indicating moderate speeds and moderate reliability on average. For buses that were operated at extremely low speeds (~ 5mph), their reliability also tends to be moderate with CV ranging between 15% and 30%. One noticeable exception is on Mission/Otis from Embarcadero to 3rd St with 5.7 mph average speed and 55.6% CV in the afternoon peak. In addition, several segments had relatively high transit speeds with high to moderate transit reliability, indicating they provided competitive operation conditions.

Figure A8-1. Reliability and Speed Matrix, AM Peak

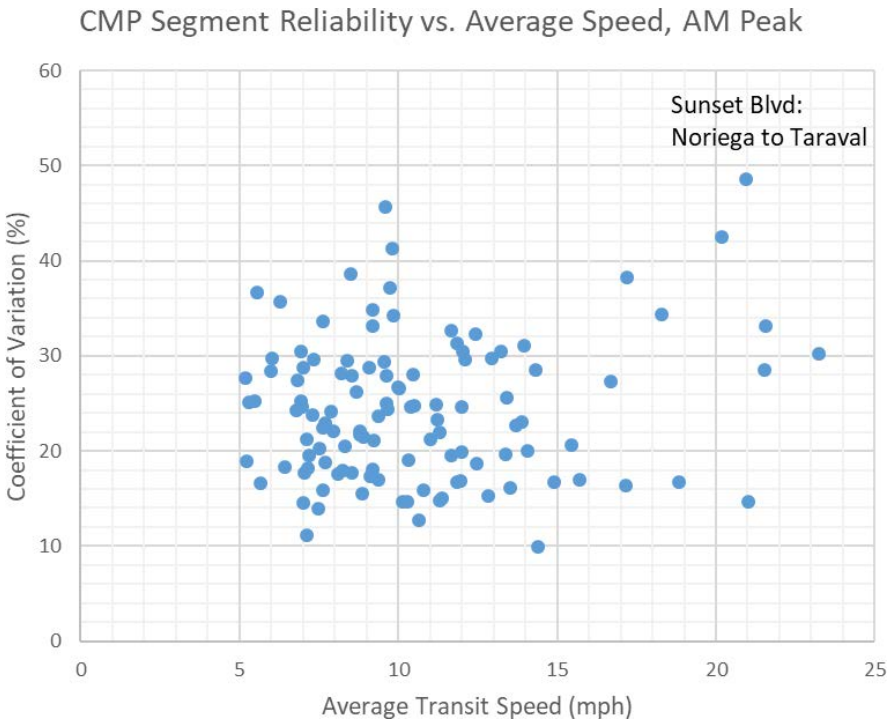
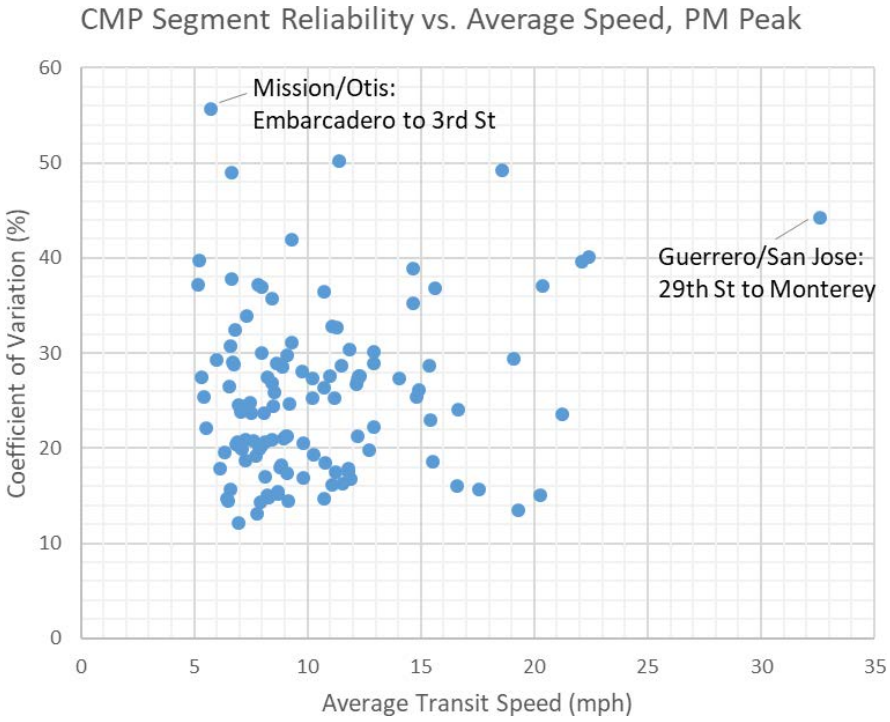


Figure A8-2. Reliability and Speed Matrix, PM Peak



A8.3.3 HIGHEST AUTO TO TRANSIT RATIOS

Auto-to-transit comparison was possible since the APC dataset is from the same monitoring period as the roadway auto LOS monitoring effort, when transit data was available. A ratio of 2 would indicate that, for a given CMP segment, on-board transit travel time is twice that of auto travel time. The CMP Segments with auto to transit speed ratios of 2.0 or higher are listed in Tables A8-6 and A8-7 below.

As described below, a small portion of the network where the speed ratio is between 0 and 1; indicating that transit is faster than or same as auto.

- Sunset: Taraval to Noriega (AM and PM)
- Guerrero/San Jose: 29th to Monterey (PM)
- Lincoln: Sunset to 25th (PM)

Table A8-6. Segments with Auto to Transit Speed Ratio of 2.0 or higher, AM Peak

CMP ID	NAME	DIR	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	AVG. AUTO SPEED (MPH)
9	4th St/Stockton: O'Farrell to Harrison	S	2.08	6.28	13.05
24	19th Ave/Park Presidio: Sloat to Lincoln	N	2.16	9.64	20.85
30	19th Ave/Park Presidio: Sloat to Junipero Serra	S	2.32	12.12	28.06
48	Broadway: Powell to Montgomery	E	2.14	8.52	18.19
62	Castro/Divisadero: Geary to Pine	N	2.30	5.49	12.64
63	Castro/Divisadero: Pine to Geary	S	2.14	6.04	12.90
72	Clay: Kearny to Davis	E	2.00	5.97	11.96
75	Columbus: North Point to Greenwich	S	2.79	5.17	14.44
91	Evans: Cesar Chavez to 3rd	S	2.04	9.73	19.89
104	Fulton: 10th Ave to Arguello	E	2.26	9.55	21.54
106	Fulton: Masonic to Arguello	W	2.19	7.70	16.88
107	Fulton: Arguello to 10th Ave	W	2.34	9.65	22.57
108	Fulton: 10th Ave to Park Presidio	W	2.15	10.51	22.57
110	Geary: 25th Ave to Arguello	E	2.20	10.13	22.29
111	Geary: Arguello to Gough	E	2.08	10.81	22.51
117	Geneva: Cayuga to Paris	E	2.55	6.82	17.40
120	Geneva: Paris to Cayuga	W	2.38	6.94	16.54
121	Geneva: Cayuga to Ocean	W	2.11	7.03	14.83
134	Harrison: 8th to Division	W	2.19	5.67	12.40
138	Junipero Serra: Brotherhood to 19th	N	2.04	12.45	25.36
141	Junipero Serra: 19th to Brotherhood	S	3.52	12.95	45.57
143	Kearny: Market to Columbus	N	2.22	5.31	11.78
145	King: 2nd to 4th	W	3.08	7.00	21.61
159	Market/Portola: Guerrero to Castro	W	2.25	7.53	16.94
173	Mission/Otis: Embarcadero to 3rd	S	2.42	5.56	13.43
190	Ocean: Howth to Miramar	W	2.19	6.80	14.92
200	Potrero: Cesar Chavez to 21st	N	2.11	7.15	15.11
203	Potrero: 21st to Cesar Chavez	S	2.63	8.11	21.36
224	Van Ness/S VanNess: Washington to Lombard	N	2.40	5.22	12.53
226	Van Ness/S VanNess: Washington to Golden Gate	S	2.08	7.71	16.04
231	West Portal: Ulloa to Sloat	S	2.02	6.93	13.97

Table A8-7. Segments with Auto to Transit Speed Ratio of 2.0 or higher, PM Peak

CMP ID	NAME	DIR	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	AVG. AUTO SPEED (MPH)
141	Junipero Serra: 19th to Brotherhood	S	3.30	12.93	42.69
117	Geneva: Cayuga to Paris	E	2.94	5.15	15.13
224	Van Ness/S VanNess: Washington to Lombard	N	2.66	6.97	18.58
190	Ocean: Howth to Miramar	W	2.65	5.23	13.86
120	Geneva: Paris to Cayuga	W	2.43	6.57	15.96
108	Fulton: 10th Ave to Park Presidio	W	2.37	8.45	20.05
180	North Point: Van Ness to Columbus	E	2.32	6.63	15.41
75	Columbus: North Point to Greenwich	S	2.31	5.53	12.79
62	Castro/Divisadero: Geary to Pine	N	2.27	5.42	12.30
173	Mission/Otis: Embarcadero to 3rd	S	2.27	5.71	12.95
106	Fulton: Masonic to Arguello	W	2.23	7.28	16.22
107	Fulton: Arguello to 10th Ave	W	2.22	9.02	20.05
48	Broadway: Powell to Montgomery	E	2.17	6.76	14.67
159	Market/Portola: Guerrero to Castro	W	2.15	7.88	16.95
4	3rd St: Jamestown to Evans	N	2.13	7.91	16.86
91	Evans: Cesar Chavez to 3rd	S	2.11	10.73	22.63
154	Market/Portola: Castro to Guerrero	E	2.09	6.62	13.85
121	Geneva: Cayuga to Ocean	W	2.09	6.88	14.36
158	Market/Portola: Van Ness to Guerrero	W	2.06	7.34	15.10
63	Castro/Divisadero: Pine to Geary	S	2.05	5.32	10.91
74	Columbus: Greenwich to North Point	N	2.04	7.51	15.30
104	Fulton: 10th Ave to Arguello	E	2.04	9.28	18.89
223	Van Ness/S VanNess: Golden Gate to Washington	N	2.03	8.14	16.57
111	Geary: Arguello to Gough	E	2.01	9.13	18.39
22	16th St: Mission to Market	W	2.01	7.12	14.29

A8.3.4 COMPARISON OF 2019 AND 2021 RESULTS

When comparing the CMP segments common to both 2019 and 2021, there are noticeable increases in average transit speeds in both morning and afternoon peak periods (see Chapter 4 also). In addition, the auto to transit speed ratios for both periods increased, due to larger improvement in auto speeds.

Figure A8-3 below illustrates the changes in both auto and transit speeds at individual segment level in both AM and PM peak periods from 2019 to 2021. The changes can be broken into four scenarios, represented by four quadrants in the figure. Quadrant I represents both auto and transit speeds increased from 2019 to 2021 and similarly quadrant III represents both auto and transit speeds decreased from 2019 to 2021. According to Table A8-8, most (156) segments experienced increase in both auto and transit speeds while only one segment saw reduction in both auto and transit speeds over two monitoring cycles. This indicates the operating conditions for both modes were improved on a larger part of the network in 2021. In addition, 23 segments in quadrant II had lower transit speeds while higher auto speeds in 2021 compared to 2019. There are 4 segments in quadrant IV with improving transit speeds and decreasing auto speeds. The figure resonates with the observation regarding increased transit speed and auto to transit speed ratio and implies improved transit competitiveness in 2021 compared to 2019.

Figure A8-3. Change in Auto & Transit Speeds from 2019 to 2021

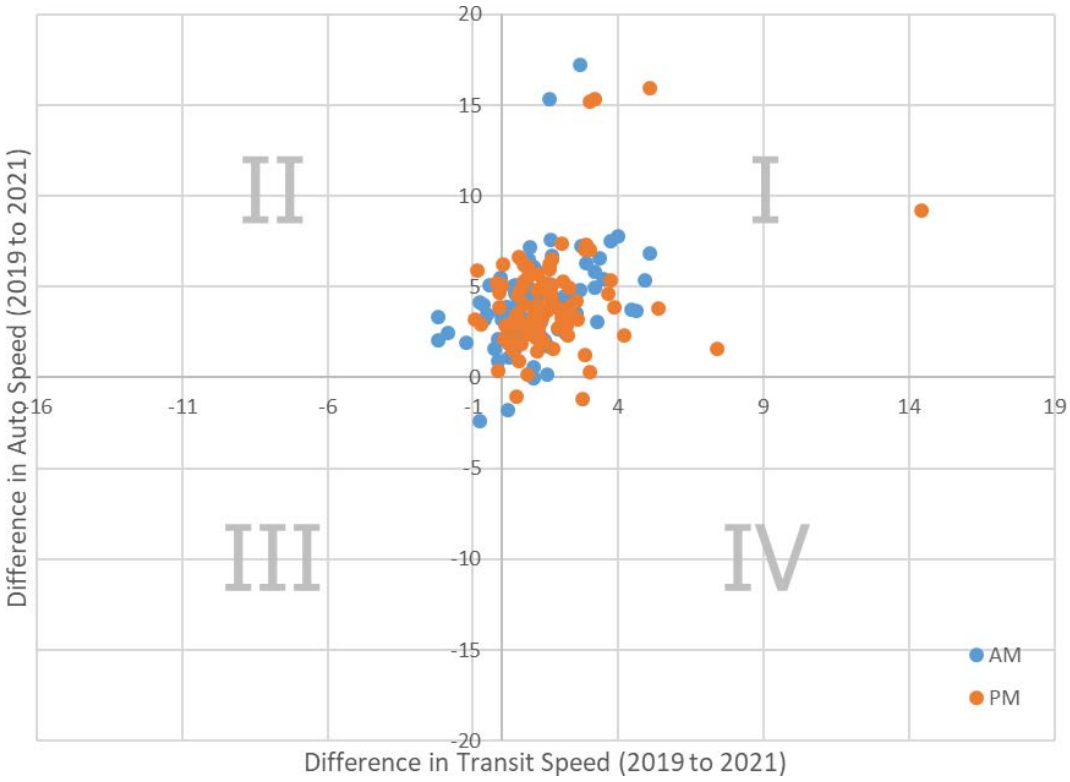


Table A8-8. Number of Segments within Each Quadrant

PERIOD	I	II	III	IV
AM	72	15	1	2
PM	84	8	0	2
Both Periods	**156**	**23**	**1**	**4**

Attachment 8.1: AM Transit Speed Monitoring Results (2006 – 2021)

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
1st St	Market	Harrison	S																																				
2nd St	Brannan	Market	N									9.0			1.3	7.3	2.0	28.1	1.9	6.7	2.4	35.8	1.7	7.2	2.7	37.5	1.3	7.8	0.9	11.9	1.2	6.2	2.1	34.1	1.4				
	Market	Brannan	S									9.1			1.8	7.7	1.9	24.1	2.7	9.3	1.9	20.4	1.0	7.5	1.5	20.0	1.6	8.2	0.9	11.4	1.3	7.7	2.5	32.9	1.4				
3rd St	Jamestown	Evans	N													5.7	2.6	45.5	4.2																	8.5	1.5	17.7	1.8
	Evans	Terry Francois	N													7.7	3.1	39.7	3.6													7.2	1.1	14.6	1.9	9.6	2.7	27.9	1.9
	Terry Francois	Market	N													6.0	2.5	41.1	2.5	7.4	0.5	6.8	1.8	7.7	0.6	7.8	1.6	7.7	0.4	5.7	1.4	6.8	1.2	17.4	1.6	9.4	2.2	23.7	1.5
	Terry Francois	Evans	S													8.7	2.8	32.6	3.2																	11.2	2.8	24.9	1.7
	Evans	Jamestown	S													5.9	3.4	58.4	4.3																	8.2	2.3	28.1	1.9
4th St / Stockton	O'Farrell	Harrison	S	6.2			1.8	5.1			1.8	5.6			2.4	5.6	1.6	28.7	3.0													5.0	1.2	23.7	2.1	6.3	2.2	35.7	2.1
	Harrison	Channel	S					7.3			2.2					7.9	1.8	22.3	2.1	8.1	2.1	25.9	1.6																
5th St	Brannan	Market	N									7.6			1.9	7.7	2.2	28.8	2.1	6.5	2	30.8	1.5	5.5	0.7	12.7	1.8	5.5	0.6	10.2	1.6								
	Market	Brannan	S									7.2			2.7	6.3	2.1	33.6	2.6	7.1	0.5	7.0	1.6	5.9	0.4	6.8	1.8	6.4	0.5	7.5	1.8	5.7	1.4	25.6	1.9				
6th St	Brannan	Market	N																													7.2	1.8	24.7	1.5				
	Market	Brannan	S																																				
7th St	Brannan	Market	N									7.8			2.4	7.0	2.3	33.2	2.7	5.8	1.3	22.4	2.7	6.6	1.4	21.2	1.6	6.2	1.2	20.0	1.4	5.5	1.3	23.6	1.8	8.8	1.9	22.1	1.5
8th St	Market	Bryant	S									7.9			1.9	7.2	2.2	30.1	2.5	6.7	1.3	19.4	2.4	6.7	1.5	22.4	2.0	6.8	1.3	18.9	1.8	6.8	1.1	15.9	1.9	8.3	1.7	20.5	1.5
9th St	Brannan	Market	N																																				
10th St	Market	Brannan	S													7.6	1.8	23.5	2.8																				
16th St	Market	Mission	E	5.8			3.3	6.1			3.0	7.6			1.6	6.5	2.3	35.6	2.1	6.3	1	15.9	2.6	5.9	0.7	11.9	2.2	5.3	0.5	10.0	1.8	5.8	1.6	27.8	1.4	8.5	2.4	27.9	1.8
	Mission	Potrero	E	7			2.3	6.5			2.1	7.8			1.8	7.4	1.9	25.1	1.8	6.4	0.8	12.5	2.3	7.3	1.6	21.9	1.8	6.1	0.6	10.3	1.7	7.1	1.7	23.3	1.5	8.9	1.9	21.5	1.7
	Potrero	Mission	W	7.7			1.7	6.8			1.7	8.7			1.6	8.4	2.3	27.3	1.4	7.6	0.6	7.9	1.9	8	0.6	7.5	1.6	7.7	0.3	4.4	1.5	7.4	2.0	27.3	1.6	9.6	4.4	45.7	1.5
	Mission	Market	W	7			1.8	7.2			1.9	7.7			1.7	6.4	1.9	30.1	2.0	6.3	0.7	11.1	2.5	6.4	0.7	10.9	2.1	6	0.6	10.5	1.8	5.7	1.0	17.8	1.9	7.2	1.4	19.5	1.8
19th Ave / Park Presidio	Junipero Serra	Sloat	N									12.6			1.4	9.8	2.5	25.6	1.7	9.8	1.4	14.3	1.6	12.2	2.6	21.3	1.4	12.3	0.8	6.9	1.4	10.6	2.4	22.4	1.6	14.1	2.8	20.1	1.6
	Sloat	Lincoln	N									11.9			1.2	10.3	2.8	27.4	1.5	9.8	0.8	8.2	1.7	7.9	2.3	29.1	1.7	8.4	0.7	8.9	1.6	8.0	1.5	18.5	2.0	9.6	2.4	25.0	2.2
	Lincoln	Lake	N									11.7			1.7	13.6	2.4	17.2	1.6	12.1	0.5	4.1	2.0	12.5	1.6	12.8	1.7	11.8	0.9	7.9	1.7	13.2	1.5	11.1	1.5	17.2	2.8	16.3	1.6
	Lake	US-101	N									26.4			1.7					19.3	0.8	4.1	2.6	19.9	3.3	16.6	1.9	23.8	1.5	6.5	1.9								
	US-101	Lake	S									26.3			1.5	18.2	4.2	23.1	1.3	17.3	3.5	20.2	2.5	17.9	3.4	19.0	2.2	21.3	3.4	15.9	1.5								
	Lake	Lincoln	S									13.3			2.0	15.6	2.7	17.3	1.8	14.5	1.5	10.3	1.8	13.4	1.7	12.7	1.7	11.7	0.7	6.3	1.9	14.0	2.1	14.8	1.5	14.9	2.5	16.8	1.9
	Lincoln	Sloat	S									11.0			1.7	10.5	2.1	19.8	1.8	11	1.4	12.7	1.6	11	1.4	12.7	1.6	10.3	0.4	4.2	1.8	10.4	1.6	15.4	1.8	10.6	1.4	12.7	2.0
	Sloat	Junipero Serra	S									13.0			1.7	13.4	3.4	25.4	1.8	11.1	1.6	14.4	2.1	13.9	2.2	15.8	1.7	11.8	1.7	14.3	2.1	12.2	1.7	13.5	2.2	12.1	3.6	29.6	2.3
Alemany	Junipero Serra	Lyell	E													8.4	2.9	34.2	2.8																				
	Lyell	Bay Shore	E													9.9	2.6	25.7	2.9																				
	Bay Shore	Lyell	W													15.1	3.1	20.1	1.9																				
	Lyell	Junipero Serra	W													12.8	4.2	33.0	1.7																				
Bay	Van Ness	Embarcadero	E																																				
	Embarcadero	Van Ness	W																																				
Bayshore	County Line	Industrial	N									10.1			1.7	5.9	2.4	40.6	3.2																				
	Industrial	Cesar Chavez	N									11.9			1.5	11.4	3.3	28.6	1.1	9.3	1.6	17.2	1.7	9	1.6	17.8	1.8	7	0.9	12.8	2.2	10.6	1.9	17.8	1.0	15.7	2.7	17.0	1.1
	Jerrold	Industrial	S									16.4			1.6	13.2	3.3	25.0	1.5	7.1	2	28.2	3.1	8.9	2.7	30.3	2.7	7.7	1.2	16.1	2.5	11.1	2.7	24.3	1.7	12.0	3.7	30.5	1.9
	Industrial	County Line	S									12.0			2.3	9.2	3.3	35.8	2.6																				
Beale/Davis	Clay	Mission	S									6.8			1.9	6.2	2.7	43.9	2.0	7.2	1.5	20.8	1.2	6.8	1	14.7	1.4	6.3	1.4	22.4	1.5	5.3	1.0	19.1	1.8				
Brannan	Division	6th	E																																				
	6th	3rd	E																																				
	3rd	6th	W																																				
	6th	Division	W																																				

NAME	FROM	TO	DIR	2006 AVG. TRANSIT SPEED (MPH)	2006 S.D TRANSIT SPEED (MPH)	2006 COEFFICIENT OF VARIATION	2006 AUTO:TRANSIT SPEED RATIO	2007 AVG. TRANSIT SPEED (MPH)	2007 S.D TRANSIT SPEED (MPH)	2007 COEFFICIENT OF VARIATION	2007 AUTO:TRANSIT SPEED RATIO	2009 AVG. TRANSIT SPEED (MPH)	2009 S.D TRANSIT SPEED (MPH)	2009 COEFFICIENT OF VARIATION	2009 AUTO:TRANSIT SPEED RATIO	2011 AVG. TRANSIT SPEED (MPH)	2011 S.D TRANSIT SPEED (MPH)	2011 COEFFICIENT OF VARIATION	2011 AUTO:TRANSIT SPEED RATIO	2013 AVG. TRANSIT SPEED (MPH)	2013 S.D TRANSIT SPEED (MPH)	2013 COEFFICIENT OF VARIATION	2013 AUTO:TRANSIT SPEED RATIO	2015 AVG. TRANSIT SPEED (MPH)	2015 S.D TRANSIT SPEED (MPH)	2015 COEFFICIENT OF VARIATION	2015 AUTO:TRANSIT SPEED RATIO	2017 AVG. TRANSIT SPEED (MPH)	2017 S.D TRANSIT SPEED (MPH)	2017 COEFFICIENT OF VARIATION	2017 AUTO:TRANSIT SPEED RATIO	2019 AVG. TRANSIT SPEED (MPH)	2019 S.D TRANSIT SPEED (MPH)	2019 COEFFICIENT OF VARIATION	2019 AUTO:TRANSIT SPEED RATIO	2021 AVG. TRANSIT SPEED (MPH)	2021 S.D TRANSIT SPEED (MPH)	2021 COEFFICIENT OF VARIATION	2021 AUTO:TRANSIT SPEED RATIO
Broadway	Gough	Larkin	E																																				
	Larkin	Powell	E																																				
	Powell	Montgomery	E									8.2			2.4	6.3	1.9	29.8	2.5	6.9	1.2	17.4	1.6	7.2	1.6	22.2	1.5	5.7	0.6	11.3	1.4	6.8	1.9	27.8	1.7	8.5	3.3	38.6	2.1
	Montgomery	Embarcadero	E									7.1			2.0	6.5	2.2	34.4	2.4	5.9	1.6	27.1	1.9	6	1.7	28.3	1.7												
	Embarcadero	Montgomery	W																																				
	Montgomery	Powell	W																																				
	Powell	Larkin	W													6.3	1.9	29.8	5.0																				
	Larkin	Gough	W																																				
Brotherhood	Junipero Serra	Alemany	E																																				
	Alemany	Junipero Serra	W																																				
Bryant	Division	4th	E									8.7			1.5	8.0	2.1	25.6	2.4	9.2	1.6	17.4	1.7	9.2	1.9	20.7	1.6	7.2	0.6	8.5	1.6	6.7	1.9	28.9	1.7				
	4th	Embarcadero	E																																				
Bush	Masonic	Gough	E																																				
	Gough	Market	E													5.7	2.0	34.2	2.4																				
Castro / Divisadero	Market	14th	N	10.7			1.5	9.3			1.0	8.5			1.7	7.2	2.1	29.1	2.2	6.7	0.9	13.4	2.1	7.1	0.7	9.9	1.8	6.8	1.0	14.6	1.5	6.7	1.3	19.8	1.6	7.9	1.9	24.1	1.8
	14th	Geary	N	6.9			1.6	6.8			1.7	7.2			2.1	7.3	2.0	27.4	2.0	6.4	0.5	7.8	2.3	6.6	0.5	7.6	1.8	6.4	1.1	16.5	1.6	5.8	1.1	19.3	1.6	7.0	1.0	14.6	1.8
	Geary	Pine	N	6			1.2	6			1.0					6.1	1.6	26.0	1.3	6.6	0.9	13.6	2.0	6.1	1.3	21.3	1.7	5.1	0.7	14.0	1.5	5.3	1.0	18.5	1.7	5.5	1.4	25.3	2.3
	Pine	Geary	S	7.4			1.6	7.5			2.1	7.8			1.9	7.2	2.1	29.6	1.8	6.2	1.7	27.4	2.2	6.8	1.1	16.2	1.6	7.4	1.5	19.8	1.6	6.6	2.1	31.5	1.5	6.0	1.8	29.7	2.1
	Geary	14th	S	7			1.8	7.3			2.2	7.9			2.1	7.3	2.0	26.7	1.7	7.1	0.7	9.9	2.1	6.9	0.6	8.7	1.7	7	0.6	8.7	1.8	7.0	0.9	12.7	1.7	7.5	1.0	13.9	1.8
	14th	Market	S	10.1			1.0	10.4			1.6	10.1			1.0	9.1	2.8	30.4	1.7	9.7	1.7	17.5	1.5	9.3	1.6	17.2	1.3	8.7	1.3	15.2	1.3	7.9	1.6	20.6	1.4	7.9	1.8	22.1	1.9
Cesar Chavez	Guerrero	Bryant	E													7.8	2.2	28.4	2.2	4.8	2.1	43.8	3.6	8	1.3	16.3	1.6	7.6	0.8	10.5	1.7					12.0	2.9	24.6	1.5
	Bryant	Kansas	E													7.5	2.4	32.0	3.6																				
	Kansas	3rd	E													11.6	4.0	34.7	1.7																				
	3rd	Kansas	W													7.8	3.1	39.7	3.0																				
	Kansas	Bryant	W													9.2	3.9	42.0	2.8																				
	Bryant	Guerrero	W													7.8	2.1	27.1	1.9	3.4	2.2	64.7	4.5	6	1.6	26.7	2.2	6.9	0.7	10.8	1.4								
Clay	Kearny	Davis	E									6.8			2.8	6.6	1.9	28.2	2.9	7.2	0.7	9.7	1.7	7.5	1.3	17.3	1.3	7.3	0.7	8.9	1.5	5.7	1.0	17.8	1.8	6.0	1.7	28.4	2.0
Columbus	Montgomery	Greenwich	N									7.2			2.1	6.7	2.0	29.3	1.9	6.1	0.5	8.2	2.2	6.6	1.1	16.7	1.9	6.6	0.6	9.4	1.8	5.9	1.3	21.5	1.8				
	Greenwich	North Point	N	8.9			2.1	7.1			2.3	8.8			1.2	8.1	1.9	23.4	1.3	7.4	0.6	8.1	1.8	8	1.3	16.3	1.6	7.7	0.8	10.5	1.5	6.4	1.6	24.9	1.4	7.3	1.7	23.8	1.9
	North Point	Greenwich	S	8.5			1.9	7			1.8	8.1			2.3	7.1	2.2	31.7	2.6	6.6	1.1	16.7	2.0	6.5	0.7	10.8	2.0	6.5	1.1	17.0	1.7	4.7	1.0	21.8	2.0	5.2	1.4	27.7	2.8
	Greenwich	Montgomery	S									6.0			1.9	5.8	1.8	31.0	2.1	4.7	0.4	8.5	2.7	4.8	0.6	12.5	2.5	5.7	0.8	13.6	2.0								
Doyle / Lombard / Richardson	County Line	SF Cemetery	E																	11.8	2.1	17.8	2.7	9.7	3.1	32.0	2.6	14.4	2.8	19.7	2.1								
	SF Cemetery	Lyon/Francisco	E																	11.8	2.1	17.8	2.1	9.7	3.1	32.0	1.6	14.4	2.8	19.7	1.2								
	Lyon/Francisco	Van Ness	E									9.8			2.1					11.4	1.4	12.3	1.7	13.7	3.3	24.1	1.4	11	0.6	5.8	1.7	10.7	1.3	11.7	1.6				
	Van Ness	Lyon/Francisco	W									12.2			1.4					9.4	0.9	9.6	2.2	9.5	2.1	22.1	1.7	9.1	0.4	4.3	1.5	9.5	1.2	12.3	1.0				
	Lyon/Francisco	SF Cemetery	W																	21.8	2	9.2	1.7	16.2	6.5	40.1	2.0	29.2	2.6	9.1	1.6								
	SF Cemetery	County Line	W																	21.8	2	9.2	1.8	16.2	6.5	40.1	2.2	29.2	2.6	9.1	1.7								
Drumm	Market	Washington	N									5.7			2.9	4.3	5.4	125.4	3.7																				
	Washington	Market	S									7.3			1.2																								
Duboce / Division	Market	Mission	E																																				
	Mission	Potrero	E													9.7	2.4	24.5	2.4																				
	Potrero	Mission	W													8.4	1.9	22.9	2.1																				
	Mission	Market	W																																				
Embarcadero	Townsend	North Point	N																																				
	North Point	Townsend	S																																				
Evans	Cesar Chavez	3rd	S									13.8			1.5	10.8	3.9	36.1	1.5	11.2	2	17.9	1.3	9.8	4.4	44.9	1.3	9.9	2.1	20.9	1.1	10.5	3.0	28.2	1.5	9.7	3.6	37.1	2.0
	3rd	Cesar Chavez	N									16.7			1.3	14.4	4.2	29.1	1.1	12.8	2.6	20.3	1.2	13.5	1.7	12.6	1.0	12.5	1.8	14.5	1.3	16.1	2.8	17.3	0.9	13.9	3.2	23.1	1.2
Fell	Gough	Market	E																																				
	Gough	Laguna	W																																				
	Laguna	Stanyan	W																																				
Folsom	13th	8th	E																	9.2	2.4	26.1	2.1	8.6	1.9	22.1	1.7	7.6	1.0	13.2	1.6	8.6	2.7	31.6	1.4				
	8th	4th	E									9.8			1.5	9.1	2.2	23.7	1.9	7.5	1.4	18.7	2.4	7.1	2.1	29.6	1.8	8.2	1.2	14.7	1.6	8.2	2.0	23.9	1.6				
	4th	1st	E									8.9			2.3	9.1	2.8	31.1	2.1																				
	1st	Embarcadero	E									7.8			1.7	8.4	5.7	67.0	1.3																				

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Franklin	Market	Pine	N																																				
	Pine	Lombard	N																																				
Fremont	Harrison	Market	N									7.6			1.7																								
Fulton	Park Presidio	10th Ave	E					8			3.8	11.6			2.4					8.7	1.2	13.8	2.5	9.2	2.9	31.5	2.1					8.5	2.0	23.6	1.9	13.4	3.4	25.6	1.6
	10th Ave	Arguello	E					8			3.7	11.6			1.7					6.7	1.7	25.4	2.7	8.8	1.6	18.2	1.9	8	1.9	23.5	2.0	9.1	2.2	24.1	1.9	9.5	2.8	29.4	2.3
	Arguello	Masonic	E	10.2			1.5	9.6			1.3	10.9			1.5	9.4	2.7	29.0	1.4	8.6	0.5	5.8	1.8	7.8	0.8	10.3	1.9	7.8	1.0	12.6	1.7	8.1	1.5	18.3	1.6	11.3	2.5	21.9	1.6
	Masonic	Arguello	W	11.6			1.6	10.9			2.2	10.8			1.9	10.1	2.7	26.9	1.6	8.6	1.1	12.8	2.1	9.9	1	10.1	1.7	9.5	0.8	8.3	1.6	8.9	1.6	18.0	1.7	7.7	1.8	22.9	2.2
	Arguello	10th Ave	W					10.2			2.1	12.2			2.2	7.6	1.9	24.5	2.3	10.9	2.3	21.1	1.8	13.8	2.3	16.7	1.5	16.9	3.7	21.9	1.2	11.5	2.5	21.8	1.7	9.6	2.4	24.4	2.3
	10th Ave	Park Presidio	W					10.2			1.6	12.2			1.3	7.6	1.9	24.5	1.5	11.5	3.5	30.4	1.7	12.1	3.5	28.9	1.6					11.0	3.2	28.8	1.7	10.5	2.6	24.8	2.1
Geary	Great Hwy	25th Ave	E									11.6			2.2	11.6	3.0	26.0	2.0	9.5	0.8	8.4	1.9	10.6	1	9.4	1.4	9.2	1.0	11.1	1.9	11.5	1.7	14.6	1.8	12.8	2.0	15.3	1.8
	25th Ave	Arguello	E									9.9			2.4	9.4	2.2	23.2	2.2	9.4	1	10.6	1.8	8.6	0.6	7.0	1.6	8.3	0.7	8.0	1.8	9.0	1.6	17.8	1.8	10.1	1.5	14.6	2.2
	Arguello	Gough	E									10.7			2.7	10.1	2.5	25.0	2.2	9.4	0.7	7.4	2.2	9.2	0.5	5.4	1.8	7.8	1.0	13.2	2.5	10.9	1.5	13.7	1.6	10.8	1.7	15.9	2.1
	Kearny	Gough	W									8.3			1.8	8.0	2.2	28.2	1.8	8.3	0.6	7.2	1.6	8.4	0.9	10.7	1.3	8.9	2.2	24.8	1.2	8.1	1.4	17.5	1.2	8.2	1.5	17.9	1.6
	Gough	Arguello	W									10.2			2.0	9.8	2.3	22.9	2.1	8.8	1.1	12.5	2.4	9.3	0.6	6.5	1.7	9.6	1.6	16.7	1.8	10.4	1.5	14.3	1.6	10.3	1.5	14.7	1.8
	Arguello	25th Ave	W									9.7			2.3	8.8	1.9	21.7	2.3	8	0.5	6.3	2.1	8.9	0.6	6.7	1.6	8.7	0.8	8.8	1.5	8.9	1.3	14.8	1.4	8.9	1.4	15.6	1.8
	25th Ave	Great Hwy	W									11.6			2.1	8.1	1.9	23.0	3.0	11	0.7	6.4	1.7	10.7	0.8	7.5	1.4	8.5	2.1	24.8	2.0	11.0	1.7	15.4	1.7	11.3	1.7	14.8	1.8
Geneva	Ocean	Cayuga	E									8.3			1.1	7.7	2.3	29.9	1.6	7.4	0.6	8.1	1.9	6.9	1.1	15.9	1.6	7.1	0.8	10.9	1.4	7.8	1.6	20.4	1.3	8.8	1.9	21.7	2.0
	Cayuga	Paris	E									8.6			1.6	7.8	2.2	27.9	2.0	6.3	1.1	17.5	2.3	6.9	1.2	17.4	1.7	6.8	0.5	7.8	1.8	5.9	1.6	27.1	1.9	6.8	1.9	27.5	2.5
	Paris	Santos	E									15.1			1.4	11.2	2.9	25.4	2.0	10.4	1.2	11.5	2.2	10	1.4	14.0	1.6	11.3	2.4	21.3	1.6	10.8	1.9	17.2	1.7	13.5	2.2	16.2	1.7
	Santos	Paris	W									13.9			1.7	10.2	3.1	30.4	2.2	10.3	1.2	11.7	1.9	10.2	0.7	6.9	1.6	8.3	1.0	12.4	2.2	10.2	1.5	15.0	1.6	11.4	1.7	15.0	2.0
	Paris	Cayuga	W									6.8			1.2	6.6	1.8	26.4	1.3	4.3	0.6	14.0	3.0	4.9	0.6	12.2	2.2	4.8	0.5	9.5	1.8	5.3	1.5	27.8	1.7	6.9	1.8	25.3	2.4
	Cayuga	Ocean	W									8.8			1.1	7.3	2.2	30.5	1.2	7.2	0.7	9.7	1.9	6.6	0.6	9.1	1.5	5.4	0.7	13.9	1.5	6.4	1.3	20.7	1.3	7.0	1.2	17.7	2.1
Golden Gate	Masonic	Franklin	E																																				
	Franklin	Market	E																	9.3	1.8	19.4	1.2	7.5	1.9	25.3	1.1	6.2	1.0	16.3	1.6	5.5	1.2	21.2	1.4				
Gough	Pine	Geary	S																																				
	Geary	Golden Gate	S																																				
	Golden Gate	Market	S																																				
Guerrero / San Jose	Monterey	29th	N																													19.9	4.9	24.5	0.6	21.5	6.1	28.6	1.3
	29th	Cesar Chavez	N																																				
	Cesar Chavez	29th	S																																				
	29th	Monterey	S																													21.0	5.7	27.1	1.0				
Harrison	Embarcadero	1st	W									10.8			1.9																								
	1st	4th	W									11.0			1.0					9.3	2.9	31.2	1.9	8.5	2.2	25.9	1.4	7.7	0.9	11.8	1.5	7.9	2.0	25.1	1.4				
	4th	8th	W									10.0			1.6	9.6	2.3	23.6	2.0	9.2	1.2	13.0	1.9	8.6	1.4	16.3	2.0	8.8	0.5	6.0	1.9	9.4	2.2	23.0	1.5	10.5	2.9	28.0	1.4
	8th	Division	W									8.4			1.6	7.5	2.5	33.1	1.9	6.4	0.8	12.5	2.5	6	1.1	18.3	2.3	6.6	0.7	10.9	1.5	5.5	1.0	18.0	1.8	5.7	0.9	16.6	2.2
Hayes	Market	Gough	W	7.2			2.3	6.5			2.8	6.9			1.8	5.7	1.8	31.6	2.2	6.6	1.5	22.7	2.3	6.6	0.8	12.1	2.0	6.5	1.1	17.1	1.4	6.7	1.6	23.8	1.4				
Howard	Embarcadero	S Van Ness	W													25.1	5.6	22.2	0.6																				
Junipero Serra	County Line	Brotherhood	N													5.1	1.6	31.2	8.7					9.8	7.7	78.6	2.8	7.9	2.6	32.5	2.4								
	Brotherhood	19th	N									17.6			1.3	7.3	2.5	34.3	1.5	8	1.2	15.0	1.6	7.2	4.3	59.7	1.8	9.1	1.7	18.7	1.1	9.8	4.7	48.3	0.8	12.4	4.0	32.3	2.0
	19th	Sloat	N																																				
	Sloat	19th	S																																				
	19th	Brotherhood	S									16.7			2.4					18.2	1.8	9.9	2.3	18.9	12.2	64.6	2.1	23.8	6.7	28.0	1.8	15.2	4.4	29.1	2.8	12.9	3.8	29.7	3.5
	Brotherhood	County Line	S													17.2	3.1	17.7	2.6									14.5	0.7	5.0	3.8								
Kearny	Market	Columbus	N									6.7			2.1	5.2	2.1	40.4	2.9	7.2	0.8	11.1	1.6	6.1	0.4	6.6	1.4	5.6	1.3	22.7	1.3	5.0	1.1	21.5	1.6	5.3	1.3	25.1	2.2
King	4th	2nd	E																																				
	2nd	4th	W																																	7.0	2.0	28.7	3.1
Lincoln / Kezar	19th Ave	5th Ave	E									11.4			2.0	11.3	3.3	29.6	2.4	10.8	1.9	17.6	1.9	10.5	1.1	10.5	1.5	10	1.2	12.3	1.8	9.6	2.9	30.1	1.5	13.4	2.6	19.7	1.7
	5th Ave	Stanyan	E													13.2	5.1	38.8	1.6																				
	Stanyan	5th Ave	W													11.2	2.8	25.2	2.2																				
	5th Ave	19th Ave	W													14.1	4.4	31.0	2.1	14	2.3	16.4	1.7	13.9	0.9	6.5	1.6	14.5	2.2	15.4	1.3	12.1	2.8	23.3	1.6	13.7	3.1	22.7	1.7
Main	Mission	Market	N	4.5			3.1	4.4			3.8					3.3	1.7	50.6	6.6	5.8	6.3	108.6	2.1	8	2.5	31.3	0.7	4.9	1.0	20.3	1.8								

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Market / Portola	Sloat	Santa Clara	E													5.6	3.9	70.5	4.5																				
	Santa Clara	Burnett	E													12.6	4.4	34.5	1.5	10	3.1	31.0	2.1	12.4	1.3	10.5	1.3	10.4	1.4	13.3	1.5	12.2	3.5	28.5	1.3				
	Burnett	Castro	E													9.2	2.7	29.2	2.3																	21.0	3.1	14.7	1.2
	Castro	Guerrero	E	7.5			1.8	6.9			1.5					6.7	1.7	25.6	1.4	6.6	1.2	18.2	2.1	6.1	0.9	14.8	1.7	6.5	1.1	17.4	2.0					9.1	2.6	28.8	1.8
	Guerrero	Van Ness	E	5.8			1.2	6.2			1.4					6.7	1.7	25.6	1.9	10.1	1.8	17.8	1.6	5.9	0.9	15.3	1.8	4.6	0.5	11.7	2.2					9.2	3.1	33.2	1.4
	Van Ness	Drumm	E	7			1.3	6.8			1.8	8.6			1.4	7.6	1.9	25.5	1.5	7.5	0.3	4.0	1.6	6.7	0.3	4.5	1.5	6	0.2	4.0	1.3	6.5	1.2	18.4	1.1	7.6	1.2	15.9	1.5
	Drumm	Van Ness	W	7.4			1.7	7.3			1.9	8.4			1.8	6.7	2.0	29.4	2.3	8.1	0.4	4.9	1.6	7.9	0.2	2.5	1.5	6.8	0.3	3.8	1.0	6.0	0.7	12.0	1.4	7.1	0.8	11.2	1.2
	Van Ness	Guerrero	W	8.2			1.7	8.3			1.7					6.9	2.4	34.4	2.0	6.5	1	15.4	2.3	6.4	2.2	34.4	2.2	7.4	1.3	17.3	1.9					7.6	1.7	22.5	1.8
	Guerrero	Castro	W	6.3			2.7	6.2			2.5					6.9	2.4	34.4	1.8	6.5	0.7	10.8	2.7	5.4	1.5	27.8	2.8	5.6	1.5	27.7	2.2					7.5	1.5	20.3	2.3
	Castro	Burnett	W													5.9	2.3	38.2	3.8																	18.8	3.1	16.7	1.2
	Burnett	Santa Clara	W													11.9	3.7	31.1	2.0	10	2.6	26.0	2.0	11.2	2.3	20.5	1.7	9.9	1.6	16.5	1.7	11.0	2.3	20.8	1.5	14.4	1.4	9.9	1.6
	Santa Clara	Sloat	W																																				
Masonic	Page	Geary	N									9.0			2.2	8.6	2.7	31.2	1.5	7.5	1.4	18.7	2.7	7.4	3.1	41.9	1.7	8.6	1.0	11.4	1.7	7.0	2.1	29.6	1.6	11.7	3.8	32.7	1.3
	Geary	Bush/Euclid	N													10.7	2.0	19.0	1.4																				
	Presidio	Geary	S													5.4	2.0	37.5	1.9																				
	Geary	Page	S													7.7	1.8	23.8	1.4	7.5	0.6	8.0	2.6	7.7	1.1	14.3	1.9	7.7	0.4	5.2	1.8	8.2	1.7	21.2	1.5	10.3	2.0	19.0	1.5
Mission / Otis	Sickles	Ocean	N	9.3			2.8	8.1			2.7	9.6			2.3	10.0	2.4	24.0	2.2	9.5	1	10.5	1.8	9.9	0.6	6.1	1.4	9.9	6.0	60.6	1.4	9.6	1.6	16.3	1.2	12.5	2.3	18.7	1.4
	Ocean	Cesar Chavez	N	9.1			2.0	8			1.8	8.9			2.2	9.4	2.1	22.3	1.8	7.7	0.5	6.5	1.8	7.5	0.7	9.3	1.7	8.9	1.3	14.6	1.3	8.6	1.5	16.9	1.4	11.8	2.0	16.7	1.5
	Cesar Chavez	14th	N	8.1			1.7	7.7			1.9	7.6			2.4	8.1	1.9	23.2	1.9	8	0.6	7.5	1.7	7.8	0.4	5.1	1.6	9.1	1.3	14.4	1.3	8.7	1.5	17.2	1.1	9.1	1.6	17.3	1.5
	14th	9th	N	6.7			1.6	6.2			1.9	6.9			2.2	7.8	2.2	28.3	2.1	5.8	0.8	13.8	2.5	5.4	0.5	9.3	2.3	6.5	3.4	52.1	1.6	6.4	1.3	20.9	1.5	7.1	1.5	21.2	2.0
	9th	3rd	N	9.1			2.0	8.5			1.5	8.7			2.0	9.5	1.9	20.2	1.7	9.6	0.8	8.3	1.7	8.4	1.2	14.3	1.6	10.6	1.5	14.1	1.3	9.6	1.9	19.4	1.4	9.4	1.6	17.0	1.6
	3rd	Embarcadero	N	5.5			2.1	5.2			2.0	8.0			2.1	6.9	2.1	30.7	1.8	6.7	0.9	13.4	2.2	6.8	0.9	13.2	1.5	6.1	1.7	27.9	1.2	6.0	1.4	23.3	1.2	7.0	1.7	24.7	1.8
	Embarcadero	3rd	S	6.9			1.9	6.2			2.1	7.7			1.8	4.7	3.3	69.6	2.2	3.8	1.3	34.2	3.9	6.2	0.8	12.9	1.7	6.4	2.4	37.6	1.4	5.2	1.1	22.2	1.6	5.6	2.0	36.7	2.4
	3rd	9th	S	9.1			1.8	8.2			2.0	8.8			1.7	9.6	2.4	25.3	1.6	8.2	1	12.2	2.0	9.3	0.9	9.7	1.5	11.4	1.6	14.4	1.1	9.6	1.8	18.5	1.3	11.2	2.6	23.2	1.3
	9th	14th	S	7.9			1.8	7			2.2	7.9			2.0	8.4	2.3	27.4	2.3	6.8	0.9	13.2	2.1	6.8	0.7	10.3	1.8	3.6	0.8	21.3	2.9								
	14th	Cesar Chavez	S	8.7			1.8	7.8			1.7	8.4			2.1	8.8	2.1	24.1	1.7	8.6	0.9	10.5	1.6	8.9	0.5	5.6	1.5	9.3	1.8	19.6	1.5	10.6	2.1	20.2	1.2	11.0	2.3	21.2	1.4
	Cesar Chavez	Ocean	S	10.6			1.8	9.6			1.7	9.8			2.1	9.8	2.1	21.8	1.9	8.7	0.9	10.3	1.9	8.7	0.5	5.7	1.7	10.5	1.8	17.4	1.2	10.4	1.9	18.3	1.2	11.7	2.3	19.5	1.4
	Ocean	Sickles	S	12.3			1.7	10.2			2.5	13.4			1.7	12.1	2.3	19.4	1.8	10.1	0.9	8.9	1.7	9.6	0.9	9.4	1.6	12.7	1.3	10.4	1.3	11.5	2.3	20.5	1.4	12.0	2.0	16.8	1.5
Montgomery	Broadway	Bush	S													6.2	1.7	27.4	1.8																				
North Point	Van Ness	Columbus	E	8.7			2.2	5.9			2.2	11.0			1.6	10.0	3.2	31.8	1.9	9.9	1.7	17.2	1.5	10.2	2	19.6	1.3	9.5	0.9	9.9	1.4	7.7	2.1	27.2	2.2				
	Columbus	Embarcadero	E									11.2			1.7	10.8	2.6	23.9	2.0	7.9	3.6	45.6	2.7	9.4	2.7	28.7	1.3	11	1.8	16.5	1.2	9.3	3.4	37.0	1.5	9.8	4.1	41.3	1.7
	Embarcadero	Columbus	W									11.1			1.4	6.5	2.7	41.2	2.8	9.2	1.9	20.7	1.6	6.4	1.4	21.9	2.2	7.6	1.4	18.8	1.6								
	Columbus	Van Ness	W	9.7			1.8	7.7			2.2	9.8			1.7	7.7	2.2	28.7	2.1	7.5	1.2	16.0	2.1	7.7	1.9	24.7	1.6	8	0.7	8.2	1.5	7.8	1.9	24.9	1.1	7.3	2.2	29.6	1.8
Oak	Stanyan	Divisadero	E																																				
	Divisadero	Fillmore	E																																				
	Fillmore	Laguna	E																																				
	Laguna	Franklin	E																																				
Ocean	19th Ave	Miramar	E	12.2			1.2	9.4			1.4																					8.8	2.5	27.9	1.5	13.2	4.0	30.5	1.2
	Miramar	Howth	E	10			1.3	8.2			1.6					1.7	0.9	57.0	6.9	5.5	1.6	29.1	2.6	5.5	0.6	10.9	2.2	5.7	0.6	11.1	2.1	6.7	1.5	21.8	1.8	8.7	2.3	26.2	1.7
	Howth	Miramar	W	9			1.5	7.4			1.5					8.6	2.9	34.2	1.8	7.1	1.6	22.5	1.9	5.7	1.6	28.1	2.0	6	0.8	13.7	1.7	7.4	1.4	18.7	1.5	6.8	1.7	24.3	2.2
	Miramar	19th Ave	W	9.6			1.4	8			1.7																					7.5	1.0	13.4	1.6	10.0	2.7	26.6	1.6
Octavia	Market	Fell	N																																				
	Fell	Market	S																																				
O'Farrell	Gough	Mason	E									9.4			1.4	8.1	2.0	24.9	1.5	9.1	0.8	8.8	1.6	8.6	0.8	9.3	1.4	6.8	2.1	31.0	1.5	9.2	1.6	17.6	1.0	9.2	1.7	18.0	1.4
	Mason	Market	E									7.6			1.5	6.3	1.8	28.5	1.5	10.1	1	9.9	1.3	7	1.6	22.9	1.4	6.4	3.5	55.4	1.4	7.0	1.7	24.3	1.2	9.2	1.9	21.1	1.4
Pine	Market	Kearny	W																																				
	Kearny	Leavenworth	W																																				
	Leavenworth	Franklin	W																																				
	Franklin	Presidio	W																																				
Potrero	Cesar Chavez	21st	N	7.1			2.5	6.4			4.2	7.5			2.8	9.2	2.8	30.6	2.5	8.3	2	24.1	1.8	7.1	1	14.1	1.5	7.4	1.3	17.5	1.9	6.9	1.3	18.7	2.4	7.2	1.3	18.1	2.1
	21st	Division	N	11.7			1.5	10.9			2.4	9.9			2.3	9.9	2.5	25.5	2.5	9.3	1	10.8	2.0	9.3	1.9	20.4	2.1	9.5	1.1	11.7	1.2	9.7	2.4	25.1	1.5	11.9	3.7	31.3	1.6
	Division	21st	S	9.4			2.3	11.1			1.8	10.4			2.3	10.5	2.5	23.8	1.8	10.2	1.6	15.7	1.9	10	1.4	14.0	1.4	9.3	0.8	8.8	1.7	9.7	1.6	16.8	1.6	10.4	2.6	24.6	1.7
	21st	Cesar Chavez	S	8.8			2.2	8.9			2.9	6.8			3.2	9.7	2.9	30.0	2.4	7.4	1.2	16.2	2.3	6.8	1.2	17.6	2.1	8.4	1.0	12.3	2.1	7.4	1.2	16.7	2.4	8.1	1.4	17.6	2.6

NAME	FROM	TO	DIR	2006				2007				2009				2011			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Skyline	County Line	Sloat	N													28.5	4.9	17.2	1.6
	Sloat	County Line	S													19.7	3.7	18.8	2.1
Sloat	Skyline	Junipero Serra	E									15.5			1.5	13.2	3.1	23.5	1.4
	Junipero Serra	Skyline	W									16.2			1.6	15.2	3.9	25.7	2.1
Stanyan	Fulton	Turk	N													5.5	2.0	36.0	2.6
	Turk	Fulton	S																
Sutter	Divisadero	Gough	E	11			1.4	9.1			1.6					8.2	2.1	25.4	1.8
	Market	Mason	W	7.3			1.5	6.7			2.5	7.1			2.5	6.6	2.3	35.3	2.7
	Mason	Gough	W	7.1			1.8	6.8			1.3	7.4			1.2	6.4	1.6	25.2	1.6
	Gough	Divisadero	W	10.2			1.5	9			1.7	8.8			1.7	7.7	2.1	27.7	1.8
Townsend	7th	2nd	E									10.5			1.9	8.9	2.4	26.3	1.9
	2nd	7th	W									11.0			1.7	10.3	2.8	26.7	1.3
Turk	Stanyan	Divisadero	E	10.2			1.7	9.3			2.2	10.7			1.7	9.7	3.2	33.1	1.8
	Market	Hyde	W									6.1			2.4	6.0	1.9	30.9	2.1
	Hyde	Gough	W													6.7	1.8	27.1	1.9
	Gough	Divisadero	W																
	Divisadero	Stanyan	W	11.4			1.5	10.9			1.8	11.6			1.8	10.8	3.3	30.8	1.5
Van Ness / S Van Ness	Cesar Chavez	13th	N																
	13th	Golden Gate	N	6.1			1.9	6.1			2.4	6.8			2.2	6.8	1.9	28.4	3.0
	Golden Gate	Washington	N	5.7			2.0	5.9			2.0	5.8			2.6	5.4	1.3	24.6	3.1
	Washington	Lombard	N	6.6			1.4	6.6			1.5	7.2			1.9	6.5	2.0	30.3	1.7
	Lombard	Washington	S	7			1.8	7.7			2.3	6.9			2.4	6.8	2.5	37.1	2.4
	Washington	Golden Gate	S	6			2.7	6.4			2.7	6.7			3.2	6.2	2.4	39.1	3.5
	Golden Gate	13th	S	6.5			2.0	6.4			1.8	6.5			2.4	6.6	1.7	25.5	2.1
	13th	Cesar Chavez	S													6.5	2.1	31.9	2.0
Washington	Drumm	Kearny	W													7.7	2.6	33.5	1.7
West Portal	Sloat	Ulloa	N	7.9			2.4	7.1			2.2					7.2	2.5	34.8	2.3
	Ulloa	Sloat	S	10.6			1.5	8.1			1.9					4.7	1.4	30.8	3.7
I-280	Junipero Serra	Weldon	E																
	Weldon	6th/Brannan	N																
US-101	County Line	Cortland	N																
	Cortland	I-80	N																
	I-80	Market	N																
I-80	Treasure Island	Fremont Exit	W																
	Fremont Exit	US-101	W																
I-280	6th/Brannan	Weldon	S																
	Weldon	Junipero Serra	S																
US-101	Market	I-80	S																
	I-80	Cortland	S																
	Cortland	Monster Park Exit	S																
I-80	US-101	Fremont Exit	E																
	Fremont Exit	Treasure Island	E																

NAME	FROM	TO	DIR	2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Skyline	County Line	Sloat	N	19.8	7.3	36.9	1.9	19.8	4.5	22.7	1.8	21.3	3.8	17.9	1.7								
	Sloat	County Line	S									15	1.9	13.0	2.3	19.3	1.5	7.7	1.8				
Sloat	Skyline	Junipero Serra	E	11.5	1.4	12.2	2.1	11.1	1.9	17.1	2.1	11.5	2.0	17.5	1.8	11.4	2.7	23.7	1.9				
	Junipero Serra	Skyline	W	13.9	1.8	12.9	2.0	14	1.4	10.0	1.7	10.5	2.2	21.2	2.4	14.0	2.1	14.9	1.8				
Stanyan	Fulton	Turk	N																				
	Turk	Fulton	S																				
Sutter	Divisadero	Gough	E	9	2.3	25.6	1.8	9	1.5	16.7	1.2	8.8	0.7	7.6	1.3	8.2	1.4	16.7	1.3				
	Market	Mason	W	7.2	1.4	19.4	1.9	6.6	1.7	25.8	1.9	7.3	0.9	12.6	1.2	5.9	1.5	24.5	1.5				
	Mason	Gough	W	6.6	0.7	10.6	1.7	6.8	1	14.7	1.6	6.7	0.4	6.5	1.7	6.0	0.9	15.6	1.6				
	Gough	Divisadero	W	8.1	0.8	9.9	1.7	8.7	1.2	13.8	1.3	8.7	0.7	7.9	1.3	7.9	1.3	16.8	1.5				
Townsend	7th	2nd	E	8.2	1.3	15.9	2.1	8.4	1.5	17.9	1.7	8	1.0	12.8	1.4	8.1	2.3	28.2	1.4				
	2nd	7th	W	9.7	1.5	15.5	1.8	9.2	3.9	42.4	1.3	8.2	1.3	16.3	1.3	9.6	1.3	13.3	1.0				
Turk	Stanyan	Divisadero	E	9.3	2.8	30.1	1.9	7.4	2.1	28.4	2.1	8.5	0.6	7.6	1.5	8.5	1.7	20.2	1.4				
	Market	Hyde	W	6.3	1.3	20.6	1.6	7	1.3	18.6	1.8	6.4	2.2	34.0	1.6	4.5	0.7	16.0	1.9				
	Hyde	Gough	W	9.7	2.8	28.9	1.5																
	Gough	Divisadero	W																				
	Divisadero	Stanyan	W	11.4	1.3	11.4	1.6	9.9	1.8	18.2	1.9	10.4	1.5	14.8	1.6	9.9	1.9	19.6	1.8				
Van Ness / S Van Ness	Cesar Chavez	13th	N																				
	13th	Golden Gate	N	6.7	0.8	11.9	2.1	6.4	0.8	12.5	2.0	6.8	0.8	11.2	1.3	7.1	1.7	24.0	1.3	7.6	2.6	33.6	1.6
	Golden Gate	Washington	N	5.4	0.4	7.4	2.2	5.4	0.3	5.6	2.1	6.2	0.4	6.8	1.6	6.4	0.7	11.0	1.4	6.4	1.2	18.4	1.9
	Washington	Lombard	N	5.3	0.6	11.3	2.5	5.2	0.4	7.7	2.4	5.1	0.5	10.0	2.0	4.9	0.7	14.4	1.8	5.2	1.0	18.9	2.4
	Lombard	Washington	S	7	0.6	8.6	1.7	6.6	0.9	13.6	2.0	8	0.9	11.0	1.4	7.9	1.7	21.8	1.5	8.4	2.5	29.4	1.9
	Washington	Golden Gate	S	5.9	0.7	11.9	2.4	5.7	0.4	7.0	2.2	6	0.6	10.2	1.9	6.4	1.5	23.2	2.2	7.7	1.4	18.8	2.1
	Golden Gate	13th	S	6.8	1	14.7	2.3	6.2	0.6	9.7	1.9	5.2	0.8	15.0	2.1	4.9	1.2	24.7	1.6				
	13th	Cesar Chavez	S																				
Washington	Drumm	Kearny	W																				
West Portal	Sloat	Ulloa	N	9.7	2.3	23.7	1.5	11.4	1.9	16.7	1.4	10.6	1.4	12.8	1.1					9.2	3.2	34.8	1.6
	Ulloa	Sloat	S	11.2	1.8	16.1	1.5	7	1.8	25.7	2.1	6.3	1.1	18.1	2.5	7.7	2.2	28.1	2.1	6.9	2.1	30.4	2.0
I-280	Junipero Serra	Weldon	E																				
	Weldon	6th/Brannan	N													20.2	5.3	26.3	1.4				
US-101	County Line	Cortland	N																				
	Cortland	I-80	N																				
	I-80	Market	N																				
I-80	Treasure Island	Fremont Exit	W									25.6	2.0	7.9	1.8								
	Fremont Exit	US-101	W																				
I-280	6th/Brannan	Weldon	S																				
	Weldon	Junipero Serra	S																				
US-101	Market	I-80	S																				
	I-80	Cortland	S																				
	Cortland	Monster Park Exit	S																				
I-80	US-101	Fremont Exit	E																				
	Fremont Exit	Treasure Island	E									21.2	2.3	10.7	2.8								

Attachment 8.2: PM Transit Speed Monitoring Results (2006 – 2021)

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
1st St	Market	Harrison	S																																				
2nd St	Brannan	Market	N									7.3			1.4	6.3	2.6	40.8	2.1	6.5	1.8	27.7	0.5	5.7	2.5	43.9	0.9	6.5	1.5	22.9	1.0	6.8	1.7	24.6	1.2				
	Market	Brannan	S									7.4			1.4	6.8	2.7	39.7	1.8	7.1	1.3	18.3	0.8	4.6	1.5	32.6	1.5	6.4	1.2	18.7	1.7	7.1	1.8	25.4	1.2				
3rd St	Jamestown	Evans	N													5.4	2.6	47.1	4.4																	7.9	1.1	14.3	2.1
	Evans	Terry Francois	N													8.3	3.2	38.9	3.6																	11.1	3.6	32.8	1.6
	Terry Francois	Market	N													5.6	2.0	36.1	2.3	6.6	1	15.2	1.9	7.1	1.3	18.3	1.4	6.6	0.6	8.8	1.3	6.6	1.0	15.4	1.6	8.5	2.2	25.8	1.7
	Terry Francois	Evans	S													8.1	2.9	36.1	3.7																	12.3	3.4	27.6	1.6
	Evans	Jamestown	S													5.0	2.7	54.6	4.6																	8.3	1.2	14.9	1.8
4th St / Stockton	O'Farrell	Harrison	S	5.1			1.7					4.8			1.8	4.6	1.7	37.0	3.3													3.4	0.7	21.6	2.2	6.0	1.8	29.3	1.8
	Harrison	Channel	S									7.3			1.9	6.5	1.7	26.3	2.3	7.4	3.4	45.9	1.7																
5th St	Brannan	Market	N									6.8			2.3	6.3	2.2	34.4	2.5	4.7	1.9	40.4	0.9	3.8	1.7	44.7	1.7	2.8	0.6	22.5	1.3								
	Market	Brannan	S									6.3			2.1	5.2	1.5	29.2	2.6	5.5	0.5	9.1	1.0	4.2	0.4	9.5	1.6	4.6	0.5	11.0	1.5	4.7	0.8	17.7	1.6				
6th St	Brannan	Market	N																																				
	Market	Brannan	S																																				
7th St	Brannan	Market	N									7.7			2.1	7.4	2.5	33.4	2.8	6.2	1	16.1	2.2	4.7	0.9	19.1	1.8	5.5	1.2	21.8	1.5	5.1	1.5	29.4	1.7	8.8	1.6	18.0	1.5
8th St	Market	Bryant	S									8.0			2.1	7.0	2.1	30.7	3.4	7.2	1.6	22.2	2.2	5.7	1.3	22.8	1.5	6.1	1.2	19.1	1.4	5.4	1.1	20.3	2.2	8.2	2.3	27.4	1.3
9th St	Brannan	Market	N																																				
10th St	Market	Brannan	S													7.7	1.7	22.5	2.7																				
16th St	Market	Mission	E	5.5			2.0	8.1			1.3	7.1			1.5	6.1	1.6	25.9	2.0	6.1	0.5	8.2	2.4	6	0.6	10.0	2.3	5.8	0.6	9.7	1.6	5.5	1.1	19.3	1.4	7.3	1.5	20.9	1.6
	Mission	Potrero	E	6.5			2.0	6.3			1.5	8.1			1.6	7.3	2.1	29.1	1.6	6.2	0.9	14.5	2.4	6.3	1.1	17.5	1.9	5.7	0.4	7.6	1.4	6.0	1.1	18.4	1.3	7.7	1.5	19.2	1.7
	Potrero	Mission	W	5.9			1.9	10			1.4	6.9			2.2	6.8	1.8	27.0	2.0	6	0.8	13.3	2.1	6.1	0.8	13.1	1.8	5.5	0.7	11.9	1.7	5.6	1.6	28.8	1.5	9.3	3.9	41.9	1.5
	Mission	Market	W	5.9			1.8	10.2			1.4	6.4			1.9	6.1	1.8	29.4	1.4	6.6	1	15.2	2.6	6	0.6	10.0	2.0	5.1	0.5	10.2	2.0	5.6	1.0	17.6	1.9	7.1	1.4	19.9	2.0
19th Ave / Park Presidio	Junipero Serra	Sloat	N									10.4			1.3	8.4	2.4	28.4	2.8	10	1.3	13.0	1.7	9.5	1.1	11.6	1.6	11.5	1.0	9.0	1.5	10.1	1.7	16.5	1.7	12.9	2.9	22.2	1.9
	Sloat	Lincoln	N									13.7			1.7	11.7	2.5	21.1	1.8	9	2	22.2	1.9	10	2	20.0	2.0	10.4	0.9	8.7	1.8	10.7	1.9	17.9	1.7	11.2	2.0	17.5	1.9
	Lincoln	Lake	N									13.3			2.2	14.6	2.6	17.6	2.0	13.3	1.2	9.0	2.1	13.1	2.2	16.8	1.7	11.6	1.8	15.2	1.7	14.3	1.8	12.6	0.9	17.6	2.7	15.7	1.6
	Lake	US-101	N									26.7			1.7					18.9	1.8	9.5	2.4	11.3	4.8	42.5	1.6	23.2	2.3	10.0	1.8								
	US-101	Lake	S									25.0			1.4	18.1	4.5	24.8	1.7	19	1.7	8.9	2.3	18.8	3.6	19.1	2.0	16.3	4.9	30.3	1.4								
	Lake	Lincoln	S									11.2			1.8	13.3	2.8	20.9	1.8	9.9	2.2	22.2	1.9	10	1.8	18.0	1.6	8	1.4	17.9	1.7	10.0	1.8	18.3	1.3	9.1	2.7	29.8	1.8
	Lincoln	Sloat	S									10.9			2.2	10.7	2.7	25.3	2.6	11.3	1	8.8	1.8	11.1	1.1	9.9	1.8	10.3	0.5	4.6	2.0	10.2	1.6	15.5	1.9	11.1	1.8	16.2	1.8
	Sloat	Junipero Serra	S									12.0			1.0	11.5	3.1	26.6	1.5	9	1.8	20.0	2.0	9.4	1.1	11.7	1.7	9.1	1.0	10.7	1.8	9.2	1.5	16.3	2.3	12.2	2.6	21.3	1.8
Alemany	Junipero Serra	Lyell	E													5.6	2.7	48.0	3.9																				
	Lyell	Bay Shore	E													8.8	1.9	21.5	3.4																				
	Bay Shore	Lyell	W													13.2	3.7	28.3	1.9																				
	Lyell	Junipero Serra	W													11.3	3.4	30.1	2.0																				
Bay	Van Ness	Embarcadero	E																																				
	Embarcadero	Van Ness	W																																				
Bayshore	County Line	Industrial	N									11.4			1.9	6.7	3.3	49.3	3.5																				
	Industrial	Cesar Chavez	N									12.3			1.2	11.3	3.0	26.8	1.4	9.5	1.2	12.6	1.9	9.7	3.1	32.0	1.8	8.1	1.1	14.0	1.9	11.0	1.6	14.5	1.2	14.1	3.8	27.4	1.4
	Jerrold	Industrial	S									15.1			1.5	10.8	2.8	26.4	1.4	6.9	2.3	33.3	3.0	7.5	2.8	37.3	2.6	8	1.2	15.5	2.0	9.4	2.3	23.9	1.6	11.5	3.3	28.7	1.9
	Industrial	County Line	S									10.6			2.5	8.3	2.5	30.0	2.6																				
Beale/Davis	Clay	Mission	S									8.9			1.3	5.8	2.2	38.0	2.0	6.6	1.4	21.2	0.8	7.1	2.6	36.6	0.8	6	1.3	22.4	1.4	4.8	1.2	24.4	1.3				
Brannan	Division	6th	E																																				
	6th	3rd	E																																				
	3rd	6th	W																																				
	6th	Division	W																																				

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Broadway	Gough	Larkin	E																																				
	Larkin	Powell	E																																				
	Powell	Montgomery	E									6.7			2.0	6.1	1.5	23.8	2.3	6.1	0.9	14.8	1.5	6.8	1.4	20.6	1.6	5.6	0.5	9.5	1.7	5.6	1.1	19.2	1.8	6.8	1.9	28.8	2.2
	Montgomery	Embarcadero	E									7.1			2.1	6.1	1.5	24.5	2.2	6.2	1.6	25.8	1.1	5.6	1.7	30.4	0.9												
	Embarcadero	Montgomery	W																																				
	Montgomery	Powell	W																					3	0.8	26.7	1.8	3.5	1.4	40.5	1.3								
	Powell	Larkin	W																																				
	Larkin	Gough	W																																				
Brotherhood	Junipero Serra	Alemany	E																																				
	Alemany	Junipero Serra	W																																				
Bryant	Division	4th	E									8.3			1.5	7.5	2.4	32.6	1.9	8.4	1.5	17.9	1.7	6.1	1.5	24.6	1.4	5.9	0.7	12.1	1.4	5.8	1.1	19.4	1.4				
	4th	Embarcadero	E																																				
Bush	Masonic	Gough	E																																				
	Gough	Market	E													6.2	2.4	38.0	1.8																				
Castro / Divisadero	Market	14th	N	9.6			1.6	9.2			1.1	8.5			1.8	6.9	1.9	27.9	2.2	6.9	0.9	13.0	2.1	7.6	0.7	9.2	1.7	6.8	1.2	17.5	1.8	7.0	1.4	20.1	1.7	7.5	1.8	24.8	1.9
	14th	Geary	N	6.7			1.4	7.9			1.7	7.6			1.6	6.9	1.6	22.9	1.7	6.1	0.4	6.6	2.3	6.7	0.6	9.0	1.7	6.5	0.6	8.7	1.6	6.1	0.7	12.2	1.6	7.0	0.8	12.1	1.8
	Geary	Pine	N	5.5			1.4	8.2			1.3	6.6			1.6	6.2	2.2	35.0	1.5	7.6	1.1	14.5	1.8	6.6	1.4	21.2	1.7	5.2	1.5	28.8	1.8	5.3	1.5	28.2	1.8	5.4	1.4	25.4	2.3
	Pine	Geary	S	5.6			2.1	5.8			1.5	6.2			2.2	5.8	1.4	23.5	1.7	5.4	0.9	16.7	2.4	5.5	1.1	20.0	1.9	5.7	1.2	21.2	1.6	5.3	1.5	28.6	1.7	5.3	1.5	27.4	2.1
	Geary	14th	S	5.5			2.2	5.7			1.7	6.4			1.7	5.9	1.4	23.9	1.8	5.7	0.5	8.8	2.2	5.6	0.5	8.9	1.7	5.3	1.0	19.6	1.8	5.6	0.7	13.3	1.7	6.1	1.1	17.8	1.7
	14th	Market	S	9.1			1.3	6.1			1.9	9.0			1.7	8.0	2.2	28.1	1.5	8.6	1.1	12.8	1.6	8.3	1.4	16.9	1.3	7.3	1.9	26.3	1.3	6.4	1.6	25.4	1.5	7.6	1.6	20.8	1.5
Cesar Chavez	Guerrero	Bryant	E													7.6	2.4	31.3	1.4	6	1.2	20.0	2.6	6.8	2.2	32.4	1.6	6.5	1.1	16.2	1.5					8.9	2.5	28.6	1.5
	Bryant	Kansas	E													7.6	2.4	31.7	4.0																				
	Kansas	3rd	E													9.6	2.4	24.8	2.4																				
	3rd	Kansas	W													8.7	2.9	33.8	2.3																				
	Kansas	Bryant	W													8.7	2.7	31.5	2.7																				
	Bryant	Guerrero	W													7.4	2.4	32.4	1.6	5.4	1.4	25.9	3.0	6.3	1.6	25.4	1.9	5.2	0.9	16.6	2.0								
Clay	Kearny	Davis	E									7.1			1.6	6.1	1.9	30.6	2.6	6.5	0.6	9.2	1.0	6.6	1.9	28.8	1.3	7.7	0.9	12.2	1.1	6.6	1.2	18.0	1.3	8.0	2.4	30.0	1.5
Columbus	Montgomery	Greenwich	N									6.1			2.3	5.8	1.9	32.4	2.2	4.5	0.7	15.6	2.8	4.4	1	22.7	2.8	5.5	0.5	9.3	2.2	4.8	0.9	18.2	2.5				
	Greenwich	North Point	N	8.1			1.6	6.7			2.5	8.5			1.1	7.8	2.3	30.1	1.7	7.3	0.7	9.6	1.8	7	0.9	12.9	1.8	6.6	0.7	9.9	1.9	6.2	1.5	24.1	1.7	7.5	1.8	23.7	2.0
	North Point	Greenwich	S	7.3			2.2	8.5			1.5	7.8			1.7	6.2	1.8	28.4	2.3	6.7	0.7	10.4	1.7	6.3	0.7	11.1	1.7	6.7	0.6	9.2	1.3	4.8	1.0	20.5	1.6	5.5	1.2	22.1	2.3
	Greenwich	Montgomery	S									5.6			1.3	5.2	1.7	32.8	2.4	4.1	0.5	12.2	2.9	4.2	0.5	11.9	2.4	5.7	2.1	37.2	1.6								
Doyle / Lombard / Richardson	County Line	SF Cemetery	E																	19.7	1.9	9.6	1.7	18.5	3	16.2	2.2	21.3	4.9	22.8	1.8								
	SF Cemetery	Lyon/Francisco	E																	19.7	1.9	9.6	2.0	18.5	3	16.2	1.9	21.3	4.9	22.8	1.4								
	Lyon/Francisco	Van Ness	E									8.1			2.3					10.3	1.4	13.6	1.8	12.5	2.3	18.4	1.1	8.2	0.6	7.2	1.5	7.9	1.0	12.8	1.5				
	Van Ness	Lyon/Francisco	W									11.6			1.4					8.9	1	11.2	2.0	8.1	2	24.7	1.6	8.9	0.7	8.4	1.5	7.8	1.2	15.3	1.7				
	Lyon/Francisco	SF Cemetery	W																	13.5	4.1	30.4	1.9	10.8	4	37.0	1.2	24.5	2.9	11.7	1.6								
	SF Cemetery	County Line	W																	13.5	4.1	30.4	1.7	10.8	4	37.0	1.3	24.5	2.9	11.7	1.5								
Drumm	Market	Washington	N									5.4			3.0	4.9	2.7	54.6	3.5																				
	Washington	Market	S									6.3			1.2																								
Duboce / Division	Market	Mission	E																																				
	Mission	Potrero	E													9.7	2.6	27.0	1.9																				
	Potrero	Mission	W													6.9	1.7	24.9	2.3																				
	Mission	Market	W																																				
Embarcadero	Townsend	North Point	N																																				
	North Point	Townsend	S																																				
Evans	Cesar Chavez	3rd	S									16.7			1.3	13.3	4.4	33.3	1.3	13.6	3.6	26.5	1.2	10.5	2.2	21.0	1.2	11.4	1.5	12.8	1.2	10.7	2.7	25.1	1.5	10.7	3.9	36.4	2.1
	3rd	Cesar Chavez	N									14.8			1.4	14.2	3.6	25.5	1.5	11.8	2.7	22.9	1.4	12	2	16.7	1.0	12.4	3.9	31.5	2.0	15.4	3.9	25.1	1.0	15.4	3.5	23.0	1.4
Fell	Gough	Market	E																																				
	Gough	Laguna	W																																				
	Laguna	Stanyan	W																																				
Folsom	13th	8th	E																	9.4	1.6	17.0	2.0	7.8	2.3	29.5	1.7	5.5	0.9	17.2	1.7	6.5	1.5	23.6	1.5	7.1	1.4	20.0	1.8
	8th	4th	E									10.2			1.7	9.5	2.7	28.1	2.0	7.3	1.3	17.8	2.4	4.6	1.6	34.8	2.1	6	0.9	15.1	1.4	6.4	1.2	19.1	1.3				
	4th	1st	E									8.0			1.9	7.0	2.4	34.8	2.4																				
	1st	Embarcadero	E									8.4			1.4	6.7	8.9	133.0	1.8																				

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Franklin	Market	Pine	N																																				
	Pine	Lombard	N																																				
Fremont	Harrison	Market	N									8.2			1.2																								
Fulton	Park Presidio	10th Ave	E									11.2			2.3					10.2	2.2	21.6	2.3	8.8	3.3	37.5	2.3	8.6	5.3	61.8	2.2	8.1	1.9	22.9	2.1	15.5	2.9	18.6	1.2
	10th Ave	Arguello	E									11.2			2.1					4.5	2.8	62.2	4.1	9.9	1.6	16.2	1.8	7.5	2.4	31.5	1.9	9.4	2.5	26.3	2.0	9.3	2.9	31.1	2.0
	Arguello	Masonic	E	9.6			1.6	6.2			1.8	10.4			1.3	8.9	2.7	30.1	1.4	8.3	1.5	18.1	1.8	8.6	1	11.6	1.8	7.9	1.4	18.0	1.5	8.9	1.6	18.0	1.2	11.0	3.0	27.6	1.5
	Masonic	Arguello	W	10.3			2.0	6.4			3.7	9.2			2.2	8.8	2.5	28.4	1.6	7.3	0.5	6.8	2.5	8.5	0.7	8.2	1.9	8.3	1.3	16.1	1.6	8.0	1.0	12.3	1.7	7.3	1.4	18.7	2.2
	Arguello	10th Ave	W									9.7			2.3	6.2	2.0	31.9	2.9	10.6	1	9.4	1.7	11.3	1.8	15.9	1.6	10	2.1	20.7	1.6	9.2	1.5	16.2	1.6	9.0	1.9	21.2	2.2
	10th Ave	Park Presidio	W									9.7			0.9	6.2	2.0	31.9	1.8	8.7	1.6	18.4	2.1	6.7	3.1	46.3	2.2	7.2	4.2	58.8	1.9	7.6	2.4	31.9	1.8	8.5	3.0	35.7	2.4
Geary	Great Hwy	25th Ave	E									11.4			1.9	11.3	3.2	28.2	2.1	9.4	0.6	6.4	1.9	10.2	1.1	10.8	1.4	12.3	5.0	40.8	1.3	11.2	1.5	13.8	1.6	11.5	1.9	16.2	1.7
	25th Ave	Arguello	E									8.6			2.7	8.4	1.8	21.6	2.6	8.3	0.6	7.2	2.0	8.4	0.4	4.8	1.5	8.7	1.9	21.6	1.7	8.5	1.2	14.1	1.8	8.7	1.3	15.2	2.0
	Arguello	Gough	E									9.1			2.2	8.6	2.1	24.4	2.3	8.2	0.4	4.9	2.3	8.3	0.3	3.6	1.8	7.9	1.5	19.0	2.2	9.2	1.1	12.4	1.6	9.1	1.3	14.4	2.0
	Kearny	Gough	W									7.1			1.4	6.9	1.9	27.3	1.9	6.9	0.6	8.7	1.7	7.3	0.7	9.6	1.4	7	0.9	12.6	1.1	7.2	1.2	16.6	1.2	8.0	1.6	20.3	1.6
	Gough	Arguello	W									9.0			2.8	9.6	2.6	27.5	2.6	9.6	0.6	6.3	2.3	8.5	0.6	7.1	1.8	8.8	1.3	15.1	2.1	10.0	1.5	15.4	1.7	10.7	1.6	14.7	1.9
	Arguello	25th Ave	W									8.6			2.0	8.2	1.8	21.5	2.1	8	0.5	6.3	2.0	7.8	0.3	3.8	1.5	7.7	0.6	7.9	1.7	8.2	1.3	15.7	1.7	8.7	1.3	15.4	2.0
	25th Ave	Great Hwy	W									11.3			2.0	10.8	2.6	23.7	2.1	11	0.5	4.5	1.5	10.7	0.8	7.5	1.4	9.1	0.6	7.0	1.9	9.6	1.2	12.4	1.9	10.3	2.0	19.3	1.9
Geneva	Ocean	Cayuga	E									6.9			1.2	6.2	1.9	30.1	2.1	5.7	1.2	21.1	2.5	5.9	0.9	15.3	1.6	6.5	1.0	15.0	1.5	6.5	1.2	19.0	1.4	8.1	1.4	16.9	1.9
	Cayuga	Paris	E									6.7			1.6	6.3	1.8	29.1	1.8	5	0.6	12.0	2.9	5.3	1	18.9	2.0	4.9	0.5	9.4	2.2	4.4	1.1	25.0	2.2	5.1	1.9	37.2	2.9
	Paris	Santos	E									13.4			1.6	9.9	2.5	25.3	2.2	9.1	1.1	12.1	2.5	9.4	0.9	9.6	1.7	11.2	1.2	10.9	1.7	10.8	1.8	16.4	1.7	12.7	2.5	19.9	1.7
	Santos	Paris	W									14.6			1.6	10.8	2.6	23.8	2.2	10.3	0.8	7.8	2.0	11.1	0.9	8.1	1.4	10.8	2.8	25.6	1.6	11.2	2.0	17.9	1.3	11.8	2.1	17.9	1.8
	Paris	Cayuga	W									7.2			1.4	6.8	1.8	26.5	1.2	4.8	0.7	14.6	2.8	5.6	0.7	12.5	1.9	5.6	0.6	11.3	1.7	5.8	1.4	23.2	1.7	6.6	1.7	26.5	2.4
	Cayuga	Ocean	W									8.4			1.1	6.8	1.6	23.8	1.5	6.5	0.8	12.3	2.0	6.4	0.6	9.4	1.5	6.2	1.0	16.5	1.5	7.0	1.3	18.6	1.4	6.9	1.4	20.7	2.1
Golden Gate	Masonic	Franklin	E																																				
	Franklin	Market	E																																				
Gough	Pine	Geary	S																																				
	Geary	Golden Gate	S																																				
	Golden Gate	Market	S																																				
Guerrero / San Jose	Monterey	29th	N																													18.2	3.9	21.5	0.8	21.2	5.0	23.6	1.4
	29th	Cesar Chavez	N																																				
	Cesar Chavez	29th	S																																				
	29th	Monterey	S																													18.2	2.3	12.5	0.9	32.6	14.4	44.2	0.8
Harrison	Embarcadero	1st	W									9.1			1.3																								
	1st	4th	W									8.5			2.0					7.2	1.8	25.0	2.3	5.6	2	35.7	2.3	5.4	1.5	26.9	1.4	6.7	2.2	32.0	1.4				
	4th	8th	W									9.5			1.2	8.9	2.7	30.0	1.7	8.4	0.8	9.5	1.9	8.4	1.5	17.9	1.7	8.3	0.7	8.3	1.7	7.4	1.5	20.7	1.7	10.2	2.8	27.3	1.4
	8th	Division	W									7.1			1.9	7.3	2.4	32.9	1.6	5.4	1	18.5	3.0	6.2	1.8	29.0	2.1	6.3	0.5	8.2	1.7	5.5	1.0	18.7	1.9	6.6	2.5	37.8	1.9
Hayes	Market	Gough	W	6.1			1.9	5.3			2.5	4.8			2.0	4.3	1.5	34.0	2.0	4.5	0.9	20.0	2.6	5.4	1.1	20.4	2.1	4.8	0.8	17.3	1.6	4.9	0.8	15.4	1.6				
Howard	Embarcadero	S Van Ness	W													21.7	4.2	19.5	0.6																				
Junipero Serra	County Line	Brotherhood	N																					13.2	4.9	37.1	1.6	6.6	1.0	15.2	2.6								
	Brotherhood	19th	N									14.8			1.0	9.3	4.2	45.2	1.1	8.8	1.5	17.0	1.6	7.9	1.7	21.5	1.6	9.2	1.3	13.9	1.2	7.8	1.7	21.3	1.2	12.9	3.7	29.0	1.9
	19th	Sloat	N																																				
	Sloat	19th	S																																				
	19th	Brotherhood	S									13.4			2.9					14.5	1.3	9.0	2.6	17.2	6.2	36.0	2.0	14.7	6.0	40.5	2.5	12.7	3.1	24.5	3.1	12.9	3.9	30.2	3.3
	Brotherhood	County Line	S													16.3	5.0	30.4	2.8									14.1	0.7	4.7	3.8								
Kearny	Market	Columbus	N									6.8			1.9	5.4	2.9	53.5	2.8	7.5	1.2	16.0	1.6	6.8	0.6	8.8	1.3	6.6	1.7	25.7	1.3	5.7	0.9	16.4	1.6	6.8	2.2	32.5	1.9
King	4th	2nd	E																																				
	2nd	4th	W																																				
Lincoln / Kezar	19th Ave	5th Ave	E									11.9			1.9	10.6	3.2	30.0	1.9	9.9	1.3	13.1	2.2	10.1	0.9	8.9	1.9	9.4	2.1	22.8	1.9	10.2	2.5	24.2	1.6	12.3	3.4	27.6	1.6
	5th Ave	Stanyan	E													11.7	3.7	31.1	1.9																				
	Stanyan	5th Ave	W													6.3	0.6	9.6	3.9																				
	5th Ave	19th Ave	W									12.2			1.1	11.1	3.1	28.2	1.7	11.1	2.2	19.8	1.6	11.7	1	8.5	1.4	10	1.5	15.0	1.5	8.8	2.1	23.8	1.6	9.8	2.7	28.0	1.8
Main	Mission	Market	N	4.1			3.5	4.1			4.0					3.6	1.8	48.6	3.9	5.5	1.4	25.5	0.6	6	5.5	91.7	0.8	4.8	1.0	21.1	2.3								

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Market / Portola	Sloat	Santa Clara	E													4.8	1.9	40.3	4.4																				
	Santa Clara	Burnett	E													12.1	4.2	34.3	1.6	11.2	2	17.9	2.1	12.4	3.4	27.4	1.6	11.1	1.0	8.8	1.7	12.4	3.4	27.1	1.6	16.6	2.7	16.0	1.3
	Burnett	Castro	E													10.5	2.5	23.3	2.2																	20.3	3.1	15.1	1.0
	Castro	Guerrero	E	7			1.4	6.6			1.6					5.8	1.4	24.0	1.8	7.2	0.8	11.1	1.9	6.2	0.7	11.3	1.8	5.4	0.5	8.4	1.9					6.6	1.0	15.7	2.1
	Guerrero	Van Ness	E	5.5			1.3	5.4			1.9					5.8	1.4	24.0	2.6	9.6	3.3	34.4	2.1	5.3	1.2	22.6	2.3	3.8	1.1	30.2	2.4					6.5	0.9	14.4	1.9
	Van Ness	Drumm	E	6.6			1.7	7.8			1.2	8.1			1.2	6.7	2.3	34.2	1.6	6.6	0.5	7.6	1.8	6	0.7	11.7	1.5	5.7	0.3	5.6	1.1	5.7	0.8	13.5	1.1	6.5	0.9	14.7	1.9
	Drumm	Van Ness	W	6.2			1.6	5.4			2.1	6.8			2.0	6.1	1.9	31.4	2.0	7	0.3	4.3	1.7	7	0.5	7.1	1.3	6.1	0.2	3.6	0.9	5.5	0.9	17.0	1.3	7.8	1.0	13.1	1.3
	Van Ness	Guerrero	W	6.5			1.9	7.2			1.2					5.2	1.4	27.0	2.2	4.6	0.9	19.6	2.8	4.8	1.2	25.0	2.3	5.8	0.8	13.8	1.9					7.3	2.5	33.9	2.1
	Guerrero	Castro	W	6.3			3.1	5.1			2.9					5.2	1.4	27.0	2.4	6.1	0.7	11.5	2.6	4.8	0.7	14.6	2.7	5.5	0.9	15.6	2.8					7.9	1.6	19.9	2.2
	Castro	Burnett	W													6.1	1.8	30.1	5.0																	19.3	2.6	13.4	1.2
	Burnett	Santa Clara	W													13.0	3.8	29.3	1.7	10.6	1.1	10.4	2.1	11.3	2.4	21.2	1.5	11.3	2.0	17.9	1.5	13.7	3.0	22.0	1.2	15.4	4.4	28.7	1.5
	Santa Clara	Sloat	W																																				
Masonic	Page	Geary	N									9.5			2.0	8.1	2.0	24.9	2.1	7.6	1	13.2	2.3	6.6	1.2	18.2	1.9	8	1.1	13.7	1.6	7.6	1.0	13.1	1.5	8.8	1.6	18.2	1.6
	Geary	Bush/Euclid	N													9.7	2.9	29.8	2.3																				
	Presidio	Geary	S													3.1	1.0	31.3	2.9																				
	Geary	Page	S									8.9			1.9	7.2	1.7	22.8	1.9	7.8	0.8	10.3	2.5	7.4	1.5	20.3	1.8	7.1	1.5	21.3	1.8	7.5	1.7	22.3	1.7	8.0	2.9	36.9	1.5
Mission / Otis	Sickles	Ocean	N	9.4			2.4	7.1			2.8	10.0			2.2	10.2	2.4	23.9	2.0	7.2	1.7	23.6	2.4	9.8	0.5	5.1	1.4	12.1	1.2	9.9	1.2	10.2	1.7	16.8	1.2	11.9	2.0	16.8	1.4
	Ocean	Cesar Chavez	N	8.8			2.2	5.3			2.9	9.0			2.0	9.1	2.1	22.6	1.8	8.1	0.4	4.9	1.7	8.2	0.4	4.9	1.7	9.7	1.8	18.9	1.4	9.4	1.6	17.5	1.4	11.8	2.1	17.5	1.4
	Cesar Chavez	14th	N	7			1.8	7.1			1.9	7.1			1.9	7.1	1.7	24.4	2.0	6.8	0.4	5.9	1.7	6.8	0.3	4.4	1.6	7.9	0.7	8.8	1.2	7.6	1.2	16.3	1.2	8.2	1.2	15.0	1.5
	14th	9th	N	6.6			1.9	5.7			2.2	7.5			1.8	7.4	2.1	28.4	1.7	5.4	0.6	11.1	2.7	5.4	0.9	16.7	2.5	3.8	1.3	34.1	2.4	5.4	1.1	20.3	1.7	7.0	1.7	23.9	1.9
	9th	3rd	N	8.5			1.5	6.4			2.2	9.1			1.5	8.0	1.8	22.3	1.6	8.1	0.5	6.2	1.9	7	0.7	10.0	1.5	7.9	1.1	14.4	1.3	7.0	1.4	20.8	1.4	9.1	1.9	21.2	1.5
	3rd	Embarcadero	N	5.6			1.4	6.5			1.4	8.2			1.6	6.9	2.3	33.5	1.6	6.8	1.3	19.1	2.1	6	1.6	26.7	1.4	7.6	2.2	29.5	0.9	5.0	1.4	28.5	1.2	6.6	2.0	30.7	1.8
	Embarcadero	3rd	S	7			1.9	8.6			1.3	7.1			2.0	4.0	3.6	89.9	2.8	3.5	0.7	20.0	3.7	6.9	0.9	13.0	1.3	8.9	2.7	30.0	0.8	4.8	1.0	20.1	1.6	5.7	3.2	55.6	2.3
	3rd	9th	S	8.4			2.2	4.2			3.1	7.6			2.0	7.8	2.1	27.5	1.9	6.9	0.8	11.6	2.1	7	0.8	11.4	1.6	9.8	1.2	12.5	1.2	7.5	1.6	21.8	1.4	9.8	2.0	20.6	1.3
	9th	14th	S	6.7			1.9	5.7			2.3	6.8			2.0	7.2	2.1	29.1	1.9	4.9	1	20.4	2.5	5.6	0.8	14.3	1.9	2.1	0.5	21.8	5.0								
	14th	Cesar Chavez	S	6.5			2.0	5.4			2.5	6.6			2.3	6.9	1.7	24.3	2.0	6.6	0.6	9.1	1.9	6.7	0.3	4.5	1.7	7.3	0.9	11.7	1.4	7.9	1.6	19.8	1.2	9.1	1.6	17.3	1.5
	Cesar Chavez	Ocean	S	8.2			1.8	7.5			1.9	8.1			1.7	8.2	1.9	23.2	1.9	7.2	0.4	5.6	1.8	7	0.4	5.7	1.7	9.1	1.3	14.6	1.2	8.4	1.5	17.2	1.2	9.8	1.7	16.9	1.5
	Ocean	Sickles	S	9.7			2.2	9.3			1.8	10.9			1.9	9.8	2.1	21.2	2.0	9	0.5	5.6	1.8	8.5	0.6	7.1	1.6	8.8	1.8	19.9	1.6	9.1	1.8	19.4	1.4	10.8	2.0	18.5	1.6
Montgomery	Broadway	Bush	S													6.8	2.1	30.7	1.1																				
North Point	Van Ness	Columbus	E	6.8			1.7	6.1			2.5	8.9			1.7	7.8	2.8	35.5	1.8	2.7	0.9	33.3	3.4	8	1.5	18.8	1.1	8.2	0.9	11.1	1.2	5.9	2.5	42.7	2.2	6.6	3.3	49.0	2.3
	Columbus	Embarcadero	E									9.6			1.7	8.4	2.4	28.8	1.9	7.8	3.6	46.2	2.3	7.9	3.8	48.1	1.1	7.5	3.3	44.1	1.2	10.1	2.8	27.8	1.5	11.9	3.6	30.4	1.4
	Embarcadero	Columbus	W									10.3			1.5	5.3	2.1	38.7	3.8	7.8	1.8	23.1	2.3	6.6	1.1	16.7	1.9	8	1.3	15.7	2.0								
	Columbus	Van Ness	W	7.4			2.6	5.5			2.3	8.2			2.0	5.6	2.2	39.3	2.4	5.2	1.2	23.1	2.0	5.7	1.1	19.3	2.3	6.1	0.7	12.2	2.0	6.6	2.3	35.0	1.4	7.8	2.9	37.2	1.9
Oak	Stanyan	Divisadero	E																																				
	Divisadero	Fillmore	E																																				
	Fillmore	Laguna	E																																				
	Laguna	Franklin	E																																				
Ocean	19th Ave	Miramar	E	9.5			1.3	5.5			2.7																					6.8	1.3	19.1	1.7	12.2	3.3	27.2	1.3
	Miramar	Howth	E	9			1.6	5.4			2.5					1.5	0.9	59.2	8.6	5.4	1.1	20.4	2.6	5.5	0.7	12.7	2.0	6	0.6	9.9	1.8	7.3	1.9	25.6	1.4	8.4	2.3	26.8	1.6
	Howth	Miramar	W	8.3			1.0	6			1.8					8.4	2.3	27.5	1.4	5.5	1.2	21.8	2.3	4.3	0.6	14.0	2.0	4.8	1.1	22.1	1.7	6.1	1.1	18.2	1.3	5.2	2.1	39.7	2.7
	Miramar	19th Ave	W	9.5			1.3	7.6			2.0																					7.3	0.9	12.0	1.7	11.2	2.8	25.3	1.4
Octavia	Market	Fell	N																																				
	Fell	Market	S																																				
O'Farrell	Gough	Mason	E									8.7			1.3	7.7	1.8	23.4	1.5	8.5	0.7	8.2	1.6	8	0.9	11.3	1.4	4.6	1.8	38.2	1.9	8.6	1.5	17.4	1.0	8.9	1.9	21.1	1.3
	Mason	Market	E									6.9			1.3	5.7	1.7	30.6	1.4	8.1	1.1	13.6	1.5	5.3	1.1	20.8	1.6	5.3	3.1	57.7	1.3	5.7	1.5	26.2	1.3	8.1	1.9	23.7	1.4
Pine	Market	Kearny	W																					8.9	4.2	47.2	0.8	6	1.1	18.5	0.9	4.7	1.3	26.6	1.4				
	Kearny	Leavenworth	W																																				
	Leavenworth	Franklin	W																																				
	Franklin	Presidio	W																																				
Potrero	Cesar Chavez	21st	N	6.4			2.7	5.8			4.1	7.3			2.6	8.9	2.3	25.7	2.4	8.4	1.6	19.0	1.8	7.9	0.9	11.4	1.0	7.1	1.6	22.7	1.8	6.4	1.5	23.1	2.2	8.5	1.8	20.9	2.0
	21st	Division	N	9.7			1.5	6.1			3.5	9.9			1.6	8.9	2.0	22.5	2.6	7.8	1	12.8	2.0	9	1	11.1	0.7	9.4	1.5	15.5	1.4	9.0	2.8	30.8	1.4	11.3	3.7	32.7	1.5
	Division	21st	S	9.4			1.8	7.6			2.7	10.0			2.5	9.6	2.7	28.2	2.4	9	1.8	20.0	1.6	8.2	1.5	18.3	1.0	8.8	0.9	10.3	1.8	8.9	1.6	18.0	1.5	10.2	2.6	25.3	1.6
	21st	Cesar Chavez	S	7.4			2.1	5.7			2.8	7.0			2.8	8.6	2.7	31.0	2.1	6	1.2	20.0	1.4	6	1.2	20.0	0.7	8	1.6	20.1	2.2	7.9	2.0	24.6	1.4	8.5	2.1	24.5	1.8

NAME	FROM	TO	DIR	2006				2007				2009				2011				2013				2015				2017				2019				2021			
				AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO	AVG. TRANSIT SPEED (MPH)	S.D TRANSIT SPEED (MPH)	COEFFICIENT OF VARIATION	AUTO:TRANSIT SPEED RATIO
Skyline	County Line	Sloat	N													25.9	4.6	17.9	1.6	21.7	3.1	14.3	2.0	16.4	3	18.3	2.2	24.9	3.0	11.9	1.4								
	Sloat	County Line	S													20.0	3.8	19.0	1.9									13.8	1.6	11.8	2.5								
Sloat	Skyline	Junipero Serra	E									15.4			1.3	12.4	4.4	35.8	1.4	11.5	5.6	48.7	2.2	11.2	10.8	96.4	2.0	10.5	1.4	13.6	1.9	11.0	2.5	22.4	1.8				
	Junipero Serra	Skyline	W									14.2			1.9	13.7	4.2	31.0	2.2	12.8	1.9	14.8	2.3	13.2	1.5	11.4	1.9	10.8	1.8	16.4	2.3	12.6	2.6	20.4	1.8				
Stanyan	Fulton	Turk	N													5.4	1.3	24.4	2.9																				
	Turk	Fulton	S																																				
Sutter	Divisadero	Gough	E	11.4			1.4	5.2			3.1	8.2			1.9	7.2	1.7	23.2	1.9	8.1	1	12.3	1.9	7.9	1.1	13.9	1.5	7.7	0.5	6.7	1.4	7.5	1.0	13.0	1.3				
	Market	Mason	W	5.7			2.0	5.8			2.3	6.1			1.9	5.4	2.0	37.6	2.3	5.7	1.4	24.6	2.1	5.7	1	17.5	1.8	6.3	0.6	9.9	1.3	4.9	0.9	18.7	1.7				
	Mason	Gough	W	6.5			2.0	8.4			1.5	6.6			2.2	6.1	1.6	26.2	1.9	6.6	0.9	13.6	1.9	6.4	1.4	21.9	1.7	6.9	0.4	6.0	1.6	5.7	0.9	15.8	1.9				
	Gough	Divisadero	W	9.1			1.5	6.6			2.4	7.9			1.9	6.8	1.3	19.1	2.0	7.6	1.2	15.8	1.7	7.6	0.8	10.5	1.6	7.9	0.7	9.2	1.4	6.8	1.0	15.0	1.8				
Townsend	7th	2nd	E									10.4			1.1	9.2	2.4	25.6	1.7	7.5	2	26.7	2.3	5.1	1.7	33.3	1.6	5.5	1.6	29.8	1.6	6.6	2.4	36.9	1.3				
	2nd	7th	W									10.3			1.3	7.9	2.3	29.2	1.5	5.7	1.2	21.1	2.9	5.7	3.5	61.4	1.6	5.2	1.1	20.8	1.8	8.0	1.3	15.7	1.1				
Turk	Stanyan	Divisadero	E	10.5			1.8	5.4			3.5	11.7			1.5	9.8	3.1	32.0	1.8	10.5	2.3	21.9	1.9	10.1	1.2	11.9	1.8	9.5	1.5	16.0	1.5	8.4	1.8	21.1	1.6				
	Market	Hyde	W									5.8			1.9	5.5	1.6	29.4	2.1	7	1.6	22.9	1.9	6.7	1.6	23.9	1.9	6	0.8	12.8	1.5	4.5	1.0	23.0	1.9				
	Hyde	Gough	W													6.6	2.1	31.5	1.7	8	1.5	18.8	1.8									4.6	0.9	19.4	1.9				
	Gough	Divisadero	W																																				
	Divisadero	Stanyan	W	10.2			2.1	10.3			1.8	10.4			2.5	9.1	3.2	35.5	1.9	8	1.8	22.5	2.4	9	1.7	18.9	1.9	8.5	1.2	13.6	1.9	8.2	1.8	21.4	2.2				
Van Ness / S Van Ness	Cesar Chavez	13th	N																																				
	13th	Golden Gate	N	5			2.0	5.1			2.5	6.4			2.3	5.9	1.8	31.1	2.3	5.7	0.9	15.8	2.4	5.7	0.7	12.3	1.7	6.2	0.6	10.0	1.4	6.3	1.4	21.6	1.2	9.2	2.3	24.7	1.6
	Golden Gate	Washington	N	5.3			3.1	7.2			2.4	6.2			2.8	5.5	1.7	30.7	4.0	5.4	0.4	7.4	2.7	5.2	0.4	7.7	2.3	6.4	0.6	8.8	2.1	6.1	0.9	14.1	2.2	8.1	1.7	20.6	2.0
	Washington	Lombard	N	7.9			2.8	6.1			4.4	8.5			3.1	7.8	2.1	26.8	3.2	7.6	0.9	11.8	2.3	7.4	0.7	9.5	2.2	6.8	1.0	14.7	2.3	5.6	1.3	22.7	3.0	7.0	1.7	24.6	2.7
	Lombard	Washington	S	6.4			2.1	5.4			3.7	6.6			1.9	6.6	2.2	32.8	2.6	6.4	0.7	10.9	2.1	6.2	0.4	6.5	2.0	6.6	0.8	12.2	1.7	6.4	1.0	15.7	1.6	6.8	1.4	20.4	1.9
	Washington	Golden Gate	S	4.1			2.0	7.6			1.4	6.0			2.0	5.6	1.3	23.9	2.1	5.4	0.6	11.1	2.4	5.2	0.6	11.5	1.9	5.2	0.9	17.5	1.5	5.1	0.7	12.9	1.8	6.4	1.2	19.5	1.8
	Golden Gate	13th	S	11.4			0.8	7.7			1.6	6.5			1.9	6.2	1.9	30.0	2.7	6.1	1	16.4	2.3	4.7	0.6	12.8	1.7	4.2	0.4	9.2	1.6	4.5	0.9	19.6	1.6	7.1	1.7	24.5	1.6
	13th	Cesar Chavez	S													7.1	1.7	24.2	2.6																				
Washington	Drumm	Kearny	W													6.2	2.0	32.3	2.4																				
West Portal	Sloat	Ulloa	N	6.6			2.3	7.1			2.1					6.1	2.2	36.0	2.5	7.8	3.3	42.3	1.8	11.4	2.4	21.1	1.0	10.9	1.2	11.1	1.1					8.6	2.5	29.0	1.5
	Ulloa	Sloat	S	8.9			1.9	6.6			2.3					4.1	1.4	35.3	4.1	8.5	1.8	21.2	1.6	5.8	0.8	13.8	2.5	5.7	1.3	22.8	2.3	6.3	1.8	28.8	1.8	6.7	1.9	29.1	2.0
I-280	Junipero Serra	Weldon	E																																				
	Weldon	6th/Brannan	N																																				
US-101	County Line	Cortland	N																																				
	Cortland	I-80	N																																				
	I-80	Market	N																																				
I-80	Treasure Island	Fremont Exit	W																									17.4	3.5	20.3	1.2								
	Fremont Exit	US-101	W																																				
I-280	6th/Brannan	Weldon	S																																				
	Weldon	Junipero Serra	S																																				
US-101	Market	I-80	S																																				
	I-80	Cortland	S																																				
	Cortland	Monster Park Exit	S																																				
I-80	US-101	Fremont Exit	E																																				
	Fremont Exit	Treasure Island	E																									18.9	2.3	12.3	1.9								

APPENDIX 9

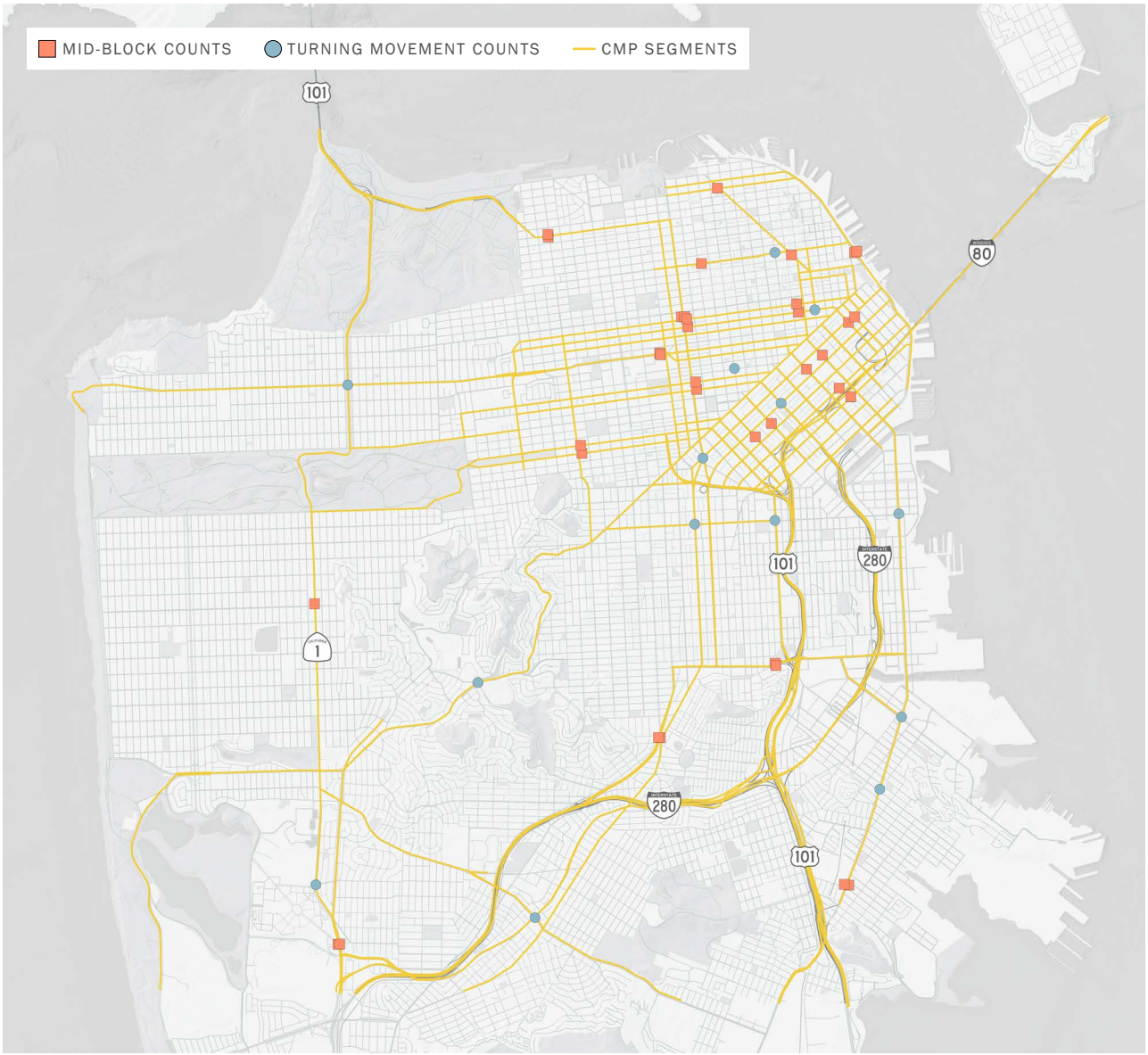
Multimodal Counts Data

KEY TOPICS

- Turning Movement Counts
- Mid-block Counts

In 2021, the Transportation Authority conducted mid-block and intersection volume counts. These counts are in addition to the legislatively required CMP performance measures and are therefore not subject to deficiency analyses. Two types of field volume counts were conducted: turning movement counts and mid-block counts at key locations across the City (Figure A9-1). The data collected with these counts are used by agencies for planning and operations activities.

Figure A9-1. Location of Turning Movement and Mid-Block Counts



A9.1 Turning Movement Counts

Turning Movement Counts were conducted at 14 intersections during the defined peak periods on a single day within the monitoring period. The counts recorded vehicles, pedestrians and bicycle modes of travel. Results of multimodal peak period intersection counts are shown in Table A9-1.

Table A9-1. Average Weekday Multimodal Volumes at Intersection Count Locations

	AM			PM		
LOCATION	**VEHICLE TRAFFIC**	**BICYCLES**	**PEDESTRIANS**	**VEHICLE TRAFFIC**	**BICYCLES**	**PEDESTRIANS**
3rd St and 16th St	1,399	49	144	1,778	65	317
3rd St and Evans Ave	2,548	24	59	2,550	19	74
3rd St and Palou Ave	2,080	27	297	2,498	25	496
6th St and Howard St	2,068	69	325	3,135	137	674
19th Ave and Holloway Ave	7,061	13	151	9,084	11	170
Geneva Ave and Alemany Blvd	4,014	39	96	5,119	26	114
Leavenworth St and Eddy St	1,243	36	596	1,445	34	1,076
Mission St and 16th St	1,804	33	1,094	3,130	61	2,241
Montgomery St and Bush St	1,689	19	902	2,192	53	1,029
Park Presidio Blvd and Geary Blvd	9,101	9	263	10,745	21	375
Portola Dr and O'Shaughnessy/Woodside	6,192	40	70	6,945	32	158
Potrero Ave and 16th St	3,149	47	260	4,623	63	308
South Van Ness Ave and 13th St	5,825	13	93	6,861	54	163
Stockton St and Broadway	2,404	54	1,314	2,900	72	2,021
Total	**50,577**	**472**	**5,664**	**63,005**	**673**	**9,216**

A9.2 Mid-block Counts

Mid-block counts were recorded at 28 locations for at least three days within the monitoring period. Four locations were extended beyond the monitoring period to record the following Friday, Saturday and Sunday for a total of six days. Results of multiday mainline traffic counts are shown in Table A9-2.

Table A9-2. Average Weekday Traffic Volumes at Mainline Count Locations

	NORTHBOUND			SOUTHBOUND		
LOCATION	**DAILY**	**AM**	**PM**	**DAILY**	**AM**	**PM**
19th Ave between Moraga and Noriega	25,831	2,773	4,004	29,136	3,140	4,373
Fremont St between Mission and Natoma	18,384	2,666	2,146	-	-	-
Junipero Serra Blvd between Font and Brotherhood Ramps	38,614	4,947	5,565	39,574	4,640	6,038
Mission St between 24th and 25th	3,167	282	461	6,803	470	1,099
San Jose Ave between Randall and Saint Mary's	15,368	2,571	2,234	15,430	1,485	3,065
The Embarcadero between Broadway and Washington	-	-	-	10,975	1,040	1,703
1st St between Mission and Minna	-	-	-	17,480	1,858	1,900
3rd St between Fitzgerald and Gilman	8,146	1,115	956	8,601	1,063	1,217
3rd St between Minna and Howard	21,431	3,028	2,443			
4th St between Minna and Howard				14,229	1,192	2,195
7th St between Howard and Folsom	11,053	1,806	1,277			
8th St between Tehama and Celementina				9,574	847	1,571
Columbus Ave between Broadway and Pacific	5,922	627	893	8,398	953	1,022
Total	**147,914**	**19,816**	**19,979**	**160,199**	**16,688**	**24,182**
	EASTBOUND			**WESTBOUND**		
LOCATION	**DAILY**	**AM**	**PM**	**DAILY**	**AM**	**PM**
Bay St between Leavenworth and Columbus	6,840	942	998	6,927	663	1,196
Broadway Tunnel between Larken and Powell	11,606	1,802	1,418	7,851	973	1,220
Bryant St between 3rd and 4th	14,708	1,786	1,367	-	-	-
Bush St between Grant and Kearny	11,503	1,352	1,352	-	-	-
Bush St between Van Ness and Polk	14,015	1,828	2,072	-	-	-
Cesar Chavez St between York and Hampshire	20,300	2,445	2,955	22,345	2,873	3,112
Fell St between Divisadero and Scott	-	-	-	26,827	2,944	3,786
Geary Blvd between Laguna and Gough	10,258	1,413	1,275	10,537	1,141	1,675
Golden Gate Ave between Van Ness and Polk	5,841	685	846	-	-	-
Harrison St between 3rd and 4th	-	-	-	12,948	1,294	1,791
Lombard St between Broderick and Divisadero	17,101	3,262	2,082	19,351	1,499	3,428
Oak St between Divisadero and Scott	26,317	3,371	3,180	-	-	-
Pine St between Grant and Kearny	-	-	-	14,315	1,869	1,884
Pine St between Van Ness and Polk	-	-	-	15,872	1,844	2,307
Turk St between Van Ness and Polk	-	-	-	5,395	668	700
Total	**138,489**	**18,886**	**17,546**	**142,368**	**15,768**	**21,098**

APPENDIX 10

Travel Demand Management

APPENDIX 10

TRAVEL DEMAND MANAGEMENT

KEY TOPICS

- TDM General Plan Objectives
- TDM Requirements
- TDM Policies
- TDM Programs
- TDM Studies and Plans

A.10.1. TDM General Plan Objectives

The Transportation Element of the General Plan lays out the City's policy of transit-oriented solutions for accommodating growth in travel demand and discouraging single-occupant automobile travel:

- Objective 3: Maintain and enhance San Francisco's position as a regional destination without inducing a greater volume of through automobile traffic.
- Objective 4: Maintain and enhance San Francisco's position as the hub of a regional, city-centered transit system.
- Objective 7: Develop a parking strategy that encourages short-term parking at the periphery of downtown and long-term intercept parking at the periphery of the urbanized bay area to meet the needs of long-distance commuters traveling by automobile to San Francisco or nearby destinations.
- Objective 10: Develop and employ methods of measuring the performance of the city's transportation system that respond to its multi-modal nature.
- Objective 11: Establish public transit as the primary mode of transportation in San Francisco and as a means through which to guide future development and improve regional mobility and air quality.
- Objective 16: Develop and implement programs that will efficiently manage the supply of parking at employment centers throughout the city so as to discourage single-occupant ridership and encourage ridesharing, transit and other alternatives to the single-occupant automobile.
- Objective 17: Develop and implement parking management programs in the downtown that will provide alternatives encouraging the efficient use of the area's limited parking supply and abundant transit services.
- Objective 20: Give first priority to improving transit service throughout the city, providing a convenient and efficient system as a preferable alternative to automobile use.

- Objective 21: Develop transit as the primary mode of travel to and from downtown and all major activity centers within the region.
- Objective 23: Improve the city's pedestrian circulation system to provide for efficient, pleasant, and safe movement.
- Objective 27: Ensure that bicycles can be used safely and conveniently as a primary means of transportation, as well as for recreational purposes.
- Objective 28: Establish parking rates and off-street parking fare structures to reflect the full costs, monetary and environmental, of parking in the city.
- Objective 32: Limit parking in downtown to help ensure that the number of auto trips to and from downtown will not be detrimental to the growth or amenity of downtown.
- Objective 34: Relate the amount of parking in residential areas and neighborhood commercial districts to the capacity of the city's street system and land use patterns.

A.10.2. TDM Requirements

A.10.2.1 | Regional TDM Requirements - Transportation Control Measures

San Francisco is subject to regional air district requirements to implement TDM measures (also referred to as Transportation Control Measures) to address air quality issues. In 1991 as required by the California Clean Air Act (CCAA), the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD), and the Metropolitan Transportation Commission (MTC) jointly prepared the Bay Area Clean Air Plan, which included measures to reduce the total number of trips and miles traveled, ("Transportation Control Measures," or TCMs). The most recent Plan, the 2017 Bay Area Clean Air Plan, was adopted by BAAQMD in April 2017. The Plan addresses greenhouse gases, as well as ozone, particulate matter, and air toxics. It also included new and revised TCMs. The 2017 Clean Air Plan focuses on laying groundwork for a long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. It also updates the 2010 Clean Air Plan, to fulfill state ozone planning requirements and includes all feasible measures to reduce emissions of ozone precursors—reactive organic gases (ROG) and nitrogen oxides (NOx)—and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Plan builds upon and enhances the Air District's efforts to reduce emissions of fine particulate matter and toxic air contaminants.

Local agencies are expected to incorporate TCMs into planning and implementation for transportation and land use programs. The region, through the MTC, is held responsible for overall progress toward the stated goals. The CMP process provides an opportunity to integrate local planning and programming into the regional air quality planning process. Appendix 11 lists the currently adopted regional TCMs, and discusses how San Francisco's congestion management strategies contribute to, or reinforce, these measures.

A.10.2.2 | TDM Requirements on New Development

A.10.2.2.1 | Area Plans and Development Agreements

Numerous TDM requirements are included within area plans and negotiated agreements for major developments. Significant examples include the following:

- **The Transit Center District Plan** emphasizes Transportation Demand Management as a means of reducing the reliance on automobiles and encouraging mode shifts to transit, carpooling, bicycling, and walking. The plan goals state that 95 percent of trips should be made by transit, walking, or bicycling. It includes supplementary objectives to reach this goal, such as parking supply and management tools; transit incentives, and expansion of Section 163 requirements (see below).

- **The Park Merced Transportation Plan** includes shuttles to Daly City BART and a Shopper's Shuttle to local destinations. In addition, a transportation coordinator will coordinate and manage additional TDM programs.

- **The Candlestick Point & Hunters Point Shipyard Phase II Transportation Plan** proposes new bus service and infrastructure, and requires a Transportation Coordinator to manage unbundled parking, bicycle support facilities, provide transit passes (paid by homeowner's dues), and implement dynamic pricing for visitor parking. The TDM Program will target both residents and employers in the area, with employers expected to provide bicycle parking and amenities, carpooling and vanpooling services, Guaranteed Ride Home program, information on transportation alternatives, commuter checks, telecommuting options, and parking cash-out programs.

- **The Treasure Island Transportation Implementation Plan** includes a congestion pricing program, parking policies, mandatory pre-paid transit vouchers, ramp metering, and special events and emergency access transportation planning. The program will disincentivize residents' use of personal automobiles and increase the appeal of transit, walking, and bicycling. In addition, the parking policies will utilize parking maximums instead of minimums, and unbundle parking prices. Transit passes would also be mandatory for residential units and hotel guests. Additional TDM programs proposed in this plan include Bay Area Bikeshare stations, carshare availability, and employer TDM programs. In 2014, the San Francisco Transportation Authority was designated as the Mobility Management Agency for Treasure Island, and will be responsible for implementation of TDM on Treasure Island.

- **The Southern Bayfront Strategy** is a collection of neighborhoods and communities along San Francisco's eastern waterfront bounded by Mission Creek to the north and Executive Park to the south. Another 20,000 new households and 38,000 new jobs are planned within four major developments that are moving forward in the next several years through negotiated development agreements (DAs) with the city: Mission Rock, Pier 70, Potrero Power Station, and India Basin. The large DA projects present opportunities to go beyond the framework of the city's TDM Ordinance. Each of the DAs within the Southern Bayfront Strategy includes a "trip cap," a program to monitor and restrict the number of SOV trips allowed to be generated by the projects.

A.10.2.2.2 | Institutional Master Plans

TDM measures are also present in Institutional Master Plans (IMP), which city planning code requires for all medical and post-secondary educational institutions in the City and County of San Francisco;

currently 41 institutions are subject to the requirement. IMPs describe any planned campus expansions and present mitigations for reducing the impact of the expansion on the surrounding neighborhood; this could include TDM measures such as shuttles, changes to parking policy, etc. For example, the IMP prepared by the California Pacific Medical Center in 2008 describes the campus TDM program, which includes elements such as free transit passes, vanpool subsidies, and other measures.

A.10.2.2.3 | Section 163 Requirements and TMASF

Planning Code Section 163 requires that all new development of over 100,000 square feet of new office space (or 25,000 square feet in some districts), or 100 residential units in specific zoning designations undertake measures to mitigate impacts on the transportation system, for the lifetime of the project. Section 163 was first added to the Planning Code in 1985 (Ordinance 414-85) as a means to mitigate the transportation impacts, and thus allow a greater density of development than would otherwise be possible. It was subsequently expanded to all new development of over 100,000 square feet in downtown areas zoned C-3, and has more recently been expanded again to include other non-residential, office space outside of the C-3-O, and residential development

Planning Code 163 requires that project sponsors provide onsite transportation brokerage and management service to building occupants that include coordination, encouragement, and promotion of TDM activities, including:

- Transit and ridesharing
- Reduced parking demand and efficient use of parking
- Provision of car-sharing pods and use of car-sharing services (per Section 166)
- Flex-time or staggered work hours program
- Other activities determined by the Planning Department to be appropriate to meeting the purpose of this requirement

Buildings can elect to meet Section 163 requirements on their own or by contracting with a City-approved provider (or vendor) of transportation brokerage services or administering TDM services on their own. Currently, TMASF Connects, a non-profit organization, is the only City-approved vendor of transportation brokerage services. TMASF was first incorporated as a non-profit in 1989 and began to provide transportation management services in 1990. TMASF provides information support and promotions to its currently 68 member building tenants to reduce drive alone rates. Its member buildings report a single-occupancy vehicle (SOV) mode share of less than 10 percent in the last several years. TMASF's activities include providing a web site with transportation resources for employers and travelers, publishing a newsletter, issuing traveler alerts, and organizing periodic campaigns to promote sustainable commute alternatives.

A.10.2.2.4 | Mission Bay Transportation Management Association

As a condition of the Mission Bay Development Plan, the Mission Bay Transportation Management Association (TMA) was formed and began operating in May 2010. The TMA operates shuttle service to and from BART and Caltrain, facilitates TDM marketing, provides bicycle parking assistance, and provides information via a website. Membership includes all property owners and developers, including the recent addition of the Golden State Warriors with the completion of Chase Arena in Fall 2019.

According to the 2017 Mission Bay Annual Report, annual shuttle ridership has experienced declines since peaking at over 375,000 in 2014 to under 325,000 in 2017. Mission Bay TMA shuttles serve multiple areas of the City, not just Mission Bay, and the service area has changed over time as the district has been built out and partnerships with other areas have been established and ended.

A.10.2.2.5 | Planning Code Requirements

The San Francisco Planning Code contains numerous additional requirements to help ensure new developments include features to support sustainable transportation. For example:

- Unbundled parking is required for residential buildings with ten or more dwelling units
- Carshare parking is required for residential and nonresidential development
- Secure bicycle parking is required across most types of development
- Showers and lockers are required for most commercial uses and for large retail uses.

A.10.3. TDM Policies

A.10.3.1 | Commuter Benefits Ordinance

In August 2008, the City enacted a landmark Commuter Benefits Ordinance (CBO), which became effective on January 19, 2009. The ordinance requires businesses with locations in San Francisco and more than 20 employees to offer commuter benefits such as transit, vanpool, and bicycle programs to their eligible employees. In 2012, the Bay Area Air Quality Management District (BAAQMD) and the Bay Area Metropolitan Transportation Commission implemented a similar program on a pilot basis, but focused on employers with fifty or more full-time employees in the region (the local ordinance applies to employers in San Francisco with at least twenty employees nationwide).

The San Francisco Department of the Environment (SFE) is working with the region to coordinate both the local and regional ordinances for seamless implementation and program management. SFE works with employers with less than 50 employees and coordinates with the region when outreaching to employers with 50 or more employees. To date, 2520 employers subject to the SF Commuter Benefits Ordinance have submitted a compliance form, with a cumulative 25,000 employees participating in their employer's commuter benefit program.

A.10.3.2 | SFMTA Commuter Shuttle Policy

Numerous employers, educational institutions, medical facilities, office buildings, and transportation management associations offer shuttle service to their employees, students, and clients. Some buildings are required to provide shuttle service as part of their conditions of approval, and an employer may comply with San Francisco's Commuter Benefits Ordinance by offering a free commute shuttle to employees. The majority of the commuter shuttles are closed systems that provide service to a specific population and are not open to the general public. Most shuttles are provided for free to employees (or students, tenants, etc.).

In 2014, SFMTA launched the Commuter Shuttles Pilot Program to create clear and enforceable locations and guidelines for private shuttle loading and unloading and reduce conflicts with Muni and other vehicles. In October, 2015, SFMTA released a Commuter Shuttle Policy that permits ongoing use of the shared stops subject to additional requirements. In February 2017, SFMTA approved the continuation of the Commuter Shuttle Program, based in part on a mid-year evaluation and commuter shuttles hub study. The hub study, conducted jointly by SFMTA and the Transportation Authority, found that a "hub" model, which would concentrate commuter shuttle stops at a small number of designated locations in the city, would dramatically reduce shuttle ridership, increase driving by current shuttle riders, and increase the risk for crashes in the city. The mid-year evaluation found that the existing program had led to a lower potential for conflicts with Muni, fewer shuttles on small, residential streets, a cleaner vehicle fleet, a reduced potential for service disruptions, including those arising from labor disputes, and increased enforcement for violations of parking laws. The updated program allows the SFMTA to establish shuttle vehicle accessibility guidelines and to issue higher penalties for repeated violations of the shuttle permit terms and conditions.

A.10.3.3 | SFMTA Carsharing Policy

Carsharing programs are encouraged in San Francisco as a means to reduce car ownership and decrease VMT[1]. The precise number of carsharing members in San Francisco is unknown but is likely increasing, as new car sharing vendors like GIG Car Share expand the market.

To further encourage carsharing, SFMTA developed a carsharing policy in 2013. The policy outlines the On-Street Car Sharing Pilot Program whereby private carsharing companies can apply to use on-street parking spaces for carshare vehicles. As of December 2019, 237 on-street parking spaces were reserved for carshare vehicles. A 2017 evaluation of the pilot program found that car share cars enrolled in the program were in use 6 hours a day, relative to 1 hour a day for a private vehicle, and were used on-average by 19 unique users per month.

A.10.3.4 | Parking Management

The General Plan, Planning Code, and Zoning Code guide parking management in San Francisco. San Francisco's existing parking policies are intended to support the city's development, and have been especially successful in the downtown area by limiting the provision of parking provided with new office development. Parking policies are also designed to support the City's Transit First policy through a combination of regulatory controls, revenue transfers, regulations, and incentives. The San Francisco Transportation Plan and Prop K Expenditure Plan category D1 provide policy guidance and funding for parking management initiatives. In November 2007, San Francisco voters approved Proposition A, which shifted responsibility for parking regulations, fees, and fines from the Board of Supervisors to SFMTA. In 2007, the Transportation Authority and the Metropolitan Transportation Commission (MTC) applied for and subsequently received a U.S. Department of Transportation (USDOT) Urban Partnership Program (UPP) grant, which includes $19.4 million for a demonstration of variable parking pricing as part of the Federal initiative to fight congestion. SFMTA is leading the implementation of the variable parking pricing pilots through the SFpark program.

[1] Cervero, R., Golub, A., & Nee, B. (2007). City CarShare: Longer-term travel demand and car ownership impacts. Transportation Research Record: Journal of the Transportation Research Board, 1992, 70-80.

SFpark was a demonstration project funded through the Department of Transportation's Urban Partnership Program. For the SFpark pilot projects, the SFMTA used several strategies to make it easier to find a space and improve the parking experience, including:

- Demand-responsive pricing
- Making it easier to pay at meters and avoid citations
- Longer time limits
- Improved user interface and product design
- Improved information for drivers, including static directional signs to garages and real-time information about where parking is available on- and off-street
- Highly transparent, rules-based, and data-driven approach to making changes to parking prices

SFpark piloted and cultivated several emerging technologies, including smart meters, parking sensors, and a sophisticated data management tool. The demonstration ran from 2010-2014, after which SFMTA evaluated the program. The evaluation found several benefits including better parking availability, improved ease of payment, and reduced circling for parking and associated reductions in greenhouse gas emissions and vehicle miles traveled, among other benefits. After the end of the pilot demonstration, the SFMTA Board established an ongoing demand-responsive parking policy, with meter rate adjustments made approximately once a quarter. Using meter payment data to estimate parking occupancy, the SFMTA raises the rate by $0.25 on blocks where average occupancy is above 80%, lowers the rate $0.25 on blocks where average occupancy is below 60%, and does not change the rate on blocks that hit the target occupancy between 60% and 80%.

A.10.4. TDM Programs

A.10.4.1 | Emergency Ride Home Program

The San Francisco Department of Environment (SFE)'s Emergency Ride Home (ERH) program promotes sustainable commuting by ensuring a free or low-cost ride home in cases of emergency. The program pays for a ride home for employees of registered businesses in the event of illness, severe crisis, unscheduled overtime, or disruption of carpool or vanpool schedules. The program is designed to remove some of the risks and reliability concerns associated with the choice of carpooling or relying on transit service for the commute trip. SFE promotes the ERH program to City employees and all San Francisco employers and commuters. As of October 2015, over 780 San Francisco businesses were enrolled in the program. During the period after COVID-19 pandemic hit (May 2020), the Transportation Authority Board approved additional funding to expand the city's Essential Worker Ride Home Program, which provides frontline workers critical to the city's coronavirus response with a reliable and safe ride home after work. It doubled the number of essential workers served each week to 121-188 from the current 71-100. In August 2020, the program was made available to essential workers impacted by public transit reductions commuting home from work at any time of day. Previously, the program restricted eligibility to essential workers commuting between 9:00 p.m. and 8:30 a.m.

A.10.4.2 | CityCycle Program

SFE has administered and promoted a bicycle fleet program, CityCycle, since 2005. The aim of the program is to convert a portion of the vehicle fleet of the City and County of San Francisco to bicycles through departmental efforts supplemented by targeted promotion. A Transportation Fund for Clean Air (TFCA) grant funds the bicycles, trailers, locks, helmets, and bike maintenance plan for bicycles in the City's fleet. SFE staff administers the program, including outreach to all City staff making a significant number of vehicle trips to accomplish their work duties. There are currently almost 300 CityCycle bicycles in use across 30 city departments. The SFE estimates that these bicycles eliminate about 30,000 vehicle miles of travel annually from San Francisco city streets.

A.10.4.3 | Carpools

SFMTA encourages the use of carpools and vanpools during the morning and evening commutes. The City provides a casual carpool pick-up location on Beale Street between Howard and Folsom, adjacent to the Temporary Transbay Terminal site. At this location, there is signage indicating several East Bay destination locations.

SFMTA also administers a program through which major employers (those with Transportation Brokerage Services described above) may provide parking for employee carpool vehicles (three or more riders) in City-owned garages at a reduced rate. The City also provides a limited amount of designated on-street parking in the downtown area for registered/permitted vanpool vehicles.

A.10.4.4 | Bikesharing

Bay Wheels, formerly known as Ford GoBike and Bay Area Bike Share, opened on August 29, 2013 with 700 bikes at 70 stations in San Francisco and along the peninsula as a pilot program of the Bay Area Air Quality Management District and the Metropolitan Transportation Commission (MTC). Originally operated by Alta Bikeshare, MTC transferred operations to Motivate in May of 2015, and in 2017 Motivate expanded the program to 5 Bay Area Cities with 540 stations and 7,000 bicycles, including a substantial expansion within San Francisco. Currently, there are over 200 existing and permitted stations in San Francisco with nearly another 100 proposed stations. In 2018, the bike share system was integrated into the clipper card program, allowing both individual trips and memberships to be accessed via the clipper card. In 2018, Lyft purchased Motivate and assumed operations of Ford GoBike, changing the name to Bay Wheels in 2019.

During 2018 and 2019, San Francisco also conducted a pilot permit for JUMP (owned by Uber) to provide dockless electric assist bikes (e-bikes) on City streets). In 2019, SFMTA expanded this to other operators and Bay Wheels has had two deployments of dockless e-bikes during this time that have been removed due to safety concerns.

A.10.5. TDM Studies and Plans

A.10.5.1 | Travel Demand Management Ordinance

The SFMTA, City Planning Department, and SFCTA partnered to craft the Travel Demand Management (TDM) Ordinance as part of the Transportation Sustainability Program (TSP). The TDM Ordinance introduced TDM requirements on new construction or changes of land use in San

Francisco, and provides a toolkit to aid developers in designing an appropriate TDM program. The toolkit will be used to ensure a consistent approach to including TDM in new development and ensuring that the most effective measures are prioritized. The inter-agency team is committed to analyzing the effectiveness of TDM measures, through research, to improve the toolkit by prioritizing the most effective measures. The San Francisco Board of Supervisors approved the ordinance on February 7, 2017.

A.10.5.2 | SF Moves Neighborhood TDM Outreach Pilot Project

SF Moves is a program that connects people who live, work, or own and operate businesses within certain San Francisco neighborhoods with resources to inform them about and familiarize them with the City's transportation options.

SF Moves is a partnership of the San Francisco Municipal Transportation Agency (SFMTA) and the San Francisco Department of the Environment through funding by the Bay Area Air Quality Management District's Transportation Fund for Clean Air and the San Francisco County Transportation Authority's Proposition K (San Francisco's half-cent local sales tax for transportation). The pilot is modeled on neighborhood TDM outreach programs demonstrated to be successful in other cities such as Portland, Oregon and Seattle, Washington.

A.10.5.3 | San Francisco Transportation Plan

The 2013 San Francisco Transportation Plan identifies TDM as a cost-effective investment to move closer to the plan's goals. Therefore, the SFTP recommends a 20 percent increase in funding in the Investment Plan and a 100 percent increase in funding in the SF Investment Vision scenario. The Investment Plans also recommend the implementation of congestion pricing in the northeast cordon and on Treasure Island.

SFTP Policy Recommendations Related to TDM:

- Implement the recommendations of the TDM Partnership Program including a SFMTA Shuttle Partners Program
- Explore an area-wide parking cap or employer trip reduction programs for SoMa/Mission Bay
- Develop TDM programs that touch employers, visitors, schools, and residents
- Develop proactive employer outreach and incentive programs in the downtown core, southwest, and southeast parts of the city, and investigate formation of transportation management associations (TMAs) in these areas
- Increase enforcement efforts to ensure TDM measures included in existing development agreements are implemented, and step up enforcement of the city's commuter benefits ordinance
- Support SFMTA's regulatory programs to allow safe integration of third party providers
- Support development and implementation of the Transportation Sustainability Program
- Further evaluate potential congestion pricing program for the Northeast Cordon

Every four years, the Transportation Authority updates the city's long-range transportation plan. The current update will outline how transportation funding in the city will be prioritized through 2050, with consideration for citywide goals as well as expected and potential revenues. The Transportation Authority adopted the most recent SFTP update in October 2017. In partnership with the SFMTA and the Planning Department, the Transportation Authority is currently participating in a long range transportation planning process known as Connect SF. Connect SF includes developing a long range vision for transportation, a series of modal studies, and updates to both the SFTP and the City's General Plan Transportation Element.

A.10.5.4 | SF Business Relocation TDM Project

This is an effort led by SFMTA to develop and operate a program focused on addressing the transportation needs of employees at businesses that are opening in or relocating to new locations in San Francisco. The program was originally scoped to provide transportation planning services and materials to businesses to help their employees travel to work in their new location without driving alone, thus setting a more sustainable commute habit from the get-go, rather than trying to change habits after they have already been set.

The intention of targeting businesses with a TDM intervention as they relocate was to capitalize on a window of opportunity when large numbers of commuters are selecting a new route to work and have not yet formed mode habits that are difficult to influence. The emergence of COVID and resulting health orders changed the business and commute environment such that identifying and targeting businesses as they moved into San Francisco or moved office locations within San Francisco has become infeasible.

However, public health orders requiring office-based businesses to have their employees work-from-home to the greatest extent possible has created a new form of "relocation" - first from the office to remote work locations, followed by a substantial shift of employees returning to their offices when restrictions are eased. After months of working remotely, each returning employee will be selecting a new route and mode(s) to their office, shaped by new motivations and constraints, opening a similar opportunity to influence mode choice as exists when a business relocates their office.

For these reasons SFMTA amended the project scope to shift the target population from businesses as they relocate between offices, to all office-based businesses as changing public health orders allow an increasing number of employees to return to office settings. The intervention will feature support for continuing remote work policies to reduce the total number of expected commuters, alternate schedules and staggered arrival times to reduce traffic at peak hours, and promotion of alternate modes to reduce the use of single-occupancy vehicles.

The project is currently in the third of 3 Phases. Phase 3 involves implementing a refined strategy and conducting an evaluation.

APPENDIX 11

San Francisco Trip Reduction Efforts: Relationship to Regional TCMs

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures (TCMs)
in the 2017 Clean Air Plan

Regional TCM	Local Implementation
A-1. Local and Area-wide Bus Service Improvements.	The San Francisco Municipal Transportation Agency (SFMTA) is currently implementing MuniForward, a major program to upgrade Muni service throughout the city. It includes service and route changes, capital upgrades, and other enhancements to nearly every major bus and rail transit route in the city. Upgrades are designed to make Muni faster and more reliable, and to improve safety. The city also has several major transit improvement projects underway. The Van Ness Bus Rapid Transit Project is currently under construction. The Geary Bus Rapid Transit Project has a Locally Preferred Alternative (LPA) that secured state and federal environmental clearance by 2018. SFMTA is also in the process of replacing its fleet with a goal towards zero emissions.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
A-2. Improve Local & Regional Rail Service	The Muni Forward project mentioned above includes numerous upgrades to Muni rail service. Five of the seven Muni rail line have capital projects underway (either in the study or implementation phase) to improve service quality and reliability. The Transportation Authority continues to advocate and program funds for local and regional rail improvement projects, such as Phase 2 of the Third Street Light Rail Project (Central Subway), Caltrain electrification and signal improvements, BART station improvements, and the downtown extension of Caltrain and High Speed Rail to the rebuilt Transbay Terminal. Construction on Central Subway began in 2011 and the Transbay Terminal opened in 2019. The Transportation Authority completed the feasibility study for a major upgrade to the M-Ocean view line that would underground portions of the line and extend it to Park Merced. The Transportation Authority and SFMTA recently completed a Subway Vision that creates a framework for subway expansion throughout the city and identifies likely corridors. The corridors from the Subway Vision are currently being evaluated as part of the ConnectSF Transit Corridor Study. The Transportation Authority partnered with the Metropolitan Transportation Commission and numerous other agencies to complete a Core Capacity Transit Study that recommended a suite of projects to address transit crowding and unreliability in corridors into downtown San Francisco. The Transportation Authority will be partnering with BART and Capitol Corridor to further evaluate new proposed BART and conventional rail alignments across the Bay.
B-1. Freeway & Arterial Operations Strategies	Implementation of this TCM is being coordinated by Caltrans and the Metropolitan Transportation Commission (MTC). SFMTA's SFgo program is developing an integrated traffic management system managed from a centralized transportation control center. In addition, the Program is working with Caltrans to coordinate freeway improvements with the City's traffic management systems. As part of this project, SFMTA is working to replace aging signal controllers and install signals with transit priority capabilities on key transit routes.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
B-2. Transit Efficiency & Use	Major transit operators in San Francisco, including Muni, BART, AC Transit, Golden Gate Transit, Caltrain, and SamTrans, all accept the Clipper card for fare payment. In addition, BART is upgrading signage at its downtown stations to ease wayfinding. Muni is upgrading signage, lighting, and other architectural aspects of its downtown stations. San Francisco has also worked to have discounted or free transit passes be part of TDM and mitigation programs required of new developers such as Candlestick Point/Hunters Point Shipyard, Treasure Island, California Pacific Medical Center, and Park Merced. San Francisco State University has implemented a discount transit pass for trips on BART and Muni.
B-3. Bay Area Express Lane Network	Implementation of this TCM is being led by MTC. An HOV pricing structure exists on the approaches to San Francisco via the San Francisco Oakland Bay Bridge and the Golden Gate Bridge during peak commute hours, with separate HOV lanes on the Bay Bridge. Express buses will continue to operate in San Francisco and will be prioritized through the new Transbay Terminal. The Transportation Authority completed the Freeway Corridor Management Study and is initiating a Caltrans Project Initiation Document (PID) and environmental clearance process for potential express lanes alternatives that may include high occupancy vehicle or high occupancy toll lanes on portions of U.S. 101 and I-280. These lanes would connect to high occupancy toll lanes being implemented on U.S. 101 in San Mateo County.
B-4. Goods movement Improvements & Emission Reduction Strategies	Implementation of this TCM is being led by MTC and BAAQMD. San Francisco will work with BAAQMD to implement grant programs that fund diesel emission reduction programs. As part of ConnectSF, the Transportation Authority is evaluating changes in the delivery of goods in San Francisco and opportunities to increase the efficiency and sustainability of freight movement in the City.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
C-1. Voluntary Employer-Based Trip Reduction Program.	The San Francisco Department of the Environment (SFE) currently conducts many of the City's employer based Transportation Demand Management (TDM) activities, funded in part through Prop K. These activities currently include the commuter benefits program; Emergency Ride Home (ERH) program; bicycle fleet (e.g. CityCycle) program; and regional ridesharing program. The San Francisco Planning Department also conducts compliance monitoring of office buildings required to have a TDM program. In 2017, city agencies developed a joint San Francisco TDM Plan: 2017-2020. This workplan, based on the 2014 strategy, identifies the employer-oriented policies, projects, and programs the city can implement to accomplish its TDM goals..
C-2. Safe Routes to School & Safe Routes to Transit Programs	The San Francisco Metropolitan Transportation Agency manages San Francisco's Safe Routes to Schools program, which conducts education, encouragement, and related programs at elementary, middle and high schools in San Francisco. These programs are designed to encourage schoolchildren to walk and bicycle to school rather than driving in the family car.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
C-3. Ridesharing Services & Incentives	SFE is the MTC-delegated agency that oversees the Regional Rideshare Program in the City, including introducing employers to TDM programs, promoting rideshare, and encouraging and assisting employers to implement rideshare. SFMTA promotes the use of carpools and vanpools during the morning and evening commutes. The City provides a casual carpool pick-up location for evening commutes on Spear Street between Howard and Folsom Streets. SFMTA also administers a program through which major employers may provide parking for employee carpool vehicles (3 or more riders) in City-owned garages at a reduced rate. The City also provides a limited amount of designated on-street parking in the downtown area for registered vanpool vehicles. Finally, buildings subject to Section 163 Planning Code Requirements are required to encourage alternatives to driving alone, including through ridesharing and carpooling.
C-4. Conduct Public Outreach & Education	Implementation of this TCM (e.g., Spare the Air Days) is occurring through the Air District, MTC, and transit operators throughout the region, as well as through local agency activities, including the ongoing SF Moves pilot project to provide outreach and education to neighborhoods in San Francisco, and the completed TDM Partnership Project which involved employer outreach and education. Additionally, buildings subject to the Section 163 Planning Code requirement must engage in outreach and education activities, such as those provided by the downtown TMA.
C-5. Smart Driving	Implementation of this TCM is being led by MTC. San Francisco does have a traffic calming program, funded through Prop K and implemented by SFMTA, which includes speed reduction on arterials streets. However, speeding on freeways in San Francisco is generally not a major concern due to relatively dense traffic conditions within the city limits.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
D-1. Bicycle Access and Facilities Improvements.	Since the Bicycle Plan injunction was lifted in 2010, the City and County have moved rapidly to implementation. The SFMTA has installed more than 50 miles of bicycle lanes since 2008, using Prop K as well as regional funding for many projects. Progress on the Plan has also included separated and buffered bike lanes, bike boxes at intersections, colored pavement treatments to increase the visibility and safety of bicycling on City streets, sharrows, and bike racks and bicycle corrals. Several major bicycling improvement projects have been recently completed or will be under construction soon, including implementation of new protected bicycle lanes on Masonic Street, 2nd Street, 7th/ 8th Street, Division/13th Street, 17th Street, Folsom/Howard Street, San Jose Avenue, upper Market Street, and others.
D-2. Pedestrian Access and Facilities Improvements.	The General Plan and Planning Code have supported pedestrian friendly, transit-oriented development for decades, which is referred to as the City's Transit First Policy. The Transportation Authority funds pedestrian-related projects through Prop K and programs other fund sources to support pedestrian improvements. Many of these projects fall under SFMTA's programs related to traffic calming, pedestrian and bicycle safety, and school area safety, and are also implemented through new development compliance with the Better Streets Plan which sets standards for street improvements associated with new development. Multi-agency efforts to coordinate major construction opportunities with pedestrian projects have also improved through the Follow-the-Paving process. In 2014, following a directive from the Transportation Authority Board, city agencies launched the Vision Zero program aimed to eliminate traffic injuries and fatalities by 2024. Because pedestrians typically make up more than half of fatalities in the city, work has involved focusing on improving conditions for pedestrians, especially on corridors identified as high injury pedestrian corridors.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
D-3. Local Land Use Strategies.	The Transportation Authority promotes legislative activities that encourage smart growth and more sustainable transportation and development-related investment decisions by the City and developers. ABAG and MTC have been working for years to encourage the region's municipalities to plan for compact, transit-oriented development to meet the region's sustainability goals. The most recent regional transportation plan (Plan Bay Area), called for focused growth around Priority Development Areas (PDAs), which largely center around existing or planned transit hubs. The Transportation Authority continues to work closely with City agencies to plan multimodal transportation improvements to support focused growth in San Francisco's 12 PDAs.
E-1. Value Pricing Strategies	The Transportation Authority has been designated as the Treasure Island Mobility Management Agency (TIMMA). TIMMA is working to implement congestion pricing on Treasure Island, as required in the development agreement prepared for the island. Additionally, the Transportation Authority continues to study the potential for congestion pricing or alternative approaches to manage congestion in downtown San Francisco. In 2018, the Transportation Authority began a fresh look at the idea of congestion pricing with updated data and analysis and a full community engagement process.

San Francisco Trip Reduction Efforts:
Relationship to Regional Transportation Control Measures

TCM	Local Implementation
E-2. Parking Policies to Reduce VMT	In September 2009, the Transportation Authority adopted the San Francisco On-Street Parking Management and Pricing Study. SFMTA piloted the study's key recommendations through the SF*park* program and adopted demand responsive parking pricing for all City-owned garages and street parking in late 2017. The City has also addressed private off-street parking by eliminating minimum parking requirements downtown and in specific neighborhoods and commercial corridors, in some cases replacing them with maximum parking requirements. Unbundled parking, bicycle parking, and carshare parking requirements have also been implemented. In 2016, the Transportation Authority completed a Parking Supply and Utilization Study that considered further parking policy reform to manage auto trip demand. Rather than pursue any of the strategies analyzed, the study recommended that agencies advance existing parking-related initiatives, including the Residential Parking Permit Evaluation and Reform Project and implementation of the city's proposed TDM Ordinance.
E-3. Transportation Pricing Reform.	The Transportation Authority continues to work with MTC and the Bay Area Partnership to identify new revenue sources. The Authority developed major transportation pricing studies, including the Mobility, Access, and Pricing Study and the Parking Supply and Utilization Study, to examine the potential for pricing to be used in combination with new technology and transportation enhancements to improve system performance and reduce emissions.

APPENDIX 12

Land Use Impacts Analysis Program

APPENDIX 12

LAND USE IMPACTS ANALYSIS PROGRAM

KEY TOPICS

- City Land Use Development Process
- CMA-Regional Land Use Coordination
- Neighborhood Transportation Plans and Projects
- Transportation Impact Analysis Studies

A.12.1. City Land Use Development Process

The General Plan and the City Charter are the primary institutional parameters that frame the City's process for reviewing land development impacts on the transportation network. San Francisco is a Charter City, and it has a consolidated city and county government. An eleven-member Board of Supervisors serves as the legislative body for the City's unified city and county government. The City Planning Commission (CPC) has responsibility for land use decision-making throughout the City. The Mayor appoints the seven members of the CPC. Among the responsibilities of the CPC are the following:

- Exclusive authority to act on General Plan policies and area land use plans (per City Charter);
- Holding public hearings on all appeals to Negative Declaration determinations and certification of local Environmental Impact Reports; and
- Discretionary actions on Conditional Use permits, (which can be appealed to the Board of Supervisors) and decisions by the Zoning Administrator, Discretionary Reviews, and others that can be appealed to the Board of Appeals

In addition, both the CPC and the Board of Supervisors must approve all rezoning.

The Planning Department's land use responsibilities include transportation matters. The Planning Department has primary responsibility for assessment of the transportation impacts of development proposals, and to determine consistency with land use and transportation policies in the General Plan. The existing local regulations include measures to mitigate project-specific transportation impacts within the policy and priority framework of the General Plan, the long-range transportation plan, and the Capital Improvement Program (CIP) of the CMP.

The City already has in place an extensive process for evaluating the transportation impacts of land development proposals. This process, which ensures the City's compliance with State and Federal environmental review requirements, is the responsibility of the Planning Department. In particular, with the passage of California Senate Bill 743 (see section A.12.4), the City has recently aligned its CEQA review and development approval process with RTP goals such as a Vehicle Miles Traveled (VMT) reduction target. Nevertheless, as CMA, the Transportation Authority has a role in ensuring that the impacts of land use decisions on the transportation system are analyzed with a uniform methodology, consistent with the long-term strategic goals of the General Plan and the San Francisco Transportation Plan.

A.12.1.1 | Consistency with Long Term Strategic Goals of General Plan and San Francisco Transportation Plan

San Francisco has been able to maintain one of the highest levels of transit use among U.S. cities because of its relatively high-density development and because topography and geography limit vehicular access routes to and from the City.

There have been significant numbers of non-resident commuters into the city for over a century. To improve the balance of housing and jobs, during the 1980s San Francisco actively promoted new residential development. Extensive revisions to the City's General Plan and rezonings were undertaken. Each of these land use plans—the Downtown Plan, Rincon Hill, North of Market, Chinatown, Neighborhood Commercial, Van Ness Avenue, South of Market, and Mission Bay—incorporated measures to retain and enhance opportunities for residential development.

In recent years, several more area plans have been developed or adopted including: the Market/Octavia Plan, Eastern Neighborhoods Plan, Balboa and Glen Park BART Station Area Plans, the Treasure Island Plan, the Transbay Center District Plan, and the Central SoMa Plan. In addition, housing development has been promoted by the policies of the San Francisco Redevelopment Agency and its successor agency, the Office of Community Investment and Infrastructure, in various areas, including the Rincon Point/South Beach, Yerba Buena Gardens, Transbay, the Bayview Hunters Point Redevelopment Plan Areas, Candlestick Point-Hunters Point Shipyard Phase 2, Parkmerced, and Visitacion Valley.

San Francisco's continued role as a regional employment center and its policy of housing development have had an impact on the demand for transportation in the city. A primary mission of the Transportation Authority is to strategize investment in the city's transportation infrastructure and promote the development of demand management tools to address growing travel demand. Infrastructure investment is intended both to address future growth in transportation demand and to improve the city's current transportation system. Demand management is needed to promote a balanced and cost-effective transportation system.

In past decades San Francisco's primary transportation challenge was to absorb new jobs downtown without proportionately increasing the number of workers commuting by car. That challenge was addressed with the construction of BART and MUNI services focused on downtown commuting, combined with limits on parking provision.

Today San Francisco's transportation challenges are more varied. They are numerous and located across the city, throughout the various neighborhoods as well in core areas, which can expect not only employment growth but also extensive residential growth. Challenges include competitive transit service for non-commute and reverse commute trips; neighborhood parking management; safety for pedestrians and bicyclists; improved transit reliability and speed through the development of a transit priority network; and reducing emissions of pollution and greenhouse gases. Recent innovations in transportation are rapidly changing how people navigate our city streets. These emerging mobility services and technologies include ride-hailing services (such as Uber & Lyft), microtransit (Via), app-based ridesharing, bike/e-bike/car-sharing, courier network services, autonomous vehicle technologies, and more. Additionally, the increased availability of technologies to facilitate remote work for some types of occupations, and the increased adoption of telework supportive policies by both private and public employers presents further challenges.

Increasingly, the imperative to address regional land use and transportation relationships is moving to the fore, with the targeting of resources to Priority Development Areas (PDAs) and development of a

regional High Occupancy/Toll (HOT) lane system. In addition, state laws promulgated in 2006 and 2007 require greater integration of land use and transportation planning processes in recognition of the climate change challenge. Climate change issues and initiatives are discussed further in Section 6.3.5, below.

Underlying these needs is the challenge of finding new mechanisms to pay for needed transit and other improvements as development decisions are made. A discussion of the city's initiative to update transportation impact and mitigation fees is provided in Section A.12.4.

NOTE: California Government Code Section 65089(b)(4) requires the land use program to assess the impacts of land development on regional transportation systems. In the 1991 San Francisco CMP this was interpreted to mean impacts on the CMP roadway network. However, the federal Intermodal Surface Transportation Efficiency Act (ISTEA), passed in 1991, explicitly requires the development of a metropolitan transportation system (MTS), including both transit and highways. As discussed in Chapter 3, MTC contracted with the Transportation Authority, acting as CMA, to help develop the MTS and to use the CMP process to link land development decisions to impacts on the MTS. For purposes of the land use analysis program, the San Francisco CMP will use the San Francisco component of the MTS, but conformance with roadway level of service (LOS) standards will continue to be assessed using the CMP roadway network, which is a subset of the multimodal MTS.

A.12.2. CMA-Regional Land Use Coordination

A.12.2.1 | CMP Land Use Impacts Analysis

One key aspect of the CMP approach to land use impacts analysis is that, pursuant to state law, the Transportation Authority will also be responsible for reviewing transportation analysis of specific development projects under CEQA and determining the consistency of these "sub-area" analyses with the citywide model. Examples of this role include our work to support the Bayview/Hunters Point Redevelopment Area Environmental Impact Report (EIR), the Transbay Center District Plan EIR, and the Market/Octavia Better Neighborhoods Plan EIR, and the Central SoMa Plan and EIR.

A.12.2.2 | MTC/CMA Transportation/Land Use Work Plans

Pursuant to MTC's agreements with county CMAs over coordination of transportation and land use, the Transportation Authority focuses on the following activities to help integrate transportation and land use decisions:

First, the Transportation Authority prioritizes transportation planning funds and capital investments that meet performance criteria or demonstrate a strong vision for coordinated land use and transportation development.

The Transportation Authority provides technical guidance and assistance with the planning process to partner agencies, communities, and project sponsors, including neighborhood planning, thereby facilitating access to discretionary state and regional grants and providing for coordinated county-level input into the regional transportation planning process.

The Transportation Authority promotes legislative activities that encourage smart growth, more sustainable transportation and development-related investment decisions by the City and developers, and

more efficient travel decisions by all transportation system users. Examples include the Transportation Authority's support of the State Resources Agency's revisions to the CEQA Guidelines Transportation Checklist and our work with local partner agencies to reform the City's CEQA transportation impact analysis process.

The Transportation Authority coordinates county-level input into the regional Sustainable Communities Strategy (SCS), the RTP, and related regional land use planning efforts.

Finally, the Transportation Authority conducts project and program delivery oversight to ensure efficient use of funds and effective project delivery.

A.12.2.3 | Plan Bay Area and Priority Development Areas

ABAG and MTC have been working for years to encourage the region's municipalities to plan for compact, transit-oriented development to meet the region's sustainability goals. This work was previously conducted through the FOCUS program that invited municipalities to nominate locations to be considered as Priority Development Areas (PDAs) or Priority Conservation Areas (PCAs) based on regionally established criteria. In 2013, the region adopted Plan Bay Area, the first SCS for the San Francisco Bay Area prepared pursuant to Senate Bill 375 (Steinberg). PDAs and PCAs are key "building blocks" of the region's land use strategy presented in Plan Bay Area. ABAG and MTC approved an update to 2017's Plan Bay Area 2040 (Plan Bay Area 2050) in October 2021.

San Francisco has identified twelve PDAs, generally in the eastern part of San Francisco, and generally locations that have been comprehensively planned as part of an Area Plan process. A map of the PDA's can be found in Chapter 6. Collectively, San Francisco's PDAs make up approximately 25% of San Francisco's land area and have the capacity to take on approximately 80% of the housing growth and 60% of the job growth that has been forecast in San Francisco as a part of the Plan Bay Area process (or about 80,000 housing units out of 92,000 and 143,000 jobs out of 191,000). San Francisco's PDAs were first identified and approved by the San Francisco Board of Supervisors in 2007 and have been updated since then to reflect slight changes to boundaries. In August 2015, ABAG approved three additional regional PCAs that cross San Francisco: California Coast Trail (along the Pacific coast), San Francisco Bay Water Trail (including access points in San Francisco's Marina District), and San Francisco Bay Trail (along the Embarcadero, through the Marina and over the Golden Gate Bridge). Five Priority Conservation Areas (PCAs) have been adopted by San Francisco since 2015: Palou Phelps Natural Area, Bayview Hill Natural Area, Green Connections-McLaren Park Pivot, Crosstown Trail-Connecting Twin Peaks Bio-Region/Glen Canyon, and the San Francisco Bay Area Water Trail. In May 2019, the MTC Commission and Executive Board adopted an update to the Regional Growth Framework, including updated criteria for PDAs and PCAs, and a new Priority Production Area (PPA) pilot program. San Francisco and other jurisdictions are working with MTC to identify new PDA and PCA designations as part of the ongoing update to Plan Bay Area.

As a part of Plan Bay Area, the region committed to identify funding incentives for PDAs and PCAs, most significantly through the One Bay Area Grant (OBAG) Program which provides a five-year framework for the federal Surface Transportation Program and the Congestion Mitigation and Air Quality Improvement Program funds programmed by MTC. OBAG Cycle 1 covered Fiscal Years 2012/13 through 2016/17. OBAG Cycle 2 covers Fiscal Years 2017/18 through 2021/22, and built upon OBAG Cycle 1 with an added focus on affordable housing and anti-displacement policies in light of the region's current housing crisis. Approximately 45% of OBAG Cycle 2 funds are passed to county Congestion Management Agencies (CMAs), including the Transportation Authority for San Francisco, to program to

projects that help advance the transportation and land use vision expressed in Plan Bay Area 2040. For the OBAG Cycle 2 county grant program:

- Funds were distributed to the region's nine CMAs using a funding formula that was based 50 percent on population, 20 percent on future housing growth assigned through the Regional Housing Needs Allocation, and 30 percent on housing production between 1999 and 2014. The formula placed additional emphasis on affordable housing, defined as including very low-, low-, and moderate-income households.
- Scoring methodologies were required to provide a reward for jurisdictions with the most effective affordable housing and anti-displacement policies.
- San Francisco and the other larger CMAs were required to program 70 percent of funds to support PDAs (smaller CMAs were required to program 50 percent of funds to support PDAs).
- To be eligible to receive funds, all jurisdictions were required to have a certified Housing Element, have adopted a Complete Streets policy, and have complied with the State's Surplus Land Act.
- Each CMA was required to create a Transportation Investment and Growth Strategy that describes how it expects to support its PDAs through transportation investment and is required to regularly update it. The Transportation Authority Board adopted the latest version of San Francisco's Transportation Investment and Growth Strategy in May 2017; CMAs are currently updating their Strategies for adoption in parallel with this CMP update, in December 2021.

In order to facilitate growth and transportation investments in the San Francisco's PDAs, Local PDA Planning funds were administered by the San Francisco Planning Department (SF Planning) in line with the Transportation Investment and Growth Strategy (see Table A12-1 for the list of projects).

Table A12-1: Local PDA Planning Projects in San Francisco

PROJECT	PDA SUPPORTED	FUNDING LEVEL
Rail Storage Alternatives Analysis & Boulevard Feasibility Study	Multiple (Mission Bay, Eastern Neighborhoods, Transbay Terminal)	$898,763
Embarcadero Multi-Modal Planning	Multiple (Port of San Francisco, Mission Bay, Eastern Neighborhoods, Transbay Terminal, Downtown/Van Ness/Geary)	$250,000
Bayshore Station Re-location	San Francisco/San Mateo Bi-County Area	$255,774
M-Ocean View Re-Alignment Study	19th Avenue Corridor	$492,000
Ocean Avenue Pedestrian and Streetscape Improvements	Balboa Park	$195,463
Balboa Reservoir TDM	Balboa Park	$76,000
Market/Noe Technical Analysis and EIR Update	Market & Octavia	$660,000
Transit Corridors Study / Connect SF	All	$65,800
Downtown/Van Ness (Central Corridor)		$600,000
Treasure Island Mobility Management Study	Treasure Island	$500,000

A.12.2.4 | Multi-Agency Land Use and Transportation Studies

In addition to projects identified to receive PDA Planning Funds, San Francisco is leading or plans to lead several studies in which transportation is closely tied to land use development. All planned development areas are located within PDAs and involve a multi-agency approach in which the Transportation Authority has a supporting role.

A.12.2.4.1 | New Transbay Rail Crossing

Following from the long-range recommendations of the Core Capacity Transit study (CCTS), BART has recently begun a multi-jurisdictional planning process to identify one or more new potential transbay rail crossings. This study is being conducted jointly with Capitol Corridor and will evaluate both BART and standard gauge rail crossings of the San Francisco Bay. The Transportation Authority, along with other city agencies, will be coordinating closely with BART, Capitol Corridor, and other agencies, stakeholders and the public on this study as it unfolds. This study will identify a preferred alternative for transbay rail crossing

A.12.2.4.2 | ConnectSF

The San Francisco Department of Planning, SFMTA, and the Transportation Authority are jointly leading the development of a long range plan for San Francisco known as ConnectSF. This process includes the development of an updated San Francisco Transportation Plan (SFTP) by the Transportation Authority and an updated General Plan Circulation Element by the Department of Planning. The process began by developing a comprehensive vision for the future of transportation that considers how a combination of transportation and land use policy and investments can provide an effective, sustainable and equitable future for San Francisco.

The ConnectSF process also prepared future transportation infrastructure investment concepts for transit (Transit Corridor Study) and streets and freeways (Streets and Freeways Study), including active transportation. The Transit Corridor Study evaluated the SF Metro Corridor concept identified as part of the CCTS, among other transit corridor improvements.

A.12.3. List of Neighborhood Transportation Plans and Projects

A list of plans developed with the support of the Community Based Transportation Planning program and the Neighborhood Transportation Improvement Program is provided below.

The Community Based Transportation Planning program supported development of the following plans:

- Visitacion Valley Community Based Transportation Plan (2022 expected)
- Portsmouth Square Community Based Transportation Plan (2021)
- Bayview Community Based Transportation Plan (2020)
- Western Addition Community Based Neighborhood Transportation Plan (also funded with NTIP funds) (2017)
- Chinatown Neighborhood Transportation Plan and Pilot Study (2015)
- Potrero Hill Neighborhood Transportation Plan (2015)

- Western SOMA Neighborhood Transportation Plan (2012)
- Bayview Hunters Point Neighborhood Transportation Plan (2010)
- Columbus Avenue Neighborhood Transportation Plan (2010)
- 19th Avenue Park Presidio Neighborhood Transportation Plan (2008)
- Mission-Geneva Neighborhood Transportation Plan (2007)
- Mission South of Chavez Neighborhood Transportation Plan (2007)

The Neighborhood Transportation Improvement Program supported the following planning projects (* indicates projects that are underway):

- District 1: Golden Gate Park Stakeholder Working Group and Action Framework*
- District 1: Fulton Street Safety Project*
- District 4: District 4 Mobility Improvements Study*
- District 5: Octavia Boulevard Circulation and Accessibility Study Update*
- District 6: Treasure Island Supplemental Transportation Study*
- District 7: Ocean Avenue Action Plan*
- District 9: Alemany Realignment Study*
- District 10: District 10 15 Third Street Bus Study
- District 11: Alemany Safety Project

A.12.4. Transportation Impact Analysis Studies

A.12.4.1 | Uniform Land Use Analysis Methodology

The Transportation Authority uses tools and analysis techniques that use regionally-consistent land use assumptions. For example, in updating the SFTP the Transportation Authority used land use forecasts developed by the Planning Department (subject to regional requirements for consistency with ABAG), generated new estimates of future travel demand, and tested alternative projects and investment strategies to address those future transportation needs.

A.12.4.2 | Transportation Sustainability Fee

In the City and County of San Francisco the only citywide transportation impact fee until recently was the Transit Impact Development Fee (TIDF). First enacted in 1981, the Downtown TIDF ordinance was enacted as a means to have new development pay its fair share for expanded transit capacity to serve that development. TIDF assesses a one-time fee per square foot on new or converted office space in the downtown area. The fee was imposed on most nonresidential development in San Francisco and not on residential development. The 2004 TIDF ordinance (see Appendix 14) established a fee schedule, which is subject to annual adjustment without further action by the Board of Supervisors to reflect changes in the relevant Consumer Price Index, as determined by the City Controller. The impact fee levied on developers must be related to providing new or expanded transit service to support peak period travel generated by new development (including any costs associated with operations or capital). The need for transit services as a result of new development must be established. Furthermore, the proposed

expenditures of the fee and the dollar amount of the fee must also have a "nexus" to the development project impacts. The fee schedule was updated in February 2013, based on a nexus study completed in 2011, and is shown in Table A12-2.

Table A12-2: 2013 TIDF Ordinance Fee Schedule

LAND USE CATEGORY	TIDF PER SQ. FT. OF DEVELOPMENT
Visitor Services	$12.64
Medical and Health Services	$13.30
Cultural/Institution/Education	$13.30
Museums	$11.05
Retail/Entertainment	$13.30
Management, Information and Professional	$12.64
Production/Distribution/Repair	$6.80

Based on another nexus study completed in 2015, the Transportation Sustainability Fee (TSF) was adopted and went into effect in December 2015. The TSF replaces TIDF and would raise new revenue to expand the transportation system as San Francisco grows. New commercial developments, market-rate residential developments with more than 20 units, and certain large institutions will be required to pay the TSF. Affordable housing developments, subsidized middle-income housing, market-rate housing with less than 20 units or less and most nonprofit developments are exempt from the fee. Table A12-3 shows the latest fee schedule (San Francisco Planning Code: Section 411A).

Table A12-3: TSF Ordinance Fee Schedule

LAND USE CATEGORY	TIDF PER SQ. FT. OF DEVELOPMENT
Residential, 21-99 units	$7.74
Residential, all units above 99 units	$8.74
Non-Residential, except Hospitals and Health Services, 800-99,999 gsf	$18.04
Non-Residential, except Hospitals and Health Services, all gsf above 99,999 gsf	$19.04
Hospitals	$18.74
Health Services, all gsf above 12,000 gsf	$11.00
Production, Distribution and Repair	$7.61

Currently, the TIDF generates about $24 million a year on average. The TSF is projected to add about $14 million a year, raising nearly $1.2 billion for transportation improvements over 30 years, or roughly $430 million in net new revenue. The revenues from the fee may subsidize capital and operating expenses for existing and new transit service. New development generates more transit trips, which add to the already heavily utilized transportation system, especially in the downtown area during peak periods. This, in turn, creates a greater burden on the City transit system. Because transit operates at or near capacity during peak periods, ridership growth must be addressed through increased Muni service frequencies. However, constrained infrastructure (e.g., Market Street tunnel) and reduced operating funding (e.g., from the state) limit the ability of Muni to increase peak-period service.

The TSF is part of a larger effort, the Transit Sustainability Program (TSP), that seeks to improve and expand upon San Francisco's transportation system to help accommodate new growth. It belongs to the "Invest" component of TSP that aims to invest in transportation network by having developers pay their fair share to help offset the growth created by their project.

A.12.4.3 | CEQA Transportation Impact Analysis Reform

The California Environmental Quality Act (CEQA) requires California's public agencies to determine the potential for proposed projects to have significant impacts on the environment, including transportation impacts. CEQA also encourages agencies to develop thresholds of significance—the quantitative point at which an environmental effect may be considered significant—to facilitate these determinations. Beginning on September 15, 2020, new projects were required to include a VMT-based transportation impact significance determination, the culmination of a multi-year effort led by the California Office of Planning and Research (OPR) to implement Senate Bill 743 (SB743). CEQA gives local jurisdictions discretion to adopt impact measures and significance thresholds, and while many agencies in California measure a project's effects on transportation using the Highway Capacity Manual's intersection Level of Service (LOS) measure, which measures delay to automobiles, LOS may no longer be used as a sole measure of transportation impact. These changes better align environmental review with environmental policies, like reducing greenhouse gas emissions

Prior to statewide implementation of SB743, the Transportation Authority had a long history of supporting CEQA reform. In October 2008, the Transportation Authority adopted the Final Report on the Automobile Trip Generation Impact Measure as an alternative to automobile LOS. The Report recommends that the City measure the transportation impacts of projects under CEQA based on the net new automobile trips generated (ATG) by a project. In 2009 the Transportation Authority worked with the State Office of Policy and Research to revise the CEQA Guidelines section on transportation impact analysis, which removed the exclusive reference to automobile LOS and replaced it with an option for local jurisdictions to select an alternative measure of transportation impact. The revisions also deleted references to parking as a transportation impact area.

On September 27, 2013, the governor signed into law SB743, which revised the criteria for determining the significance of transportation impacts within transit priority areas. In the fall of 2014, the State of California Office of Planning and Research released draft guidelines for implementation of SB 743, indicating that vehicle miles traveled would be the primary metric for evaluating transportation impacts. In March 2016, San Francisco became the first county to adopt the proposed SB 743, preceding statewide adoption by more than 2 years. The San Francisco Planning Commission adopted a resolution, based on state-proposed guidelines that remove automobile delay as a significant impact on the environment and replaced it with a vehicle miles traveled threshold for all CEQA environmental determinations, including active projects, going forward. In 2018, California adopted CEQA guidelines for implementing SB743, and on September 15, 2020 all new projects were required to include a VMT-based transportation impact significance determination.

APPENDIX 13

San Francisco Transportation Impacts Analysis Guidance

TRANSPORTATION IMPACT ANALYSIS GUIDELINES
FOR ENVIRONMENTAL REVIEW

October 2002

The Planning Department
City and County of San Francisco

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I. Introduction

These guidelines replace the Transportation Impact Analysis Guidelines which were originally prepared in 1991 and updated on an interim basis in 2000 to aid consultants in preparing transportation impact analysis for environmental evaluation in San Francisco, including both Environmental Impact Reports (EIRs) and Negative Declarations. In those cases where a transportation study is required for environmental analysis, it is normally necessary that a separate transportation report be prepared, based on these guidelines, as background for the Negative Declaration or EIR.

The Planning Department will make a determination whether a transportation study and report are necessary. In most cases, the department evaluates conditions in the PM peak hour of the PM peak period (4:00 to 6:00PM). This period was chosen because it is the time period when the maximum use of much the transportation system occurs. It is also the time when most of the transportation system capacity and service is at a maximum. Generally, a transportation report may be required for an environmental analysis if one or more of the following conditions apply. Not all conditions apply to all projects.

1) The project would potentially add at least 50 PM Peak Hour person trips;

2) The project would potentially increase existing traffic volumes on streets in its vicinity by at least 5 percent;

3) The project would potentially impact nearby intersections and/or arterials which are believed to presently operate at LOS "D" or worse;

4) The project would provide parking which would appear likely to be deficient relative to both the anticipated project demand and code requirements by at least 20 percent;

5) The project has elements which have potential to adversely impact transit operations or the carrying capacity of nearby transit services;

6) The project has elements which have potential to adversely affect pedestrian or bicycle safety or the adequacy of nearby pedestrian or bicycle facilities;

7) The project would not fully satisfy truck loading demand on-site, when the anticipated number of deliveries and service calls may exceed ten daily.

Transportation reports shall be prepared by qualified consultants, working at the direction of the Planning Department staff. The purpose of the transportation study is to provide the comprehensive information necessary to identify the transportation issues and impacts of a project (including those of importance and significance), and provide potential solutions or mitigations to problems and significant impacts in the context of the overall policies and objectives of the City.

II. Overview of Process and Procedures

These guidelines update and revise the *Guidelines for Environmental Review: Transportation Impacts* (July, 1991) *and Interim Transportation Impact Analysis Guidelines for Environmental Review* (January 2000), and supersede all previously published transportation analysis guidelines. This document reflects the most current data available regarding San Francisco travel characteristics. A major portion of the analysis guidance is based on the findings of the *Citywide Travel Behavior Survey - Employees and Employers* (May, 1993), the *Citywide Travel Behavior Survey - Visitor Travel Behavior* (August, 1993), and updates or enhancements to those reports. In addition, the *Guidelines* employ certain findings and assumptions from major San Francisco study reports, including those for: Mission Bay (Case No. 1996.771E; EIR certified September 17, 1998); Transbay Terminal/Caltrain Extension (Case No. 2000.048E); and Van Ness Avenue (Case No. 1987.586; EIR certified on December 17, 1987). The data in the Citywide Travel Behavior Study (CTBS) was subsequently confirmed by the *1995 Citywide Travel Behavior Study* that was sponsored by the San Francisco County Transportation Authority.

It should be noted that these are only guidelines. It must not be assumed that the information provided herein constitutes a complete scope of work for any transportation analysis. The *Guidelines* provide a broad overview, while individual transportation study scopes of work are required to provide a level of detail tailored to fit the size and complexity of transportation issues associated with particular projects. Moreover, once a scope of work is prepared and approved under the direction of the Planning Department, the specific direction contained within that scope will provide a more precise focus than that which appears in these *Guidelines*.

For clarification, the following represents an overview of the process involved in the preparation of a transportation impact analysis for environmental review purposes. No estimate or assumption is made or inferred regarding time lines for the various steps.

(1) The project sponsor or a designated representative files an Environmental Review (EE) application with the Planning Department following the instructions contained in that application form (available at the Department and on-line). When the application is accepted by the Department, a case number is assigned and a staff person from the Department's Major Environmental Analysis section is designated as the coordinator for environmental review. This individual will likely be different than the staff person handling the Transportation Impact Report. All Department staff assigned to the project will coordinate activities throughout the review process. Filing for environmental review generally (but not always) precedes starting the review of transportation issues.

2) Determination concerning whether a transportation impact report is required is based on the scale, location, and/or potential level of activity of the proposed

project. To make this determination and/or to prepare a transportation work scope, if one is required, the project sponsor should provide the following information to the assigned environmental coordinator or to a senior transportation planner in the Major Environmental Analysis section:

- existing and proposed specific gross square footage of space for each commercial use such as office, retail, restaurant, hotel (including number of rooms), industrial, etc;

- existing and proposed number and type of housing units (including live/work units) including the number of single and multiple bedroom units, and senior, affordable, rental, or owner-occupied designations;

- existing and proposed amount of off-street parking and loading space, including specification of supply relative to Planning Code requirements;

- existing and proposed location of driveways and site plan showing access to off-street parking and/or loading;

- location of bus stops, nearby curbside loading zones and designations for all curbside space along the frontage of the property.

Upon receipt of the above material, Department staff will determine whether a transportation study is required. This decision is generally based on factors such as those articulated in the introduction to these *Guidelines* and staff knowledge of transportation issues in the site vicinity.

(3) If it is determined that preparation of a transportation report is warranted, a transportation scoping meeting will be scheduled with the transportation planner, the environmental staff coordinator (other Department staff may also be involved), the project sponsor, and the transportation consultant and environmental consultant hired by the project sponsor. The scoping meeting will determine the specific issues to be examined in the transportation impact report and determine other parameters as defined in these guidelines.

All fees are to be paid by the project sponsor to the Planning Department for the review of the Transportation Impact Report prior to scheduling a transportation scoping meeting for the project. The amount of these fees can be obtained from Department staff. (See Appendix A, Figure A-1 for details on this process.)

(4) The transportation consultant will then prepare a draft transportation scope of work for Departmental review and revision(s), if necessary, for final approval. No work should be initiated by the transportation consultant until a written scope of work has been approved by the Department, including the

assigned transportation and environmental planners, by transmittal to the consultant of the Planning Department approval form. (See Figure 2 in Appendix A)

The Department will make every reasonable effort to anticipate and include in the scope of work typical concerns of other City agencies. However, it is not possible for the Department to anticipate all issues and concerns which later may be raised by other City Departments such as the Municipal Railway (MUNI) or the Department of Parking and Traffic (DPT). Ultimately, the scope of work may need to be revised after its approval so that it adequately addresses relevant issues raised by all other City agencies and other relevant issues that may arise in the course of preparing the study report. Any contractual arrangement between the project sponsor and its consultant preparing the transportation report should reflect the flexibility to address the above issues as they are raised.

(5) Based on the approved scope of work, the transportation consultant conducts the required analysis independent of the project sponsor, and submits five copies of all drafts directly to the environmental project coordinator for review, comment, and approval. Three copies will be used within the Planning Department, one copy will be provided to MUNI, and another to the Department of Parking and Traffic. It is recognized that more than one submittal of preliminary transportation findings will normally be necessary in order to achieve a satisfactory final transportation report. Under normal circumstances, two drafts of a transportation study will be required before it is accepted as final. The Planning Department staff will provide consultants with a coordinated set of comments from all City reviewers on each draft. Consultants should revise draft reports to reflect City comments as directed, and should provide a detailed written explanation if any comments are not reflected in subsequent submittals.

(6) Pertinent information from the final transportation report will be summarized for inclusion in an Environmental Impact Report (EIR) or Negative Declaration. The specific information to be extracted and summarized for inclusion in an EIR or Negative Declaration, will be determined on a case-by-case basis under the direction and guidance from the environmental staff person assigned to the project.

The selection of the transportation consultant is at the discretion of the project sponsor, contingent upon submittal of an acceptable work scope to Department staff. The consultant's work effort is, however, to be entirely under the direction of the assigned Department staff. All submittals by the consultant are to be made directly to the assigned coordinator of the overall environmental review in the Department's Major Environmental Analysis section. Any comments by the project sponsor or its representatives must be directed to Department staff rather than to the environmental and/or transportation consultants to ensure the objectivity of the analysis. The role of

the project sponsor and its representatives during the preparation of the transportation report should be limited to provision of details concerning the project, response to recommended changes affecting project circulation, and indication of support or lack of support for recommended mitigation measures and other transportation improvements identified in the impact report.

Transportation analysis can be a complex and lengthy process. The Department strongly advises that it begin as early as possible, to avoid unnecessary delays. The Department also recommends that the consultant follow the explicit parameters found in the scope of work.

III. Study Report Preparation Guidelines

Each transportation impact report is to follow a consistent format, as presented here, and include all of the elements and information presented in these *Guidelines*. The appropriate level of detail needed for each project's transportation impact analysis with respect to particular issues will be specified in the transportation work scope developed at the scoping meeting. When these *Guidelines* are referenced in a transportation study report, we suggest using either the full title and date, or the "2002 Transportation Guidelines" so the version is properly identified.

1. Project Description

All analyses must include a detailed project description. This information is to be presented as the first section of the document. The project description typically includes the following information:

- Case file number for the project, as assigned by the Department.
- Location of the project site, address, Assessor's Block and Lot number(s), cross streets, and Superdistrict or C-3 District (Refer to Appendix A for maps showing the Superdistricts and the C-3 District).
- Figure showing the site plan.
- Existing and proposed total gross square footage for each land use type and the number of units for residential, hotel/motel, and live/work projects including the net changes for each type of use.
- Existing and proposed estimated number of employees and/or dwelling units by type of use, including net changes, if available.
- Existing and proposed number of off-street parking spaces and whether any on-street or off-street parking spaces will be removed as a result of

the project.

- Existing and proposed number of off-street and on-street freight loading spaces as well as any proposed changes affecting on-street loading spaces.

- Description and plans for use (if any) of public rights-of-way by present or proposed uses, either above or below grade (e.g., air rights, surface or subsurface revocable permits, etc.) including sidewalk width changes, changes in width or number of traffic lanes, function of lanes in terms of traffic channelization, and/or direction of travel.

- Detailed plans showing vehicular and pedestrian site access, including location of curb cuts for both existing and proposed uses, and internal vehicular circulation, presented in standard architectural or engineering scale.

- Figure identifying parking spaces, the proposed egress and ingress to the parking garage or lot, the circulation pattern within the parking facility and the number and location of parking spaces for the disabled.

- Figure showing the location, dimensions and access to the off-street freight loading spaces as well as the on-site location for trash and garbage storage.

- Identification of all transportation-related approval actions required by any City department including use permits, variances, encroachment permits, and changes in public rights-of-way. Describe the specific action.

- Identification of the location, number and type of bicycle parking spaces provided.

- Information regarding the project site's lot area, existing and proposed zoning, and a figure with the location of the lot on the Assessor's Block.

2. Project Setting

The setting information shall be presented immediately following the Project Description as a discrete chapter or report section. The goal is to provide a brief but complete description of existing transportation infrastructure and conditions in the vicinity of the project. Normally, the described vicinity is a radius between two blocks and 0.25 mile, however, a larger area may be determined in the scoping process.

The specific perimeters of the study area, for both setting and project impact analysis, are to be confirmed as part of the approval for the scope of work. It should be noted that when the boundaries of a study area are determined in a scope of work, the project area should include both sides of the streets designated as the project boundaries unless otherwise specified (e.g., for on-street parking surveys). Sometimes the study area differs for different purposes, e.g., traffic vs parking vs transit.

The Setting section typically includes the following text information but the level of detail to be provided should be according to specific direction in the transportation scoping meeting:

- Street designations and classifications as identified in the Transportation Element of the San Francisco General Plan. These designations can be found on the following maps in the General Plan: Vehicular Street Map; Congestion Management Network; Metropolitan Transportation System; Transit Preferential Streets; Citywide Pedestrian Network; Neighborhood Pedestrian Streets; and Bicycle Route Map.

- A description of the study area streets, including the number and width of lanes, direction of flow, and the presence of peak period tow-away lanes affecting roadway travel capacity, the presence of bicycle lanes, and any other significant street information.

- Access to regional highways and freeways, including location of, distance from, and routings to and from on-ramps and off-ramps.

- Description of public transit routes operating on streets within the study area, including: route character; service areas; hours of service; peak period headways; and type of vehicle (diesel coach, trolleybus, streetcar, light rail vehicle; etc.). For projects subject to Section 321 of the Planning Code (Office Development: Annual Limit), the report must specifically identify, by operator, all lines within 1/4, 1/3, and 1/2 mile radii of the site.

- Level of Service (LOS) analysis for existing conditions for the specific intersections identified in the scope of work for the PM peak hour or other hours if specified in the scope of work. Unless otherwise specified, the operations method of the 2000 Highway Capacity Manual (HCM) shall be used in the analysis of intersections. The date on which the data was collected for the analysis must be specified in the text and on the calculation sheets. The methodology for the calculation of the LOS for various types of intersection controls is provided in the Appendix B.

- Actual and effective widths of sidewalks immediately adjacent to the project site. For areas where the sidewalks are absent or known to be deficient, the official

sidewalk width should be included. (Information on the official or legislated widths is available from Department of Public Works, Maps and Surveys.) For the streets immediately adjacent to the project site, this may include the location of fire hydrants, light poles, MUNI poles, traffic control devices, and other significant physical items between the curb and property line.

- Characteristics of parking within the study area (typically within a two-block radius of the site, but as determined in the approved scope of work), including the number of on-street parking spaces, control of on-street parking (e.g., meters, signed for time limit, neighborhood residential permit parking, etc.) number of off-street parking facilities and spaces (public and private), and whether off-street parking is provided as independently-accessible stalls or tandem/stacked valet operation. On-street and off-street parking occupancy information should be provided for the time period(s) specified in the scope of work. The data collection periods for peak parking occupancies typically are mid-afternoon for commercial uses and early evening for residential uses. The effects of any special circumstances affecting the availability of parking in the vicinity of the proposed project (e.g., periods of peaking in parking demand, and large generators of localized parking demand, such as a major institution) should be identified.

The Setting section typically also provides graphics, including:

- Street maps of the study area showing: street names, number and direction of lanes; transit service by line number and with stop locations identified; the location and amount of parking facilities, and the location and class of bicycle lanes. For projects subject to Section 321 of the Planning Code, the transit map is to show transit lines and stops within 1/4, 1/3 and 1/2 mile radii lines.

- When appropriate, include mapping and supporting tables which show both off-street and on-street parking conditions in study area. For off-street parking inventories, the parking supply should be based on how facilities are actually operated, i.e., the number of spaces should be based on valet parking when this is used and on striped spaces when this would be appropriate. For on-street parking only, inventories should include parking on each side of all the streets within the parking study area. On-street parking inventories should identify spaces subject to Residential Permit Parking (RPP) areas, whether the proposed project would be eligible to participate in the RPP, and what the project's impact on area parking occupancy rates would be.

- All designated bicycle routes in the study area should be illustrated. The existing treatments for bicycles (e.g., Class 2 or Class 3) and any proposed treatments for bicycle routes as well as general characterization of the extent of bicycle usage should be described.

3. Travel Demand Analysis

Travel demand analysis shall include textual information, supported by tables or figures detailing the project's trip generation, trip distribution, trip assignment and modal split characteristics.

Net new travel demand generated by the project is to be estimated, based on the difference between existing and proposed land uses. Person trip generation rates per unit of square footage for each land use, or other unit as shown in Appendix C, are to be used for estimating levels of activity for the proposed project. The rates were developed by an examination of various studies and sources, including the Citywide Travel Behavior Study, the ITE Trip Generation manual and special purpose studies, many of which are specific to San Francisco. No single source or analysis provides, by itself, an adequate means to define trip generation for all the situations encountered in San Francisco. Trip generation rates may sometimes need to be determined by other means, such as surveys of similar land uses, if so specified in the scope of work.

To "net-out" existing land uses that will be replaced, the existing levels of trip activity should, in most cases, be based on actual observations rather than on estimates based on rates in these *Guidelines* or other sources.

Each analysis should apply the trip generation rates from the *Guidelines* individually to the proposed uses, compare the proposed trips to existing levels of trip activity, and show the differences ("net new") by land use and in aggregate.

The Travel Demand Analysis is to include the following, unless otherwise directed in the work scope (Note that different or additional analysis periods may be defined in the scope of work process.) :

- Trip Generation Information: Project trip generation information (total person trips) by land use for existing and proposed uses. The total unadjusted daily and P.M. peak hour trips by mode can be calculated. The number of daily and peak hour vehicles (autos) generated by the project should also be calculated by using the auto occupancy rates noted in the tables in Appendix E.

- Work and Non-Work Trip Generation Information: Since work and non-work trips have different characteristics in terms of distribution and the mode of travel, the number of work and non-work (visitor) trips should be calculated separately. Appendix C provides the methodology to compute the work and non-work

(visitor) trips for a specific land use.

- Trip Distribution, Assignment and Modal Split Information: Net new person trips distributed to various directions of travel and assigned to the appropriate modes of travel (auto, transit, walk, and other) should be calculated, presented in tables and a graphic diagram (for vehicle and transit trips), and discussed in the text. Modal assignments should also be calculated for daily and the P.M. Peak Hour.

The weekday P.M. Peak Period is generally 4:00-6:00, and traffic counts shall generally be conducted during this period, unless otherwise specified in the scope of work. The peak hour must be determined from the counts (normally recorded in 15 minute intervals) for the entire peak period, and should represent the single hour within the peak period with the highest counts. The Planning Department may also request data for other periods to reflect the peak period of trip generation by the land use.

4. Transportation Impact Analysis

Analysis for all projects is to be conducted for project-specific impacts, and for cumulative impacts.

A. Traffic Impacts

Project-Specific Impacts. The project generated traffic impacts must be calculated for intersections identified in the scope of work using the methodologies explained in Appendix B. LOS levels for the specified intersections must be discussed in the text and presented in a table showing Existing, Existing plus Project and Cumulative intersection levels of service. The traffic attributable to the project is normally assumed to be included in the cumulative forecast, and should not be added to the cumulative totals. The percent contribution of the project should be shown both as a percentage of the total cumulative traffic and as a percentage of the growth in traffic (cumulative less existing) for each intersection.

The specific intersections to be analyzed will be identified in the approved scope of work for the transportation analysis, and based on an initial assessment of areas that could be impacted by the project. When a wide area may be impacted, the intersections selected for analysis may only be those that would experience the greatest change or have the greatest likelihood of degrading to an unacceptable LOS with the addition of the project traffic.

Cumulative (Horizon Year) Impacts. The transportation impact analysis should present and discuss the cumulative traffic impacts. The horizon year (normally 10 to 20 years in the future, depending on the location) should be used for the cumulative analysis year unless otherwise specified in the scope of work. The analysis is to assume a growth factor of one percent per year for "background" traffic, unless an areawide cumulative

forecast is defined during the scoping process. Traffic generated by the project, and by nearby projects when applicable, are to be expressed as a percentage of this overall growth factor. If the localized share seems to represent an unreasonable share of the anticipated overall horizon year growth, the consultant will need to discuss the issue with Department staff who will determine the appropriate approach to determining the cumulative conditions.

Figures should be included for each intersection analyzed which clearly indicate growth for each movement generated by the project and from cumulative conditions compared to existing conditions. For each analysis scenario (i.e., typically, Existing, Existing plus Project, and Cumulative), each of the critical movements at each intersection should be clearly indicated in the intersection calculation sheets and preferably in the figures which show volumes for each movement. The presence or absence of significant traffic impacts shall be determined according to direction from MEA transportation staff.

B. Transit Impacts

The specific methodology for analyzing transit impacts is included in Appendix F. For projects within the greater downtown area (C-3, SOMA and Mission Bay districts), the methodology for the cumulative (horizon year) condition for MUNI and the regional transit operators uses an approach based on a screenline analysis. For projects outside the greater downtown area, the level of analysis will depend on the nature of the project and the transit service within the study area.

Transit trips, as determined by the travel demand analysis outlined in Section 3, need to be assigned to transit routes (aggregated or individual) based on the trip distribution data, and in accordance with the transit analysis methodology outlined in Appendix F. Trips on both MUNI and regional carriers must be accounted for. The normal evaluation requires a determination of the loading at maximum load points in relation to the available capacity for the Existing, Existing plus Project, and possibly a Cumulative condition. The frequency and load standards of the affected transit vehicles needs to be known if not contained within the aggregated data. Similar to traffic impact analyses, the focus is on conditions for the p.m. peak hour. Net new transit trips generated by the project should be cited and also expressed as a percentage of cumulative growth, by operator.

Any transit analysis needs to consider the access to transit service from the project site. Normally, transit riders need to walk to a transit stop or station from the project site. This walk trip can influence the choice of a particular line, or even the mode itself, especially if the walk link is a difficult or unpleasant experience due to inadequate sidewalks, unsafe pedestrian crossings or other related circumstances. The analysis should determine whether sidewalk improvements or other pedestrian-related improvements are necessary in order to provide adequate access to transit service.

Also, any potential transit conflicts or delays resulting from site-related activities need to be examined and described.

C. Parking Impacts

Parking supply, parking demand, and Code-required parking should be clearly distinguished. If there is already existing parking on the site, the amount of net new parking should be noted. The project's parking supply is the amount of on-site parking spaces provided by the project that will be available for use by the project's residents, employees or visitors. Parking demand is the amount of daily parking need generated by the proposed uses. The Code required parking is the number of parking spaces required by Section 151 of the San Francisco Planning Code for the proposed uses.

Project parking demand is to be calculated for long-term demand (employees) and short-term demand (visitors) for commercial projects, and for resident parking demand for residential projects.

In some situations (e.g., when overlapping work shifts of the project or adjacent uses cause an accumulation of parking demand greater than the daily average total), accumulated peak parking demand should also be quantified.

Parking demand for commercial projects should be generally calculated based on the number of auto trips and auto occupancy rates from Appendix E for each superdistrict. Turn-over rates should be taken into consideration in calculating the daily short-term parking demand. Appendix G explains the methodology for parking demand calculations in more detail. In cases where more accurate information about parking demand and employee shift changes are available, this information may be used instead of derived from Appendix E, if incorporated in the scope of work.

Residential parking demand should be calculated based on the information provided in Appendix G of this report.

If a proposed project would displace existing parking, the report should identify:

1) the amount of parking which is required parking for the current uses on-site;

2) the amount of parking which is accessory parking to an off-site use; and

3) the amount of parking which is available to the general public (specifically identify as: short term; long-term; independently accessible; or valet parking.)

Project parking demand (including, if appropriate, demand for parking displaced) should be compared to the amount of parking provided by the project (supply), and the parking required by the Planning Code.

Deficiencies or surpluses in the number of parking spaces relative to demand and/or Code requirements should be quantified. The manner in which any parking deficiency will be addressed, and its impact on the existing on-street and off-street parking supply in the study area, should also be identified.

The impact of any deficiency in parking supply relative to the estimated demand, including current users of public parking to be displaced by the project, should be quantified in terms of the estimated increase in occupancy of available on-street and off-street facilities.

The amount of parking to be provided for bicycles and the disabled should be cited and compared with Code requirements. Any designated on-street parking spaces for the disabled that may be used by those accessing the project should be noted.

Parking access (ingress and egress) should be identified and the dimensions noted. Any impacts or conflicts of parking access with Transit Preferential Streets, other streets identified in the General Plan, streets identified for full or partial priority for pedestrians or bicycles, and any potential conflicts affecting transit, pedestrian, bicycle or vehicular flow should be identified. In cases where there are exceptional peaks in the traffic entering or leaving a garage, a queuing analysis may be necessary.

Whenever on-site parking is proposed, sufficient details should be included to the extent possible in order to assess:

- potential for conflicts between ingress and egress traffic;
- location of control gates, ticket dispensing facilities, and payment/validation facilities;
- adequacy of on-site space to avoid the potential for queueing onto adjacent sidewalks and streets;
- potential for conflicts with pedestrians, transit, bicycles, autos, and access for other projects;
- measures to functionally separate parking spaces for residential and commercial uses;
- quantity, locations, access, safe and secure character, and provisions for associated showers and lockers for all bicycle parking spaces whenever required or provided; and quantity, dimensions and locations for all disabled parking spaces.

Any special circumstances affecting the availability of parking in the vicinity of the proposed project as identified in the Setting Section are to be taken into consideration in the analysis and noted.

D. Pedestrian Impacts

Pedestrian conditions and the project impact should be discussed qualitatively or quantitatively based on the project size and existing circumstances. The Planning Department will determine if a qualitative or quantitative analysis is necessary.

If a quantitative analysis is required, pedestrian trips generated by the proposed project should be estimated for P.M. Peak Hour, plus the peak period of pedestrian activity for the immediate area (often in the midday), and/or the proposed project's peak period of trip generation. Level of Service conditions, when appropriate, for existing and existing plus project scenarios are to be calculated. Pushkarev and Zupan *Pedestrian Level of Service Standards and Methodology for Average Flow Characteristics Related to Flow In Platoons,* or the 2000 Highway Capacity Manual methodology are considered acceptable methodologies for the analysis; appropriate references are to be included. Midblock sidewalk or corner pedestrian Level of Service analyses may, in some situations, be requested in addition to or instead of Level of Service analysis at pedestrian crosswalk (intersection) locations.

Pedestrian safety issues related to the project should be assessed. The study should examine potential conflicts between pedestrian movements at driveways, localized pedestrian hazards and, more generally, between pedestrians and vehicles. Any proposed changes affecting the public rights-of-way such as new or modified sidewalks or streets should be detailed and based on advance consultations with relevant City departments, including the Department of Public Works and the Department of Parking and Traffic.

Pedestrian access to the project by the disabled should be discussed. Points of ingress and egress that are accessible to the disabled should be identified. Also, accessible curb-cuts or ramps, and other on-street aids for the disabled, on the adjacent streets should be noted.

E. Bicycle Impacts

The existence of current or future bicycle facilities in the area should be identified from the San Francisco Bicycle Plan and by consultation with the Department of Parking and Traffic. The analysis should examine possible impacts on bicycle traffic on the streets in the vicinity of the project. This would include potential conflicts between auto, truck and bus traffic serving the project during loading and unloading, and potential conflicts due to turning movements across bicycle lanes or routes. Potential barriers or hazards to safe bicycle operations near the project should also be identified. Other conditions that may have a notable negative or positive impact on use, such as bicycle parking or the provision of shower facilities, should also be stated. Details regarding the location and access to any bicycle facilities included in the project should be described in the textual discussion and clearly shown on the site plan included in the background transportation

report. The information provided needs to be sufficient to ascertain whether the proposed bicuycle facilities would be secure and practical for bicyclists to use.

If sufficient bicycle traffic exists or is anticipated on a study area street, it may be necessary to include a quantitative analysis of the impacts using the methodology in the 2000 Highway Capacity Manual or some similar technique.

F. Freight Loading and Service Impacts

Off-street truck loading requirements should be specified according to the Planning Code. The analysis should include a description of the frequency of the service deliveries and the estimated mix in the types of vehicles that will be utilized in the freight loading activities for the project. If it is expected that the project will attract a high level of courier and other service deliveries, the report should discuss how these will be accommodated. The analysis of the project should compare the amount of loading space provided by the project (supply) with truck loading demand generated by the project and with the off-street freight loading requirements in the Planning Code.

Project truck loading demand and service rate for the peak loading period (which should be specified) and the entire day should be estimated based on proposed uses on the site (using the data shown in Appendix H), and compared with Planning Code requirements and the proposed on-site facilities. The truck loading supply is the number and sizes of off-street truck loading spaces provided by the project on-site. It should be compared to the truck loading demand that the proposed use would generate. The number and sizes of off-street freight loading spaces required should be determined based on Section 152 of the San Francisco Planning Code.

The location, number and dimensions (including vertical clearance) of all spaces provided for freight and service functions, including van size spaces substituted for full size spaces, should be specified in the text and on a figure. The figure should indicate the location of freight elevators relative to all loading and service parking and clearly identify the circulation path between the loading/service stalls and elevators.

If truck loading demand exceeds supply and/or if no off-street loading facilities are proposed to be included as part of the project, a quantification of the resulting impacts (e.g., time of day, number of instances and duration of double-parked vehicles) should be provided, and details may be required regarding how service needs would be accommodated.

If truck movements would require backing into or out of the site on public rights-of-way, the resultant delays to traffic, transit vehicles and pedestrians should be characterized.

Truck loading access affecting a Transit Preferential Street, or any street identified in the General Plan for full or partial priority for pedestrians, and any potential conflicts affecting transit, pedestrian or vehicular flow should be identified.

In any case in which a project proposes to rely on curbside yellow loading zones, an occupancy and turnover analysis is to be conducted for existing curbside loading spaces in the immediate vicinity of the project site to estimate the probable availability of such spaces to serve the needs of the proposed project, based on the specific use(s) proposed and area conditions.

Details should be provided adequate for analysis of garbage needs including dedicated on-site storage independent of loading areas, measures to avoid use of public rights-of-way for garbage storage in accordance with DPW requirements, and well-defined access to accommodate garbage pick-up in order to minimize disruptions to streets and sidewalks.

G. Passenger Loading Zones

If applicable, the extent of taxi, tour bus, or other types of passenger loading and unloading needs should be specified including details regarding how these functions would be served. Where a porte cochere or other off-street passenger loading area is required or provided, plans should be included showing the location, traffic and parking lanes, adjacent sidewalks, circulation patterns, and all dimensions. Any plans to seek colored, marked curbside areas from the Department of Parking and Traffic should be noted.

For cases in which a project proposes to rely on curbside pedestrian loading zones, an occupancy and turnover analysis for similar curbside passenger loading spaces should be made to estimate the probable availability of such spaces to serve the needs of the proposed project, based on the specific use(s) proposed and area conditions.

H. Construction Impacts

The number of daily and peak period construction truck trips by construction phase should be cited, with proposed truck routings and operating hours indicated.

Any proposed closures or temporary use of pedestrian ways, parking lanes or traffic lanes are to be identified, as well as the extent and duration of such closure or temporary use. Impacts associated with such occupation of public rights-of-way should be identified, in terms of parking lost, effect on transit operations, loading needs, or temporary degradation in levels of service for intersections and/or pedestrians. The need to remove or move any transit stops should also be noted. For large projects, the staging plans of construction trucks for materials delivery should be cited, and methods for addressing the parking needs of construction workers should be identified.

5. Transportation Mitigation Measures

Transportation reports are frequently used not only for environmental evaluation but also in the conditional use and other permit processes. It is important to recognize the differences between these processes.

There are also cases in which the transportation analysis for a specific project may conclude that significant transportation impacts are unlikely and that mitigation is not required. If the project has impacts, but they are not considered “significant” as defined by CEQA standards, the analysis should clearly state this at the beginning of the significant impacts and mitigation section. These impacts may be referred to as “non-significant” impacts, and the corresponding measures to alleviate them, as “improvement” measures. They may include desirable measures to improve transportation conditions which may be recommended and subsequently included as conditions of approval. Any recommended improvement measures should be listed, accompanied by identification of the appropriate entity responsible for implementation. Such measures are not to be identified as "mitigation" measures.

Mitigation measures required to deal with impacts determined to be environmentally significant according to CEQA standards should be clearly identified as such.

If a mitigation or improvement is proposed for an intersection that will change the Level of Service (LOS), then the corresponding LOS calculation sheets need to be included in the report. The calculation sheet (or an attachment) should identify the parameters that were changed, and what specific changes are proposed, including consultation with DPT regarding the feasibility of the proposed changes.

Whenever either type of measure is identified, the following should be cited:

- If the implementation would be the responsibility of the project sponsor, indicate whether the project sponsor supports or fails to support each specific recommendation.

- If implementation would be the responsibility of the City or another agency, the responsible department or agency should be identified and its position on each recommendation should be stated.

- The timing and linkages for implementation of each measure, and whether a monitoring plan is needed, should be specified.

In some unique situations, a cost estimate for a mitigation or improvement measure may be required. Every attempt will be made to identify these cases during the scoping process. If an estimate is deemed necessary, it should be prepared at a "planning level" of detail, which would be more general and less rigorous than a construction cost estimate. Such estimates should indicate the month and year in which they were prepared, so they can be adequately assessed at some future date.

Typical transportation mitigation measures for downtown area projects, to address significant impacts as defined by CEQA standards, are shown in Appendix I. While some of these may be appropriate for projects outside of the downtown area, mitigation measures for such projects would generally be a function of the specific conditions and impacts identified by the transportation study for each project.

A transportation management program and on-site brokerage services are required for office developments of 100,000 square feet or larger (25,000 square feet in the SSO District) that are located in the C-3 or South of Market Districts. (Reference the Zoning Map of the City and County of San Francisco.) An agreement for the transportation brokerage services and a transportation management plan must be executed with the Planning Department prior to the issuance of a permit of occupancy. The transportation study report should recognize this requirement when applicable. The actual transportation management plan need not be included in the study report, but could be added at the discretion of the project sponsor. Appendix J contains the Planning Code requirements for the plan and services.

6. Appendices for Inclusion in Transportation Reports

As appropriate, all transportation analyses should include the following appendices:

- Transportation Study Acknowledgment and Approval form, (Appendix A, Figure A-2) completed by the Planning Department (signed and dated), and a copy of the approved scope of work.
- Complete sets of all required traffic and pedestrian counts and estimated volumes. These should include Existing, Existing plus Project, and Cumulative conditions, at a minimum. The counts should include the date on which the data were collected.
- Complete sets of all traffic and pedestrian Level of Service calculations. Each Calculation sheet should indicate the date on which the data was collected. A summary of the rationales for use of adjustments or default values for the variables used in the calculations should be included.
- Complete sets of all analysis assumptions (including trip generation rates, transit patronage and capacities, parking turnover rates, mode splits, trip distribution, trip assignment, auto occupancy, etc.)
- Intersection LOS definitions and descriptions.
- Pedestrian LOS definitions and descriptions.

APPENDIX 14

Downtown Transit Impact Development Fee Ordinance

Amendment of the whole
in committee. 07/12/04

FILE NO. 040141 ORDINANCE NO. 199-04

[Transit Impact Development Fee]

Ordinance repealing San Francisco Administrative Code Chapter 38 (Transit Impact Development Fee) and replacing it with a new Chapter 38 (Sections 38.1 through 38.14), to enact a new Transit Impact Development Fee.

Be it ordained by the People of the City and County of San Francisco:

Section 1. The San Francisco Administrative Code is hereby amended by repealing Chapter 38 in its entirety; provided, however, that any sponsor who has been issued a building or site permit to develop office use that was subject to the Transit Impact Development Fee imposed by Ordinance No. 224-81, as amended, shall remain subject to all the terms and conditions of that ordinance, as amended. Chapter 38 of the Administrative Code shall be replaced with a new Chapter 38 to read as follows:

SEC. 38.1. DEFINITIONS.

For the purposes of this Chapter, the following definitions shall apply:

A. Accessory Use. A related minor use which is either necessary to the operation or enjoyment of a lawful principal use or conditional use, or is appropriate, incidental and subordinate to any such use and is located on the same lot as the principal or conditional use.

B. Base Service Standard. The relationship between revenue service hours offered by the Municipal Railway and the number of automobile and transit trips estimated to be generated by certain non-residential uses, expressed as a ratio where the numerator equals the average daily revenue service hours offered by MUNI, and the denominator equals the daily automobile and transit trips generated by non-residential land uses as estimated by the TIDF Study or updated under Section 38.7 of this ordinance.

C. Base Service Standard Fee Rate. The transit impact development fee that would allow the City to recover the estimated costs incurred by the Municipal Railway to meet

the demand for public transit resulting from new development in the economic activity categories for which the fee is charged, after deducting government grants, fare revenue, and costs for non-vehicle maintenance and general administration.

D. Board. The Board of Supervisors of the City and County of San Francisco.

E. Certificate of Final Completion and Occupancy. A certificate of final completion and occupancy issued by any authorized entity or official of the City, including the Director of the Department of Building Inspection, under the Building Code.

F. City. The City and County of San Francisco.

G. Covered Use. Any use subject to the TIDF.

H. Cultural/Institution/Education (CIE). An economic activity category that includes, but is not limited to, schools, as defined in subsections (g), (h), and (i) of Section 209.3 of the Planning Code and subsections (f) - (i) of Section 217 of the Planning Code; child care facilities, as defined in subsections (e) and (f) of Section 209.3 of the Planning Code and subsection (e) of Section 217 of the Planning Code; museums and zoos; and community facilities, as defined in Section 209.4 of the Planning Code and subsections (a) – (c) of Section 221 of the Planning Code.

I Director. The Director of Transportation of the MTA, or his or her designee.

J. Economic Activity Category. One of the following six categories of non-residential uses: Cultural/Institution/Education (CIE), Management, Information and Professional Services (MIPS), Medical and Health Services, Production/Distribution/Repair (PDR), Retail/Entertainment, and Visitor Services.

K. Gross Floor Area. The total area of each floor within the building's exterior walls, as defined in Section 102.9 of the San Francisco Planning Code.

L. Gross Square Feet of Use. The total square feet of gross floor area in a building and/or space within or adjacent to a structure devoted to all covered uses, including any

common areas exclusively serving such uses and not serving residential uses. Where a structure contains more than one use, areas common to two or more uses, such as lobbies, stairs, elevators, restrooms, and other ancillary space included in gross floor area that are not exclusively assigned to one use shall be apportioned among the two or more uses in accordance with the relative amounts of gross floor area, excluding such space, in the structure or on any floor thereof directly assignable to each use.

M. Management, Information and Professional Services (MIPS). An economic activity category that includes, but is not limited to, office use as defined in Section 313.1(35) of the Planning Code; medical offices and clinics, as defined in Section 890.114 of the Planning Code; and business services, as defined in Section 890.111 of the Planning Code.

N. Medical and Health Services. An economic activity category that includes, but is not limited to, those non-residential uses defined in Sections 209.3(a) and 217(a) of the Planning Code; animal services, as defined in subsections (a) and (b) of Section 224 of the Planning Code; and social and charitable services, as defined in subsection (d) of Section 209.3 of the Planning Code and subsection (d) of Section 217 of the Planning Code.

O. Municipal Railway; MUNI. The public transit system owned by City and under the jurisdiction of the Municipal Transportation Agency.

P. Municipal Transportation Agency; MTA. The agency of City created under Article 8A of the San Francisco Charter.

Q. Municipal Transportation Agency Board of Directors; MTA Board. The governing board of the MTA.

R. New Development. Any new construction, or addition to or conversion of an existing structure under a building or site permit issued after the effective date of this ordinance that results in 3,000 gross square feet or more of a covered use. In the case of mixed use development that includes residential development, the term "new development"

shall refer to only the non-residential portion of such development. "Existing structure" shall include a structure for which a sponsor already paid a fee under the prior TIDF ordinance, as well as a structure for which no TIDF was paid.

S. Planning Code. The Planning Code of the City and County of San Francisco, as it may be amended from time to time.

T. Production/Distribution/Repair (PDR). An economic activity category that includes, but is not limited to, manufacturing and processing, as defined in Section 226 of the Planning Code; those uses listed in Section 222 of the Planning Code; automotive services, as defined in Section 223(a) - (k) of the Planning Code; arts activities and spaces, as defined in Section 102.2 of the Planning Code; and research and development, as defined in Section 313.1(42) of the Planning Code.

U. Residential. Any type of use containing dwellings as defined in Section 209.1 of the Planning Code or containing group housing as defined in Section 209.2(a) - (c) of the Planning Code.

V. Retail/Entertainment. An economic activity category that includes, but is not limited to, retail use, as defined in Section 218 of the Planning Code; entertainment use, as defined in Section 313.1(15) of the Planning Code; massage establishments, as defined in Section 218.1 of the Planning Code; laundering, cleaning and pressing, as defined in Section 220 of the Planning Code; and wholesale sales, as defined in Section 890.54(b) of the Planning Code.

W. Revenue Service Hours. The number of hours that the Municipal Railway provides service to the public with its entire fleet of buses, light rail (including streetcars), and cable cars.

X. Sponsor. An applicant seeking approval for construction of new development subject to this Chapter, such applicant's successors and assigns, and/or any person or entity that controls or is under common control with such applicant.

Y. TIDF Study. The study commissioned by the San Francisco Planning Department and performed by Nelson/Nygaard Associates entitled "Transit Impact Development Fee Analysis - Final Report," dated May 2001, including all the Technical Memoranda supporting the Final Report and the Nelson/Nygaard update materials contained in Board of Supervisors File No. 040141.

Z. Transit Impact Development Fee; TIDF. The development fee that is the subject of this ordinance.

AA. Treasurer. Treasurer of the City and County of San Francisco.

BB. Trip Generation Rate. The total number of automobile and Municipal Railway trips generated for each 1,000 square feet of development in a particular economic activity category as established in the TIDF Study, or pursuant to the five-year review process established in Section 38.7 of this ordinance.

CC. Use. The purpose for which land or a structure, or both, are legally designed, constructed, arranged or intended, or for which they are legally occupied or maintained, let or leased.

DD. Visitor Services. An economic activity category that includes, but is not limited to, hotel use, as defined in Section 313.1(18) of the Planning Code; motel use, as defined in subsections (c) and (d) of Section 216 of the Planning Code; and time-share projects, as defined in Section 11003.5(a) of the California Business and Professions Code.

SEC. 38.2. FINDINGS.

A. In 1981, the City enacted an ordinance imposing a Transit Impact Development Fee ("TIDF") on new office development in the Downtown area of San Francisco. The

ordinance established a rate of $5.00 for each square foot of new office development. The TIDF was based on studies showing that the development of new office uses places a burden on the Municipal Railway, especially in the downtown area of San Francisco during commute hours, known as "peak periods." The TIDF was based on two cost analyses: one by the Finance Bureau of the City's former Public Utilities Commission, performed in 1981, and one by the accounting firm of Touche-Ross, performed in March 1983 to defend a legal challenge to the TIDF. The studies showed that the cost per square foot of new office development to provide public transit service was $9.18 and $8.36, respectively. The California Court of Appeal upheld the TIDF ordinance against legal challenges in *Russ Bldg. Partnership v. City and County of San Francisco*, 199 Cal.App.3d 1496 (1987), reprinted as directed by the California Supreme Court in *Russ Bldg. Partnership v. City and County of San Francisco*, 44 Cal.3d 839, 845-55 (1988). Among other things, the Court of Appeal found that the TIDF was a valid condition of development of real property, and not a special tax requiring voter approval. The Court also upheld the TIDF against equal protection and substantive due process challenges. Additionally, the California Supreme Court upheld the constitutionality of the TIDF as applied to development of new office uses approved before passage of the TIDF ordinance, where the City had conditioned approval of the new development on the developer's payment of a contemplated, but yet unknown, transit mitigation fee.

B. In 2000, the City's Planning Department, with assistance from the Municipal Transportation Agency, commissioned a study of the TIDF. The Planning Department issued a request for proposals for a consultant to consider various issues involving the TIDF, including: (1) whether the TIDF should be expanded to include types of land uses in addition to offices; (2) whether the TIDF should be expanded geographically beyond the Downtown area; (3) whether fee amounts should vary by geographic or land use categories; (4) what standards should be used for measuring the baseline performance of the Municipal Railway

("MUNI"); and (5) the developer fees that would be necessary to fund public transit to meet the additional demand resulting from new development.

C. In 2001, the Planning Department selected Nelson/Nygaard Associates, a nationally recognized transportation consulting firm, to perform the study. Later in 2001, Nelson/Nygaard issued its final report ("TIDF Study"). Before issuing the TIDF Study, Nelson/Nygaard prepared several Technical Memoranda, which provided detailed analyses of the methodology and assumptions used in the TIDF Study.

D. The TIDF Study concluded that new non-residential uses in San Francisco will generate demand for a substantial number of auto and transit trips ~~on MUNI~~ by the year 2020. The TIDF Study confirmed that while new office construction will ~~generate~~ have a substantial ~~demand for~~ impact on MUNI services, new development in a number of other land uses will ~~generate more trips on~~ also require MUNI to increase the number of revenue service hours. The TIDF Study recommended that the TIDF be extended to apply to most non-residential land uses ~~to address the increased demand for impact on public transportation~~. The TIDF Study found that certain types of new development generate very few daily ~~transit~~ trips and therefore may not appropriately be charged a new TIDF.

E. The TIDF Study also determined that the need to expand MUNI services to accommodate new development extends to all times of the day, not just peak periods, and therefore recommended that any measure of the existing level of service and additional service required by new development include service at all times of the day.

F. The former TIDF Ordinance applied the fee to developments in the traditional "Downtown" area of the City. The TIDF Study noted that since 1981, however, development has expanded out of the Downtown area of the City, and that such development has required MUNI to build transit infrastructure in areas outside of the boundary defined in the former TIDF Ordinance.

G. To meet the increased demand for public transit projected by the TIDF Study, MUNI must build new infrastructure and add or adjust service. For example, MUNI's 2002 publication, "A Vision for Rapid Transit in San Francisco" ("Vision Plan"), proposes transit projects along 12 major corridors in San Francisco, covering all areas of the City.

H. Even where employees and others drawn to new development use private transportation, their trips will increase the cost of maintaining MUNI's existing service level ("base service standard") because increasing traffic congestion will result in slower travel speeds for MUNI and require MUNI to add more service hours to maintain its base service standard Accordingly, new development will require MUNI to add service hours to maintain schedules and reliability that extends beyond the new riders seeking to use MUNI service.

I. New development will directly and indirectly require MUNI to (a) maintain and expand service capacity through adding revenue service hours; (b) purchase, maintain and repair rolling stock; (c) install new lines; and (d) add service to existing lines.

J. The TIDF Study recommended that the City enact an ordinance to impose transit impact fees that would allow MUNI to maintain its base service standard as new development occurs throughout the City. The proposed ordinance would require sponsors of new development in the City to pay a fee that is reasonably related to the financial burden imposed on MUNI by the new development. This financial burden is measured by the cost that will be incurred by MUNI to provide increased service to maintain the applicable base service standard over the life of such new development.

K. The TIDF Study expressed the base service standard as a ratio in which the numerator is the number of hours that MUNI provides service to the public on its entire fleet of vehicles ("revenue service hours"), and the denominator is the number of trips generated by all non-residential land uses. An increase in trips resulting from new non-residential development will reduce the ratio of revenue service hours to overall trips generated by new

development. To maintain the base service standard to accommodate the new development, MUNI must increase revenue service hours.

L. The TIDF Study developed a daily trip generation rate for each of six economic activity categories developed in the "Citywide Land Use Study," prepared for the Planning Department in 1998. The daily trip generation rate included automobile and public transit trips, but excluded non-motorized trips because such trips do not materially affect traffic congestion. The TIDF Study determined that the trip generation rates in each economic activity category do not vary geographically within the City. Therefore, the TIDF Study concluded that developer fee rates should not vary in different districts within the City. The trip generation rates contained in the TIDF Study represent the most reasonable rates available for the economic activity categories in the Study.

M. Using data obtained from MUNI and the fiscal year 2000 National Transit Database, the TIDF Study calculated the base service standard fee rates for each of the six economic activity categories in the following way:

(1) To calculate MUNI's total annual costs, the TIDF Study combined MUNI's fiscal year 2000 operating costs with an average annual capital budget, estimated by averaging the prior five years of MUNI's capital expenditures.

FY 2000 Operating Costs	$384,113,000
Average Annual Capital Costs	$310,000,000
Total Annual Costs	$694,113,000

(2) The Study calculated MUNI's net annual costs for fiscal year 2000 by subtracting fare box revenue and federal and state grant funds from MUNI's total costs.

Total Annual Costs	$ 694,113,000
FY 2000 Fare Box Revenue	($101,310,000)
FY 2000 Federal/State Grant Funds	($182,900,000)
Net Annual Costs	$ 409,903,000

(3) The Study then determined MUNI's net annual cost per revenue service hour by dividing MUNI's net annual costs by MUNI's average daily revenue service hours, as reported to the National Transit Database.

Net Annual Costs	Average Daily Revenue Service Hours	Net Annual Cost Per Revenue Service Hour
$ 409,903,000	÷ 8,436	$48,600

(4) The TIDF Study estimated the number of daily auto and transit trips within the City (9,035,282) by using trip generation rates and 2000 employment data supplied by the Planning Department. By dividing MUNI's average daily revenue service hours (8,436) by the estimated daily auto and transit trips within the City (9,035,282), the TIDF Study determined that MUNI provided approximately 0.9336 service hours for every 1,000 transit and auto trips. The TIDF Study multiplied the net annual cost per revenue service hour by 0.9336 to determine a net annual cost per trip.

Net Annual Cost Per Revenue Service Hour	Revenue Service Hours Per 1,000 Trips	Net Annual Cost Per Trip
$48,600	x 0.9336	$45.37

(5) The Study multiplied the net annual cost per trip by an adjusted daily trip rate per economic activity category to calculate a net annual cost per gross square foot (gsf) of new development for each economic activity category. The TIDF Study adjusted the daily trip rate to eliminate bicycle and pedestrian trips.

Economic Activity Category	Adjusted Daily Trip Rate Per 1,000 gsf	Net Annual Cost Per Trip	Net Annual Cost per gsf of Development
Cultural/Institution/Education	42.3	$45.37	$1.92
Management, Information and Professional Services	15.1	$45.37	$0.68
Medical and Health Services	23.9	$45.37	$1.08
Production/Distribution/Repair	9.6	$45.37	$0.44
Retail/Entertainment	166.8	$45.37	$7.57
Visitor Services	13.3	$45.37	$0.61

(6) Finally, the Study multiplied the net annual cost per gross square foot of development for each economic activity category by a net present value factor of 20.69 (based on a U.S. transportation industry index inflation rate of 2.05%, earning on an invested funds rate of 6.14%, and a building life span of 45 years) to establish the base service standard rates for each economic activity category that would be necessary to pay for increased transit services for the 45-year useful life of a new development.

Economic Activity Category	Net Present Value Factor	Net Annual Cost per gsf of Development	Base Service Standard Rates
Cultural/Institution/Education	20.69	$1.92	$39.67
Management, Information and Professional Services	20.69	$0.68	$14.17
Medical and Health Services	20.69	$1.08	$22.40
Production/Distribution/Repair	20.69	$0.44	$9.04
Retail/Entertainment	20.69	$7.57	$156.61
Visitor Services	20.69	$0.61	$12.53

N. In 2004, MUNI updated the base service standard rates established in the TIDF Study with fiscal year 2003 data (the "updated base service standard rates"). To calculate the

updated base service standard rates, MUNI modified certain variables in the TIDF Study's formula to reflect current information, as follows.

(1) Rather than using an estimated average annual capital budget (the methodology employed in the TIDF Study), MUNI used its actual capital costs for fiscal years 1999-2003, as reported to the fiscal year 2003 National Transit Database, in determining the average annual capital costs.

Operating Costs	$449,283,888
Average Capital Costs	$192,468,200
Total Costs	$641,752,088

(2) California Government Code Section 65913.8 prohibits including costs for facility maintenance and operations in a fee imposed on a developer for a public capital facility improvement. It is not clear whether this limitation applies to the TIDF. To comply with Government Code Section 65913.8, if applicable, and to achieve a more conservative estimate of the recoverable costs, MUNI deducted its costs for non-vehicle (facility) maintenance and general administration. MUNI could not separate general administration attributable to facility operations, so MUNI deducted 100% of the general administration costs for the entire department. Accordingly, the updated base service standard rates are even more conservative than may be required under Section 65913.8.

(3) MUNI applied its updated assumptions to the TIDF Study's methodology by deducting non-vehicle maintenance and general administration (in addition to farebox revenues and grant funds) from its total costs to calculate its annual net costs:

Total Annual Costs FY 2003	$ 641,752,088
Farebox Revenue FY 2003	($97,779,333)
Federal/State Grant Funds FY 2003	($89,445,000)
Non-Vehicle Maintenance FY 2003	($34,173,560)
General Administration FY 2003	($92,197,116)
Net Annual Costs FY 2003	$ 328,157,079

(4) To determine the net annual cost per revenue service hour, MUNI used the average daily revenue service hours for Fiscal Year 2003 (10,062), as reported to the National Transit Database:

Net Annual Costs	Average Daily Revenue Service Hours	Net Annual Cost Per Revenue Service Hour
$ 328,157,079	÷ 10,062	$32,614

(5) MUNI then calculated the net annual cost per trip by multiplying the net annual cost per revenue service hour by the number of revenue service hours per 1,000 trips:

Net Annual Cost Per Revenue Service Hour	Revenue Service Hours Per 1,000 Trips	Net Annual Cost Per Trip
$32,614	x 1.1136	$36.32

(6) MUNI multiplied the net annual cost per trip by the adjusted daily trip rate for each economic activity category to arrive at a net annual cost per gross square foot of new development for each category:

Economic Activity Category	Adjusted Daily Trip Rate Per 1,000 gsf	Net Updated Annual Cost Per Trip	Net Updated Annual Cost per gsf of Development
Cultural/Institution/Education	42.3	$36.32	$1.54
Management, Information and Professional Services	15.1	$36.32	$0.55
Medical and Health Services	23.9	$36.32	$0.87
Production/Distribution/Repair	9.6	$36.32	$0.35
Retail/Entertainment	166.8	$36.32	$6.06
Visitor Services	13.3	$36.32	$0.48

(7) MUNI also updated the net present value factor the TIDF Study used to calculate the updated base service standard rates by calculating the lump sum amount needed to fund $1.00 (in today's dollars) in annual costs over 45 years, increasing at a current inflation rate of 3.50% (the five-year Bay Area Consumer Price Index as calculated by the Association for Bay Area Governments), with the remaining fund balance invested at a current interest rate of 4.93% (the five-year average interest rate earned by the City's Treasurer's Department on pooled funds). Both the TIDF Study and MUNI used the interest rate earned by the City's Treasurer for the respective years. But MUNI elected to use the Bay Area Consumer Price Index rather than the U.S. Transportation Index on which the TIDF Study relied because the Bay Area index more accurately reflects the local inflation rate. The use of the different net present value factor yields the following updated base service standard rates:

Economic Activity Category	Net Annual Cost per gsf of Development	Net Present Value Factor	Updated Base Service Standard Rates
Cultural/Institution/ Education	$1.54	33.36	$51.25
Management, Information and Professional Services	$0.55	33.36	$18.30
Medical and Health Services	$0.87	33.36	$28.96
Production/Distribution/Repair	$0.35	33.36	$11.63
Retail/Entertainment	$6.06	33.36	$202.10
Visitor Services	$0.48	33.36	$16.11

O. In setting the TIDF rates, the City considered the updated base service standard rates and input from a variety of stakeholders, including business groups, developers, and civic organizations. The City set the TIDF rates well below the updated base service standard rates to reduce the costs of the TIDF to sponsors of new developments, who are subject to other development fees imposed by the City, and to guarantee that the TIDF does not exceed the reasonable cost to fund the additional transit improvements necessitated by new development. The TIDF rates are as follows:

Economic Activity Category	Updated Base Service Standard Rates	TIDF Schedule (from Sec. 38.4)
Cultural/Institution/Education	$51.25	$10.00
Management, Information and Professional Services	$18.30	$10.00
Medical and Health Services	$28.96	$10.00
Production/Distribution/Repair	$11.63	$8.00
Retail/Entertainment	$202.10	$10.00
Visitor Services	$16.11	$8.00

P. Based on projected new development over the next 20 years, the TIDF will provide revenue to MUNI that is significantly below the costs that MUNI will incur to mitigate the transit impacts resulting from the new development.

Q. The TIDF is the most practical and equitable method of meeting a portion of the demand for additional Municipal Railway service and capital improvements for the City caused by new non-residential development.

R. Based on the above findings, the City determines that the TIDF satisfies the requirements of the Mitigation Fee Act, California Government Code Section 66001, as follows:

(1) The purpose of the fee is to meet a portion of the demand for additional Municipal Railway service and capital improvements for the City caused by new non-residential development.

(2) Funds from collection of the TIDF will be used to increase revenue service hours reasonably necessary to mitigate the impacts of new non-residential development on public transit and maintain the applicable base service standard.

(3) There is a reasonable relationship between the proposed uses of the TIDF and the impact on transit of the new developments on which the TIDF will be imposed.

(4) There is a reasonable relationship between the types of new development on which the TIDF will be imposed and the need to fund public transit for the uses specified in Section 38.8 of this ordinance.

(5) There is a reasonable relationship between the amount of the TIDF to be imposed on new developments and the impact on public transit from the new developments.

SEC. 38.3. IMPOSITION OF TRANSIT IMPACT DEVELOPMENT FEE.

A. Subject to the exceptions set forth in subsections D and E below, each sponsor of a new development in the City shall pay to the City and deliver to the Treasurer upon issuance of any temporary certificate of occupancy, and as a condition precedent to issuance for such new development of any certificate of final completion and occupancy, whichever occurs first, a TIDF. The TIDF shall be calculated on the basis of the number of gross square

feet of new development, multiplied by the square foot rate then in effect for each of the applicable economic activity categories within the new development, as provided in Section 38.4 of this ordinance. An accessory use shall be charged at the same rate as the underlying use to which it is accessory. Whenever any new development or series of new developments results in more than 3,000 gross square feet of covered use within a structure, the TIDF shall be imposed on every square foot of such covered use (including any portion that was part of prior new development below the 3,000 square foot threshold).

B. No City official or agency, including the Department of Building Inspection ("DBI") and the Port of San Francisco, may issue a certificate of final completion and occupancy for any new development subject to the TIDF until it has received notification from the Treasurer that the TIDF in accordance with Section 38.4 of this Chapter has been paid.

C. Except as provided in Sections 38.3(D) and (E) below, the TIDF shall be payable with respect to any new development in the City for which a building or site permit is issued on or after the effective date of this ordinance.

D. The TIDF shall not be payable on new development, or any portion thereof, for which a transit impact development fee has been paid, in full or in part, under the prior Transit Impact Development Fee Ordinance adopted in 1981 (Ordinance No. 224-81; former Chapter 38 of this Administrative Code), except where (1) gross square feet of use is being added to the building; or (2) the TIDF rate for the new development is in an economic activity category with a higher fee rate than the rate set for MIPS, as set forth in Section 38.4.

E. No TIDF shall be payable on the following types of new development.

(1) New development on property owned (including beneficially owned) by the City, except for that portion of the new development that may be developed by a private sponsor and not intended to be occupied by the City or other agency or entity exempted under this ordinance, in which case the TIDF shall apply only to such non-exempted portion. New

development on property owned by a private person or entity and leased to the City shall be subject to the fee, unless the City is the beneficial owner of such new development or unless such new development is otherwise exempted under this Section.

(2) Any new development in Mission Bay North or South to the extent application of this ordinance would be inconsistent with the Mission Bay North Redevelopment Plan and Interagency Cooperation Agreement or the Mission Bay South Redevelopment Plan and Interagency Cooperation Agreement, as applicable.

(3) New development located on property owned by the United States or any of its agencies to be used exclusively for governmental purposes.

(4) New development located on property owned by the State of California or any of its agencies to be used exclusively for governmental purposes.

(5) New development for which an application for environmental evaluation or an application for a categorical exemption has been filed prior to April 1, 2004.

(6) The following types of new developments:

(a) Public facilities/ utilities, as defined in Section 209.6 of the Planning Code;

(b) Open recreation/horticulture, as defined in Section 209.5 of the Planning Code, including private noncommercial recreation open use, as referred to in Section 221(g) of the Planning Code;

(c) Vehicle storage and access, as defined in Section 209.7 of the Planning Code;

(d) Automotive services, as defined in Section 223(l) - (v) of the Planning Code;

(e) Wholesaling, storage, distribution, and open-air handling of materials and equipment, as defined in Section 225 of the Planning Code;

(f) Other Uses, as defined in Section 227 of the Planning Code;

In reviewing whether a development is subject to the fee, the Director shall consider the project in its entirety. A sponsor may not seek multiple building permits to evade paying the TIDF.

F. The sponsor shall pay, or cause to be paid, the TIDF to the Treasurer on the earliest of the following dates:

(1) The date when 50 percent of the net rentable area of the project has been occupied;

(2) The date of issuance of the first temporary permit of occupancy in the new development;

(3) Five days prior to the date of issuance of a final certificate of occupancy.

G. Upon payment of the fee in full to the Treasurer, and upon request of the sponsor, the Treasurer shall issue a certificate that the fee has been paid. The sponsor shall present such certification to DBI before the issuance of the final certificate of occupancy for the new development. DBI shall provide notice in writing to the Treasurer, the Planning Department, and MUNI at least five business days before issuing the final certificate of occupancy for any new development project. DBI may not issue a final certificate of occupancy for any new development until DBI has received notice from the Treasurer that the TIDF has been paid.

SEC. 38.4. TRANSIT IMPACT DEVELOPMENT FEE SCHEDULE.

A. TIDF Schedule. The TIDF Schedule shall be as follows:

Economic Activity Category	TIDF Per Gross Square Foot of Development
Cultural/Institution/Education	$10.00
Management, Information and Professional Services	$10.00
Medical and Health Services	$10.00
Production/Distribution/Repair	$8.00
Retail/Entertainment	$10.00
Visitor Services	$8.00

B. Biennial Adjustment. Biennially, beginning July 1, 2005, the TIDF Schedule shall be adjusted, without further action by the Board of Supervisors, to reflect the average annual change in the Bay Area Consumer Price Index for the prior two years, as reported by the Association of Bay Area Governments, and as determined by the Director.

SEC. 38.5. SETTING OF TIDF. Before obtaining the first building or site permit for any new development in the City after the effective date of this ordinance, each sponsor shall file with the Director, on such form as the Director may develop, a report indicating the number of gross square feet of use of the new development and any other information the Director may require to determine the sponsor's obligation to pay the TIDF. Each sponsor of a new development who had applied for a building or site permit, but who had not obtained an approval of the building permit or site permit before the effective date of this ordinance, shall file the same report prior to obtaining a final certificate of occupancy. Except where an exemption otherwise applies under this ordinance, the Director shall determine the number of gross square feet of use in each applicable economic activity category, disregarding the number of pre-existing gross square feet of use being retained in each such category, apply the fee schedule, and determine the fee. The Director shall mail a copy of his or her written determination to the sponsor. The sponsor may appeal the determination of the number of gross square feet of use subject to the fee, the economic activity category, or the credits described in Section 38.6, to the MTA Board. If the sponsor notifies the Director of its

acceptance of the determination, or does not submit an appeal to the MTA Board within 15 days following the date of mailing of notice of the Director's determination, the Director's determination shall be final, and a notice of such determination shall be provided to DBI and the Treasurer. DBI may not issue a site or building permit for any new development until it has received notice from the MTA of the final determination of the amount of the Transit Impact Development Fee to be paid. The MTA shall not change the amount of the TIDF based on changes to the amount of gross square feet of new development during construction of the new development unless the sponsor applies for a new building permit to reflect such changes.

SEC. 38.6. CREDITS. In determining the number of gross square feet of use to which the TIDF applies, the Director shall provide a credit for prior uses eliminated on the site, provided that a TIDF has not been paid for any prior use of the property. The credit shall be calculated according to the following formula:

(a) There shall be a credit for the number of gross square feet of use being eliminated by the new development, multiplied by an adjustment factor to reflect the difference in the fee rate of the use being added and the use being eliminated. The adjustment factor shall be determined by the Director as follows:

(1) The adjustment factor shall be a fraction, the numerator of which shall be the fee rate which the Director shall determine, in consultation with the Department of City Planning, if necessary, applies to the economic activity category in the most recent calculation of the TIDF Schedule approved by the MTA Board for the prior use being eliminated by the project.

(2) The denominator of the fraction shall be the fee rate for the use being added, as set forth in the most recent calculation of the TIDF Schedule approved by the MTA Board.

(b) A credit for a prior use may be given only if the prior use was active on the site within five years before the date of the application for a building or site permit for the proposed use.

(c) As of the effective date of this ordinance, no sponsor shall be entitled to a refund of the TIDF on a building for which the fee was paid under the former Chapter 38.

SEC. 38.7. REVIEW OF FEE SCHEDULE.

A. Five-Year Review.

(1) Commencing five years after the effective date of this ordinance, and every five years thereafter, or more often as the MTA Board may deem necessary, the Director shall prepare a report for the MTA Board and the Board of Supervisors with recommendations regarding whether the TIDF for each economic activity category should be increased, decreased, or remain the same. In making such recommendations, and to the extent that new information is available, the Director shall update the following information and estimates that were used in the TIDF Study to calculate the base service standard fee rates, and any other information that the Director deems appropriate.

(a) The base service standard;

(b) Capital and operating costs;

(c) Federal and state grant funds received by MUNI;

(d) Passenger fare revenue;

(e) Daily revenue service hours;

(f) Cost per revenue service hour;

(g) Trip generation rates by economic activity category;

(h) Cost per trip;

(i) Cost per gross square foot of development by economic activity category;

(j) Net present value factor;

(k) Useful life period(s) for new development by economic activity category;

(l) Estimated annual rate of return on the proceeds of the fee;

(m) The placement of particular land uses in economic activity categories.

Where applicable, the Director shall use the most recent MUNI information as submitted to the National Transit Database. The denominator of the revised base service standard shall be calculated using the most recent estimates of daily automobile and transit trips developed by the City's Planning Department or other City or state agency.

(2) In the report, the Director shall (a) identify the base service standard fee rates per gross square foot in each economic activity category; and (b) propose a fee for each economic activity category.

(3) After receiving this report and making it available for public distribution, the Board of Supervisors shall conduct a public hearing in which it shall consider the Director's report, hear testimony from any interested members of the public, and receive such other evidence as it may deem necessary. At the conclusion of that hearing, the Board shall make findings regarding whether the revenues projected to be recovered under the proposed Fee Schedule would be reasonably related to and would not exceed the costs incurred by MUNI to maintain the applicable base service standard, in light of demands caused by new development. The Board of Supervisors shall then make any necessary or appropriate revisions to the TIDF Schedule.

(4) The Board shall consider the Director's report in light of the most recent five-year review of the Housing Fee (Planning Code § 313.15), Child Care Fee (Planning Code § 314.7) and Inclusionary Housing Fee (Planning Code § 315.8(e)). MUNI and the

Amendment of the whole
in committee. 07/12/04

FILE NO. 040141 ORDINANCE NO. 199-04

[Transit Impact Development Fee]

Ordinance repealing San Francisco Administrative Code Chapter 38 (Transit Impact Development Fee) and replacing it with a new Chapter 38 (Sections 38.1 through 38.14), to enact a new Transit Impact Development Fee.

Be it ordained by the People of the City and County of San Francisco:

Section 1. The San Francisco Administrative Code is hereby amended by repealing Chapter 38 in its entirety; provided, however, that any sponsor who has been issued a building or site permit to develop office use that was subject to the Transit Impact Development Fee imposed by Ordinance No. 224-81, as amended, shall remain subject to all the terms and conditions of that ordinance, as amended. Chapter 38 of the Administrative Code shall be replaced with a new Chapter 38 to read as follows:

SEC. 38.1. DEFINITIONS.

For the purposes of this Chapter, the following definitions shall apply:

A. Accessory Use. A related minor use which is either necessary to the operation or enjoyment of a lawful principal use or conditional use, or is appropriate, incidental and subordinate to any such use and is located on the same lot as the principal or conditional use.

B. Base Service Standard. The relationship between revenue service hours offered by the Municipal Railway and the number of automobile and transit trips estimated to be generated by certain non-residential uses, expressed as a ratio where the numerator equals the average daily revenue service hours offered by MUNI, and the denominator equals the daily automobile and transit trips generated by non-residential land uses as estimated by the TIDF Study or updated under Section 38.7 of this ordinance.

C. Base Service Standard Fee Rate. The transit impact development fee that would allow the City to recover the estimated costs incurred by the Municipal Railway to meet

the demand for public transit resulting from new development in the economic activity categories for which the fee is charged, after deducting government grants, fare revenue, and costs for non-vehicle maintenance and general administration.

D. Board. The Board of Supervisors of the City and County of San Francisco.

E. Certificate of Final Completion and Occupancy. A certificate of final completion and occupancy issued by any authorized entity or official of the City, including the Director of the Department of Building Inspection, under the Building Code.

F. City. The City and County of San Francisco.

G. Covered Use. Any use subject to the TIDF.

H. Cultural/Institution/Education (CIE). An economic activity category that includes, but is not limited to, schools, as defined in subsections (g), (h), and (i) of Section 209.3 of the Planning Code and subsections (f) - (i) of Section 217 of the Planning Code; child care facilities, as defined in subsections (e) and (f) of Section 209.3 of the Planning Code and subsection (e) of Section 217 of the Planning Code; museums and zoos; and community facilities, as defined in Section 209.4 of the Planning Code and subsections (a) – (c) of Section 221 of the Planning Code.

I Director. The Director of Transportation of the MTA, or his or her designee.

J. Economic Activity Category. One of the following six categories of non-residential uses: Cultural/Institution/Education (CIE), Management, Information and Professional Services (MIPS), Medical and Health Services, Production/Distribution/Repair (PDR), Retail/Entertainment, and Visitor Services.

K. Gross Floor Area. The total area of each floor within the building's exterior walls, as defined in Section 102.9 of the San Francisco Planning Code.

L. Gross Square Feet of Use. The total square feet of gross floor area in a building and/or space within or adjacent to a structure devoted to all covered uses, including any

common areas exclusively serving such uses and not serving residential uses. Where a structure contains more than one use, areas common to two or more uses, such as lobbies, stairs, elevators, restrooms, and other ancillary space included in gross floor area that are not exclusively assigned to one use shall be apportioned among the two or more uses in accordance with the relative amounts of gross floor area, excluding such space, in the structure or on any floor thereof directly assignable to each use.

M. Management, Information and Professional Services (MIPS). An economic activity category that includes, but is not limited to, office use as defined in Section 313.1(35) of the Planning Code; medical offices and clinics, as defined in Section 890.114 of the Planning Code; and business services, as defined in Section 890.111 of the Planning Code.

N. Medical and Health Services. An economic activity category that includes, but is not limited to, those non-residential uses defined in Sections 209.3(a) and 217(a) of the Planning Code; animal services, as defined in subsections (a) and (b) of Section 224 of the Planning Code; and social and charitable services, as defined in subsection (d) of Section 209.3 of the Planning Code and subsection (d) of Section 217 of the Planning Code.

O. Municipal Railway; MUNI. The public transit system owned by City and under the jurisdiction of the Municipal Transportation Agency.

P. Municipal Transportation Agency; MTA. The agency of City created under Article 8A of the San Francisco Charter.

Q. Municipal Transportation Agency Board of Directors; MTA Board. The governing board of the MTA.

R. New Development. Any new construction, or addition to or conversion of an existing structure under a building or site permit issued after the effective date of this ordinance that results in 3,000 gross square feet or more of a covered use. In the case of mixed use development that includes residential development, the term "new development"

shall refer to only the non-residential portion of such development. "Existing structure" shall include a structure for which a sponsor already paid a fee under the prior TIDF ordinance, as well as a structure for which no TIDF was paid.

S. Planning Code. The Planning Code of the City and County of San Francisco, as it may be amended from time to time.

T. Production/Distribution/Repair (PDR). An economic activity category that includes, but is not limited to, manufacturing and processing, as defined in Section 226 of the Planning Code; those uses listed in Section 222 of the Planning Code; automotive services, as defined in Section 223(a) - (k) of the Planning Code; arts activities and spaces, as defined in Section 102.2 of the Planning Code; and research and development, as defined in Section 313.1(42) of the Planning Code.

U. Residential. Any type of use containing dwellings as defined in Section 209.1 of the Planning Code or containing group housing as defined in Section 209.2(a) - (c) of the Planning Code.

V. Retail/Entertainment. An economic activity category that includes, but is not limited to, retail use, as defined in Section 218 of the Planning Code; entertainment use, as defined in Section 313.1(15) of the Planning Code; massage establishments, as defined in Section 218.1 of the Planning Code; laundering, cleaning and pressing, as defined in Section 220 of the Planning Code; and wholesale sales, as defined in Section 890.54(b) of the Planning Code.

W. Revenue Service Hours. The number of hours that the Municipal Railway provides service to the public with its entire fleet of buses, light rail (including streetcars), and cable cars.

X. Sponsor. An applicant seeking approval for construction of new development subject to this Chapter, such applicant's successors and assigns, and/or any person or entity that controls or is under common control with such applicant.

Y. TIDF Study. The study commissioned by the San Francisco Planning Department and performed by Nelson/Nygaard Associates entitled "Transit Impact Development Fee Analysis - Final Report," dated May 2001, including all the Technical Memoranda supporting the Final Report and the Nelson/Nygaard update materials contained in Board of Supervisors File No. 040141.

Z. Transit Impact Development Fee; TIDF. The development fee that is the subject of this ordinance.

AA. Treasurer. Treasurer of the City and County of San Francisco.

BB. Trip Generation Rate. The total number of automobile and Municipal Railway trips generated for each 1,000 square feet of development in a particular economic activity category as established in the TIDF Study, or pursuant to the five-year review process established in Section 38.7 of this ordinance.

CC. Use. The purpose for which land or a structure, or both, are legally designed, constructed, arranged or intended, or for which they are legally occupied or maintained, let or leased.

DD. Visitor Services. An economic activity category that includes, but is not limited to, hotel use, as defined in Section 313.1(18) of the Planning Code; motel use, as defined in subsections (c) and (d) of Section 216 of the Planning Code; and time-share projects, as defined in Section 11003.5(a) of the California Business and Professions Code.

SEC. 38.2. FINDINGS.

A. In 1981, the City enacted an ordinance imposing a Transit Impact Development Fee ("TIDF") on new office development in the Downtown area of San Francisco. The

ordinance established a rate of $5.00 for each square foot of new office development. The TIDF was based on studies showing that the development of new office uses places a burden on the Municipal Railway, especially in the downtown area of San Francisco during commute hours, known as "peak periods." The TIDF was based on two cost analyses: one by the Finance Bureau of the City's former Public Utilities Commission, performed in 1981, and one by the accounting firm of Touche-Ross, performed in March 1983 to defend a legal challenge to the TIDF. The studies showed that the cost per square foot of new office development to provide public transit service was $9.18 and $8.36, respectively. The California Court of Appeal upheld the TIDF ordinance against legal challenges in *Russ Bldg. Partnership v. City and County of San Francisco*, 199 Cal.App.3d 1496 (1987), reprinted as directed by the California Supreme Court in *Russ Bldg. Partnership v. City and County of San Francisco*, 44 Cal.3d 839, 845-55 (1988). Among other things, the Court of Appeal found that the TIDF was a valid condition of development of real property, and not a special tax requiring voter approval. The Court also upheld the TIDF against equal protection and substantive due process challenges. Additionally, the California Supreme Court upheld the constitutionality of the TIDF as applied to development of new office uses approved before passage of the TIDF ordinance, where the City had conditioned approval of the new development on the developer's payment of a contemplated, but yet unknown, transit mitigation fee.

B. In 2000, the City's Planning Department, with assistance from the Municipal Transportation Agency, commissioned a study of the TIDF. The Planning Department issued a request for proposals for a consultant to consider various issues involving the TIDF, including: (1) whether the TIDF should be expanded to include types of land uses in addition to offices; (2) whether the TIDF should be expanded geographically beyond the Downtown area; (3) whether fee amounts should vary by geographic or land use categories; (4) what standards should be used for measuring the baseline performance of the Municipal Railway

("MUNI"); and (5) the developer fees that would be necessary to fund public transit to meet the additional demand resulting from new development.

C. In 2001, the Planning Department selected Nelson/Nygaard Associates, a nationally recognized transportation consulting firm, to perform the study. Later in 2001, Nelson/Nygaard issued its final report ("TIDF Study"). Before issuing the TIDF Study, Nelson/Nygaard prepared several Technical Memoranda, which provided detailed analyses of the methodology and assumptions used in the TIDF Study.

D. The TIDF Study concluded that new non-residential uses in San Francisco will generate demand for a substantial number of auto and transit trips ~~on MUNI~~ by the year 2020. The TIDF Study confirmed that while new office construction will ~~generate~~ have a substantial ~~demand for~~ impact on MUNI services, new development in a number of other land uses will ~~generate more trips on~~ also require MUNI to increase the number of revenue service hours. The TIDF Study recommended that the TIDF be extended to apply to most non-residential land uses ~~to address the increased demand for impact on public transportation~~. The TIDF Study found that certain types of new development generate very few daily ~~transit~~ trips and therefore may not appropriately be charged a new TIDF.

E. The TIDF Study also determined that the need to expand MUNI services to accommodate new development extends to all times of the day, not just peak periods, and therefore recommended that any measure of the existing level of service and additional service required by new development include service at all times of the day.

F. The former TIDF Ordinance applied the fee to developments in the traditional "Downtown" area of the City. The TIDF Study noted that since 1981, however, development has expanded out of the Downtown area of the City, and that such development has required MUNI to build transit infrastructure in areas outside of the boundary defined in the former TIDF Ordinance.

G. To meet the increased demand for public transit projected by the TIDF Study, MUNI must build new infrastructure and add or adjust service. For example, MUNI's 2002 publication, "A Vision for Rapid Transit in San Francisco" ("Vision Plan"), proposes transit projects along 12 major corridors in San Francisco, covering all areas of the City.

H. Even where employees and others drawn to new development use private transportation, their trips will increase the cost of maintaining MUNI's existing service level ("base service standard") because increasing traffic congestion will result in slower travel speeds for MUNI and require MUNI to add more service hours to maintain its base service standard Accordingly, new development will require MUNI to add service hours to maintain schedules and reliability that extends beyond the new riders seeking to use MUNI service.

I. New development will directly and indirectly require MUNI to (a) maintain and expand service capacity through adding revenue service hours; (b) purchase, maintain and repair rolling stock; (c) install new lines; and (d) add service to existing lines.

J. The TIDF Study recommended that the City enact an ordinance to impose transit impact fees that would allow MUNI to maintain its base service standard as new development occurs throughout the City. The proposed ordinance would require sponsors of new development in the City to pay a fee that is reasonably related to the financial burden imposed on MUNI by the new development. This financial burden is measured by the cost that will be incurred by MUNI to provide increased service to maintain the applicable base service standard over the life of such new development.

K. The TIDF Study expressed the base service standard as a ratio in which the numerator is the number of hours that MUNI provides service to the public on its entire fleet of vehicles ("revenue service hours"), and the denominator is the number of trips generated by all non-residential land uses. An increase in trips resulting from new non-residential development will reduce the ratio of revenue service hours to overall trips generated by new

development. To maintain the base service standard to accommodate the new development, MUNI must increase revenue service hours.

L. The TIDF Study developed a daily trip generation rate for each of six economic activity categories developed in the "Citywide Land Use Study," prepared for the Planning Department in 1998. The daily trip generation rate included automobile and public transit trips, but excluded non-motorized trips because such trips do not materially affect traffic congestion. The TIDF Study determined that the trip generation rates in each economic activity category do not vary geographically within the City. Therefore, the TIDF Study concluded that developer fee rates should not vary in different districts within the City. The trip generation rates contained in the TIDF Study represent the most reasonable rates available for the economic activity categories in the Study.

M. Using data obtained from MUNI and the fiscal year 2000 National Transit Database, the TIDF Study calculated the base service standard fee rates for each of the six economic activity categories in the following way:

(1) To calculate MUNI's total annual costs, the TIDF Study combined MUNI's fiscal year 2000 operating costs with an average annual capital budget, estimated by averaging the prior five years of MUNI's capital expenditures.

FY 2000 Operating Costs	$384,113,000
Average Annual Capital Costs	$310,000,000
Total Annual Costs	$694,113,000

(2) The Study calculated MUNI's net annual costs for fiscal year 2000 by subtracting fare box revenue and federal and state grant funds from MUNI's total costs.

Total Annual Costs	$ 694,113,000
FY 2000 Fare Box Revenue	($101,310,000)
FY 2000 Federal/State Grant Funds	($182,900,000)
Net Annual Costs	$ 409,903,000

(3) The Study then determined MUNI's net annual cost per revenue service hour by dividing MUNI's net annual costs by MUNI's average daily revenue service hours, as reported to the National Transit Database.

Net Annual Costs	Average Daily Revenue Service Hours	Net Annual Cost Per Revenue Service Hour
$ 409,903,000	÷ 8,436	$48,600

(4) The TIDF Study estimated the number of daily auto and transit trips within the City (9,035,282) by using trip generation rates and 2000 employment data supplied by the Planning Department. By dividing MUNI's average daily revenue service hours (8,436) by the estimated daily auto and transit trips within the City (9,035,282), the TIDF Study determined that MUNI provided approximately 0.9336 service hours for every 1,000 transit and auto trips. The TIDF Study multiplied the net annual cost per revenue service hour by 0.9336 to determine a net annual cost per trip.

Net Annual Cost Per Revenue Service Hour	Revenue Service Hours Per 1,000 Trips	Net Annual Cost Per Trip
$48,600	x 0.9336	$45.37

(5) The Study multiplied the net annual cost per trip by an adjusted daily trip rate per economic activity category to calculate a net annual cost per gross square foot (gsf) of new development for each economic activity category. The TIDF Study adjusted the daily trip rate to eliminate bicycle and pedestrian trips.

Economic Activity Category	Adjusted Daily Trip Rate Per 1,000 gsf	Net Annual Cost Per Trip	Net Annual Cost per gsf of Development
Cultural/Institution/Education	42.3	$45.37	$1.92
Management, Information and Professional Services	15.1	$45.37	$0.68
Medical and Health Services	23.9	$45.37	$1.08
Production/Distribution/Repair	9.6	$45.37	$0.44
Retail/Entertainment	166.8	$45.37	$7.57
Visitor Services	13.3	$45.37	$0.61

(6) Finally, the Study multiplied the net annual cost per gross square foot of development for each economic activity category by a net present value factor of 20.69 (based on a U.S. transportation industry index inflation rate of 2.05%, earning on an invested funds rate of 6.14%, and a building life span of 45 years) to establish the base service standard rates for each economic activity category that would be necessary to pay for increased transit services for the 45-year useful life of a new development.

Economic Activity Category	Net Present Value Factor	Net Annual Cost per gsf of Development	Base Service Standard Rates
Cultural/Institution/Education	20.69	$1.92	$39.67
Management, Information and Professional Services	20.69	$0.68	$14.17
Medical and Health Services	20.69	$1.08	$22.40
Production/Distribution/Repair	20.69	$0.44	$9.04
Retail/Entertainment	20.69	$7.57	$156.61
Visitor Services	20.69	$0.61	$12.53

N. In 2004, MUNI updated the base service standard rates established in the TIDF Study with fiscal year 2003 data (the "updated base service standard rates"). To calculate the

updated base service standard rates, MUNI modified certain variables in the TIDF Study's formula to reflect current information, as follows.

(1) Rather than using an estimated average annual capital budget (the methodology employed in the TIDF Study), MUNI used its actual capital costs for fiscal years 1999-2003, as reported to the fiscal year 2003 National Transit Database, in determining the average annual capital costs.

Operating Costs	$449,283,888
Average Capital Costs	$192,468,200
Total Costs	$641,752,088

(2) California Government Code Section 65913.8 prohibits including costs for facility maintenance and operations in a fee imposed on a developer for a public capital facility improvement. It is not clear whether this limitation applies to the TIDF. To comply with Government Code Section 65913.8, if applicable, and to achieve a more conservative estimate of the recoverable costs, MUNI deducted its costs for non-vehicle (facility) maintenance and general administration. MUNI could not separate general administration attributable to facility operations, so MUNI deducted 100% of the general administration costs for the entire department. Accordingly, the updated base service standard rates are even more conservative than may be required under Section 65913.8.

(3) MUNI applied its updated assumptions to the TIDF Study's methodology by deducting non-vehicle maintenance and general administration (in addition to farebox revenues and grant funds) from its total costs to calculate its annual net costs:

Total Annual Costs FY 2003	$ 641,752,088
Farebox Revenue FY 2003	($97,779,333)
Federal/State Grant Funds FY 2003	($89,445,000)
Non-Vehicle Maintenance FY 2003	($34,173,560)
General Administration FY 2003	($92,197,116)
Net Annual Costs FY 2003	$ 328,157,079

(4) To determine the net annual cost per revenue service hour, MUNI used the average daily revenue service hours for Fiscal Year 2003 (10,062), as reported to the National Transit Database:

Net Annual Costs	Average Daily Revenue Service Hours	Net Annual Cost Per Revenue Service Hour
$ 328,157,079	÷ 10,062	$32,614

(5) MUNI then calculated the net annual cost per trip by multiplying the net annual cost per revenue service hour by the number of revenue service hours per 1,000 trips:

Net Annual Cost Per Revenue Service Hour	Revenue Service Hours Per 1,000 Trips	Net Annual Cost Per Trip
$32,614	x 1.1136	$36.32

(6) MUNI multiplied the net annual cost per trip by the adjusted daily trip rate for each economic activity category to arrive at a net annual cost per gross square foot of new development for each category:

Economic Activity Category	Adjusted Daily Trip Rate Per 1,000 gsf	Net Updated Annual Cost Per Trip	Net Updated Annual Cost per gsf of Development
Cultural/Institution/Education	42.3	$36.32	$1.54
Management, Information and Professional Services	15.1	$36.32	$0.55
Medical and Health Services	23.9	$36.32	$0.87
Production/Distribution/Repair	9.6	$36.32	$0.35
Retail/Entertainment	166.8	$36.32	$6.06
Visitor Services	13.3	$36.32	$0.48

(7) MUNI also updated the net present value factor the TIDF Study used to calculate the updated base service standard rates by calculating the lump sum amount needed to fund $1.00 (in today's dollars) in annual costs over 45 years, increasing at a current inflation rate of 3.50% (the five-year Bay Area Consumer Price Index as calculated by the Association for Bay Area Governments), with the remaining fund balance invested at a current interest rate of 4.93% (the five-year average interest rate earned by the City's Treasurer's Department on pooled funds). Both the TIDF Study and MUNI used the interest rate earned by the City's Treasurer for the respective years. But MUNI elected to use the Bay Area Consumer Price Index rather than the U.S. Transportation Index on which the TIDF Study relied because the Bay Area index more accurately reflects the local inflation rate. The use of the different net present value factor yields the following updated base service standard rates:

Economic Activity Category	Net Annual Cost per gsf of Development	Net Present Value Factor	Updated Base Service Standard Rates
Cultural/Institution/ Education	$1.54	33.36	$51.25
Management, Information and Professional Services	$0.55	33.36	$18.30
Medical and Health Services	$0.87	33.36	$28.96
Production/Distribution/Repair	$0.35	33.36	$11.63
Retail/Entertainment	$6.06	33.36	$202.10
Visitor Services	$0.48	33.36	$16.11

O. In setting the TIDF rates, the City considered the updated base service standard rates and input from a variety of stakeholders, including business groups, developers, and civic organizations. The City set the TIDF rates well below the updated base service standard rates to reduce the costs of the TIDF to sponsors of new developments, who are subject to other development fees imposed by the City, and to guarantee that the TIDF does not exceed the reasonable cost to fund the additional transit improvements necessitated by new development. The TIDF rates are as follows:

Economic Activity Category	Updated Base Service Standard Rates	TIDF Schedule (from Sec. 38.4)
Cultural/Institution/Education	$51.25	$10.00
Management, Information and Professional Services	$18.30	$10.00
Medical and Health Services	$28.96	$10.00
Production/Distribution/Repair	$11.63	$8.00
Retail/Entertainment	$202.10	$10.00
Visitor Services	$16.11	$8.00

P. Based on projected new development over the next 20 years, the TIDF will provide revenue to MUNI that is significantly below the costs that MUNI will incur to mitigate the transit impacts resulting from the new development.

Q. The TIDF is the most practical and equitable method of meeting a portion of the demand for additional Municipal Railway service and capital improvements for the City caused by new non-residential development.

R. Based on the above findings, the City determines that the TIDF satisfies the requirements of the Mitigation Fee Act, California Government Code Section 66001, as follows:

(1) The purpose of the fee is to meet a portion of the demand for additional Municipal Railway service and capital improvements for the City caused by new non-residential development.

(2) Funds from collection of the TIDF will be used to increase revenue service hours reasonably necessary to mitigate the impacts of new non-residential development on public transit and maintain the applicable base service standard.

(3) There is a reasonable relationship between the proposed uses of the TIDF and the impact on transit of the new developments on which the TIDF will be imposed.

(4) There is a reasonable relationship between the types of new development on which the TIDF will be imposed and the need to fund public transit for the uses specified in Section 38.8 of this ordinance.

(5) There is a reasonable relationship between the amount of the TIDF to be imposed on new developments and the impact on public transit from the new developments.

SEC. 38.3. IMPOSITION OF TRANSIT IMPACT DEVELOPMENT FEE.

A. Subject to the exceptions set forth in subsections D and E below, each sponsor of a new development in the City shall pay to the City and deliver to the Treasurer upon issuance of any temporary certificate of occupancy, and as a condition precedent to issuance for such new development of any certificate of final completion and occupancy, whichever occurs first, a TIDF. The TIDF shall be calculated on the basis of the number of gross square

feet of new development, multiplied by the square foot rate then in effect for each of the applicable economic activity categories within the new development, as provided in Section 38.4 of this ordinance. An accessory use shall be charged at the same rate as the underlying use to which it is accessory. Whenever any new development or series of new developments results in more than 3,000 gross square feet of covered use within a structure, the TIDF shall be imposed on every square foot of such covered use (including any portion that was part of prior new development below the 3,000 square foot threshold).

B. No City official or agency, including the Department of Building Inspection ("DBI") and the Port of San Francisco, may issue a certificate of final completion and occupancy for any new development subject to the TIDF until it has received notification from the Treasurer that the TIDF in accordance with Section 38.4 of this Chapter has been paid.

C. Except as provided in Sections 38.3(D) and (E) below, the TIDF shall be payable with respect to any new development in the City for which a building or site permit is issued on or after the effective date of this ordinance.

D. The TIDF shall not be payable on new development, or any portion thereof, for which a transit impact development fee has been paid, in full or in part, under the prior Transit Impact Development Fee Ordinance adopted in 1981 (Ordinance No. 224-81; former Chapter 38 of this Administrative Code), except where (1) gross square feet of use is being added to the building; or (2) the TIDF rate for the new development is in an economic activity category with a higher fee rate than the rate set for MIPS, as set forth in Section 38.4.

E. No TIDF shall be payable on the following types of new development.

(1) New development on property owned (including beneficially owned) by the City, except for that portion of the new development that may be developed by a private sponsor and not intended to be occupied by the City or other agency or entity exempted under this ordinance, in which case the TIDF shall apply only to such non-exempted portion. New

development on property owned by a private person or entity and leased to the City shall be subject to the fee, unless the City is the beneficial owner of such new development or unless such new development is otherwise exempted under this Section.

(2) Any new development in Mission Bay North or South to the extent application of this ordinance would be inconsistent with the Mission Bay North Redevelopment Plan and Interagency Cooperation Agreement or the Mission Bay South Redevelopment Plan and Interagency Cooperation Agreement, as applicable.

(3) New development located on property owned by the United States or any of its agencies to be used exclusively for governmental purposes.

(4) New development located on property owned by the State of California or any of its agencies to be used exclusively for governmental purposes.

(5) New development for which an application for environmental evaluation or an application for a categorical exemption has been filed prior to April 1, 2004.

(6) The following types of new developments:

(a) Public facilities/ utilities, as defined in Section 209.6 of the Planning Code;

(b) Open recreation/horticulture, as defined in Section 209.5 of the Planning Code, including private noncommercial recreation open use, as referred to in Section 221(g) of the Planning Code;

(c) Vehicle storage and access, as defined in Section 209.7 of the Planning Code;

(d) Automotive services, as defined in Section 223(l) - (v) of the Planning Code;

(e) Wholesaling, storage, distribution, and open-air handling of materials and equipment, as defined in Section 225 of the Planning Code;

(f) Other Uses, as defined in Section 227 of the Planning Code;

In reviewing whether a development is subject to the fee, the Director shall consider the project in its entirety. A sponsor may not seek multiple building permits to evade paying the TIDF.

F. The sponsor shall pay, or cause to be paid, the TIDF to the Treasurer on the earliest of the following dates:

(1) The date when 50 percent of the net rentable area of the project has been occupied;

(2) The date of issuance of the first temporary permit of occupancy in the new development;

(3) Five days prior to the date of issuance of a final certificate of occupancy.

G. Upon payment of the fee in full to the Treasurer, and upon request of the sponsor, the Treasurer shall issue a certificate that the fee has been paid. The sponsor shall present such certification to DBI before the issuance of the final certificate of occupancy for the new development. DBI shall provide notice in writing to the Treasurer, the Planning Department, and MUNI at least five business days before issuing the final certificate of occupancy for any new development project. DBI may not issue a final certificate of occupancy for any new development until DBI has received notice from the Treasurer that the TIDF has been paid.

SEC. 38.4. TRANSIT IMPACT DEVELOPMENT FEE SCHEDULE.

A. TIDF Schedule. The TIDF Schedule shall be as follows:

Economic Activity Category	TIDF Per Gross Square Foot of Development
Cultural/Institution/Education	$10.00
Management, Information and Professional Services	$10.00
Medical and Health Services	$10.00
Production/Distribution/Repair	$8.00
Retail/Entertainment	$10.00
Visitor Services	$8.00

B. Biennial Adjustment. Biennially, beginning July 1, 2005, the TIDF Schedule shall be adjusted, without further action by the Board of Supervisors, to reflect the average annual change in the Bay Area Consumer Price Index for the prior two years, as reported by the Association of Bay Area Governments, and as determined by the Director.

SEC. 38.5. SETTING OF TIDF. Before obtaining the first building or site permit for any new development in the City after the effective date of this ordinance, each sponsor shall file with the Director, on such form as the Director may develop, a report indicating the number of gross square feet of use of the new development and any other information the Director may require to determine the sponsor's obligation to pay the TIDF. Each sponsor of a new development who had applied for a building or site permit, but who had not obtained an approval of the building permit or site permit before the effective date of this ordinance, shall file the same report prior to obtaining a final certificate of occupancy. Except where an exemption otherwise applies under this ordinance, the Director shall determine the number of gross square feet of use in each applicable economic activity category, disregarding the number of pre-existing gross square feet of use being retained in each such category, apply the fee schedule, and determine the fee. The Director shall mail a copy of his or her written determination to the sponsor. The sponsor may appeal the determination of the number of gross square feet of use subject to the fee, the economic activity category, or the credits described in Section 38.6, to the MTA Board. If the sponsor notifies the Director of its

acceptance of the determination, or does not submit an appeal to the MTA Board within 15 days following the date of mailing of notice of the Director's determination, the Director's determination shall be final, and a notice of such determination shall be provided to DBI and the Treasurer. DBI may not issue a site or building permit for any new development until it has received notice from the MTA of the final determination of the amount of the Transit Impact Development Fee to be paid. The MTA shall not change the amount of the TIDF based on changes to the amount of gross square feet of new development during construction of the new development unless the sponsor applies for a new building permit to reflect such changes.

SEC. 38.6. CREDITS. In determining the number of gross square feet of use to which the TIDF applies, the Director shall provide a credit for prior uses eliminated on the site, provided that a TIDF has not been paid for any prior use of the property. The credit shall be calculated according to the following formula:

(a) There shall be a credit for the number of gross square feet of use being eliminated by the new development, multiplied by an adjustment factor to reflect the difference in the fee rate of the use being added and the use being eliminated. The adjustment factor shall be determined by the Director as follows:

(1) The adjustment factor shall be a fraction, the numerator of which shall be the fee rate which the Director shall determine, in consultation with the Department of City Planning, if necessary, applies to the economic activity category in the most recent calculation of the TIDF Schedule approved by the MTA Board for the prior use being eliminated by the project.

(2) The denominator of the fraction shall be the fee rate for the use being added, as set forth in the most recent calculation of the TIDF Schedule approved by the MTA Board.

(b) A credit for a prior use may be given only if the prior use was active on the site within five years before the date of the application for a building or site permit for the proposed use.

(c) As of the effective date of this ordinance, no sponsor shall be entitled to a refund of the TIDF on a building for which the fee was paid under the former Chapter 38.

SEC. 38.7. REVIEW OF FEE SCHEDULE.

A. Five-Year Review.

(1) Commencing five years after the effective date of this ordinance, and every five years thereafter, or more often as the MTA Board may deem necessary, the Director shall prepare a report for the MTA Board and the Board of Supervisors with recommendations regarding whether the TIDF for each economic activity category should be increased, decreased, or remain the same. In making such recommendations, and to the extent that new information is available, the Director shall update the following information and estimates that were used in the TIDF Study to calculate the base service standard fee rates, and any other information that the Director deems appropriate.

(a) The base service standard;

(b) Capital and operating costs;

(c) Federal and state grant funds received by MUNI;

(d) Passenger fare revenue;

(e) Daily revenue service hours;

(f) Cost per revenue service hour;

(g) Trip generation rates by economic activity category;

(h) Cost per trip;

(i) Cost per gross square foot of development by economic activity category;

(j) Net present value factor;

(k) Useful life period(s) for new development by economic activity category;

(l) Estimated annual rate of return on the proceeds of the fee;

(m) The placement of particular land uses in economic activity categories.

Where applicable, the Director shall use the most recent MUNI information as submitted to the National Transit Database. The denominator of the revised base service standard shall be calculated using the most recent estimates of daily automobile and transit trips developed by the City's Planning Department or other City or state agency.

(2) In the report, the Director shall (a) identify the base service standard fee rates per gross square foot in each economic activity category; and (b) propose a fee for each economic activity category.

(3) After receiving this report and making it available for public distribution, the Board of Supervisors shall conduct a public hearing in which it shall consider the Director's report, hear testimony from any interested members of the public, and receive such other evidence as it may deem necessary. At the conclusion of that hearing, the Board shall make findings regarding whether the revenues projected to be recovered under the proposed Fee Schedule would be reasonably related to and would not exceed the costs incurred by MUNI to maintain the applicable base service standard, in light of demands caused by new development. The Board of Supervisors shall then make any necessary or appropriate revisions to the TIDF Schedule.

(4) The Board shall consider the Director's report in light of the most recent five-year review of the Housing Fee (Planning Code § 313.15), Child Care Fee (Planning Code § 314.7) and Inclusionary Housing Fee (Planning Code § 315.8(e)). MUNI and the

Planning Department shall make every effort to coordinate application of the TIDF with the City's other developer fees to avoid unnecessarily encumbering sponsors of new development.

B. Principles in Calculating Fee. The following principles have been and shall in the future be observed in calculating the TIDF:

(1) Actual cost information provided to the National Transit Database shall be used in calculating the fee rates. Where estimates must be made, those estimates should be based on such information as the Director or his or her delegate considers reasonable for the purpose.

(2) The rates shall be set at an actuarially sound level to ensure that the proceeds, including such earnings as may be derived from investment of the proceeds and amortization thereof, do not exceed the capital and operating costs incurred in order to maintain the applicable base service standard in light of the demands created by new development subject to the fee over the estimated useful life of such new development. For purposes of this Ordinance, the estimated useful life of a new development is 45 years.

SEC. 38.8. USE OF PROCEEDS FROM TRANSIT IMPACT DEVELOPMENT FEE.

Money received from collection of the TIDF, including earnings from investments of the TIDF, shall be held in trust by the Treasurer under Section 66006 of the Mitigation Fee Act (Cal. Gov. Code §§ 60000 *et seq.*) and shall be distributed according to the fiscal and budgetary provisions of the San Francisco Charter and the Mitigation Fee Act, subject to the following conditions and limitations. TIDF funds may be used to increase revenue service hours reasonably necessary to mitigate the impacts of new non-residential development on public transit and maintain the applicable base service standard, including, but not limited to: capital costs associated with establishing new transit routes, expanding transit routes, and increasing service on existing transit routes, including, but not limited to, procurement of

related items such as rolling stock, and design and construction of bus shelters, stations, tracks, and overhead wires; operation and maintenance of rolling stock associated with new or expanded transit routes or increases in service on existing routes; capital or operating costs required to add revenue service hours to existing routes; and related overhead costs. Proceeds from the TIDF may also be used for all costs required to administer, enforce, or defend this ordinance.

SEC. 38.9. RULES AND REGULATIONS.

The MTA is empowered to adopt such rules, regulations, and administrative procedures as it deems necessary to implement this Chapter. In the event of a conflict between any MTA rule, regulation or procedure and this ordinance, this ordinance shall prevail.

SEC. 38.10. NONPAYMENT, RECORDATION OF NOTICE OF FEE AND NOTICE OF DELINQUENCY, ADDITIONAL REQUEST; NOTICE OF ASSESSMENT OF INTEREST, AND INSTITUTION OF LIEN PROCEEDINGS.

A. Upon the Director's determination that a development is subject to this ordinance, he or she may cause the County Recorder to record a notice that such development is subject to the TIDF. The County Recorder shall serve or mail a copy of such notice to the persons liable for payment of the fee and the owners of the real property described in the notice. The notice shall include (1) a description of the real property subject to the fee; (2) a statement that the development is subject to the imposition of the fee; and (3) a statement that the amount of the fee to which the building is subject is determined under Sections 38.4, 38.5 and related provisions of this ordinance.

B. When the Director determines that the fee is due, the Director shall notify the Treasurer, who shall send a request for payment to the sponsor.

C. Payment of the TIDF imposed by this ordinance is delinquent if (1) in the case of a fee not payable in installments, the fee is not paid within 30 days of request for payment; (2) in the case of a fee payable in installments (for a fee determined prior to the effective date of this Ordinance), the fee installment is not paid within 30 days of the date fixed for payment.

D. Where the TIDF is not paid within 30 days of request for payment, and where the TIDF is payable in installments (for a fee determined prior to the effective date of this Ordinance) and any installment is not paid within 30 days of the date fixed for payment:

(1) The Treasurer or his or her designee may cause the County Recorder to record a notice of delinquent TIDF which shall include: (a) the amount of the delinquent fee; (b) the amount of the entire fee as reflected on the final determination and a statement of whether the fee is payable in installments; (c) the fee interest and penalty then due; (d) the interest and penalties that shall accrue on the delinquent fee if not promptly paid; (e) a description of the real property subject to the fee; (f) notification that if the fee is not promptly paid proceedings will be instituted before the Board of Supervisors to impose a lien for the unpaid fee together with any penalties and interest against the real property described in the delinquency notice; (g) notification of the fee payer's right to appeal the delinquency determination to the MTA Board within 15 days of the notice to the fee payer.

(2) Where the Treasurer determines to record a notice of delinquency, he or she shall also serve or mail the notice of delinquent TIDF to the persons liable for the fee and to the owners of the real property described on the notice.

(3) Where a notice of TIDF delinquency has been recorded and the delinquent fee is paid or the Treasurer's determination of delinquency is reversed by appeal to the MTA Board or the delinquency is otherwise cured, the Treasurer shall promptly cause the County Recorder to record a notice that the TIDF delinquency has been cured. Said notice shall include: (a) description of the real property affected; (b) the book and page number of

the county record wherein the notice of delinquency was recorded; (c) the date the notice of delinquency was recorded; (d) notification that the delinquency reflected on the notice of delinquency was cured and the date of cure; (e) the amount of the entire fee as reflected on the final determination; (f) if applicable, the amount of the fee paid to effect the cure; and (g) if applicable, a statement that the fee was payable in installments and specification of the delinquency installments cured; (h) if applicable, the amount of the fee paid to effect the cure.

(4) The Treasurer shall serve or mail the notice that the TIDF delinquency has been cured, referred to in Section 38.10.D(3) of this ordinance, to the persons liable for the fee and to the owners of the real property described in such notice.

E. Where the TIDF, not payable in installments, is not paid within 30 days of request for payment, and where the TIDF is payable in installments (for a fee determined prior to the effective date of this Ordinance) and the installment is not paid within 30 days of the date fixed for payment, the Treasurer or his or her designee shall mail an additional request for payment and notice to the owner stating the following:

(1) If the amount due is not paid within 30 days of the date of mailing the additional request and notice, interest at the rate of one and one-half percent per month or portion thereof shall be assessed upon the fee or installment due.

(2) With respect to both non-installment and installment fees, if the account is not current within 60 days of the date of mailing the additional request and notice, the Treasurer shall institute proceedings to record a lien in accordance with Section 38.11 for the entire balance and any accrued interest against the property upon which the fee is owed.

F. Thirty days after mailing the additional request for payment, the Treasurer may assess interest as specified in paragraph 38.10.E(1) above. Sixty days after mailing the additional request for payment and notice, the Treasurer may institute lien proceedings as specified in Section 38.11.

G. The Treasurer shall submit a report to the Director on a quarterly basis of all fees collected for the previous quarter, which report shall include the property address, name of sponsor or owner of the property, and the amount of the fee, including interest, if any, collected.

SEC. 38.11. LIEN PROCEEDINGS; NOTICE. If payment of the fee not payable in installments is not received within 30 days following mailing of the additional request and notice, or if with respect to installment payments, the account is not brought current within 60 days of the mailing of the additional request and notice, the Treasurer shall initiate proceedings in accordance with Article XX of Chapter 10 of the San Francisco Administrative Code to make the entire unpaid balance of the TIDF, including interest on the unpaid fee or installments, a lien against all parcels used for the development project. The Treasurer shall send all notices required by that Article to the owner of the property as well as the sponsor. The Treasurer shall also prepare a preliminary report notifying the sponsor of a hearing to confirm such report by the Board of Supervisors at least 10 days before the date of the hearing. The report to the sponsor shall contain the sponsor's name, a description of the sponsor's development project, a description of the parcels of real property to be encumbered as set forth in the Assessor's Map Books for the current year, a description of the alleged violation of this ordinance, and shall fix a time, date, and place for hearing. The Treasurer shall cause this report to be mailed to the sponsor and each owner of record of the parcels of real property subject to lien. Except for the release of the lien recording fee authorized by Administrative Code Section 10.237, all sums collected by the Tax Collector under this ordinance shall be held in trust by the Treasurer and distributed as provided in Section 38.6 of this Chapter.

SEC. 38.12. MANNER OF GIVING NOTICES.

Any notice required to be given under this ordinance to a sponsor or owner shall be sufficiently given or served upon the sponsor or owner for all purposes under this ordinance if personally served upon the sponsor or owner, or if deposited, postage prepaid, in a post office letter box addressed in the name of the sponsor or owner at the official address of the sponsor or owner maintained by the Tax Collector of the City and County for the mailing of tax bills; or, if no such address is available, to the sponsor at the address of the development project, and to the applicant for the site or building permit at the address on the permit application.

SEC. 38.13. CHARITABLE EXEMPTIONS.

A. When the property or a portion thereof will be exempt from real property taxation or possessory interest taxation under California Constitution, Article XIII, Section 4, as implemented by California Revenue and Taxation Code Section 214, then the sponsor shall not be required to pay the TIDF attributed to the new development in the exempt property or portion thereof, so long as the property or portion thereof continues to enjoy the aforementioned exemption from real property taxation.

B. The TIDF shall be calculated for exempt structures in the same manner and at the same time as for all other structures. The sponsor may apply to the MTA for an exemption under the standards set forth in subsection A above. In the event the Agency determines that the sponsor is entitled to an exemption under this Section, it shall cause to be recorded a notice advising that the TIDF has been calculated and imposed upon the structure and that the structure or a portion thereof has been exempted from payment of the fee but that if the property or portion thereof loses its exempt status during the 10-year period commencing with the date of the imposition of the TIDF, then the building owner shall be subject to the requirement to pay the fee.

C. If within 10 years from the date of the issuance of the Certificate of Final Completion and Occupancy, the exempt property or portion thereof loses its exempt status, then the sponsor shall, within 90 days thereafter, be obligated to pay the TIDF, reduced by an amount reflecting the duration of the charitable exempt status in relation to the useful life estimate used in determining the TIDF for that structure. The amount remaining to be paid shall be determined by recalculating the fee using a useful life equal to the useful life used in the initial calculation minus the number of years during which the exempt status has been in effect. After the TIDF has been paid, the Agency shall record a release of the notice recorded under subsection B. above.

D. In the event a property owner fails to pay a fee within the 90-day period, a notice for request of payment shall be served by the Treasurer under Section 38.10.B of this Chapter. Thereafter, upon nonpayment, a lien proceeding shall be instituted under Section 38.11 of this Chapter.

SEC. 38.14. SEVERABILITY.

The provisions of this ordinance shall not apply to any person, association, corporation or to any property as to whom or which it is beyond the power of the City to impose the fee herein provided. If any sentence, clause, section or part of this ordinance, or any fee imposed upon any person or entity is found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality, or invalidity shall affect only such clause, sentence, section or part of this ordinance, or person or entity; and shall not affect or impair any of the remaining provisions, sentences, clauses, sections or other parts of this ordinance, or its effect on other persons or entities. It is hereby declared to be the intention of the Board of Supervisors of the City that this ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section or part of this ordinance not been included herein; or had such

person or entity been expressly exempted from the application of this ordinance. To this end the provisions of this ordinance are severable.

Section 2. This ordinance shall become effective 60 days after the date of final approval of the ordinance.

APPROVED AS TO FORM:
DENNIS J. HERRERA, City Attorney

By: _____
Robin M. Reitzes
Deputy City Attorney

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

City and County of San Francisco

Tails

Ordinance

File Number: 040141 **Date Passed:**

Ordinance repealing San Francisco Administrative Code Chapter 38 (Transit Impact Development Fee) and replacing it with a new Chapter 38 (Sections 38.1, through 38.14), to enact a new Transit Impact Development Fee.

July 20, 2004 Board of Supervisors — PASSED ON FIRST READING

Ayes: 10 - Alioto-Pier, Ammiano, Daly, Dufty, Gonzalez, Ma, Maxwell, McGoldrick, Peskin, Sandoval
Noes: 1 - Hall

July 27, 2004 Board of Supervisors — FINALLY PASSED

Ayes: 10 - Alioto-Pier, Ammiano, Daly, Dufty, Gonzalez, Ma, Maxwell, McGoldrick, Peskin, Sandoval
Noes: 1 - Hall

File No. 040141

I hereby certify that the foregoing Ordinance was FINALLY PASSED on July 27, 2004 by the Board of Supervisors of the City and County of San Francisco.

Gloria L. Young
Clerk of the Board

AUG 05 2004

Date Approved

Mayor Gavin Newsom

APPENDIX 15

Capital Improvement Program

APPENDIX 15

CAPITAL IMPROVEMENT PROGRAM

KEY TOPICS

- Relationship to Regional Transportation Plan and Countywide Transportation Plan
- List of Funding Sources
- Capital Improvement Program Amendments

A.15.1. Relationship to Regional Transportation Plan and Countywide Transportation Plan

The CMP statute requires that each CMP be consistent with the long-range Regional Transportation Plan (RTP), developed by the regional transportation planning agency (the Metropolitan Transportation Commission, or MTC, for the Bay Area), and each county's component of the RTP must be supported by a long-range countywide transportation plan (San Francisco Transportation Plan, or SFTP), developed by the CMA. The Capital Improvement Program (CIP) is intended to serve as a short or medium-range implementation vehicle for investment priorities as prioritized in the long-range plans.

Through the RTP, the MTC establishes the Bay Area's vision for transportation with supporting policies and investment strategies, including a list of specific projects and programs. Inclusion of projects and programs in the RTP is a prerequisite for receiving state and federal transportation grants for certain state or federal approvals and a requirement for capacity expanding projects that may have air quality impacts. 2013's Plan Bay Area was the region's first RTP/Sustainable Communities Strategy (SCS) that explicitly integrated transportation projects and policies with land-use strategies to meet the SB 375 requirements to accommodate future population growth and reduce greenhouse gas emissions. MTC and the Association of Bay Area of Governments adopted an update to Plan Bay Area, named Plan Bay Area 2040, in July 2017 and recently adopted Plan Bay Area 2050 in fall 2021.

The Transportation Authority develops the SFTP (countywide transportation plan) for San Francisco, consistent with MTC guidelines, to guide transportation investment and to serve as a basis for RTP/SCS assumptions. The Transportation Authority adopted the last major update of the SFTP in December 2013, which identified four goals (economic competitiveness, safe and livable neighborhoods, environmental health, and well maintained infrastructure) and proposed scenarios that invest strategically in a diverse set of projects to make progress toward each of the goals. A focused update approved in October 2017 reaffirmed these goals, updated project costs, and reassessed projects previously identified for funding. The Transportation Authority ensures the CIP projects, as well as their selection processes, are consistent with the SFTP. The Transportation Authority is in the process of preparing a major update of the SFTP in collaboration with the SFMTA and the Planning Department. It is anticipated to be adopted in 2022. The SFTP is discussed in further detail in Chapter 6 (Land Use Impacts Analysis).

A.15.2. List of Funding Sources

As a result of the Transportation Authority's role as the Prop K and Prop AA administrator and the CMA, the capital priorities programming process not only involves state and federal funds that are required by state law to be programmed through the CMP but also incorporates the Prop K and Prop AA programming strategy. Listed below are major CIP funding sources administered by the Transportation Authority. Importantly, as described in the section 7.2 of the main report, the Transportation Authority ensures that all CIP projects, as well as the programming and project selection processes, are consistent with the RTP, SFTP, and other requirements attached to the funding.

Evaluation of potential impacts of CIP projects on multimodal system performance is embedded throughout the project selection and monitoring processes. The results of the CMP multimodal system performance analysis and any deficiency findings will also be incorporated into the future CIP development as appropriate. Please refer to Chapter 4 for a detailed discussion of multimodal system performance.

A.15.2.1 | Surface Transportation Program / Congestion Mitigation Air Quality Program

Conformance with the CMP is required for a local jurisdiction to receive federal Surface Transportation Program (STP) funds or Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds. STP funds are among the most flexible and are used to support a wide range of transportation improvement projects across all modes. CMAQ funds are intended for projects that reduce transportation related emissions. Both funds are distributed mainly by the regional transportation planning agency, i.e. the MTC for the Bay Area. The MTC has divided the Bay Area's share of STP and CMAQ funds into multiple programs under the umbrella of the One Bay Area Grant (OBAG) program. Each of the OBAG programs typically has its own associated policies and guidelines in pursuant of RTP goals. The MTC approved a second cycle of OBAG programming (OBAG 2) for Fiscal Years 2017/18 through 21/22. One of the centerpieces of OBAG 2 is the county share program, which is intended to better integrate the region's transportation program with land use and housing policies and to promote transportation investments in Priority Development Areas (PDAs). PDAs refer to locally-identified, regionally designated infill development opportunity areas within existing communities. A map of PDAs is included in Chapter 6 of the main report. The Transportation Authority approved $42,286,000 in county share OBAG 2 funds for projects. The Transportation Authority has also provided monitoring and support for sponsor agencies as San Francisco's OBAG projects advance through the design and construction phases under the federal aid guidelines. See Appendix 16 for the updated project list.

A.15.2.2 | State Transportation Improvement Program

Inclusion in the CIP is a prerequisite for inclusion in the State Transportation Improvement Program (STIP), a five-year program of projects adopted by the California Transportation Commission (CTC) every two years. Priorities for approximately 75% of the STIP programming capacity are set by regional transportation planning agencies, and the remaining 25% is established by the state. The Regional Transportation Improvement Program (RTIP) is the MTC's submittal to the state, which is merged with other regions' RTIPs and additional CTC priorities to become the STIP. In the Bay Area, the practice has been for the CMAs to establish priorities for their county share, subject to the MTC's concurrence and the CTC approval of the region's RTIP. With adoption of the 2021 Mid-Cycle RIP

and the 2022 RTIP, the Transportation Authority's Board-adopted list of San Francisco RTIP priorities include remaining commitment of about $81.5 million to three projects: Central Subway (first priority, $29.7 million), payback to MTC of an advance for Presidio Parkway (second priority, $34 million), and Caltrain Downtown Extension to a Rebuilt Transbay Terminal ($17.847 million).

The STIP used to be a significant, although highly variable source of state funds for highways, local streets and roads, transit rehabilitation and expansion projects, and pedestrian and bicycle projects. In recent cycles, the biennial STIP programming cycles have experienced a drastic reduction in available funding, due primarily to reduced revenues from fuel taxes, but also to the lack of an adequately funded multi-year federal transportation bill. However, the passage of Senate Bill 1 in 2017 has helped to stabilize the program, and San Francisco's 2022 STIP target was $10.642 million. In addition, the federal Coronavirus Response and Relief Supplemental Appropriations Act of 2021 made $3.2 million available to San Francisco through the RTIP. We could not program RTIP funds directly to the Central Subway project because all the contracts have been awarded, so we are honoring the commitment by programming RTIP funds to other eligible projects of SFMTA's choice. Appendix 16 shows the 2022 RTIP priorities approved by the Transportation Authority Board. The 2022 RTIP is expected to be approved through the CTC's STIP adoption in March 2022.

A.15.2.3 | Prop K Transportation Sales Tax

San Francisco voters approved Prop B, the first half-cent local sales tax for transportation in San Francisco, in 1989. Prop K, passed by the voters in November 2003, extended the half-cent local sales tax for transportation and adopted a new 30-year Expenditure Plan, superseding the prior one. At the time of the Expenditure Plan adoption, Prop K was expected to generate $2.35 billion (in 2003 $'s) over 30 years and to leverage close to $10 billion in federal, state, and other local funds.

The Expenditure Plan established four overall categories of investment and attached mandatory percentage shares of total Prop K revenues: Transit (65.5%), Street and Traffic Safety (24.6%), Paratransit (8.6%), and Transportation System Management / Strategic Initiatives (1.3%). The Expenditure Plan details eligible projects and programs, including named major capital projects (e.g. Central Subway, Caltrain Downtown Extension to a Rebuilt Transbay Terminal, Caltrain Electrification, and Replacement of Doyle Drive) and 21 programmatic (i.e. not project-specific) categories, ranging from street resurfacing to pedestrian and bicycle improvements to transit vehicle replacements to transportation demand management. Appendix 17 provides a summary of the Expenditure Plan, which lists the eligible projects and programs along with their shares of Prop K funds and expected leveraging goals.

As required by the Expenditure Plan, the Transportation Authority Board adopts a Prop K Strategic Plan to guide the day-to-day implementation of the Prop K program, and for each of the programmatic categories, a 5-Year Prioritization Program (5YPP). The Prop K Strategic Plan is the financial tool that guides the timing and allocation of Prop K revenues over the 30-year Expenditure Plan period, and it considers many factors, such as the presence of matching funds and the likelihood of projects to move forward in the year proposed. The 5YPP includes prioritization criteria, a five-year list of projects (with scope, schedule, cost, and funding information), and performance measures. The Strategic Plan and 5YPPs are updated quadrennially and may, between quadrennial updates, be amended as needed. In late 2018 the Transportation Authority approved the 2019 Strategic Plan and 5YPPs which cover Fiscal Years 2019/20 – 2023/24. In fall 2021, the Transportation Authority will consider a mid-cycle update to the Strategic Plan to reflect updated revenue projections given the impacts of the COVID-19 pandemic on San Francisco's sales tax revenues. Appendix 18 provides a list of programmatic

categories in the Expenditure Plan and refers to the 2019 5YPP project lists. Appendix 19 summarizes the funding levels for each category over this 5YPP period in the proposed 2021 Strategic Plan Update (final approval anticipated on December 7, 2021).

A.15.2.4 | Prop AA Vehicle Registration Fee

Prop AA is a $10 countywide annual vehicle registration fee that was passed by San Francisco voters in 2010. Total revenues are estimated over the 30-year period at approximately $150 million (year of expenditure), or approximately $5.0 million annually, to fund smaller, high-impact projects throughout the city on a pay-as-you-go basis. The Prop AA Expenditure Plan established three categories of investment and prescribed percentage shares over 30 years: Street Repair & Reconstruction (50%), Pedestrian Safety (25%), and Transit Reliability & Mobility Improvements (25%). The Expenditure Plan requires that the Transportation Authority adopt a Strategic Plan to guide the timing of expenditures and set policies for day-to-day management of the program and to update it every five years. In 2012, the Transportation Authority Board approved the first Prop AA Strategic Plan with $25.1 million to projects over the five year period of Fiscal Year 2012/13 through Fiscal Year 2016/17. In 2017, the Board approved the first update to the Strategic Plan, with $22.8 million programmed to projects over the five year period of Fiscal Year 2017/18 to Fiscal Year 2021/22. See Appendix 20 for the 2017 Prop AA Strategic Plan Programming and Allocations.

A.15.2.5 | Transportation Fund for Clean Air

The Transportation Fund for Clean Air Program (TFCA) was established to fund cost effective transportation projects that achieve a reduction in motor vehicle emissions. Funds are generated from a $4 surcharge on the vehicle registration fee. Forty percent of the funds are set aside for Program Managers for each of the nine counties in the Bay Area Air Quality Management District (BAAQMD). The Transportation Authority is the designated TFCA Program Manager for San Francisco. In that capacity, it programs approximately $750,000 every year to clean air vehicles, shuttle operations, bicycle and pedestrian improvements, and other eligible transportation projects that help clean up the air by reducing motor vehicle emissions. The Transportation Authority also provides assistance to project sponsors in applying for Regional TFCA funds, programmed directly by the BAAQMD. The remaining sixty percent of the revenues, referred to as the Regional Fund, is distributed to applicants from the nine Bay Area counties through a variety of grant programs. See Appendix 16 for the list of San Francisco TFCA projects selected since the last CMP.

A.15.2.6 | Lifeline Transportation Program

The MTC established the Lifeline Transportation Program (LTP) to improve transportation choices for low-income persons as part of the 2005 RTP. For the Cycle 5 LTP, the MTC assigned approximately $2.69 million in State Transit Assistance (STA) funds to the Transportation Authority. Since the adoption of the Cycle 5 LTP program of projects in May 2018, the Transportation Authority has provided monitoring and support for sponsor agencies and created the San Francisco Lifeline Transportation Program (SF LTP).

In February 2018, the MTC established a transit-focused STA County Block Grant program, with funds from the regional paratransit program, the northern counties/small transit operators program, and the regional LTP, to be administered by CMAs. The new STA County Block Grant program allows each county to determine how to invest in paratransit, transit operating and capital needs, including

providing lifeline transit services. Funds were distributed among the nine Bay Area counties based on the amount that each county would have received in Fiscal Year 2018/19 under the former regional programs. For the first two years of the new block grant program, Fiscal Years 2018/19 and 2019/20, San Francisco received approximately $8.3 million.

In December 2018, the Transportation Authority Board approved the San Francisco STA County Block Grant Framework to distribute 40% of the funds to the SFMTA's paratransit program consistent with what SFMTA would have received under the prior regional paratransit program. The Board approved the remaining 60% for the new SF LTP modelled on the former regional LTP. In April 2019, the Transportation Authority Board approved the SF LTP Cycle 1 program of projects. See Appendix 16 for the Cycle 5 LTP and SF LTP Cycle 1 project lists.

In light of the significant decline in transit fare and other operating revenues due to the COVID-19 pandemic, in April 2020, the Board approved San Francisco's share of FY 2020/21 County Block Grant funds to support the San Francisco Municipal Transportation Agency's paratransit operations.

A.15.2.7 | Senate Bill 1 Local Partnership Program Formulaic Shares

The Local Partnership Program (LPP), created by the Road Repair and Accountability Act of 2017 or Senate Bill 1, is a program created to reward local or regional transportation agencies that have sought and received voter approval of taxes or fees solely dedicated to transportation. Of the $200 million appropriated annually, the California Transportation Commission allocates 50% of the program through a Formulaic Program based on both the share of revenues and population of counties with voter-approved sales taxes, tolls, or fees. As administrator of San Francisco's Prop K transportation sales tax and Prop AA annual vehicle registration fee, the Transportation Authority is responsible for programming San Francisco's share of the LPP Formulaic Program, estimated at $2 million per year. For the third programming cycle covering FY 2020/21 through FY 2022/23, the Transportation Authority has programmed $2 million of San Francisco's $6 million in LPP formula funds to the Yerba Buena Island Bicycle and Pedestrian Path and the I-280 Southbound Ramp at Ocean Avenue projects. The remaining $4 million is anticipated to be programmed in early 2022. See Appendix 16 for the LPP Formulaic Program project list.

A.15.2.8 | Traffic Congestion Mitigation Tax

On November 5, 2019, San Francisco voters approved Prop D, enabling the City to impose a 1.5% business tax on shared rides and 3.25% business tax on private rides for fares charged by commercial ride-share and driverless-vehicle companies until November 5, 2045. The Traffic Congestion Mitigation Tax, referred to as the TNC Tax, was expected to generate about $30 million annually, before the COVID-19 pandemic. Half of the revenue goes to the SFMTA for transit improvements. The Transportation Authority administers the other half of the funds for street safety improvements. Revenue collection began on January 1, 2020.

On October 27, 2020, the Transportation Authority Board adopted the TNC Tax Program Guidelines, allocated $2.5 million in existing collections to the SFMTA's FY21 Vision Zero Quick-Build program, and programmed the first $5 million in projected revenue collections to the SFMTA's FY22 Vision Zero Quick-Build program.

A.15.3. Capital Improvement Program Amendments

The project sponsor is expected to deliver a project or program as approved by the Board. If a project sponsor anticipates that the scope, schedule, budget or funding plan will change, Transportation Authority staff will assess the need for a CIP amendment. There are two types of CIP amendments – administrative and policy level. Administrative amendments are approved by the Transportation Authority's Executive Director or her designee. Policy-level amendments must be approved by the Transportation Authority Board. The type of approval required by an amendment request depends upon the significance of the proposed changes to the project's scope, schedule and budget.

A.15.3.1 | Administrative-Level CIP Amendments

Administrative-level amendments address minor changes that do not substantively change the nature of the original project and its impact on system performance, and do not increase the amount of funding allocated or programmed by the Transportation Authority to the project. Administrative amendments will only require notification to and approval by the Transportation Authority's Executive Director or her designee. The Executive Director may rule that a requested CIP amendment is administrative if the proposed changes, involving one or more projects and one or more funding sources, requires programming actions that can be authorized at the staff level at the Transportation Authority, at the MTC and/or the CTC, or at the regional office level for federal agencies, such as administrative TIP amendments.

A.15.3.2 | Policy-Level CIP Amendments

Policy-level amendments apply to changes that are deemed by the Transportation Authority to be significant enough that they have the potential to affect the performance of the multimodal transportation system and represent a significant departure from the scope, schedule, or budget approved by the Transportation Authority. This may include changes that will affect the year of delivery (completion), the amount or availability of operating funds, the year of programming, the fund source designation, or any other aspect of the project requiring action by the MTC and/or the CTC for funds initially prioritized or programmed by the Transportation Authority. Policy-level amendments require approval by the Transportation Authority Board prior to processing of the change by the project sponsor or other funding agency.

A.15.3.3 | Applicability of CIP Amendments

Applicable funding sources include but are not limited to those programmed directly by the Transportation Authority, such as county share STP/CMAQ, SB 1 Local Partnership Program Formulaic Shares, RIP, LTP, TFCA, Prop K, Prop AA, and TNC Tax. Certain funding sources are programmed through state or regional processes and typically become available to project sponsors through a separate application procedure. Further, many sources have timely use of funds requirements where failure to meet deadlines can result in loss of funds to the project or to San Francisco or prohibition from applying for future cycles until deadlines are met. The MTC has requested that CMAs

assist with oversight of certain funding sources (e.g. Highway Safety Improvement Program) even if not directly prioritized by CMAs. The intent is to improve project delivery and specifically to avoid loss of funds to the region. The Transportation Authority encourages sponsors to proactively notify the Transportation Authority of any project delivery issues or other issues that may threaten a project's ability to meet timely use of fund deadlines, whether sources covered by CIP amendments or not. The Transportation Authority can serve as a resource and facilitator to help resolve delivery issues and avoid loss of funds to San Francisco projects.

APPENDIX 16

Discretionary Grants

San Francisco CMP Discretionary Grant Programs – Non-Prop K/AA
Project Grants Issued Since Publication of the 2019 CMP

San Francisco Transportation Fund for Clean Air (TFCA) – FY 2020/21 and 2021/22 County Program Manager Projects

Project	Sponsor [1]	TFCA Funds Programmed	Total Project Cost
Emergency Ride Home (FY 2020/21)	SFE	$96,739	$96,739
PresidiGo Battery Electric Shuttle	Presidio Trust	$250,000	$1,312,750
Short-Term Bicycle Parking (FY 2020/21)	SFMTA	$465,723	$1,075,320
Emergency Ride Home (FY 2021/22)	SFE	$75,210	$75,210
University Park North Bike Cage	SFSU	$15,000	$15,000
Short-Term Bicycle Parking (FY 2021/22)	SFMTA	$643,829	$1,484,046
	TOTAL	**$1,546,501**	**$4,059,065**

[1] Project sponsor acronyms refer to the San Francisco Department of the Environment (SFE); the San Francisco Municipal Transportation Agency (SFMTA), and San Francisco State University (SFSU).

San Francisco Share Cycle 5 Lifeline Transportation Program (LTP)

Project Sponsor[1]	Project Name	LTP Funds Programmed	Total Project Cost
SFMTA	Expanding and Continuing Late Night Transit Service to Communities in Need	$2,578,270	$ 3,775,560
	Wheelchair Accessible Taxi Incentive Program	$75,000	$ 375,000
	Enhanced Shop-a-Round and Van Gogh Recreational Shuttle Service	$32,462	$ 562,500
	Total	**$2,685,732**	**$4,713,060**

[1] Sponsor acronym includes the San Francisco Municipal Transportation Agency (SFMTA).

San Francisco Lifeline Transportation Program (SF LTP) Cycle 1

Project Sponsor[1]	Project Name	SF LTP Funds Programmed	Total Project Cost
SFMTA	Continuing Late Night Transit Service to Communities in Need	$ 1,609,700	$3,763,158
SFMTA	San Francisco Community Health Mobility Navigation Project: Removing Health Care Transportation Barriers for Low Access Neighborhoods	$ 396,300	$498,600
BART	Elevator Attendant Initiative	$ 2,600,000	$3,048,000
	Total	**$4,606,000**	**$7,309,758**

[1] Sponsor acronyms include the Bay Area Rapid Transit District (BART) and San Francisco Municipal Transportation Agency (SFMTA).

San Francisco One Bay Area Grant Cycle 2 (OBAG 2)

Project	Sponsor [1]	OBAG 2 Funds Programmed	Total Project Cost
Better Market Street[2]	SFPW	$ 3,366,000	$603,720,000
Central Subway[3]	SFMTA	$ 15,980,000	$ 1,578,000,000
John Yehall Chin Elementary Safe Routes to School[2]	SFPW	$0	$4,200,000

Project	Sponsor [1]	OBAG 2 Funds Programmed	Total Project Cost
Embarcadero Station: New Northside Platform Elevator and Faregates	BART	$2,000,000	$15,000,000
Geary Bus Rapid Transit Phase 1	SFMTA	$ 6,939,000	$64,656,000
Peninsula Corridor Electrification Project	PCJPB	$11,188,000	$1,980,250,000
San Francisco Safe Routes to School Non-Infrastructure 2019-2021	SFMTA	$2,813,264	$3,177,752
Total Programmed		$42,286,264	

[1] Project sponsor acronyms include the Bay Area Rapid Transit District (BART), Peninsula Corridor Joint Powers Board (PCJPB), the San Francisco Department of Public Works (SFPW), and the San Francisco Municipal Transportation Agency (SFMTA).

[2] On July 23, 2019, the Transportation Authority Board approved a Prop K/OBAG fund exchange with John Yehall Chin to assist with project delivery. See Resolution 20-02 for more detail.

[3] On November 27, 2018, the Transportation Authority Board approved a Prop K/OBAG fund exchange with Better Market Street to help backfill the Central Subway RIP commitment. See Resolution 19-22 for more detail.

San Francisco 2021 Mid-Cycle and Draft 2022 Regional Transportation Improvement Program (RTIP) Priorities

Project	Sponsor [1]	RIP Funds Programmed	Total Project Cost
2021 Mid-Cycle RTIP Programming Priorities			
Folsom Streetscape	SFMTA	$3,043,000	$36,340,000
Planning, Programming, and Monitoring	SFCTA	$160,000	$160,000
2021 Mid-Cycle RTIP Programming		**$3,203,000**	
2022 RTIP Programming Priorities[2]			
Communications-Based Train Control – Phase 3 N Judah	SFMTA	$10,642,000	$25,175,000
Planning, Programming, and Monitoring	MTC	$180,000	$180,000
Planning, Programming, and Monitoring	SFCTA	$380,000	$380,000
Proposed 2022 RTIP Programming		$11,202,000	

[1] Project sponsor acronyms include the Metropolitan Transportation Commission (MTC), San Francisco County Transportation Authority (SFCTA), and San Francisco Municipal Transportation Agency (SFMTA).

[2] The proposed programming is subject to approval by the California Transportation Commission (CTC) in March 2022.

San Francisco Local Partnership Program Formulaic Program (LPP-F) Cycle 3

Project	Sponsor [1]	LPP-F Funds Programmed[2]	Total Project Cost
Yerba Buena Island Multi-Use Pathway	SFCTA	$1,000,000	$89,650,000
I-280 Southbound Ocean Avenue Off-Ramp Realignment	SFCTA	$1,050,000	$21,060,000

[1] Project sponsor acronym includes San Francisco County Transportation Authority (SFCTA).

San Francisco Traffic Congestion Mitigation Tax (Prop D TNC Tax)

Project	Sponsor [1]	TNC Tax Funds Programmed[2]	Total Project Cost
Vision Zero Quick-Build Program Implementation	SFMTA	$7,505,686	This is a scalable program.

[1] Project sponsor acronyms include San Francisco Municipal Transportation Agency (SFMTA).

[2] The TNC Tax was passed by San Francisco voters in November 2019. In October 2020, the San Francisco County Transportation Authority Board approved the first programming of funds.

APPENDIX 17

Prop K Transportation Sales Tax Expenditure Plan Summary

San Francisco County Transportation Authority

EXPENDITURE PLAN SUMMARY

March 2021

Proposition K Half-Cent Transportation Sales Tax Expenditure Plan

Inside the Plan

MAJOR CAPITAL PROJECTS

- Create a citywide network of fast, reliable bus and rail transit
- Build the Central Subway from SOMA to Chinatown
- Extend Caltrain downtown to a rebuilt Transbay Terminal (Salesforce Transit Center)
- Electrify the Caltrain line to downtown San Francisco
- Rebuild the South Access to the Golden Gate Bridge (Presidio Parkway)

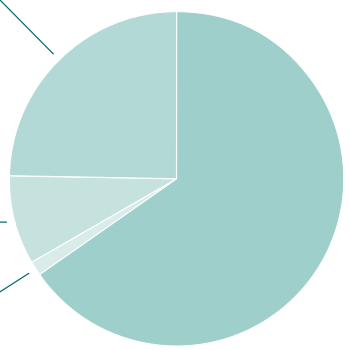
PROJECTS AND PROGRAMS

- **Transit:** investments to improve and expand transit service, replace transit vehicles, and maintain transit infrastructure and facilities.
- **Paratransit:** support for door-to-door van and taxi services for seniors and people with disabilities who are unable to use fixed route transit.
- **Streets and Traffic Safety:** street resurfacing and repair; traffic signs and signals; pedestrian and bicycle safety projects; traffic calming; and tree planting and maintenance.
- **Transportation System Management / Strategic Initiatives:** Support for Transportation Demand Management and neighborhood and citywide transportation planning.

Every dollar of Prop K Sales Tax invested in San Francisco leverages 4 to 7 times the amount in federal, state, and other funds – multiplying local dollars several times over.

EXPENDITURES BY CATEGORY

$2.35 billion (in 2003 dollars)



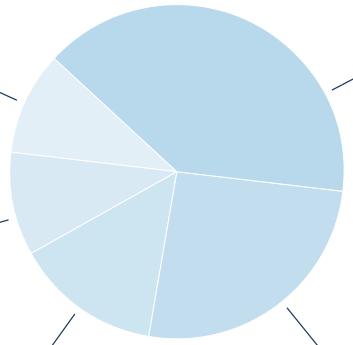
STREETS & TRAFFIC SAFETY
24.6%
- Traffic calming
- Pedestrian and bicycle safety
- New and upgraded signals
- Street resurfacing
- Arterial upgrades
- Presidio Parkway

PARATRANSIT OPERATIONS
8.6%

STRATEGIC INITIATIVES
1.3%
- Transportation Demand Management
- Neighborhood and citywide transportation planning

TRANSIT
65.5%
- Muni, BART, Caltrain, Ferries
- New vehicles
- Station, facility, rail and other upgrades
- Bus Rapid Transit
- Major Capital Projects

EXPENDITURES BY TYPE



NEW TRAFFIC SIGNALS, BICYCLE & PEDESTRIAN PROJECTS, AND PRESIDIO PARKWAY
10%

PARATRANSIT, TRANSPORTATION DEMAND MANAGEMENT, AND CITYWIDE & NEIGHBORHOOD PLANNING
10%

MAINTENANCE OF STREETS & TRAFFIC SIGNALS
14%

TRANSIT MAINTENANCE & REHABILITATION
40%

MAJOR TRANSIT PROJECTS
26%

San Francisco County Transportation Authority 1455 Market Street, 22nd Floor, San Francisco, CA 94103 TEL 415.522.4800 EMAIL info@sfcta.org WEB www.sfcta.org

Proposition K Half-Cent Transportation Sales Tax Expenditure Plan

2003 $MILLIONS	TOTAL PROP K[1]	PERCENTAGE OF PROP K FUNDING[2]	OTHER EXPECTED FUNDS	TOTAL EXPECTED FUNDING[3]
A. TRANSIT	**1,781.1**	**65.5%**	**8,163.2**	**9,944.3**
i. Major Capital Projects	**689.6**	**-**	**3,059.1**	**3,748.7**
a. Muni	361.0	-	1,041.0	1,402.0
Bus Rapid Transit/Muni Metro Network	110.0	-	490.0	600.0
3rd Street Light Rail (Phase 1)	70.0	-	30.0	100.0
Central Subway (3rd St. LRT Phase 2)	126.0	-	521.0	647.0
Geary LRT	55.0	-	0.0	55.0
b. Caltrain	313.1	-	1,827.9	2,141.0
Downtown Extension to a Rebuilt Transbay Terminal	270.0	-	1,615.0	1,885.0
Electrification	20.5	-	162.0	182.5
Capital Improvement Program	22.6	-	50.9	73.5
c. BART Station Access, Safety and Capacity	10.5	-	89.5	100.0
d. Ferry	5.0	-	100.7	105.7
ii. Transit Enhancements	**52.5**	**-**	**148.2**	**200.7**
iii. System Maintenance and Renovation	**1,039.0**	**-**	**4,955.9**	**5,994.9**
a. Vehicles	575.0	-	2,911.0	3,486.0
b. Facilities	115.7	-	830.0	945.7
c. Guideways	348.3	-	1,214.9	1,563.2
B. PARATRANSIT[4]	**291.0**	**8.6%**	**105.3**	**396.3**
C. STREETS AND TRAFFIC SAFETY	**714.7**	**24.6%**	**1,318.3**	**2,033.0**
i. Major Capital Projects	**117.5**	**-**	**422.2**	**539.7**
a. Golden Gate Bridge South Access (Doyle Drive)	90.0	-	330.0	420.0
b. New and Upgraded Streets	27.5	-	92.2	119.7
ii. System Operations, Efficiency and Safety	**60.6**	**-**	**94.9**	**155.5**
a. New Signals and Signs	41.0	-	14.5	55.5
b. Advanced Technology and Information Systems (SFgo)	19.6	-	80.4	100.0
iii. System Maintenance and Renovation	**281.6**	**-**	**605.9**	**887.5**
a. Signals and Signs	99.8	-	70.7	170.5
b. Street Resurfacing, Rehabilitation, and Maintenance	162.7	-	517.5	680.2
c. Pedestrian and Bicycle Facility Maintenance	19.1	-	17.7	36.8
iv. Bicycle and Pedestrian Improvements	**255.0**	**-**	**195.3**	**450.3**
a. Traffic Calming	70.0	-	72.0	142.0
b. Bicycle Circulation/Safety	56.0	-	21.6	77.6
c. Pedestrian Circulation/Safety	52.0	-	17.7	69.7
d. Curb Ramps	36.0	-	30.0	66.0
e. Tree Planting and Maintenance	41.0	-	54.0	95.0
D. TRANSPORTATION SYSTEM MANAGEMENT/STRATEGIC INITIATIVES	**33.2**	**1.3%**	**29.3**	**62.5**
i. Transportation Demand Management/Parking Management	**13.2**	**-**	**15.7**	**28.9**
ii. Transportation/Land Use Coordination	**20.0**	**-**	**13.6**	**33.6**
TOTAL	**2,820**	**100%**	**9,616.1**	**12,436**

Total Prop K Priority 1 (conservative forecast)	2,350
Total Prop K Priority 1 + 2 (medium forecast; most likely to materialize)	2,626
Total Prop K Priority 1+2+3 (optimistic forecast)[5]	2,820

Notes

1 The "Total Prop K" column fulfills the requirements in Section 131051(d) of the Public Utilities Code.

2 Percentages are based Prop K Priority 1 and 2 forecasts of $2.626 billion.

3 Total Expected Funding represents project costs or implementable phases of multi-phase projects and programs based on a 30-year forecast of expected revenues from existing federal, state and local sources, plus $2.82B in reauthorized sales tax revenues, $230M from a BART General Obligation Bond, and approximately $199M from the proposed 3rd dollar toll on the Bay Area state-owned toll bridges. The amounts in this column are provided in fulfillment of Sections 131051 (a)(1), (b) and (c) of the Public Utilities Code.

4 With very limited exceptions, the funds included in the 30-year forecast of expected revenues are for capital projects rather than operations. Of all the funding sources that make up the $12.4B in expected funding, paratransit operating support is only eligible for Prop K and and up to 10% of Muni's annual share of Federal Section 5307 funds (currently about $3.5 M annually). Therefore, total expected funding for Paratransit only reflects Prop K and Section 5307. The remaining paratransit operating costs for the next 30-years will be funded using other sources of operating funds, such as those currently included in Muni's $460M annual operating budget.

5 Priority 3 projects will only be funded if the revenues materialize under the optimistic scenario for sales tax revenues. They are also included in case Priority 1 or 2 projects realize costs savings, identify other unanticipated sources of funding, experience delays or are canceled.

APPENDIX 18

Prop K Expenditure Plan Categories with 5-Year Prioritization Programs

Expenditure Plan Categories with 5-Year Prioritization Programs (5YPPs)

The Prop K Expenditure Plan requires that all programmatic categories have a 5YPP that includes among other elements a prioritization methodology and a 5-year program of projects with scope, schedule, cost, and funding for each project (including funds to be leveraged by Prop K). The 5YPPs are intended to provide a stronger link between project selection and expected project performance, and to support on-time, on-budget project delivery as well as timely and competitive use of matching funds. The 5YPPs are developed by eligible Prop K project sponsors in close coordination with Transportation Authority staff, and are approved by Board. Current and prior project lists for all 21 Prop K 5YPPs can be found on the Transportation Authority's website at: https://www.sfcta.org/prop-k-2019-5-year-prioritization-programs

EP No. [1]	Programmatic Category	Eligible Sponsors[2]
1	Bus Rapid Transit/Transit Preferential Streets/ MUNI Metro Network	SFMTA, SFPW, SFCTA
7	Caltrain Capital Improvement Program	PCJPB
8	BART Station Access, Safety and Capacity	BART, SFPW, SFMTA
9	Ferry	SFPort, GGBHTD
10 - 16	Transit Enhancements	SFMTA, BART, SFPW, PCJPB
17	New and Renovated Vehicles	SFMTA, BART, PCJPB
20	Facilities	SFMTA, BART, PCJPB
22	Guideways	SFMTA, BART, PCJPB
26 - 30	New and Upgraded Streets	SFCTA, Caltrans, SFPW, PCJPB, SFMTA
31	New Signals and Signs	SFMTA
32	Advanced Technology and Information Systems (SFgo)	SFMTA
33	Signals and Signs	SFMTA
34 - 35	Street Resurfacing, Rehabilitation, and Maintenance	SFPW
37	Pedestrian and Bicycle Facility Maintenance	SFPW, SFMTA
38	Traffic Calming	SFMTA, SFPW
39	Bicycle Circulation/Safety	SFMTA, BART, SFPW, PCJPB
40	Pedestrian Circulation/Safety	SFMTA, BART, SFPW, PCJPB
41	Curb Ramps	SFPW, SFMTA
42	Tree Planting and Maintenance	SFPW
43	Transportation Demand Management/Parking Management	SFCTA, SFE, City Admin., Planning, SFMTA
44	Transportation/Land Use Coordination	Planning, SFCTA, BART, SFPW, PCJPB, SFMTA

Notes:

[1] "EP No." corresponds to Expenditure Plan line numbers used in the Prop K Strategic Plan.

[2] The first sponsor listed is the lead agency responsible for coordinating development of the 5YPP. Sponsor acronyms include: Bay Area Rapid Transit District (BART), California Department of Transportation (Caltrans), City Administrator (City Admin., formerly Department of Administrative Services), Golden Gate Bridge Highway and Transportation District (GGBHTD), Peninsula Corridor Joint Powers Board (PCJPB), Planning Department (Planning), San Francisco County Transportation Authority (SFCTA), San Francisco Environment (SFE), San Francisco Municipal Transportation Agency (SFMTA), San Francisco Public Works (SFPW), and Port of San Francisco (SFPort).

APPENDIX 19

2021 Prop K Strategic Plan Programming

Title Proposed 2021 Prop K Strategic Plan
Subtitle Programming and Allocations by Expenditure Plan Line Item

EP Line	Title	FY2019/20	FY2020/21	FY2021/22	FY2022/23	FY2023/24	Total
1	Bus Rapid Transit/Muni Metro Network	-	-	22,159,360	8,325,000	-	30,484,360
2	Third Street Light Rail (Phase 1)	-	-	-	-	3,590,810	3,590,810
3	Central Subway (Third Street Light Rail Phase 2)	-	-	-	-	-	-
4	Geary Light Rail	-	-	-	-	-	-
5	Downtown Extension to a Rebuilt Transbay Terminal	4,801,820	2,644,557	6,000,000	3,000,000	10,500,000	26,946,377
6	Electrification	-	-	-	-	-	-
7	Capital Improvement Program	2,908,012	472,015	1,502,476	-	-	4,882,503
8	BART Station Access, Safety and Capacity	672,975	-	1,100,000	-	-	1,772,975
9	Ferry	240,000	(135,905)	347,000	335,905	1,300,000	2,087,000
10	Extension of Trolleybus Lines/Motor Coach Conversion	-	-	-	-	-	-
11	F-Line Extension to Fort Mason	926,100	-	-	-	-	926,100
12	Purchase/Rehab Historic Street Cars	374,809	-	545,986	-	-	920,795
13	Balboa Park BART/MUNI Station Access	(1)	-	748,000	1,208,408	-	1,956,407
14	Relocation of Paul St to Oakdale-Caltrain Station	-	-	727,650	-	-	727,650
15	Purchase Additional Light Rail Vehicles	96,661	-	-	-	-	96,661
16	Other Transit Enhancements	(783,410)	-	5,750,000	2,027,710	-	6,994,300
17B	New and Renovated Vehicles-BART	-	-	-	-	-	-
17M	New and Renovated Vehicles-MUNI	68,727,687	(455,794)	13,556,301	-	-	81,828,194
17P	New and Renovated Vehicles-Caltrain	2,249,999	1,663,825	58,370	-	-	3,972,194
17U	New and Renovated Vehicles-Discretionary	10,545,950	-	-	-	-	10,545,950
18	Trolleybus wheelchair-lift O&M	-	-	-	-	-	-
19	F-Line O&M	-	-	-	-	-	-
20B	Rehab/Upgrades Existing facilities-BART	-	-	790,000	-	-	790,000
20M	Rehab/Upgrades Existing facilities-MUNI	1,500,000	713,424	3,059,129	2,800,000	-	8,072,553
20P	Rehab/Upgrades Existing facilities-Caltrain	730,506	400,000	68,378	-	-	1,198,884
20U	Rehab/Upgrades Existing facilities-Discretionary	1,000,000	4,848,403	-	-	-	5,848,403
21	Muni MMX O&M	-	-	-	-	-	-
22B	Guideways-BART	-	-	2,769,471	-	-	2,769,471
22M	Guideways-MUNI	1,032,072	(285,983)	21,947,049	9,892,086	8,840,062	41,425,286
22P	Guideways-Caltrain	2,494,327	2,462,272	2,121,225	-	-	7,077,824
22U	Guideways-Discretionary	11,608,000	13,339,032	-	-	-	24,947,032
23	Paratransit	10,037,758	8,652,425	6,098,972	13,300,000	13,300,000	51,389,156
24	Golden Gate Bridge South Access (Doyle Drive)	-	-	(748,384)	-	-	(748,384)
25	Bernal Heights Street System Upgrading	-	-	-	-	-	-
26	Great Highway Erosion Repair	1,229,834	(1,253,392)	-	259,119	-	235,561
27	Visitacion Valley Watershed	(1,260,728)	-	1,900,000	3,396,000	4,000,000	8,035,272
28	Illinois Street Bridge	-	-	-	-	-	-
29	Golden Gate Park/SR1Traffic Study	-	-	-	-	-	-
30	Other Upgrades to Major Arterials	(101,126)	587,341	831,264	-	-	1,317,479
31	New Signals and Signs	310,606	(472,725)	3,426,086	6,750,000	-	10,013,967
32	Advanced Technology and Information Systems (SFgo)	2,320,000	-	1,350,883	715,736	742,061	5,128,680
33	Signals and Signs	1,542,380	(378,556)	14,060,428	850,000	1,152,000	17,226,253
34	Street Resurfacing, Rehabilitation, and Maintenance	5,702,871	(1,566,378)	8,963,507	3,100,000	2,927,331	19,127,331
35	Street Repair and Cleaning Equipment	1,265,966	871,364	908,990	977,315	977,976	5,001,611
36	Embarcadero Roadway Incremental O&M	-	-	-	-	-	-
37	Pedestrian and Bicycle Facility Maintenance	552,659	884,632	1,012,238	837,680	813,143	4,100,352
38	Traffic Calming	11,940,998	10,709,107	10,928,383	4,008,360	4,130,000	41,716,848
39	Bicycle Circulation and Safety	1,339,945	1,850,523	4,876,273	4,599,758	2,487,758	15,154,257
40	Pedestrian Circulation and Safety	1,439,200	2,164,507	4,990,694	-	-	8,594,401
41	Curb Ramps	(83,752)	971,025	2,563,028	2,344,747	1,362,469	7,157,517
42	Tree Planting and Maintenance	1,401,841	1,438,936	1,493,064	1,548,980	1,592,306	7,475,127
43	Transportation Demand Management / Parking Management	450,000	790,000	1,686,610	1,010,000	105,000	4,041,610
44	Transportation/Land Use Coordination	605,278	1,472,492	2,337,148	2,250,000	250,000	6,914,918
		147,819,237	**52,387,148**	**149,929,580**	**73,536,804**	**58,070,916**	**481,743,685**

Note Amounts listed in the table above are consistent with the 2021 Prop K Strategic Plan. Amounts in FY19/20 and FY20/21 represent net allocations (including deobligations). Amounts in FY21/22 represent net allocations (including deobligations) and unallocated programming. Amounts in FY22/23 and FY23/24 represent unallocated programming.

APPENDIX 20

2017 Prop AA Strategic Plan Programming

2017 Prop AA Strategic Plan
Programming and Allocations
Approved October 2021 Board

Project Name	Phase	Sponsor	Fiscal Year 2017/18	Fiscal Year 2018/19	Fiscal Year 2019/20	Fiscal Year 2020/21	Fiscal Year 2021/22	5-Year Total
Street Repair and Reconstruction								
Target Funds Available in Category			**$ 2,264,242**	**$ 3,980,320**	**$ 2,290,539**	**$ 2,206,289**	**$ 2,177,034**	**$ 12,918,424**
Geary Boulevard Pavement Renovation[1, 2]	Construction	SFPW			$ 3,386,732			$ 3,386,732
Richmond Residential Streets Pavement Renovation[2]	Construction	SFPW				$ 2,020,000		$ 2,020,000
23rd St, Dolores St, York St and Hampshire St Pavement Renovation[1]	Construction	SFPW			$ 2,397,129			$ 2,397,129
Mission and Geneva Pavement Renovation [4]	Construction	SFPW					$ 4,794,258	$ 4,794,258
Subtotal Programmed to Category (% all time)	**49.4%**		**$ -**	**$ -**	**$ 5,783,861**	**$ 2,020,000**	**$ 4,794,258**	**$ 12,598,119**
Cumulative Remaining Capacity			***$ 2,264,242***	***$ 6,244,562***	***$ 2,751,240***	***$ 2,937,529***	***$ 320,305***	***$ 320,305***
Pedestrian Safety								
Target Funds Available in Category			**$ 1,010,876**	**$ 1,777,023**	**$ 1,022,616**	**$ 985,003**	**$ 971,942**	**$ 5,767,461**
Haight Street Streetscape (Pedestrian Lighting)	Construction	SFPW	$ 2,052,000					$ 2,052,000
Potrero Gateway Loop (Pedestrian Safety Improvements)[1, 2]	Design	SFPW			$ 80,000			$ 80,000
Potrero Gateway Loop (Pedestrian Safety Improvements)[1, 2, 3]	Construction	SFPW				$ 220,000		$ 220,000
Vision Zero Coordinated Pedestrian Safety Improvements (Bulbs & Basements)[1, 2]	Construction	SFPW			$ 700,000			$ 700,000
Arguello Boulevard Traffic Signal Upgrade	Construction	SFMTA		$ 655,000				$ 655,000
5th Street Quick Build Improvements[2, 3]	Construction	SFMTA				$ 378,372		$ 378,372
Bayshore Blvd/Cesar Chavez St/Potrero Ave Intersection Improvements Segments F/G[2]	Construction	SFMTA			$ 368,519			$ 368,519
Western Addition Transportation Plan Implementation (Pedestrian Lighting)[1]	Design	SFPW			$ 60,000			$ 60,000
Western Addition Transportation Plan Implementation (Pedestrian Lighting)[1, 3]	Construction	SFPW				$ 926,928		$ 926,928
Page Street Neighborway (Webster to Market)	Construction	SFMTA				$ 144,005		$ 144,005
Joice Alley Lighting Improvements	Design	SFPW				$ 90,000		$ 90,000
Joice Alley Lighting Improvements	Construction	SFPW					$ 410,000	$ 410,000
Subtotal Programmed to Category (% all time)	**25.6%**		**$ 2,052,000**	**$ 655,000**	**$ 1,208,519**	**$ 1,759,305**	**$ 410,000**	**$ 6,084,824**
Cumulative Remaining Capacity			***$ (1,041,124)***	***$ 80,900***	***$ (105,003)***	***$ (879,305)***	***$ (317,363)***	***$ (317,363)***
Transit Reliability and Mobility Improvements								
Target Funds Available in Category			**$ 1,503,514**	**$ 2,643,034**	**$ 1,520,976**	**$ 1,465,032**	**$ 1,445,606**	**$ 8,578,163**
Muni Metro Station Enhancements - Phase 1	Construction	SFMTA	$ 2,465,316					$ 2,465,316
Third Street Transit and Safety Improvements[2]	Construction	SFMTA			$ 383,776			$ 383,776
Transit Stop Signage Enhancement Program - Phase 1	Design, Construction	SFMTA				$ 1,043,898		$ 1,043,898
Transit Stop Signage Enhancement Program - Phase 2 [4]	Design, Construction	SFMTA					$ 1,021,021	$ 1,021,021
L Taraval Improvement Project (Segment B – Sunset Boulevard to West Portal)	Construction	SFMTA				$ 3,664,159		$ 3,664,159
Subtotal Programmed to Category (% all time)	**25.0%**		**$ 2,465,316**	**$ -**	**$ 383,776**	**$ 4,708,057**	**$ 1,021,021**	**$ 8,578,170**
Cumulative Remaining Capacity			***$ (961,802)***	***$ 1,681,232***	***$ 2,818,432***	***$ (424,592)***	***$ (7)***	***$ (7)***
Total Available Funds			**$ 4,778,633**	**$ 8,400,377**	**$ 4,834,131**	**$ 4,656,325**	**$ 4,594,582**	**$ 27,264,048**
Total Programmed			**$ 4,517,316**	**$ 655,000**	**$ 7,376,156**	**$ 8,487,362**	**$ 6,225,279**	**$ 27,261,113**
Cumulative Remaining Capacity			***$ 261,317***	***$ 8,006,694***	***$ 5,464,669***	***$ 1,633,632***	***$ 2,935***	

Allocated **Pending Action**

Notes

[1] Comprehensive 2017 Strategic Plan Amendment (Res 19-48, approved 03/19/2019).

[2] Comprehensive 2017 Strategic Plan Amendment (Res 19-63, approved 06/25/2019).

[3] Comprehensive 2017 Strategic Plan Amendment (Res 20-62, approved 06/23/2020).

[4] Comprehensive 2017 Strategic Plan Amendment (Res 22-xx, 10/26/2021).

2017 Prop AA Strategic Plan
Cash Flow
Approved October 2021 Board

Project Name	Phase	Fiscal Year 2017/18	Fiscal Year 2018/19	Fiscal Year 2019/20	Fiscal Year 2020/21	Fiscal Year 2021/22	Fiscal Year 2022/23	Fiscal Year 2023/24	Fiscal Year 2024/25	Total
Street Repair and Reconstruction										
Target Funds Available in Category		**$ 2,264,242**	**$ 3,980,320**	**$ 2,290,539**	**$ 2,206,289**	**$ 2,177,034**				**$ 12,918,424**
Geary Boulevard Pavement Renovation1, 2	Construction			$ 846,683	$ 1,246,683	$ 1,293,366				$ 3,386,732
Richmond Residential Streets Pavement Renovation2	Construction					$ 1,212,000	$ 808,000			$ 2,020,000
23rd St, Dolores St, York St and Hampshire St Pavement Renovation1	Construction			$ 750,000	$ 1,647,129					$ 2,397,129
Mission and Geneva Pavement Renovation 4	Construction					$ -	$ 883,214	$ 2,060,829	$ 1,850,215	$ 4,794,258
Cash Flow Subtotal		**$ -**	**$ -**	**$ 1,596,683**	**$ 2,893,812**	**$ 2,505,366**	**$ 1,691,214**	**$ 2,060,829**	**$ 1,850,215**	**$ 12,598,119**
Cumulative Remaining Capacity		***$ 2,264,242***	***$ 6,244,562***	***$ 6,938,418***	***$ 6,250,895***	***$ 5,922,563***	***$ 4,231,349***	***$ 2,170,520***	***$ 320,305***	***$ 320,305***
Pedestrian Safety										
Target Funds Available in Category		**$ 1,010,876**	**$ 1,777,023**	**$ 1,022,616**	**$ 985,003**	**$ 971,942**				**$ 5,767,461**
Haight Street Streetscape (Pedestrian Lighting)	Construction	$ 500,000	$ 1,050,000	$ 502,000						$ 2,052,000
Potrero Gateway Loop (Pedestrian Safety Improvements)1, 2	Design				$ 80,000					$ 80,000
Potrero Gateway Loop (Pedestrian Safety Improvements)1, 2, 3	Construction					$ 110,000	$ 110,000			$ 220,000
Vision Zero Coordinated Pedestrian Safety Improvements (Bulbs & Basements)1, 2	Construction			$ 400,000	$ 300,000					$ 700,000
Arguello Boulevard Traffic Signal Upgrade	Construction		$ 655,000							$ 655,000
5th Street Quick Build Improvements2, 3	Construction				$ 378,372					$ 378,372
Bayshore Blvd/Cesar Chavez St/Potrero Ave Intersection Improvements Segments F/G2	Construction			$ 368,519						$ 368,519
Western Addition Transportation Plan Implementation (Pedestrian Lighting)1	Design			$ 15,000	$ 45,000					$ 60,000
Western Addition Transportation Plan Implementation (Pedestrian Lighting)1, 3	Construction			$ -		$ 926,928				$ 926,928
Page Street Neighborway (Webster to Market)	Construction					$ 144,005				
Joice Alley Lighting Improvements	Design				$ 67,500	$ 22,500				$ 90,000
Joice Alley Lighting Improvements	Construction					$ 390,500	$ 19,500			$ 410,000
Cash Flow Subtotal		**$ 500,000**	**$ 1,705,000**	**$ 1,285,519**	**$ 870,872**	**$ 1,593,933**	**$ 129,500**	**$ -**	**$ -**	**$ 6,084,824**
Cumulative Remaining Capacity		***$ 510,876***	***$ 582,900***	***$ 319,997***	***$ 434,128***	***$ (187,863)***	***$ (317,363)***	***$ (317,363)***		***$ (317,363)***
Transit Reliability and Mobility Improvements										
Target Funds Available in Category		**$ 1,503,514**	**$ 2,643,034**	**$ 1,520,976**	**$ 1,465,032**	**$ 1,445,606**				**$ 8,578,163**
Muni Metro Station Enhancements - Phase 1	Construction	$ 1,232,658	$ 1,232,658							$ 2,465,316
Third Street Transit and Safety Improvements2	Construction				$ 383,776					$ 383,776
Transit Stop Signage Enhancement Program - Phase 1	Design, Construction				$ 521,949	$ 521,949				$ 1,043,898
Transit Stop Signage Enhancement Program - Phase 2 4	Design, Construction				$ 168,051	$ 128,051	$ 624,919	$ 100,000		$ 1,021,021
L Taraval Improvement Project (Segment B – Sunset Boulevard to West Portal)	Construction				$ 1,832,080	$ 1,832,079				$ 3,664,159
Cash Flow Subtotal		**$ 1,232,658**	**$ 1,232,658**	**$ -**	**$ 2,905,856**	**$ 2,482,079**	**$ 624,919**	**$ 100,000**	**$ -**	**$ 8,578,170**
Cumulative Remaining Capacity		***$ 270,856***	***$ 1,681,232***	***$ 3,202,208***	***$ 1,761,385***	***$ 724,912***	***$ 99,993***	***$ (7)***	***$ (7)***	***$ (7)***
Total Available Funds		**$ 4,778,633**	**$ 8,400,377**	**$ 4,834,131**	**$ 4,656,325**	**$ 4,594,582**	**$ -**	**$ -**	**$ -**	**$ 27,264,048**
Total Cashflow		**$ 1,732,658**	**$ 2,937,658**	**$ 2,882,202**	**$ 6,670,540**	**$ 6,581,378**	**$ 2,445,633**	**$ 2,160,829**	**$ 1,850,215**	**$ 27,261,113**
Cumulative Remaining Capacity		***$ 3,045,975***	***$ 8,508,694***	***$ 10,460,623***	***$ 8,446,408***	***$ 6,459,612***	***$ 4,013,979***	***$ 1,853,150***	***$ 2,935***	

APPENDIX 21

Travel Demand Model and Uniform Database

KEY TOPICS

- Technical Approach
- Model Consistency Report

APPENDIX 21

TRAVEL DEMAND MODEL AND UNIFORM DATABASE

KEY TOPICS

- Technical Approach
- Model Consistency Report

A.21.1 Technical Approach

A.21.1.1 | THE SAN FRANCISCO TRAVEL DEMAND FORECASTING MODEL

The San Francisco Travel Demand Forecasting Model, known as SF-CHAMP, is a tool used to assess the impacts of land use, socioeconomic, and transportation system changes on the performance of the transportation system. SF-CHAMP was developed to reflect the unique transportation, socioeconomic, and land use characteristics of San Francisco and the Bay Area. The Model uses residents' observed travel patterns; detailed representations of the region's transportation systems, population and employment characteristics; tolling and parking pricing; and the number of vehicles available to households to simulate daily travel activity and measure performance. Future year transportation, land use, and socioeconomic inputs are used to forecast future travel demand.

I. ACTIVITY-BASED MICROSIMULATION

SF-CHAMP is an activity-based microsimulation model that is sensitive to a broad array of conditions that influence travelers' choices. It is a tour-based model which represents an entire day's travel activity for each Bay Area resident, represented by a synthetic population. A tour is a sequence of trips made by an individual that begins and ends at home, whereas a trip is a single movement from an origin to a destination. This framework allows the model to:

- deal realistically and precisely with trip chaining and interrelationships between individual trips made over the entire day;
- separate travel into mandatory and discretionary tours; and
- attribute benefits and impacts to population groups for equity analysis

II. MODEL APPLICATIONS

The Transportation Authority uses SF-CHAMP to provide detailed forecasts supporting planning applications, including the San Francisco Transportation Plan (SFTP), Strategic Analysis Reports (SARs), policy analyses, mobility assessments, the Regional Transportation Plan, the transportation planning and revenue forecasting for the Treasure Island Mobility Management Agency, and environmental analyses. Current model applications include the ConnectSF, 101/I-280 Managed Lanes, the Downtown Congestion Pricing Study, and the Treasure Island Mobility Management Study.

III. MODEL DEVELOPMENT AND ENHANCEMENTS

The key inputs required to develop and apply a travel demand forecasting model include information on household and individual travel behavior (obtained in a household travel survey), representations of the pedestrian, transit, and roadway networks, and spatial representations of employment and residential characteristics. Most of the model components were estimated using household travel data from the California Household Travel Survey 2010-2012.

At the time of its initial release, SF-CHAMP was one of the first activity-based travel demand models used in practice and has been continuously used and updated both in order to take advantage of new data, and to be appropriately sensitive to issues confronted in new projects and plans for which it is used. SF-CHAMP version 6.1.2 is the current version of the model.

SF-CHAMP 6.1.2 uses the DaySim demand model (https://github.com/RSGInc/DaySim/wiki). DaySim is an open-source travel demand microsimulation package that is used by several regional planning organizations in their travel demand models. DaySim consists of a series of discrete choice models that represents different components of travel decision-making. Each model is estimated and calibrated with observed travel survey data from the California Household Travel Survey 2010-2012. The implementation of DaySim in SF-CHAMP added key functionality to the model, most importantly:

- Departure and arrival times specified by minute
- More detailed trip and tour purpose segmentation

In addition to these new DaySim features, TNCs were added to the mode choice model and calibrated to TNC activity data from the SFCTA's TNCs Today study. Autonomous vehicles were added for exploratory analysis. Figure A21-1 shows the model components and workflow of DaySim, the demand model core of SF-CHAMP.

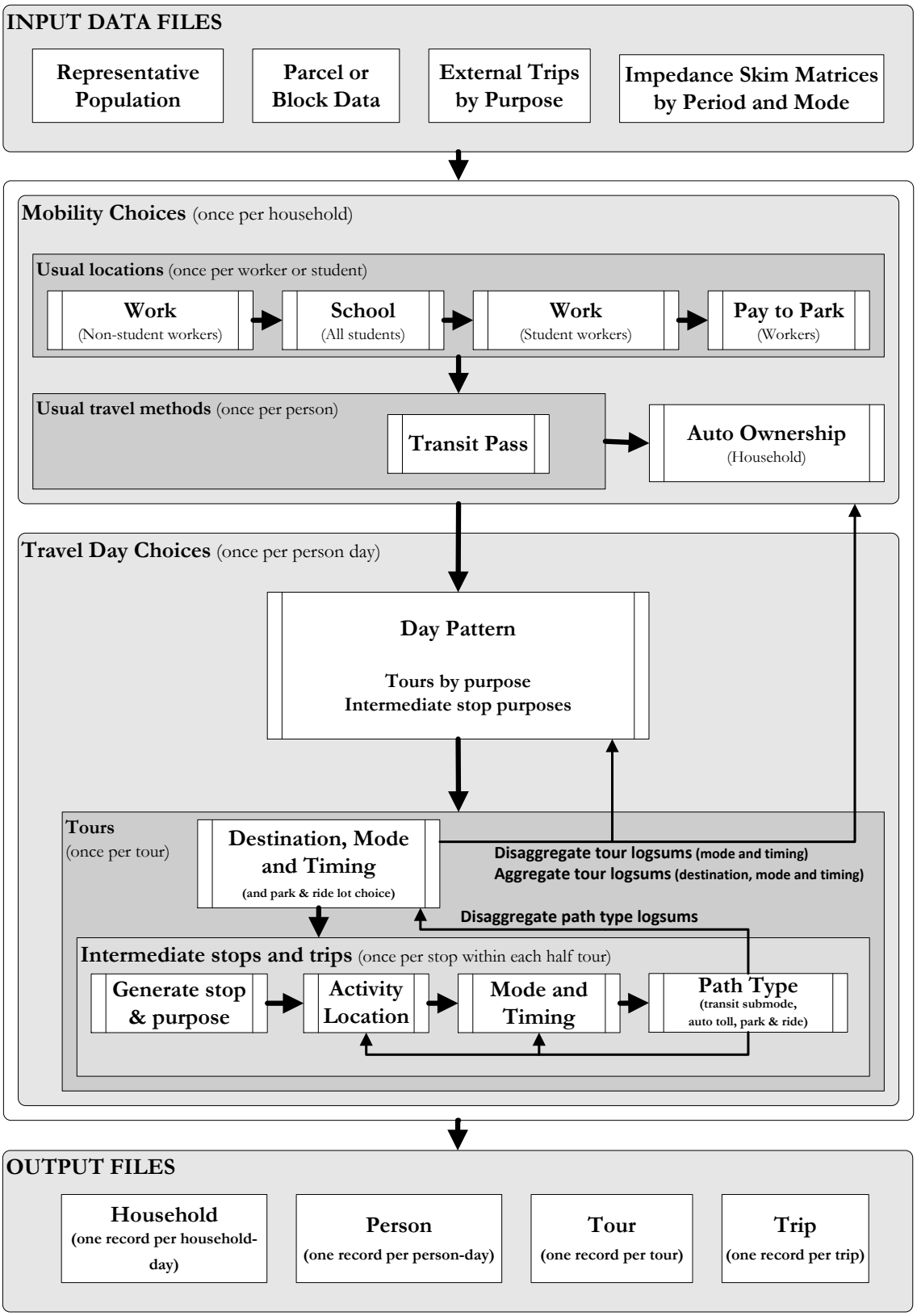


Figure A21-1: DaySim Model Components

IV. MODEL INPUT AND COMPONENTS

San Francisco's travel demand model can use any standard set of ABAG land use projections as an input. While some projects use land use estimates prepared specifically for the project, most use ABAG's Plan Bay Area 2040 forecasts for population, households, jobs, and employed residents. Outside of San Francisco, the Plan Bay Area 2040 forecasts are used without modification. Within San Francisco,

the San Francisco Planning Department allocates the countywide control totals for population, households, jobs, and employed residents to Transportation Analysis Zones (TAZs). Base year and future year forecasts were developed using a parcel-level residential and employment database, inventories of new development projects under construction, approved, and under review, and information on development potential for major area plans.

The San Francisco 981 TAZ system is used within the City and County of San Francisco. Outside of the City, the San Francisco Model zone system is the same as the MTC Travel Model 1 (TM1) 1,454 zone system. The model has 2,245 zones.

SF-CHAMP's transportation networks are very detailed and use network assumptions consistent with the MTC Regional Transportation Plan. Within San Francisco, the network is an all-streets network which is highly spatially accurate and includes every street segment within the City. The roadway network outside of San Francisco is a simplified network developed from the MTC TM1 regional model highway network. All local and regional transit route alignments and all stop locations are coded in the SF-CHAMP's transit networks. The regional transit network is a simplified network based on MTC's TM1 transit network representation.

V. POPULATION SYNTHESIS

The model uses a synthesized population of Bay Area residents that matches Traffic Analysis Zone (TAZ) totals of households, population, and employed residents, as well as census-based distributions of household configuration, age, and income-level serve as inputs to the population synthesis model.

The model samples the Census Public Use Microdata Sample (PUMS) (from the American Communities Survey) household records, and then assigns these to the TAZ, based on the control totals and marginal distributions. The result is a file with one record for each decision-maker. It matches all control totals and distributions when aggregated to the TAZ-level.

VI. VEHICLE AVAILABILITY

The vehicle availability model predicts the vehicles available in each household for each Bay Area resident. The model estimates the probabilities of having zero, one, two, or three, or four or more vehicles available. The Model accounts for tradeoffs for auto ownership based on the employment locations of workers in the household. This is a significant factor for auto ownership in a transit-rich environment such as San Francisco.

The vehicle availability model was validated primarily on two key variables, number of workers per household and super district1, using the 2010 Census and CHTS 2010-2012.

VII. FULL DAY PATTERN MODEL

The full day pattern model is actually several models used together to predict the main components of all of a person's travel across the day. The **Primary Tour Generation Models** predict whether each individual will make either no tour on a typical weekday or will make a primary tour for one of the following purposes: work, university, school, escort, meal, social/recreational, shopping, or other. The primary

[1] Superdistrict is a geographic area defined by MTC.

tour is an individual's longest tour. These primary tours are home-based. Work-based sub-tours and secondary home-based tours are also predicted. The models also predict whether there are intermediate stops on each tour half. Subsequent models predict the exact number of intermediate stops on each tour leg.

Tour mode constrains trip modes within the tour, and informs the timing and location of intermediate stops, subtours and secondary tours. The day pattern models were estimated using the CHTS 2010-2012.

VIII. TIME OF DAY MODELS

The time-of-day model predicts the time (at the minute level) when the traveler leaves home to begin the primary tour simultaneously with the time the traveler leaves the primary destination to return home. It also predicts the times of intermediate stops. While trip arrival and departure times are estimated to the minute, they are assigned to networks in 5 time periods:

- Early (3:00 AM to 5:59 AM)
- AM peak (6:00 AM to 8:59 AM)
- Midday (9:00 AM to 3:29 PM)
- PM peak (3:30 PM to 6:29 PM)
- Late (6:30 PM to 2:59 AM)

IX. DESTINATION CHOICE MODELS

The destination choice models estimate destinations for tours and trips generated by the day pattern model. The San Francisco DaySim Model uses destination choice models for work, school, and other tours, work-based subtours, and intermediate stops. The stops for work-based subtours and intermediate stops are conditional on the primary destination. The Destination Choice Models were estimated using the 2010-2012 CHTS.

X. MODE CHOICE MODELS

The Mode Choice Models predict the mode for each trip, once destinations have been determined. First, tour mode choice models determine the primary mode for the tour, while trip mode choice models determine the mode for each trip, based on the tour mode. SF-CHAMP uses the following modes:

- Muni Light Rail
- Muni Local Bus
- Regional bus routes (Golden Gate Transit, AC Transit, SamTrans)
- Caltrain
- BART
- Ferry
- Walk
- Bike
- Drive Alone
- Shared Ride 2
- Shared Ride 3+

- TNC

The mode choice models were estimated using the 2010-2012 CHTS, and validated using Census and ACS Journey to Work data, and observed SFMTA, BART, Caltrain, and Ferry ridership levels.

XI. VISITOR MODELS

The visitor models estimate visitor trips by mode, estimated using San Francisco Visitor & Convention Bureau data, and coefficients derived from the Honolulu model visitor development effort.

The visitor models are significantly less complex than the San Francisco resident models. They estimate the number of visitors to 29 key visitor destinations for each of three modes. The destinations include among others, Alcatraz, Golden Gate Park, North Beach, Union Square, and a cable car ride.

XII. ASSIGNMENT

The detailed estimate of activity patterns of Bay Area travelers (including the type and timing of trips, destinations, and modes of travel) results in tables of trips by mode of travel from zone to zone by time of day. This time period-specific demand is then assigned to the regional roadway and transit networks. SF-CHAMP 6.1.2 assigns vehicles on the roadway network, and passengers on the transit network.

Roadway assignment predicts the route chosen by travelers based primarily on congested travel times and traveler cost (distance and tolls), using a generalized cost function. Generalized cost is a weighted cost that takes into account in vehicle travel time, waiting time, walk access time, transfers, and transfer time. Routes are assigned and congested travel times are updated iteratively until travel times converge in a framework known as static user equilibrium.

Transit assignment predicts the specific route chosen, including transfers, based on walking time to the nearest stop, expected wait time, presence of other transit alternatives, fares, in-vehicle travel time, and walk time to the final destination. The transit assignment algorithm minimizes the generalized cost by origin-destination pair and time period.

The validation of transit and highway assignments is done separately, using observed volumes of vehicles and passengers on the highway and transit systems, respectively. Assignment validation at the county level was completed using aggregated volumes by corridor (identified by screenlines), type of service (facility type, mode or operator), size (volume group), and time period. Speeds and travel times are also used in highway and transit validations to ensure that these are accurately represented in the models.

A.21.1.2 | GIS DATABASE AND TOOLS

The Transportation Authority uses a Geographic Information Systems (GIS) database coupled with a variety of GIS tools, including ESRI's ArcGIS 10.7, python geoprocessing packages like shapely and geopandas, and QGIS to complement the strategic analysis facilitated by SF-CHAMP. The Transportation Authority's GIS database includes a large repository of shape files corresponding to local and regional street networks, census tracts, census block groups, census blocks, TAZs, transit routes, public facilities, and more, updated periodically from source data.

The Transportation Authority also maintains a geodatabase of level-of-service data containing auto and transit travel time and speed data for CMP segments, updated biennially.

A.21.2 Model Consistency Report

A.21.1.3 | GENERAL TRAVEL MODELING APPROACH

Product 1 – Description of the general approach to travel demand modeling.

The San Francisco County travel demand forecasting model (see the San Francisco Chained Activity Modeling Process, or "SF-CHAMP") was originally developed for the San Francisco County Transportation Authority (Authority) to provide detailed forecasts of travel demand for various planning applications. These applications included developing a countywide plan, providing input to microsimulation modeling for corridor and project-level evaluations, transit planning, neighborhood planning, and land use impacts analysis for Congestion Management Program purposes. The objective was to accurately represent the complexity of the destination, temporal and modal options and provide detailed information on travelers making discrete choices. These objectives led to the development of an activity-based model that uses synthesized population as the basis for decision-making rather than zonal-level aggregate data sources.

The Authority continually updates and refines SF-CHAMP. Since the creation of SF-CHAMP in 2000, the model's geographic scope has been extended to the full nine-county Bay Area, along with significant improvements to pricing sensitivity and time-of-day modeling. The Metropolitan Transportation Commission (MTC) has also now developed an activity based model with a similar structure. Both models share a common population synthesizer, while the details of many model subcomponents differ in significant ways.

SF-CHAMP version 6.1.2 is the current version of the model. SF-CHAMP 6.1.2 uses the DaySim demand model (https://github.com/RSGInc/DaySim/wiki). DaySim is an open-source travel demand microsimulation package that is used by several regional planning organizations in their travel demand models. DaySim consists of a series of discrete choice models that represents different components of travel decision-making. Each model is estimated and calibrated with observed travel survey data from the California Household Travel Survey 2010-2012.

A.21.1.4 | DEMOGRAPHIC / ECONOMIC / LAND USE FORECASTS

Product 2 – A statement establishing that the differences between key ABAG land use variables and those of the CMA do not differ by more than one percent at the county level for the subject county. A statement establishing that no differences exist at the census-tract-level outside the county between the MTC/ABAG forecast or the ABAG/CMA revised forecast.

Product 3 – A table comparing the MTC/ABAG land use estimates with the CMA land use estimates by county for population, households, jobs, and employed residents for both the base year and horizon year.

Product 4 – If land use estimates within the CMA's county are modified from MTC/ABAG's projections, agendas, discussion summaries, and action items from each meeting held with cities, MTC, and/or ABAG at which the redistribution was discussed, as well as before/after census-tract level data summaries and maps.

The SF-CHAMP model can use a variety of land use inputs. While some projects use land use estimates prepared specifically for the project, most use ABAG's Plan Bay Area 2040 forecasts for population, households, jobs, and employed residents. Outside of San Francisco, the Plan Bay Area 2040 forecasts are used with only minor modification to convert between the job classifications used by Travel Model One and those used by SF-CHAMP. Within San Francisco, the San Francisco Planning Department allocates the countywide control totals for population, households, jobs, and employed residents to Transportation Analysis Zones (TAZs). Plan Bay Area 2050 was fully adopted in October 2021, but MTC's model consistency guidelines have not yet been updated to reflect these forecasts.

In 2019 MTC updated its model consistency guidelines, providing upper and lower bounds of acceptable values for population, households, jobs, and employed residents, in place of prior requirements to fall within 1% of MTC/ABAG projections. For the base year 2015, the population is within the required range for all counties. However, the following estimates fall outside of MTC's guidelines: households in San Francisco, Santa Clara, and Marin; jobs in San Francisco, Alameda, and Napa; and employed residents in San Francisco, Alameda, Contra Costa, Solano, Napa, and Sonoma. For the forecast year 2040, all population, households, and employed residents estimates are within MTC's published ranges. However, the following jobs values fall outside of these ranges: Santa Clara, Alameda, and Marin. Note that, with the exception of job totals, the instances where SF-CHAMP county totals do not fall within the target ranges, the Plan Bay Area 2040 final land use projections also do not fall within the target ranges. For all counties outside of San Francisco, population, households, and employed residents match ABAG's Plan Bay Area 2040 final land use projections at the county level exactly. Job totals differ, and have historically differed, from ABAG's projections because SF-CHAMP uses a combination of SIC and NAICS codes which must be converted from the ABAG forecasts. Tables A21-1 and A21-2 show for 2015 and 2040, respectively, the SF-CHAMP land use comparisons as a percentage difference from the midpoint of the target range, and whether the value falls within the range.

The San Francisco Planning Department adjustments to the distribution of households and jobs within San Francisco are depicted in Figures A21-3 and A21-4 respectively. The differences are based on the project development pipeline and a capacity analysis.

Table A21-1 Comparison of SF-CHAMP to ABAG County-Level Estimates for Population, Households, Jobs, and Employed Residents, Year 2015, Plan Bay Area 2040

	SF-CHAMP 6.1.2				PERCENT DIFFERENCE FROM ABAG RANGE MIDPOINT				WITHIN ABAG RANGE			
COUNTY	POPULATION	HOUSEHOLDS	JOBS	EMPLOYED RESIDENTS	POPULATION	HOUSEHOLDS	JOBS	EMPLOYED RESIDENTS	POPULATION	HOUSEHOLDS	JOBS	EMPLOYED RESIDENTS
San Francisco	880,044	388,520	745,288	475,680	0%	4%	-2%	-8%	TRUE	FALSE	FALSE	FALSE
San Mateo	756,903	270,672	391,963	396,885	0%	2%	-4%	0%	TRUE	TRUE	TRUE	TRUE
Santa Clara	1,905,439	649,007	1,083,614	952,541	0%	2%	0%	-1%	TRUE	FALSE	TRUE	TRUE
Alameda	1,618,841	585,347	816,177	878,973	0%	2%	-2%	2%	TRUE	TRUE	FALSE	FALSE
Contra Costa	1,092,547	386,780	408,994	579,064	-1%	0%	0%	4%	TRUE	TRUE	TRUE	FALSE
Solano	413,753	141,041	139,028	221,743	-2%	-2%	-3%	6%	TRUE	TRUE	TRUE	FALSE
Napa	136,885	48,812	69,633	73,678	-1%	-1%	-8%	1%	TRUE	TRUE	FALSE	FALSE
Sonoma	483,211	183,478	222,840	265,501	-2%	-2%	1%	3%	TRUE	TRUE	TRUE	FALSE
Marin	257,382	106,786	131,528	129,924	-1%	2%	-2%	0%	TRUE	FALSE	TRUE	TRUE
Bay Area	7,545,005	2,760,443	4,009,065	3,973,989	0%	4%	1%	3%	TRUE	TRUE	TRUE	TRUE

Table A21-2 Comparison of SF-CHAMP to ABAG County-Level Estimates for Population, Households, Jobs, and Employed Residents, Year 2040, Plan Bay Area 2040

	SF-CHAMP 6.1.2				PERCENT DIFFERENCE FROM ABAG MIDPOINT RANGE				WITHIN ABAG RANGE			
COUNTY	POPULATION	HOUSEHOLDS	JOBS	EMPLOYED RESIDENTS	POPULATION	HOUSEHOLDS	JOBS	EMPLOYED RESIDENTS	POPULATION	HOUSEHOLDS	JOBS	EMPLOYED RESIDENTS
San Francisco	1,164,956	483,793	868,740	623,937	0%	0%	0%	1%	TRUE	TRUE	TRUE	TRUE
San Mateo	915,365	317,968	471,177	446,042	0%	0%	0%	0%	TRUE	TRUE	TRUE	TRUE
Santa Clara	2,532,773	860,925	1,303,214	1,173,565	0%	0%	1%	0%	TRUE	TRUE	FALSE	TRUE
Alameda	2,083,458	734,071	940,754	1,022,041	0%	0%	-1%	0%	TRUE	TRUE	FALSE	TRUE
Contra Costa	1,386,523	475,412	499,164	665,873	0%	0%	0%	0%	TRUE	TRUE	TRUE	TRUE
Solano	509,796	169,294	152,077	242,486	0%	0%	1%	0%	TRUE	TRUE	TRUE	TRUE
Napa	158,040	54,694	82,566	75,565	0%	0%	-1%	0%	TRUE	TRUE	TRUE	TRUE
Sonoma	596,627	219,066	244,306	286,492	0%	0%	0%	0%	TRUE	TRUE	TRUE	TRUE
Marin	277,254	111,584	132,612	131,575	-1%	0%	-2%	0%	TRUE	TRUE	FALSE	TRUE
Bay Area	9,624,792	3,426,807	4,694,610	4,667,576	1%	1%	1%	1%	TRUE	TRUE	TRUE	TRUE

Figure A21-3: Difference in Households from Plan Bay Area for 2040

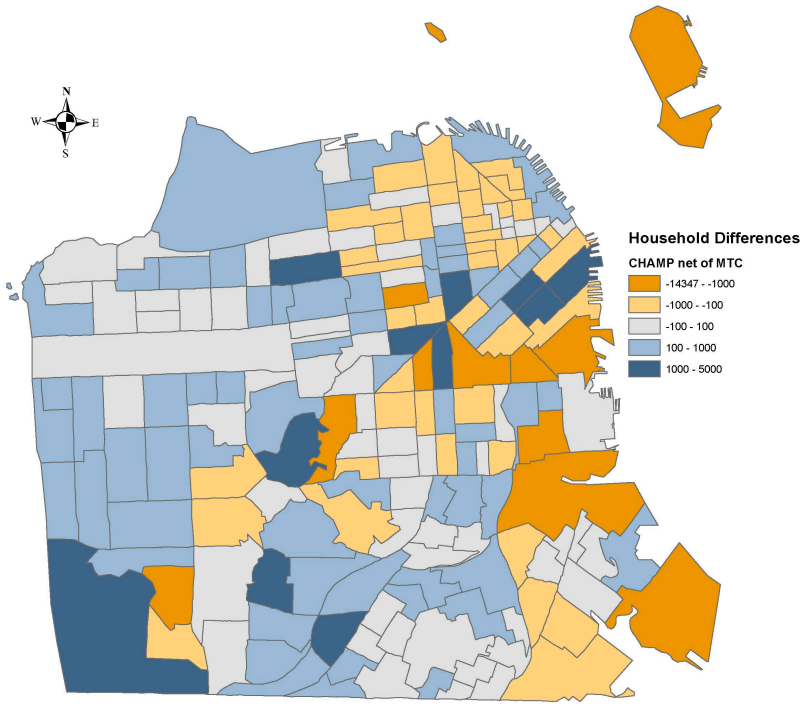
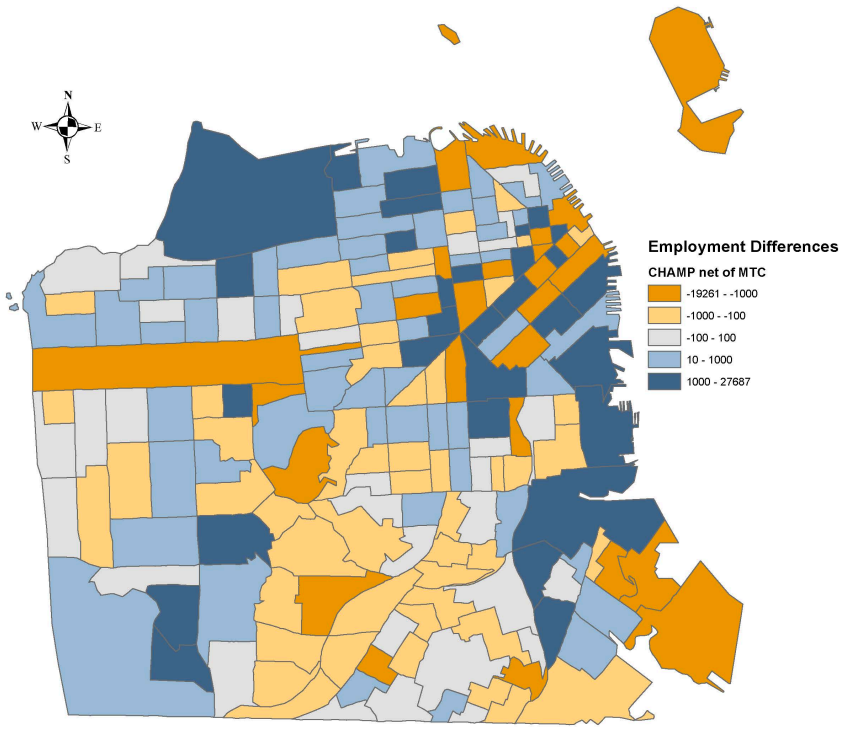


Figure A21-4: Difference in Jobs from Plan Bay Area for 2040



A.21.1.5 | PRICING ASSUMPTIONS

Product 4 – A table comparing the assumed automobile operating cost, key transit fares, and bridge tolls to MTC's values for the horizon year.

Auto operating costs are assumed to be 25 cents per mile in 2015 dollars, which was based off of the lower auto operating cost per mile that MTC used prior to Travel Model One. The pricing assumptions summarized here have been recently updated to include the latest bridge toll schedules.

Table A21-3 Comparison of SF-CHAMP to MTC Pricing Assumptions

MTC PRICING ASSUMPTIONS			
	2040 VALUE IN 2000 DOLLARS	2040 VALUE IN 2010 DOLLARS	2040 VALUE IN 2015 DOLLARS
Auto Operating Cost per Mile	$0.174	$0.220	$0.243
Bridge Tolls (2-axle, single-occupant. Note that 2-axle carpools receive discounts depending on the bridge.)			
San Francisco/Oakland Bay Bridge	$5.72	$7.22	$8.00
Antioch Bridge	$5.01	$6.32	$7.00
Benicia/Martinez Bridge	$5.01	$6.32	$7.00
Carquinez Bridge	$5.01	$6.32	$7.00
Dumbarton Bridge	$5.01	$6.32	$7.00
Richmond/San Rafael Bridge	$5.01	$6.32	$7.00
San Mateo Bridge	$5.01	$6.32	$7.00
Golden Gate Bridge	$4.47	$5.64	$6.25
Transit Fares	---	---	
Muni Local Bus	$1.57	$1.98	$2.25
AC Transit Local Bus	$1.47	$1.86	$2.10
VTA Local Bus	$1.40	$1.77	$2.00
SamTrans Local Bus	$1.40	$1.77	$2.00

SFCTA PRICING ASSUMPTIONS			
	2040 VALUE IN 2000 DOLLARS	2040 VALUE IN 2010 DOLLARS	2040 VALUE IN 2015 DOLLARS
Auto Operating Cost per Mile	$0.171	$0.216	$0.246
Bridge Tolls (2-axle, single-occupant. Note that 2-axle carpools receive discounts depending on the bridge.)			
San Francisco/Oakland Bay Bridge	$4.67	$5.89	$6.70
Antioch Bridge	$4.15	$5.24	$5.95
Benicia/Martinez Bridge	$4.15	$5.24	$5.95
Carquinez Bridge	$4.15	$5.24	$5.95

Dumbarton Bridge	$4.15	$5.24	$5.95
Richmond/San Rafael Bridge	$4.15	$5.24	$5.95
San Mateo Bridge	$4.15	$5.24	$5.95
Golden Gate Bridge	$4.25	$5.37	$6.10
Transit Fares	---	---	
Muni Local Bus	$1.18	$1.49	$1.70
AC Transit Local Bus	$1.51	$1.91	$2.17
VTA Local Bus	$1.51	$1.91	$2.17
SamTrans Local Bus	$1.51	$1.91	$2.17

A.21.1.6 | NETWORK ASSUMPTIONS

Product 5 – Statement establishing satisfaction of network assumptions consistency.

The San Francisco Model uses network assumptions consistent with Plan Bay Area with the following exceptions: (1) projects that have already been built have been coded in the base year 2015 networks such as some regional HOV lanes as well as the Market Street forced-right turn traffic calming; (2) projects were only included that were funded through construction in 2040; (3) projects local to San Francisco were updated based on updated local knowledge; and (4) Muni service levels were updated based on October 2015 schedules.

A.21.1.7 | AUTO OWNERSHIP

Product 6 – County-level table comparing estimates of households by auto ownership level to MTC's estimates for the horizon year.

The San Francisco auto ownership model is estimated based on CHTS 2010-2012 survey data and is a function of the mode choice and destination choice logsums as well as several household and person variables such as number of household drivers, full time and part time workers, students, income, age, presence of children, home zone parking cost, and land use characteristics of the home zone. Tables A21-4 and A21-5 depict the totals and shares, respectively, of 2040 SF-CHAMP auto ownership model results compared to the MTC model.

Table A21-4 Comparison of SF-CHAMP to ABAG Households by Number of Automobiles, by County, Year 2040, Plan Bay Area 2040

2040 - TOTALS	SF-CHAMP						PERCENT DIFFERENCE FROM MTC					
COUNTY	ZERO	ONE	TWO	THREE	FOUR-PLUS	TOTAL	ZERO	ONE	TWO	THREE	FOUR-PLUS	TOTAL
San Francisco	154,316	169,375	122,224	49,825	13,054	508,794	-6%	-25%	27%	207%	25%	-1%
San Mateo	32,387	103,307	118,398	57,368	17,752	329,212	66%	-7%	-8%	27%	-23%	1%
Santa Clara	104,304	276,072	315,709	153,025	47,909	897,019	46%	-7%	-8%	26%	-20%	0%
Alameda	115,559	260,270	247,720	119,405	35,253	778,207	31%	0%	-9%	16%	-31%	0%
Contra Costa	39,436	146,648	180,472	92,866	28,522	487,944	130%	-1%	-13%	18%	-20%	0%
Solano	14,247	58,289	67,611	33,988	11,551	185,686	84%	28%	-8%	4%	-19%	7%
Napa	3,481	17,962	23,240	11,331	3,510	59,524	12%	11%	-6%	3%	-19%	0%
Sonoma	15,823	71,783	90,631	41,529	11,917	231,683	10%	17%	-7%	-2%	-25%	0%
Marin	9,133	40,602	44,412	18,513	4,381	117,041	117%	7%	-15%	15%	-25%	0%
Bay Area	488,686	1,144,308	1,210,417	577,850	173,849	3,595,110	25%	-5%	-7%	24%	-21%	0%

Table A21-5 Comparison of SF-CHAMP to ABAG Household Shares by Number of Automobiles, by County, Year 2040, Plan Bay Area 2040

2040 - SHARES	SF-CHAMP						DIFFERENCE FROM MTC					
COUNTY	ZERO	ONE	TWO	THREE	FOUR-PLUS	TOTAL	ZERO	ONE	TWO	THREE	FOUR-PLUS	TOTAL
San Francisco	30%	33%	24%	10%	3%	100%	-2%	-11%	5%	7%	1%	0%
San Mateo	10%	31%	36%	17%	5%	100%	4%	-3%	-3%	4%	-2%	0%
Santa Clara	12%	31%	35%	17%	5%	100%	4%	-2%	-3%	3%	-1%	0%
Alameda	15%	33%	32%	15%	5%	100%	3%	0%	-3%	2%	-2%	0%
Contra Costa	8%	30%	37%	19%	6%	100%	5%	0%	-6%	3%	-1%	0%
Solano	8%	31%	36%	18%	6%	100%	3%	5%	-6%	-1%	-2%	0%
Napa	6%	30%	39%	19%	6%	100%	1%	3%	-3%	0%	-1%	0%
Sonoma	7%	31%	39%	18%	5%	100%	1%	4%	-3%	0%	-2%	0%
Marin	8%	35%	38%	16%	4%	100%	4%	2%	-7%	2%	-1%	0%
Bay Area	14%	32%	34%	16%	5%	100%	3%	-2%	-3%	3%	-1%	0%

A.21.1.8 | TOUR / TRIP GENERATION

Product 7 - Region-level Tables comparing estimates of trip and/or tour frequency by purpose to MTC's estimates for the horizon year

The following table compares trips by tour purpose between Travel Model One and SF-CHAMP. SF-CHAMP estimates a total number of trips within 2% of Travel Model One, and within 5% of trips in work tours. SF-CHAMP estimates lower rates of university, school, at-work, shopping, and other, and higher rates of eat out, escort, and social.

Table A21-6 Comparison of SF-CHAMP to MTC Number of Trips by Tour Purpose, Year 2040, Plan Bay Area 2040

	MTC	SF-CHAMP	PERCENT DIFFERENCE
Trips			
Work	9,410,212	9,898,587	5%
University	744,554	511,442	-31%
School	3,157,398	1,959,551	-38%
At-Work	2,045,472	1,650,905	-19%
Eat Out	1,447,194	1,552,721	7%
Escort	2,901,576	4,905,199	69%
Shopping	4,713,036	3,336,646	-29%
Social	1,107,080	4,993,414	351%
Other	6,380,756	3,635,389	-43%
Total	31,907,278	32,443,854	2%
Shares			
Work	29%	31%	1%
University	2%	2%	-1%
School	10%	6%	-4%
At-Work	6%	5%	-1%
Eat Out	5%	5%	0%
Escort	9%	15%	6%
Shopping	15%	10%	-4%
Social	3%	15%	12%
Other	20%	11%	-9%

A.21.1.9 | ACTIVITY / TRIP LOCATION

Product 8 – Region-level tables comparing estimates of average trip distance by tour/trip purpose to MTC's estimates for horizon year

SF-CHAMP uses a primary destination choice model to identify the primary destinations of all tours, then an intermediate stop model to identify any stops along the way. While most trip purposes have average trip distances between the two models within 2%, university and escort trips are 23% and 45% longer in SF-CHAMP than in Travel Model One, and school and eat out trips are 8% and 18% lower.

Table A21-7 Comparison of SF-CHAMP to MTC Average Trip Distance by Tour Purpose, Year 2040, Plan Bay Area 2040

	MTC	SF-CHAMP	PERCENT DIFFERENCE
Work	10.32	10.12	-2%
University	6.05	7.44	23%
School	4.07	3.73	-8%
At-Work	3.44	3.47	1%
Eat Out	5.80	4.75	-18%
Escort	3.31	4.81	45%
Shopping	4.34	4.06	-7%
Social	5.40	5.49	2%
Other	5.42	5.29	-2%
Total	6.28	6.02	-4%

Product 9 – County-to-county comparison of journey-to-work or home-based work flow estimates to MTC's estimates for the horizon year

The following table compares SF-CHAMP to Travel Model One commuter flow shares. County to county flow shares are within 1% for each county pair.

Table A21-8 Comparison of SF-CHAMP to MTC Journey to Work, County-to-County Usual Workplace, Year 2040, Plan Bay Area (v 0.3)

	DESTINATION COUNTY									
ORIGIN COUNTY	SAN FRANCISCO	SAN MATEO	SANTA CLARA	ALAMEDA	CONTRA COSTA	SOLANO	NAPA	SONOMA	MARIN	BAY AREA
SF-CHAMP Shares										
San Francisco	11.2%	1.4%	0.3%	0.5%	0.1%	0.0%	0.0%	0.0%	0.1%	13.6%
San Mateo	1.9%	5.3%	1.9%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	9.7%
Santa Clara	0.3%	1.5%	22.1%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%	25.3%
Alameda	2.9%	1.5%	2.7%	13.3%	1.3%	0.0%	0.0%	0.0%	0.1%	21.9%
Contra Costa	1.4%	0.3%	0.4%	3.3%	8.0%	0.4%	0.1%	0.0%	0.3%	14.1%
Solano	0.2%	0.1%	0.0%	0.5%	1.0%	2.3%	0.5%	0.1%	0.2%	4.8%
Napa	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	1.0%	0.1%	0.1%	1.6%
Sonoma	0.2%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	5.0%	0.5%	6.1%
Marin	0.7%	0.1%	0.0%	0.2%	0.1%	0.0%	0.0%	0.1%	1.5%	2.8%
Bay Area	18.8%	10.3%	27.4%	19.7%	10.8%	3.0%	1.8%	5.3%	2.9%	100.0%
Difference from MTC										
San Francisco	0.7%	0.0%	0.0%	-0.4%	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.2%
San Mateo	-0.1%	0.3%	0.1%	-0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%

Santa Clara	0.0%	0.0%	0.3%	-0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Alameda	0.0%	0.0%	-0.3%	0.6%	-0.3%	0.0%	0.0%	0.0%	0.0%	-0.1%
Contra Costa	-0.3%	-0.1%	-0.1%	-0.3%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%
Solano	-0.1%	0.0%	0.0%	0.0%	0.1%	-0.2%	0.0%	0.0%	0.0%	-0.2%
Napa	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.1%	0.0%	0.0%
Sonoma	-0.1%	0.0%	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.3%	0.0%	0.0%
Marin	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Bay Area	0.1%	0.2%	0.0%	-0.7%	0.2%	-0.2%	0.1%	0.3%	-0.1%	0.0%

A.21.1.10 | MODE CHOICE

Product 10 – Region-level tables comparing travel mode share estimates by tour/trip purpose to MTC's estimates for the horizon year

The following table compares trip mode shares by tour purpose for SF-CHAMP and Travel Model One. SF-CHAMP estimates lower overall auto mode shares, although higher auto mode shares for work and university tours. Mode shares are within 5 percentage points of Travel Model One in most cases, with the exception of escort, shopping, and other tours.

Table A21-9 Comparison of SF-CHAMP to MTC Region-Level Trip Mode Share by Tour Purpose, Year 2040, Plan Bay Area 2040

TOUR PURPOSE	AUTOMOBILE	WALK	BICYCLE	TRANSIT
Travel Model One				
Work	78.5%	6.0%	1.7%	13.8%
University	59.2%	13.2%	1.5%	26.1%
School	70.5%	19.0%	1.3%	9.2%
At-Work	68.0%	30.3%	0.8%	1.0%
Eat Out	82.5%	14.0%	0.8%	2.7%
Escort	93.8%	5.9%	0.1%	0.2%
Shopping	89.1%	8.1%	0.8%	2.1%
Social	81.2%	12.9%	1.2%	4.7%
Other	87.1%	8.4%	1.0%	3.4%
All Purposes	81.5%	10.4%	1.1%	6.9%
SF-CHAMP				
Work	81.3%	3.4%	2.4%	12.8%
University	60.7%	9.8%	3.9%	25.6%
School	70.6%	14.9%	5.0%	9.4%
At-Work	68.4%	29.4%	1.6%	0.6%
Eat Out	80.4%	13.8%	1.4%	4.3%
Escort	88.7%	10.6%	0.7%	0.0%
Shopping	75.2%	18.9%	2.3%	3.6%
Social	81.7%	13.1%	2.4%	2.9%
Other	78.0%	15.4%	2.3%	4.4%
Total	78.6%	12.0%	2.0%	7.4%
Difference from MTC				
Work	2.8%	-2.6%	0.8%	-1.0%
University	1.5%	-3.4%	2.4%	-0.5%

School	0.1%	-4.1%	3.8%	0.3%
At-Work	0.4%	-0.9%	0.8%	-0.3%
Eat Out	-2.1%	-0.2%	0.6%	1.7%
Escort	-5.1%	4.7%	0.6%	-0.2%
Shopping	-13.9%	10.8%	1.5%	1.5%
Social	0.4%	0.1%	1.2%	-1.8%
Other	-9.1%	6.9%	1.2%	1.0%
Total	-2.9%	1.6%	0.9%	0.5%

A.21.1.11 | **HIGHWAY ASSIGNMENT**

Product 11 – Region-level, time-period-specific comparison of vehicle miles traveled and vehicle hours traveled estimates by facility type to MTC's estimates for the horizon year.

Product 12 – Region-level, time-period-specific comparison of estimated average speed on freeways and all other facilities, separately, to MTC's estimates for the horizon year.

Vehicle volumes in SF-CHAMP are assigned for each of five time periods. Vehicles are assigned to one of twelve user classes based on auto occupancy, vehicle type, and whether the vehicle will not pay a value-toll, will pay a value-toll, or has already paid a value toll.

Tables A21-10 through A21-12 show highway assignment results from SF-CHAMP compared with Travel Model One. Travel Model One and SF-CHAMP use different time periods definitions: Travel Model One uses four-hour peak periods for both the morning and afternoon, while SF-CHAMP uses three-hour peak periods. The tables presented below have adjusted SF-CHAMP estimated volumes to four-hour peak periods. SF-CHAMP estimates lower peak period and early morning vehicle miles travelled (VMT), and higher midday and evening VMT. The total daily VMT is within 1% of Travel Model One.

Table A21-10 Comparison of SF-CHAMP to MTC Region-Level VMT by Facility Type and Time Period, Year 2040, Plan Bay Area 2040

MTC	FACILITY TYPE					
TIME PERIOD	FREEWAYS	EXPRESSWAYS	MAJOR ARTERIALS	COLLECTORS	OTHER	ALL FACILITIES
Early AM (3 Hr)	5,783,067	599,450	1,201,711	345,176	364,773	8,294,177
AM Peak (4 Hr)	27,849,958	3,127,657	10,337,336	3,032,884	3,511,215	47,859,049
Midday (5 Hr)	28,132,629	3,228,432	11,484,160	3,122,822	4,566,605	50,534,648
PM Peak (4 Hr)	29,796,005	3,574,229	12,566,909	3,689,251	4,565,559	54,191,953
Evening (8 Hr)	18,598,877	1,941,907	6,094,892	1,691,965	2,321,141	30,648,782
Daily	110,160,535	12,471,676	41,685,008	11,882,098	15,329,293	191,528,609

SF-CHAMP	FACILITY TYPE					
TIME PERIOD	FREEWAYS	EXPRESSWAYS	MAJOR ARTERIALS	COLLECTORS	OTHER	ALL FACILITIES
Early AM (3 Hr)	4,231,622	604,134	893,053	299,906	305,884	6,334,599
AM Peak (4 Hr)	25,116,851	3,998,905	8,562,400	2,756,188	2,268,126	42,702,471
Midday (5 Hr)	33,220,125	5,218,931	11,669,655	3,814,641	3,331,439	57,254,791
PM Peak (4 Hr)	27,653,783	4,490,622	10,012,221	3,221,462	2,642,970	48,021,058
Evening (8 Hr)	22,497,310	3,511,356	6,693,619	2,170,162	2,124,645	36,997,093
Daily	112,719,692	17,823,948	37,830,949	12,262,359	10,673,065	191,310,012

PERCENT DIFFERENCE	FACILITY TYPE					
TIME PERIOD	FREEWAYS	EXPRESSWAYS	MAJOR ARTERIALS	COLLECTORS	OTHER	ALL FACILITIES
Early AM	-27%	1%	-26%	-13%	-16%	-24%
AM Peak	-10%	28%	-17%	-9%	-35%	-11%
Midday	18%	62%	2%	22%	-27%	13%
PM Peak	-7%	26%	-20%	-13%	-42%	-11%
Evening	21%	81%	10%	28%	-8%	21%
Daily	2%	43%	-9%	3%	-30%	0%

Table A21-11 Comparison of SF-CHAMP to MTC Region-Level VHT by Facility Type and Time Period, Year 2040, Plan Bay Area 2040

MTC	FACILITY TYPE					
TIME PERIOD	FREEWAYS	EXPRESSWAYS	MAJOR ARTERIALS	COLLECTORS	OTHER	ALL FACILITIES
Early AM (3 Hr)	95,134	12,089	36,078	11,738	20,267	175,307
AM Peak (4 Hr)	605,402	78,256	353,580	132,529	195,077	1,364,845
Midday (5 Hr)	504,734	73,801	382,369	126,988	253,721	1,341,612
PM Peak (4 Hr)	640,684	88,506	452,079	169,246	253,656	1,604,171
Evening (8 Hr)	311,358	39,726	188,468	60,301	128,964	728,816
Daily	2,157,313	292,377	1,412,574	500,802	851,685	5,214,751

SF-CHAMP	FACILITY TYPE					
TIME PERIOD	FREEWAYS	EXPRESSWAYS	MAJOR ARTERIALS	COLLECTORS	OTHER	ALL FACILITIES
Early AM (3 Hr)	72,598	11,328	46,995	18,246	13,152	162,319
AM Peak (4 Hr)	680,209	106,199	510,072	184,211	158,939	1,639,631
Midday (5 Hr)	735,788	127,395	681,049	250,872	180,860	1,975,965
PM Peak (4 Hr)	714,138	120,299	599,119	216,942	190,706	1,841,204
Evening (8 Hr)	419,943	73,687	365,838	134,689	101,557	1,095,714
Daily	2,622,675	438,909	2,203,074	804,959	645,215	6,714,832

PERCENT DIFFERENCE	FACILITY TYPE					
TIME PERIOD	FREEWAYS	EXPRESSWAYS	MAJOR ARTERIALS	COLLECTORS	OTHER	ALL FACILITIES
Early AM	-24%	-6%	30%	55%	-35%	-7%
AM Peak	12%	36%	44%	39%	-19%	20%
Midday	46%	73%	78%	98%	-29%	47%
PM Peak	11%	36%	33%	28%	-25%	15%
Evening	35%	85%	94%	123%	-21%	50%
Daily	22%	50%	56%	61%	-24%	29%

Table A21-12 Comparison of SF-CHAMP to MTC Region-Level Average Speed (VMT/VHT) by Facility Type and Time Period, Year 2040, Plan Bay Area 2040

Average Speed (mph) 2040 Projections			
MTC	**FACILITY TYPE**		
TIME PERIOD	**FREEWAYS**	**ALL OTHER FACILITIES**	**ALL FACILITIES**
Early AM	60.8	31.3	47.3
AM Peak (4 Hr)	46.0	26.3	35.1
Midday	55.7	26.8	37.7
PM Peak (4 Hr)	46.5	25.3	33.8
Evening	59.7	28.9	42.1
Daily	51.1	26.6	36.7

SF-CHAMP	**FACILITY TYPE**		
TIME PERIOD	**FREEWAYS**	**ALL OTHER FACILITIES**	**ALL FACILITIES**
Early AM	58.3	23.4	39.0
AM Peak (4 Hr)	36.9	18.3	26.0
Midday	45.1	19.4	29.0
PM Peak (4 Hr)	38.7	18.1	26.1
Evening	53.6	21.5	33.8
Daily	43.0	19.2	28.5

PERCENT DIFFERENCE	**FACILITY TYPE**		
TIME PERIOD	**FREEWAYS**	**ALL OTHER FACILITIES**	**ALL FACILITIES**
Early AM	-4%	-25%	-18%
AM Peak	-20%	-30%	-26%
Midday	-19%	-28%	-23%
PM Peak	-17%	-29%	-23%
Evening	-10%	-26%	-20%
Daily	-16%	-28%	-22%