Metropolitan Transportation Commission
Programming and Allocations Committee

December 9, 2020 **Agenda Item 4b - 20-1664**

Draft 2021 Transportation Improvement Program (TIP) and Draft Air Quality Conformity Analysis for the Amended Plan Bay Area 2040 and the Draft 2021 TIP

Subject: Draft 2021 Transportation Improvement Program (TIP) and Draft Air Quality Conformity Analysis for the Amended Plan Bay Area 2040 and the Draft 2021 TIP

Background: The Draft 2021 TIP includes more than 330 transportation projects with approximately $10.3 billion in committed federal, state, regional and local funding over the four-year TIP period from FY2020-21 through FY2023-24, as well as over 400 projects shown for informational purposes only. The federally required TIP is a comprehensive listing of Bay Area surface transportation projects that receive federal funds, are subject to a federally required action, or are regionally significant. As the federally-designated Metropolitan Planning Organization (MPO) for the nine-county San Francisco Bay Area, the Metropolitan Transportation Commission (MTC) is required by the California Department of Transportation (Caltrans) to prepare and adopt a regional TIP concurrently with all other MPOs in the state. The 2019 TIP was adopted by the Commission on September 26, 2018 and approved by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) on December 17, 2018. Although valid through December 16, 2022 from a federal perspective, Caltrans requires an update in 2021.

Transportation-Air Quality Conformity Analysis

Federal regulations require that MPOs conduct an analysis to determine that the region is in compliance with federal air quality requirements as part of the TIP approval process. MTC has prepared the Draft Transportation-Air Quality Conformity Analysis for the *Amended Plan Bay Area 2040* and the Draft 2021 TIP in accordance with the latest U.S. Environmental Protection Agency (US EPA) transportation conformity regulations and the Bay Area Air Quality Conformity Protocol (MTC Resolution No. 3757). The conformity analysis addresses only those projects identified in the financially constrained *Amended Plan Bay Area 2040* and the Draft 2021 TIP.

This draft conformity analysis demonstrates that both the Draft 2021 TIP and the *Amended Plan Bay Area 2040* are consistent with ("conform to") the federal air quality plan, which is referred to as the State Implementation Plan (SIP), meaning that the transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the federal air quality standards. The draft conformity analysis finds that emissions in the Draft 2021 TIP and *Amended Plan Bay Area 2040* are lower than the air quality emissions budgets and meet the requirements related to ozone and PM2.5, and the implementation of transportation control measures.

Investment Analysis

To further assist in the public assessment of the Draft 2021 TIP, and specifically to address the equity implications of the proposed TIP investments, MTC staff has conducted an investment analysis with a focus on low-income, minority and other potentially disadvantaged populations. The key question addressed is: "Are the Bay Area's potentially disadvantaged populations sharing equitably in the TIP's financial investments?" To answer this question, the investment analysis uses three methods:

- A population/use-based methodology to calculate the shares of 2021 TIP investments that will benefit low-income and minority populations and seniors, and compares those shares to the populations' proportionate shares of the region's population or trip-making as a whole;
- A qualitative discussion of regional investments and planning initiatives that support transportation by seniors and persons with disabilities; and
- Mapping overlays to analyze the geographic distribution of projects in the region including maps that highlight projects and investments that are likely to support our regional performance targets in five transportation-related equity measures from the Amended Plan Bay Area 2040.

The results of the population use-based analysis indicates that overall the investments in the Draft 2021 TIP direct an equitable proportion of investments to projects that support the transportation of residents of low-income households, racial or ethnic minorities, and seniors. One exception worth noting is that the share of transit investments by trips for passengers living in low-income households falls short of the share of transit trips by passengers living in low-income households. Another exception is that according to the disparate impact analysis, minority populations receive less per rider benefit than non-minority populations. These discrepancies related to transit investments are attributed to a small number of very large projects. See the attached Investment Analysis Key Findings for further details.

Federal Performance Report

The Moving Ahead for Progress in the 21st Century Act (2012), also known as MAP-21, established several performance management requirements for state departments of transportation (DOTs), metropolitan planning organizations (MPOs), and transit agencies. Federal regulations require MPOs to show that the TIP "makes progress towards achieving the performance targets" and that the TIP includes, "to the maximum extent practicable, a description of the anticipated effect of the TIP towards achieving the performance targets". The Draft 2021 TIP includes a discussion of the status of these performance measures as well as an assessment of the anticipated effects of TIP investments.

Public Comment Period and Next Steps

Federal regulations also require an opportunity for public comment prior to TIP approval. The draft TIP and draft Air Quality Conformity Analysis documents were released for public review and comment beginning on November 9, 2020 and are available on the internet at: http://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program. The close of the comment period is scheduled for 5:00 pm December 14, 2020. MTC staff will review and respond to comments submitted during the public comment period. In addition, the Air Quality Conformity Task Force has been consulted on the development of the conformity analysis and the draft Air Quality Conformity Analysis was presented to the Task Force at its meeting on December 3, 2020. Staff will also review comments received and the agency's responses with the Task Force prior to presenting the final recommendations to the Commission, as outlined in the Bay Area Air Quality Conformity Protocol (MTC Resolution No. 3757). The final documents, comments

received and the agencies's responses are scheduled to be considered at the February Programming and Allocations Committee meeting. The final documents are scheduled to be presented for approval at the February 24, 2021 Commission meeting. Final federal approval of the 2021 TIP is expected in April 2021.

The TIP public participation process also serves to satisfy the public involvement requirements of the FTA annual Program of Projects, for applicable funds.

Issues: None.

Recommendation: Receive Public Comment.

Attachments: A Guide to the San Francisco Bay Area's Transportation Improvement Program
Draft 2021 TIP Investment Analysis Key Findings
Draft 2021 TIP Federal Performance Report

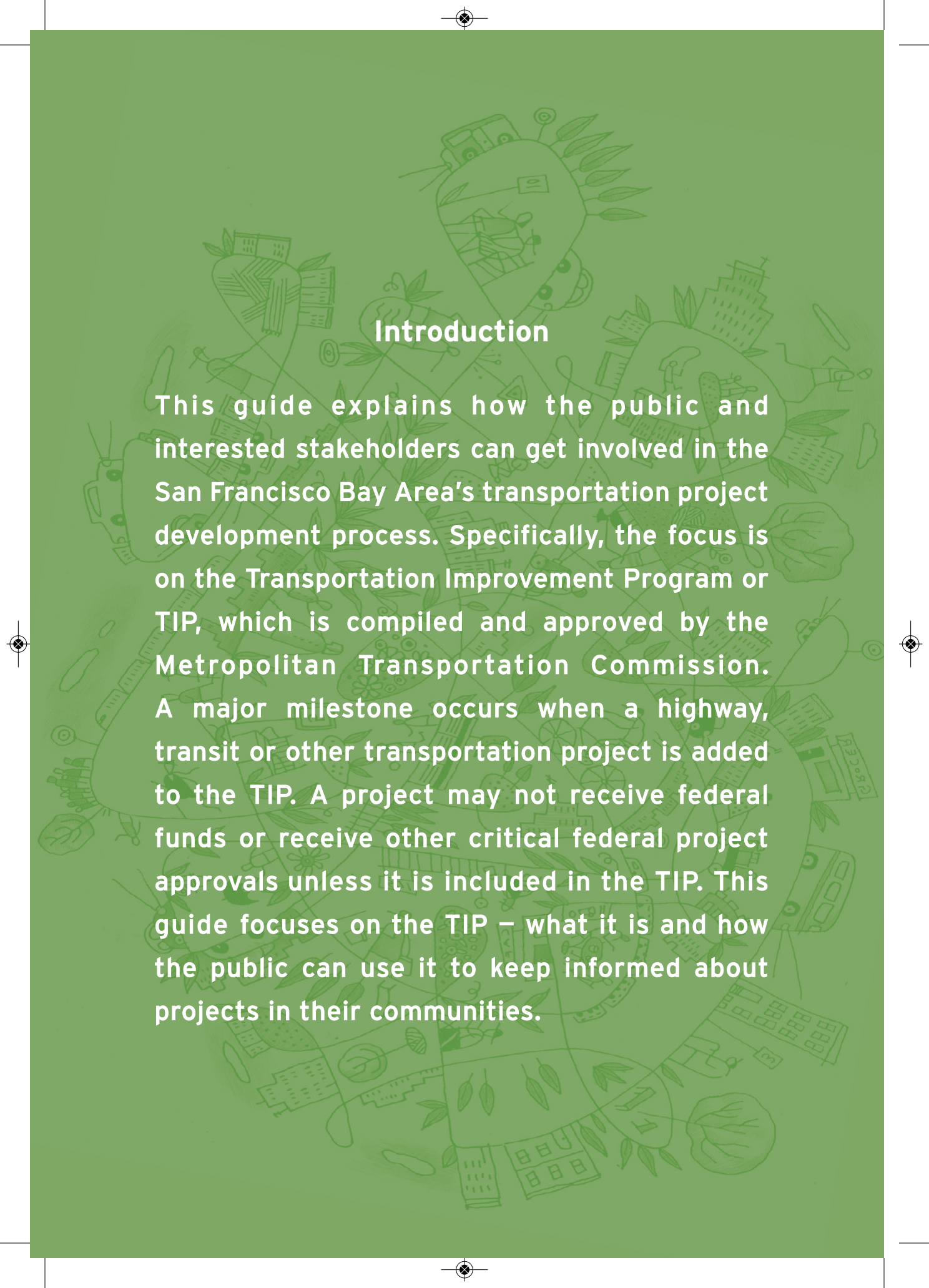
Therese W. McMillan

A Guide to the San Francisco Bay Area's Transportation Improvement Program, or TIP

Updated for the 2021 TIP

November 2020

METROPOLITAN TRANSPORTATION COMMISSION



Introduction

This guide explains how the public and interested stakeholders can get involved in the San Francisco Bay Area's transportation project development process. Specifically, the focus is on the Transportation Improvement Program or TIP, which is compiled and approved by the Metropolitan Transportation Commission. A major milestone occurs when a highway, transit or other transportation project is added to the TIP. A project may not receive federal funds or receive other critical federal project approvals unless it is included in the TIP. This guide focuses on the TIP – what it is and how the public can use it to keep informed about projects in their communities.

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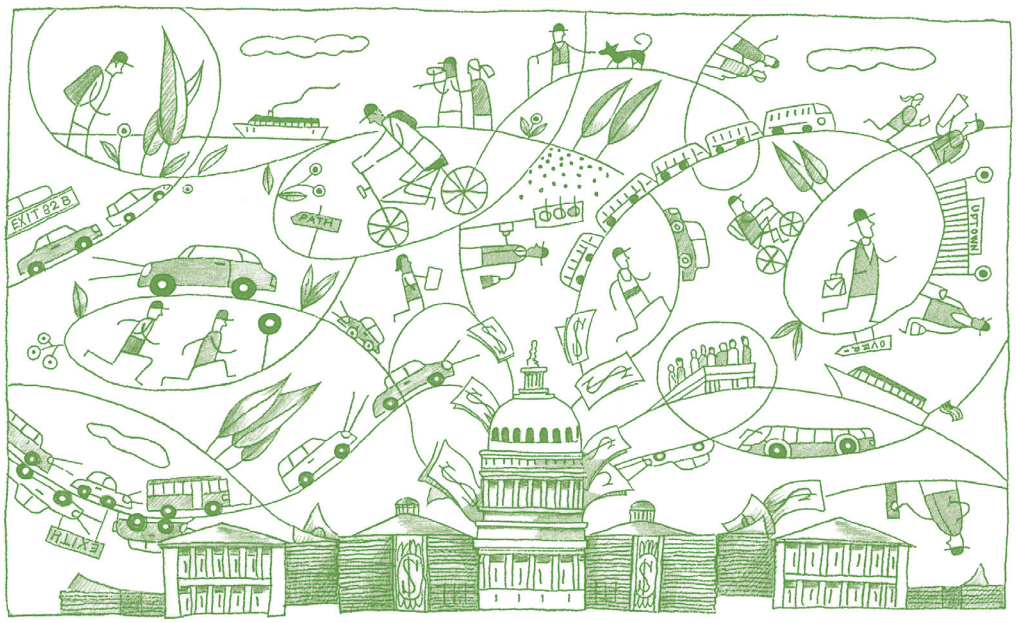
What is the Metropolitan Transportation Commission?

The Metropolitan Transportation Commission (MTC) was created by the California State Legislature in 1970 and is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area. MTC functions as both the region's metropolitan planning organization (MPO) – a federal designation – and, for state purposes, as the regional transportation planning agency. As such, it is responsible for regularly updating the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, local streets and roads, rail, bicycle and pedestrian facilities. The RTP includes a Sustainable Communities Strategy (SCS) that integrates planning for transportation, land use and housing. The Commission screens requests from local agencies for regional, state and federal grants for transportation projects to determine their compatibility with the RTP, and coordinates the participation of governments and the general public in the planning process. MTC also functions as the Bay Area Toll Authority, the Service Authority for Freeways and Expressways, and the Bay Area Infrastructure Financing Authority.

The San Francisco Bay Area is served by seven primary public transit systems as well as over 20 other local transit operators, which together carry over 500 million passengers per year. There are nearly 20,000 miles of local streets and roads, 1,400 miles of highway, six public ports and three major commercial airports. The region includes nine counties and 101 municipalities; more than 7 million people reside within its 7,000 square miles.

The Commission is governed by a 21-member policy board. Sixteen commissioners are appointed directly by local elected officials. In addition, two members represent regional agencies – the Association of Bay Area Governments and the Bay Conservation and Development Commission. Finally, three nonvoting members represent the U.S. Department of Transportation, the California State Transportation Agency and the U.S. Department of Housing and Urban Development.



What is the Transportation Improvement Program or TIP?

The TIP lists the near-term transportation projects, programs and investment priorities of the region's surface transportation system that have a federal interest – meaning projects or programs for which federal funds or actions by federal agencies are anticipated – along with locally and state-funded projects that are regionally significant. A regionally significant project, generally large scale, changes travel patterns over a relatively large geographic area. The TIP signifies the start of implementation of the programs and policies approved in the Bay Area's long-range transportation plan. It does this by identifying specific projects over a four-year timeframe that will help move the region toward its transportation vision. Locally funded transit operations and pavement maintenance are generally not included in the TIP.

The TIP is multimodal.

The TIP lists highway, local roadway, bridge, public transit, bicycle, pedestrian and freight-related projects.

The TIP covers a four-year period.

The TIP lists projects for a period of four years. MTC is required by federal law to update the TIP at least one time every four years.

The TIP identifies future commitments of funding and signifies that a project may move ahead to implementation.

A project's inclusion in the TIP is a critical step. It does NOT, however, represent an allocation of funds, an obligation to fund or a grant of funds. For projects funded with federal dollars, this may occur only after the California Department of Transportation (Caltrans) and/or either the U.S. Federal Highway Administration or Federal Transit Administration review the design, financing and environmental impacts of a project; consult with other transportation and resource agencies; and review public comment. Beyond this point, a project sponsor works with Caltrans or the federal agencies to guarantee the federal funding identified in the TIP. This federal guarantee is referred to as an "obligation." To secure non-federal funds, projects are subject to final approval from state, regional or local agencies.

The TIP shows estimated project costs and schedules.

The TIP lists specific projects and the anticipated schedule and cost for each phase of a project (preliminary engineering, final design, right-of-way acquisition and construction). Any project phase included in the TIP means implementation of that phase is expected to begin during the four-year timeframe of the TIP. Funding shown outside the TIP period is for informational purpose or to display total project cost.

The TIP schedule of project implementation is NOT fixed. The timeframe shown in the TIP is the "best estimate" at the time it is first listed in the TIP. Sometimes projects cannot maintain that schedule and will be moved to a later year. Conversely, to accelerate implementation the project sponsor can request that the project be moved to an earlier year, based on the availability of funding.

The TIP must reflect realistic revenues and costs.

The list of projects in the TIP must be able to be funded within the amount of funds reasonably expected to be available over the four-year timeframe of the TIP. To add projects to the TIP, sufficient revenues must be available, other projects must be deferred, or new revenues must be identified. As a result, the TIP is not a "wish list" but a list of projects with funding commitments during the timeframe of the TIP.

The TIP may be changed after it is adopted.

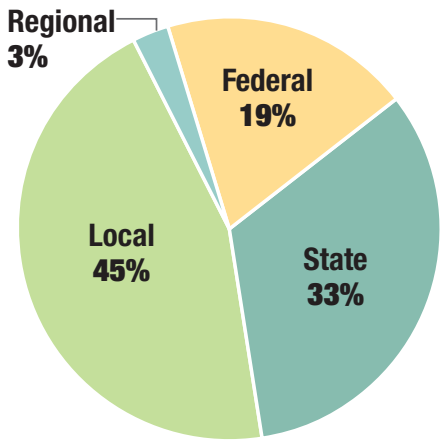
An approved TIP may be revised in order to add new projects, delete projects, advance projects into the first year, and accommodate changes in the scope, cost or phasing of a project. MTC encourages public comment on significant proposed changes to the TIP.

The TIP is NOT a guarantee that a project will move forward to construction. Unforeseen problems may arise, such as engineering obstacles, environmental conflicts, changes in priorities, or cost increases or declining revenues. These problems can slow a project, cause it to be postponed, change its scope or have it dropped from consideration.

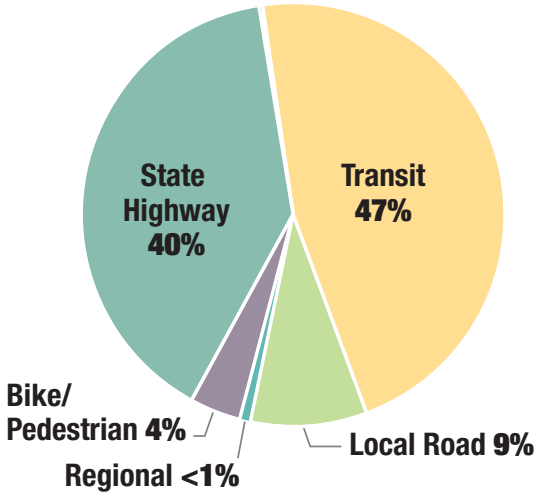
A Summary of the 2021 TIP

The Bay Area's 2021 TIP includes approximately 780 transportation projects, and a total of approximately $10.3 billion in committed federal, state, regional and local funding over the four-year TIP period through fiscal year 2024. *See the next page for a map of projects with costs greater than $200 million.*

2021 TIP Funds by Source



2021 TIP Funds by Mode



2021 TIP Investment Analysis: Focus on low-income and minority communities

To address the equity implications of the proposed 2021 TIP investments, MTC has conducted an investment analysis with a focus on minority and low-income residents. The key question addressed is: "Are low-income and minority populations, seniors and persons with disabilities sharing equitably in the TIP's financial investments?" To answer this question, the investment analysis uses demographic criteria to calculate the shares of 2021 TIP investments that will flow to the identified communities, and compares those shares with the proportional size of this group's population and trip-making, relative to those of the general population.

Results of the Investment Analysis of the 2021 TIP can be viewed on MTC's website at: www.mtc.ca.gov/our-work/fund-invest/transportation-improvement-program

Projects in the 2021 TIP with Costs Greater than $200 Million

RED Road Project
BLUE Transit Project

1 **BART to Silicon Valley Phase II**
Santa Clara County
$4.78 billion

2 **Caltrain - San Francisco Downtown Extension**
San Francisco County
$4.25 billion

3 **BART - Transbay Core Capacity Improvements**
Alameda, Contra Costa, San Francisco, and San Mateo Counties
$3.51 billion

4 **BART - Railcar Procurement Program**
Alameda, Contra Costa, San Francisco, and San Mateo Counties
$2.73 billion

5 **Caltrain - Electrification and Expansion Vehicle Procurement**
San Francisco, San Mateo and Santa Clara Counties
$2.18 billion

6 **US-101 - Doyle Drive Availability Payments**
San Francisco County
$1.12 billion

7 **BATA - Toll Bridge Rehabilitation Program**
Multiple Counties
$1.11 billion

8 **BART - Preventive Maintenance**
Alameda, Contra Costa, San Francisco, and San Mateo Counties
$674 million

9 **I-80/I-680/SR-12 - Interchange Improvements**
Solano County
$661 million

10 **SMART - Initial Operating Segment and Extensions**
Sonoma and Marin Counties
$641 million

11 **US-101 - Managed Lanes from Santa Clara Co. Line to South of Grand Ave**
San Mateo County
$515 million

12 **VTA – Capitol Expressway Light Rail Extension to Eastridge Phase II**
Santa Clara County
$510 million

13 **I-680 Express Lane Gap Closure: SR-84 to Alcosta**
Alameda County
$480 million

14 **US-101 - Santa Clara County Express Lanes**
Santa Clara County
$466 million

15 **SF - Hunters Point Shipyard and Candlestick Point Transportation Improvements**
San Francisco County
$421 million

16 **SF - Better Market Street Transportation Elements**
San Francisco County
$415 million

17 **I-680 - Central Contra Costa County Express Lanes**
Contra Costa County
$390 million

18 **BART - COVID-19 Emergency Transit Operations**
Alameda County
$377 million

19 **US-101 - Marin-Sonoma Narrows HOV Lane (Sonoma)**
Sonoma County
$374 million

20 **Golden Gate Bridge - Seismic Retrofit**
Marin and San Francisco Counties
$373 million

21 **SF - Yerba Buena Island (YBI) Ramp Improvements**
San Francisco County
$371 million

22 **US-101 - Marin-Sonoma Narrows HOV Lane (Marin)**
Marin County
$353 million

23 **Oakland - Army Base Infrastructure Improvements**
Alameda County
$301 million

24 **SFMTA - Geary Bus Rapid Transit**
San Francisco County
$300 million

25 **I-580/I-680 Interchange - Widening for Managed Lanes**
Alameda County
$300 million

26 **I-80 - Fairfield to Vacaville Express Lanes**
Solano County
$262 million

27 **Golden Gate Bridge - Suicide Deterrent System**
Marin and San Francisco Counties
$257 million

28 **VTA - Light Rail Extension to Vasona Junction and Double Tracking**
Santa Clara County
$256 million

29 **Oakland - 7th Street Grade Separation - East**
Alameda County
$252 million

30 **SR-84 - Ruby Hill Dr to I-680 Widening**
Alameda County
$244 million

31 **I-680/SR-4 Interchange Reconstruction**
Contra Costa County
$236 million

32 **Fremont & Union City - New East-West Connector from I-880 to SR-238**
Alameda County
$236 million

33 **I-880 - Hacienda to Hegenberger Northbound HOV/Express Lanes**
Alameda County
$221 million

34 **East Bay Greenway**
Alameda County
$204 million

NOT MAPPED

A **MTC - Financing Repayment for Transit Capital Priorities**
Multiple Counties
$1.54 billion

B **SFMTA - Additional Light Rail Vehicles**
San Francisco County
$1.13 billion

C **SFMTA - COVID-19 Emergency Transit Operations**
San Francisco County
$374 million

D **SFMTA - Rail Replacement Program**
San Francisco County
$290 million

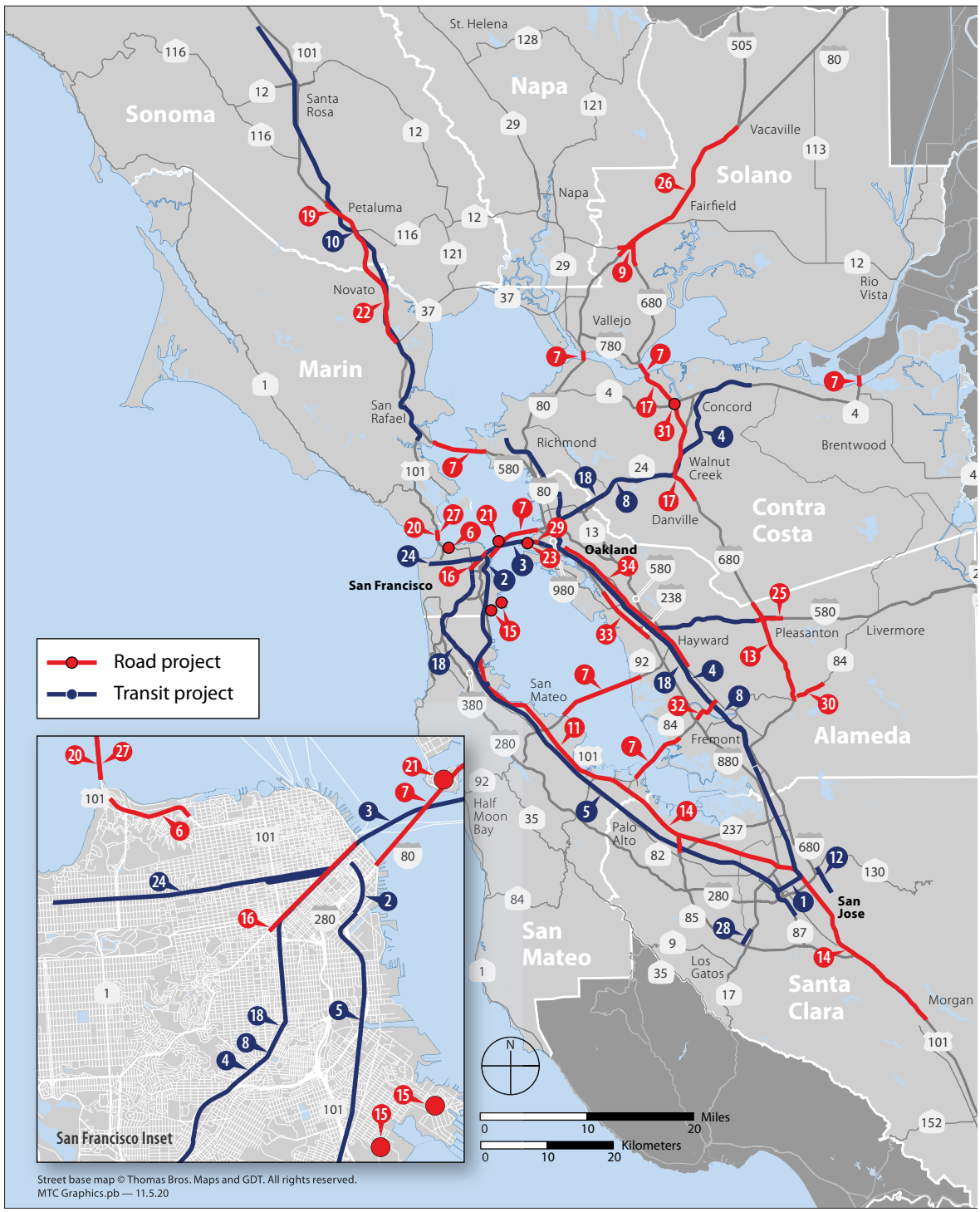
E **MTC - Clipper® 2.0 Fare Payment System**
Multiple Counties
$249 million

F **SFMTA - Overhead Line Reconditioning and Traction Power Program**
San Francisco County
$218 million

G **SFMTA - Train Control & Trolley Signal Rehabilitation/Replacement**
San Francisco County
$210 million

NOTE: Excludes projects with no funding programmed after 2020.

Projects in the 2021 TIP with Costs Greater than $200 Million



Federal Performance Report: Assessment of 2021 TIP Investments In Addressing Federally-Mandated Performance Measures

The Moving Ahead for Progress in the 21st Century Act (2012), also known as MAP-21, established several performance management requirements for state departments of transportation (DOTs), metropolitan planning organizations (MPOs), and transit agencies. A performance-based approach to transportation planning and programming intends to ensure the most efficient investment of transportation funds, support improved investment decision-making, and increase accountability and transparency. For all federally-required targets, MTC must show that the TIP "makes progress towards achieving the performance targets" and that the TIP includes, "to the maximum extent practicable, a description of the anticipated effect of the TIP towards achieving the performance targets". The Federal Performance Report can be viewed on MTC's website at: www. mtc.ca.gov/our-work/fund-invest/transportation-improvement-program.

How does the TIP relate to the long-range regional transportation plan?

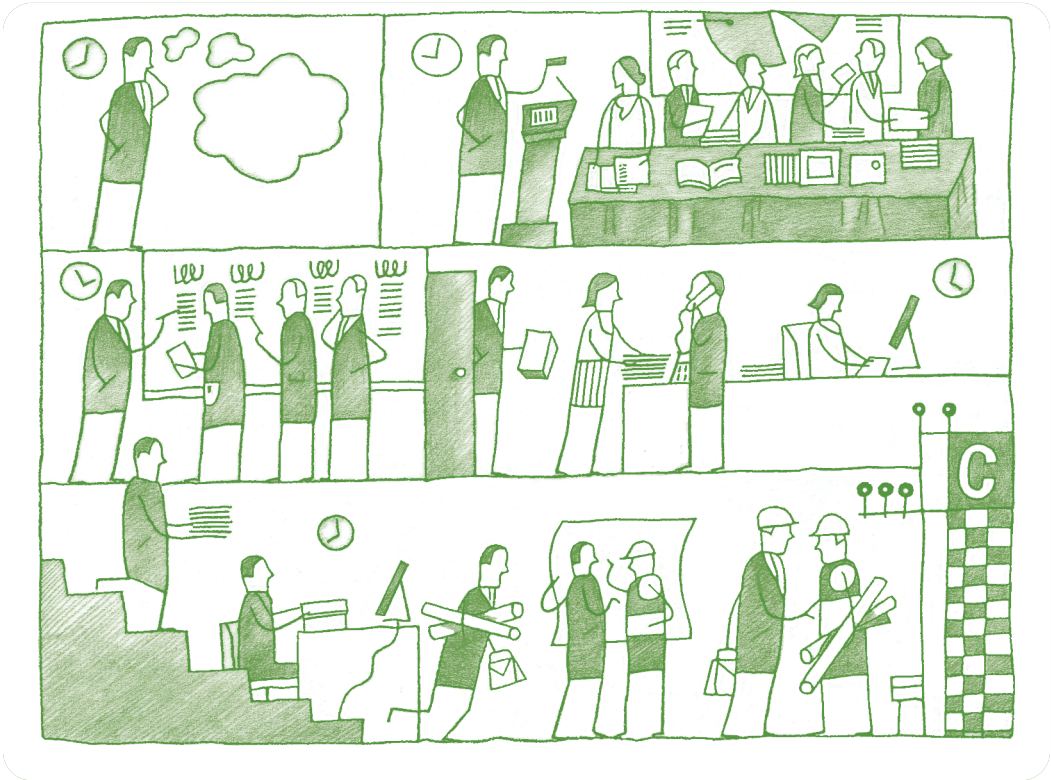
Regionally significant projects must be first identified in the long-range regional transportation plan (RTP), and projects in the TIP must help implement the goals of the plan. This long-range plan is required by federal law and is a blueprint for transportation investment decisions over a 24- to 30-year horizon. The current plan is titled "Plan Bay Area 2040." The RTP establishes policies and priorities to address mobility, congestion, air quality and other transportation goals. The Draft 2021 TIP translates recommendations from the RTP into a short-term (four-year) program of improvements focused on projects that have a federal interest. Therefore, the earlier (and more effective) timeframe for public comment on the merits of a particular transportation project is during the development of the long-range RTP.

How does the TIP relate to the Clean Air Act?

Transportation activities funded with federal dollars must be consistent with air quality standards called for in the Clean Air Act Amendments of 1990. A TIP and Regional Transportation Plan are said to "conform" to those standards if they do not cause new air quality violations, worsen existing violations or delay attainment of the air quality standards. Along with adoption of the TIP and RTP, MTC must make a conformity finding that the quality standards are met. To determine this, MTC conducts a transportation air quality conformity analysis. MTC encourages the public to review and comment on this analysis.

How is the TIP funded?

Funding for projects in the TIP comes from all of us – through taxes, tolls and fees, including local, regional, state and federal funding programs. Major fund sources are administered through the U.S. Department of Transportation's Federal Highway Administration and Federal Transit Administration, and by the State of California. Various county sales tax measures and regional bridge toll measures provide additional funds. The state of California, transit agencies and local jurisdictions provide dollars to match federal funding or to fully fund certain local projects.



Who develops the TIP?

MTC develops the TIP in cooperation with the Bay Area Partnership of federal, state and regional agencies; county congestion management agencies (CMAs); public transit providers; city and county public works representatives; and the public. The Bay Area Partnership subcommittees provide a forum for managers of the region's transportation system to contribute to the policy-making and investment activities of MTC, and to improve coordination within the region.

Project sponsors must be a government agency (or other qualifying entity, such as certain non-profit organizations that are eligible for some transportation funds) and are responsible for initiating funding requests, applying for funds and carrying their projects to completion. In the Bay Area, project sponsors include public transit operators, Caltrans, MTC, the Bay Area Air Quality Management District, the county congestion management agencies, the nine Bay Area counties, the individual cities within each county or other special districts.

How does a project get in the TIP?

Often years of planning and public input precede a project's inclusion in the TIP. Although there are several ways in which a project can get in the TIP, the most typical course is described here. *The chart on the next page shows where the TIP lies on the path to completion of a project.*

First, a particular transportation need is identified. In many cases, planners and engineers generate lists of potential improvements based on their needs analyses and public inquiries. The local proposals are in turn reviewed by a city, county, transportation authority, transit operator or state agency. If the public agency agrees that a particular idea has merit, it may decide to act as the project sponsor; work toward refining the initial idea; develop a clear project cost, scope and schedule; and subsequently seek funding for the project.

Once local agencies develop their list of projects and priorities, they are submitted to MTC for consideration to include in the regional transportation plan. Even if a project is fully funded with local funds, if it is a major project it must still align with the regional plan's goals in order to be included in the plan. Many project sponsors will request funding for their projects that is subject to MTC approval. MTC must balance competing needs and assure that the most critical investment priorities are being addressed within the limits of available funds and that there is consistency among projects and with the region's goals as embodied by the regional transportation plan.

When federal and state discretionary funding becomes available to the region, MTC, guided by the long-range plan in consultation with transportation stakeholders, develops a transportation program for those funds. This involves deciding on criteria for project selection and setting funding levels per project. Depending on the program, projects may be proposed by either MTC; the Bay Area Air Quality Management District; or a county congestion management agency, transit operator, city, county or special district.

Follow a Transportation Project From Idea to

New Project Ideas and Local Review

Idea

An idea for a project starts when a transportation need is identified and a new idea is put forward. The idea can surface in any number of ways — from you, a private business, a community group or a government agency.

Local Review

The project idea must be adopted by a formal sponsor — usually a public agency — that may refine the initial idea and develop details for the project. To move forward, the project must be approved by local authorities such as a city council, county board of supervisors or transit agency.

To be eligible for certain regional, state and federal funds, projects must be cleared through the county congestion management agency (CMA) and become part of the Regional Transportation Plan.

MTC's Long-Term Regional Transportation Plan

The Regional Transportation Plan (RTP)/ Sustainable Communities Strategy (SCS)

Every four years MTC updates the Regional Transportation Plan (RTP), looking forward two to three decades. The plan identifies policies, programs and transportation investments to support the long-term vision for the Bay Area.

The RTP also must identify anticipated funding sources. The RTP can include only those projects and programs that can be funded with revenues reasonably expected to be available during the plan's timeframe. Projects identified in the RTP are generally drawn from the planning efforts of MTC, Association of Bay Area Governments (ABAG), county congestion management agencies, transit agencies and local governments.

State legislation now requires that regional transportation plans incorporate a Sustainable Communities Strategy (SCS) — provisions for reducing greenhouse gas emissions from cars and light trucks by integrating transportation, housing and land use planning.

How You Can Make a Difference

Get involved in your community!

- Follow the work of your city council, county board of supervisors or local transit agency.
- Take notice of plans or improvement programs developed by your city, county or transit agency.
- Comment on projects proposed by your county CMA or on transportation improvements submitted to MTC for regional, state or federal funding.
- See page 18 for a list of transportation agencies.

The Regional Transportation Plan is the earliest and best opportunity within the MTC process to comment on and influence projects. A project cannot move forward or receive any federal funds unless it is included in the RTP. MTC support of large projects occurs in the long-range plan and not as part of the TIP.

- Attend public meetings or open houses to learn about plans and offer your comments
- Participate in online surveys or forums

Implementation

MTC's Project Selection Process

Construction/ Implementation

Once long-term goals, policies and funding initiatives have been set in the RTP, MTC develops program criteria and funds specific projects.

Project Selection Process

Funding Levels Established for RTP Programs/Initiatives: Guided by the RTP and short-term revenue estimates, MTC decides how much funding to apply to programs over a two-to-four-year period at a time.

Project Selection Criteria Developed: For competitive programs under its control, MTC is guided by the RTP and develops and adopts minimum project requirements and criteria to evaluate and prioritize projects.

Project Selection: Depending on the program, projects may be selected using MTC's criteria or by the county congestion management agency, the California Transportation Commission or a transit agency board. Some funding programs are non-competitive, meaning projects are funded according to a pre-determined formula or voter-enacted initiative.

The Transportation Improvement Program (TIP)

The production of the Transportation Improvement Program or TIP is the culmination of MTC's transportation planning and project selection process. The TIP identifies specific near-term projects over a four-year period to move the region toward its transportation vision.

The TIP lists all surface transportation projects for which federal funds or actions by federal agencies are anticipated, along with some of the larger locally and state-funded projects. A project cannot receive federal funds or receive other critical federal project approvals unless it is in the TIP. MTC must update the TIP at least once every four years. It is revised several times a year to add, delete or modify projects.

Environmental Review and Project Development Activities

The project sponsor conducts an environmental review, as required by either the California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA). Final approval of the project design and right-of-way is required by the sponsoring agency and appropriate federal agency (Federal Highway Administration or Federal Transit Administration) if federal funds and/or actions are involved.

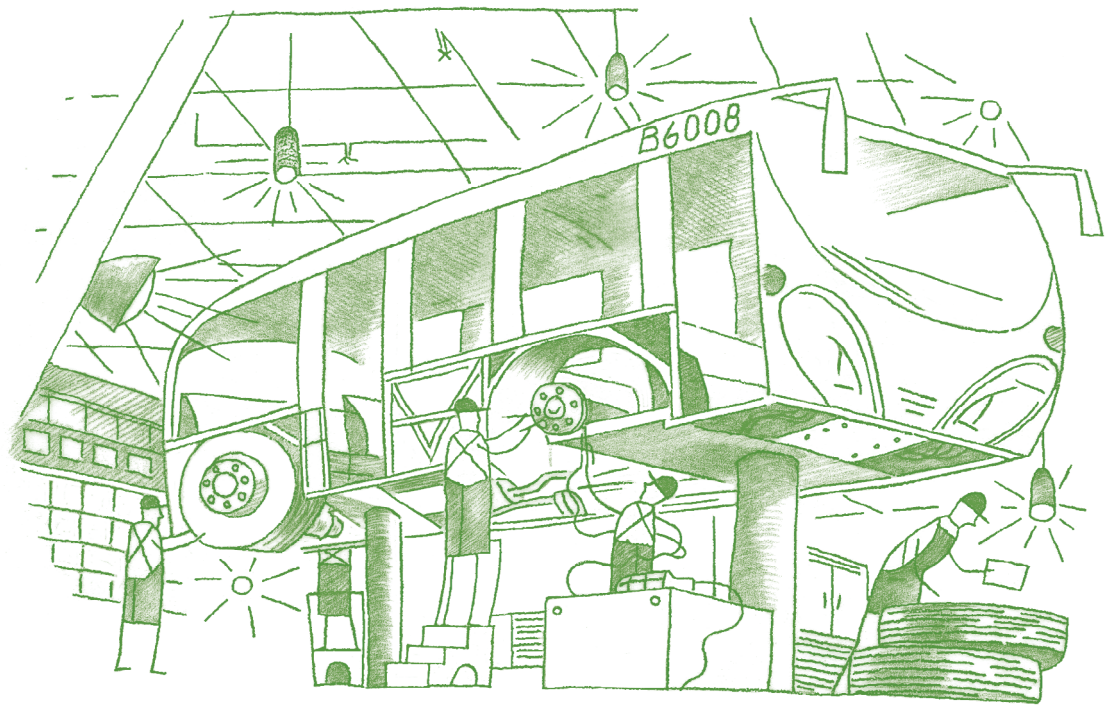
Funding is fully committed by grant approval once the project meets all requirements and moves forward to phases such as preliminary engineering, final design, right-of-way acquisition, or construction.

Get involved in planning for the whole Bay Area at MTC!

- Comment at MTC committee-level and Commission-level meetings, special public hearings and workshops.
- Follow the work of MTC's Policy Advisory Council which advises the Commission (www.mtc.ca.gov/whats-happening).
- Check MTC's website for committee agendas and to keep current on activities (www.mtc.ca.gov).
- Get your name added to MTC's database to receive e-mail updates (info@bayareametro.gov).

Comment on a project's impacts

- Comment on the environmental impacts of the project before the environmental document and project receive final approval by the board of the sponsoring agency, or in advance of federal approval, if required.



What happens after a project is included in the TIP?

Once a project is in the TIP, a considerable amount of work still remains to bring it to completion. The designated project sponsor is responsible for ensuring the project moves forward. Projects typically proceed in phases (preliminary engineering, final design, right-of-way acquisition and construction). Each phase is included in the TIP showing funding and the anticipated schedule. Ideally, a project will advance according to its listed schedule. However, tracking each project's progress is important so that delays can be identified and remedied as soon as possible, and so that funding can be reallocated as necessary.

Once federal funds have been made available for a project's final construction phase, they usually no longer appear in future TIP documents – even though the project may not yet be completed.

In what ways can the public participate?

Public participation occurs during all stages of a project's development. Communicating support or concern to municipal and county officials and transit agency managers is one of the most effective starting points. As local review begins, public input may be provided at formal meetings or informal sessions with local planning boards and staff. Members of the public may also be asked to participate in special task forces to review transportation improvement concepts at the corridor, county and regional level. The MTC's long-range regional transportation plan has an extensive public involvement program including but not limited to workshops, focus groups, surveys, public hearings and opportunities to comment at Commission meetings. Finally, once a project is in the TIP and it enters the preliminary engineering phase, the detailed environmental review process affords yet another opportunity for the public to offer input. An overview of opportunities to get involved during every stage of a project is provided on pages 12 and 13.

MTC's public involvement process aims to give the public ample opportunities for early and continuing participation in transportation project planning, and to provide full public access to key decisions. The public has the opportunity to comment before the TIP is officially adopted by the Commission. MTC conducts a public comment period and holds public meetings to allow the public an opportunity to ask questions about the process and projects. A copy of the TIP is made available at the Bay Area Metro Center; notices are mailed out to an extensive mailing list of interested individuals and agencies along with instructions on how to access and comment on the TIP on the MTC website; and the TIP documents can be viewed on the MTC website at www.mtc.ca.gov/our-work/fund-invest/transportation-improvement-program.

MTC extends an open and continuing invitation to the Bay Area public to assist in developing transportation solutions for the region. A comprehensive Public Participation Plan details the many avenues available to groups and individuals who would like to get involved in MTC's work. The plan can be found on MTC's website at www.mtc.ca.gov/about-mtc/public-participation.

Where to turn for more information

Visit the MTC website at www.mtc.ca.gov for more information about the transportation planning and funding process and to obtain schedules and agendas for MTC meetings. Below are direct links to key documents. Some publications mentioned are available at the Bay Area Metro Center.

Resources

The Transportation Improvement Program
mtc.ca.gov/our-work/fund-invest/transportation-improvement-program

MTC Public Participation Plan
mtc.ca.gov/about-mtc/public-participation/public-participation-plan

Project Listing: MTC Fund Management System
mtc.ca.gov/our-work/fund-invest/fund-management-system

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(415) 778-6655 or
info@bayareametro.gov

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(415) 778-5236 or
library@bayareametro.gov

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Transportation agencies in the San Francisco Bay Area

Major Transit Operators

Altamont Commuter Express (ACE)
209.944.6220

Alameda-Contra Costa Transit District (AC Transit)
510.891.4777

Bay Area Rapid Transit District (BART)
510.464.6000

Bay Area Water Emergency Transit Authority
415.291.3377

Central Contra Costa Transit Authority (County Connection)
925.676.1976

Eastern Contra Costa Transit Authority (Tri Delta)
925.754.6622

Fairfield/Suisun Transit (FAST)
707.422.2877

Golden Gate Bridge, Highway and Transportation District
415.921.5858

Livermore Amador Valley Transit Authority (WHEELS)
925.455.7500

Marin County Transit District
415.226.0855

Napa Valley Transportation Authority (VINE)
707.259.8631

Peninsula Corridor Joint Powers Board (Caltrain)
650.508.6200

San Francisco Municipal Transportation Agency (SFMTA)
415.701.4500

San Mateo County Transit District (SamTrans)
650.508.6200

Santa Clara Valley Transportation Authority (VTA)
408.321.2300

Santa Rosa Department of Transit and Parking
707.543.3333

Solano County Transit (SolTrans)
707.648.4666

Sonoma County Transit
707.585.7516

Sonoma-Marin Area Rail Transit
707.794.3330

Transbay Joint Powers Authority
415.597.4620

Western Contra Costa Transit Authority (WestCAT)
510.724.3331

Major Seaports and Airports

Port of Oakland
510.627.1100

Port of San Francisco
415.274.0400

Oakland International Airport
510.563.3300

San Jose International Airport
408.392.3600

San Francisco International Airport
650.821.8211

Regional Agencies

Association of Bay Area Governments
415.820.7900

Bay Area Air Quality Management District
415.749.5000

Metropolitan Transportation Commission
415.778.6700

San Francisco Bay Conservation and Development Commission
415.352.3600

Congestion Management Agencies

Alameda County Transportation Commission
510.208.7400

Contra Costa Transportation Authority
925.256.4700

Transportation Authority of Marin
415.226.0815

Napa Valley Transportation Authority
707.259.8631

San Francisco County Transportation Authority
415.522.4800

City/County Association of Governments of San Mateo County
650.599.1406

Santa Clara Valley Transportation Authority
408.321.2300

Solano Transportation Authority
707.424.6075

Sonoma County Transportation Authority
707.565.5373

State Agencies

California Air Resources Board
916.322.2990

California Highway Patrol, Golden Gate Division
707.917.4300

California State Transportation Agency
916.323.5400

California Transportation Commission
916.654.4245

Caltrans, District 4
510.286.4444

Federal Agencies

Environmental Protection Agency, Region 9
415.947.8000

Federal Highway Administration, California Division
916.498.5001

Federal Transit Administration, Region 9
415.734.9490

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Alameda County

Alfredo Pedroza, Vice Chair
Napa County and Cities

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San Francisco Bay Conservation and Development Commission

Jeannie Bruins
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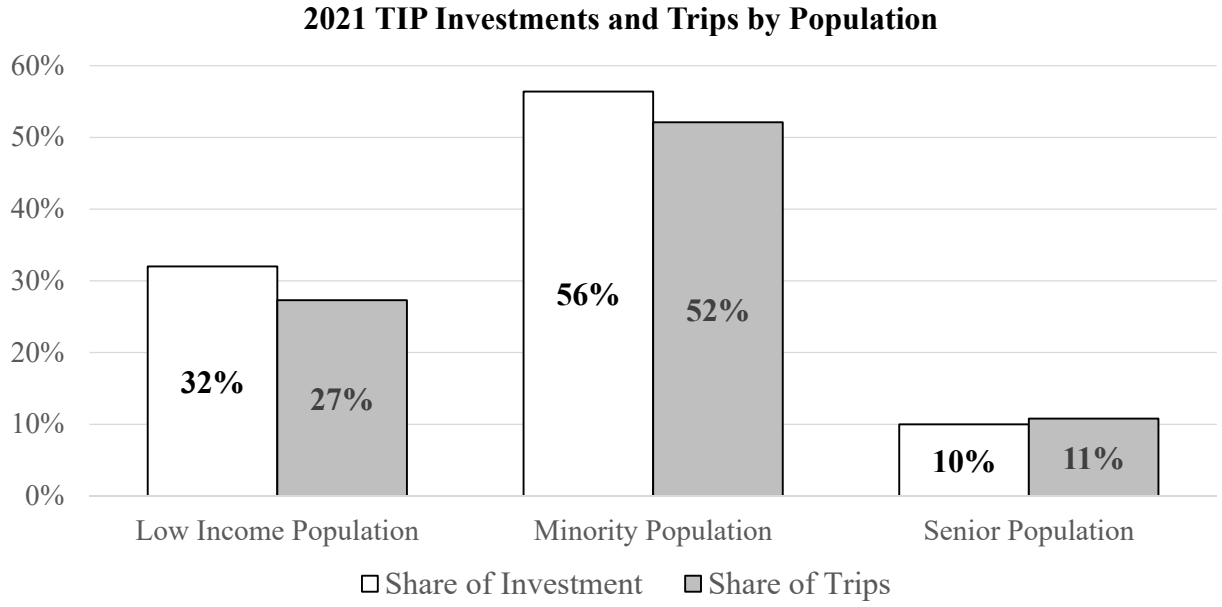
2021 TIP Investment Analysis Key Findings

Equitable distribution of investments overall

The results of the population use-based analysis indicate that overall, the investments in the 2021 TIP direct an equitable proportion of investments to projects that support the transportation of residents of low-income households, racial or ethnic minorities, and seniors.



Variable results for transit, due to small number of very large investments

There are a few variances worth noting in the population used-based analysis and disparate impact analysis, specifically related to transit.

- The share of transit investments that support trips made by passengers in low-income households (33%) falls somewhat short of these passengers' relative share of the transit trips taken (47%).
- Federal and state transit investments result in a per capita benefit for minorities that slightly exceeds the per capita benefit for non-minorities (101% of non-minority per capita benefit). However, on a per transit rider basis, federal and state transit investments fall short, with a minority per rider benefit of 95% of the non-minority per rider benefit.

Comparison with 2019 TIP

As compared to the population use-based and disparate income analysis of the 2019 TIP, the results of the 2021 TIP investment analysis are similar overall, with variable results in with respect to transit investments.

- Very similar results are seen in the overall distribution of 2021 TIP investments as compared to the 2019 TIP, with the investments in the 2021 TIP continuing to direct

an equitable proportion of investments to projects that support the transportation of residents of low-income households, racial or ethnic minorities, and seniors.

- In the case of transit investments, the share of transit investments in the 2021 TIP that support trips made by passengers in low-income households (33%) continues to fall short of these passengers' relative share of transit trips (47%). This mismatch as increased since the 2019 TIP, where 38% of the transit investments supported transit trips of low-income passengers.
- Conversely, the results of the disparate impact transit analysis have improved with the 2021 TIP, as compared to the 2019 TIP. The minority per transit rider investment benefit increased from 89% of non-minority transit investment benefits in the 2019 TIP to 95% benefit in the 2021 TIP.
- Additionally, the per capita transit investment benefit for minorities continued to slightly exceed the per capita for non-minorities (101% of the non-minority per capita benefit in both the 2019 and 2021 TIP).

The varied transit results in the 2021 TIP are attributed to a small number of very large projects, particularly the BART Berryessa to San Jose Extension. With $3.2 billion programmed to the project, the BART extension alone accounts for 66% of all transit funding in the 2021 TIP. When focusing only on state and federal funds, this project accounts for approximately 38% of funding in the TIP period. While BART ridership approximately mirrors the regional ridership share for minority populations, the share of BART riders from low-income households is less than the regional average share.

In addition, FTA formula funding of approximately $1.9 billion for the four-years of the 2021 TIP has not yet been included in the TIP. Minority populations and low-income households benefit from this funding in accordance with the regional Transit Capital Priorities (TCP) funding process.

It is important to re-emphasize, that the TIP does not reflect the full picture of transportation investments in the Bay Area. The TIP only includes four years of near-term fund programming and tends not to include operating and maintenance funds, particularly for transit.

Addition of transportation equity measures provides opportunity for better understanding of potential equity impacts

For the 2021 TIP, additional information is provided on projects that support Plan Bay Area 2040's transportation-focused equity measures: Healthy and Safe Communities, Economic Vitality, Transportation System Effectiveness, and Equitable Access. Although the analysis does not identify direct benefits and burdens resulting from individual investments, it builds upon the population use-based and disparate impact analyses to better understand the nature of the projects included in the 2021 TIP and their anticipated effects on long-term regional goals. Data for the transportation equity measures is self-reported by project sponsors, therefore the resulting information is limited by the quality and consistency of the data provided.

Where possible, projects supporting the transportation-focused equity measures were also

mapped to illustrate the location of 2021 investments in relation to adopted COCs as well as census tracts with concentrations of minority populations that are above regional averages. The geographic display of projects allows for examination and identification of any apparent systematic exclusion of communities in the spatial distribution of benefits, or any apparent systematic imbalances between the distribution of projects between communities of concern and the remainder of the region, or between minority and non-minority communities. As noted above, many projects and additional data can be viewed on an interactive webmap available on https://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program.

Federal Performance Report

Assessment of 2021 TIP Investments in Addressing Federally-Mandated Performance Measures

INTRODUCTION

Performance-Based Planning and Programming

The Moving Ahead for Progress in the 21st Century Act (2012), also known as MAP-21, established several performance management requirements for state departments of transportation (DOTs), metropolitan planning organizations (MPOs), and transit agencies. A performance-based approach to transportation planning and programming intends to ensure the most efficient investment of transportation funds, support improved investment decision-making, and increase accountability and transparency. MAP-21 and subsequent federal legislation require DOTs, MPOs, and transit agencies to establish performance targets for each of the following national goal areas:

- Safety
- Infrastructure Condition
- System Reliability
- Freight Movement and Economic Vitality
- Congestion Reduction
- Environmental Sustainability

MTC's Role

Under the federal performance management rules, MTC is responsible for setting short-range targets and incorporating the targets into its planning processes – most notably, the Transportation Improvement Program (TIP) and the Regional Transportation Plan (RTP).

- **TIP Requirements**

  There are two primary requirements for incorporating performance management into the TIP. For all federally-required targets, MTC must show that the TIP "makes progress towards achieving the performance targets" and that the TIP includes, "to the maximum extent practicable, a description of the anticipated effect of the TIP towards achieving the performance targets" (23 CFR § 450.326). MTC must show that it is moving in the right direction based on the package of investments included in the TIP and must also describe how much of an effect the TIP investments are expected to have on the targets.

  ➔ *Federal Performance Report:* This report reflects all of the federally-required performance targets and seeks to quantify impacts to the greatest extent practicable, while at the same time focusing on consistency and accuracy across projects.

  ➔ *2021 TIP:* The Bay Area's 2021 TIP covers the four-year period of FY 2020-21 through FY 2023-24 and includes approximately 350 transportation projects with $10.3 billion in committed funding during the four-year period. For the 2021 TIP, MTC collected self-reported data from project sponsors to complete the performance analysis.

- **RTP Requirements**
  Starting with Plan Bay Area 2050 (anticipated for adoption in 2021), MTC will be required to report on the condition and performance of the transportation system in relation to its adopted performance targets (23 CFR § 450.324). MTC will also have to comply with other new federal requirements related to long-range planning, including any potential scenario planning.

- **Reporting**
  In addition to quantifying progress made towards performance targets in the context of its TIP and RTP, MTC is required to report regional targets to Caltrans. To meet this requirement, MTC has expanded its Vital Signs performance monitoring website (http://www.vitalsigns.mtc.ca.gov/targets) to incorporate federal performance targets, as well as additional performance indicators. Additionally, MTC publishes its regional targets as they are adopted on MTC's website (https://mtc.ca.gov/our-work/plans-projects/major-regional-projects/federal-performance-targets).

2021 TIP Federal Performance Report Structure

This report is organized by goal area and supporting performance measures.

- **Goal and Performance Measure Background**: Each section includes an introduction to the national goal area, a description of each of the federally-required performance measures for that goal, information on the target-setting process, and a status update on the state and regional targeting-setting process. Where possible, recent trend data for the performance measures is also provided.

- **2021 TIP Investments**: Data collected from project sponsors for the 2021 TIP is presented for each goal area and performance measure. This includes the level of investment in projects that have identified the goal area as the project's primary purpose, as well as a summary of the performance benefits from all projects included in the 2021 TIP, regardless of project purpose.

- **Performance Assessment:** For each goal area and performance measure, the report includes an overall assessment of the anticipated effect of the 2021 TIP on achieving performance targets and a discussion of ongoing and future efforts related to the goal area.

SAFETY

Federal performance management regulations identify two distinct areas of transportation safety – road safety from traffic collisions (including collisions involving bicyclists and pedestrians), and transit safety resulting from collisions, other safety events, or major mechanical failures. The overall goal of the transportation safety performance area is to make the nation's transportation systems safer for all users.

Road Safety

Goal: Significantly reduce traffic fatalities and serious injuries on all public roads.

Performance Measures

Five performance measures were established to identify trends and assess progress towards reducing traffic-related fatalities and serious injuries on public roads.

Goal Area	Road Safety
Performance Measures	• Number of fatalities • Rate of fatalities per 100 million vehicle miles traveled • Number of serious injuries • Rate of serious injuries per 100 million vehicle miles traveled • Number of non-motorized fatalities and non-motorized serious injuries *For all measures: 5-year rolling average; all public roads*

Performance Targets

State DOTs are required to set numerical targets each year for each safety measure to comply with the regulation. MPOs have the option of supporting State targets or setting their own region-specific numerical targets on a target-by-target basis.

For the third round of annual target-setting, Caltrans set statewide 2020 targets to align with a trajectory of achieving zero deaths by 2050. For the Bay Area, MTC set its 2020 regional targets based on a linear decline to zero fatalities and serious injuries by 2030, in line with a full adoption of Vision Zero. The 2020 targets and corresponding anticipated annual performance changes for each measure are detailed in the table on the following page.

Performance Measures	2020 Targets			
	Caltrans		Bay Area	
	Statewide 2020 Targets 2016-2020 average	**Annual Reduction** 2016-2020	**Regional 2020 Targets** 2016-2020 average	**Annual Reduction** 2016-2020
Fatalities – total	**3,518.0**	-3% fatalities	**404.1**	-7% fatalities
Fatalities – per 100 million VMT	**1.023**	-3% fatalities; +1% traffic volumes	**0.622**	-7% fatalities; +1% traffic volumes
Serious Injuries – total	**13,740.4**	-1.5% injuries	**1,800.9**	-7% injuries
Serious Injuries – per 100 million VMT	**3.994**	-1.5% injuries; +1% traffic volumes	**2.793**	-7% injuries; +1% traffic volumes
Non-motorized fatalities + serious injuries – total	**4,147.4**	-3% fatalities; -1.5% injuries	**702.0**	-7% fatalities; -7% injuries

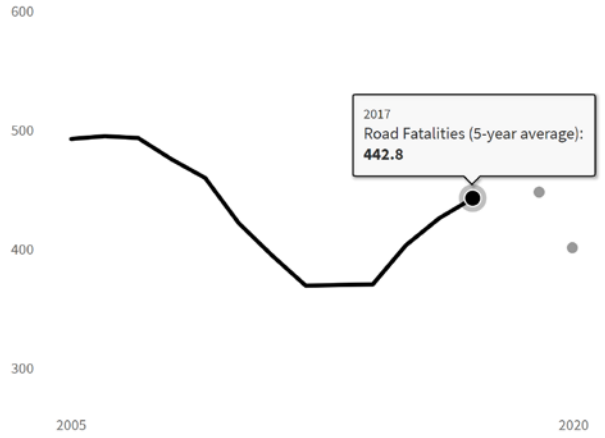
Note: Targets rely on forecast data for 2019-2020 annual fatalities and injuries, based on the annual reduction or increase rates noted. Observed fatality and injury data is available for 2015-2018, observed annual average daily traffic (AADT) data is available for 2017.

In August 2020, Caltrans adopted statewide targets for 2021. MTC has until February 2021 to adopt regional safety targets and may choose to support the new state targets or to adopt its own regional numeric targets.

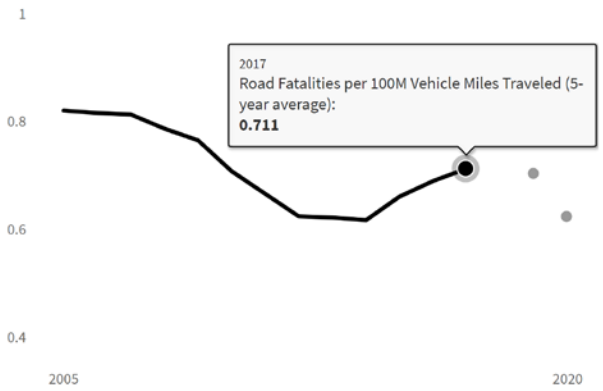
Regional trends for each roadway safety performance measure is provided in charts on the following page. Trend lines are in black, with grey dots representing regional targets (2019 and 2020).

Bay Area Regional Road Safety Trends

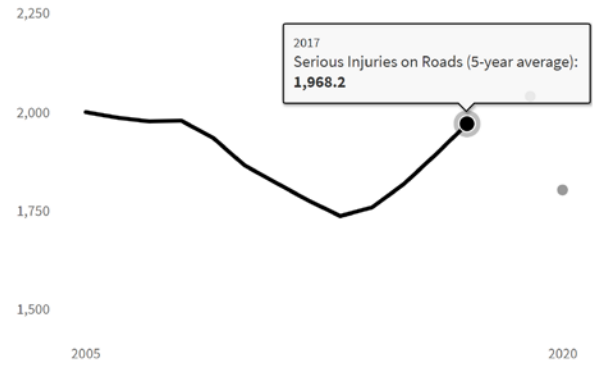
Number of Fatalities



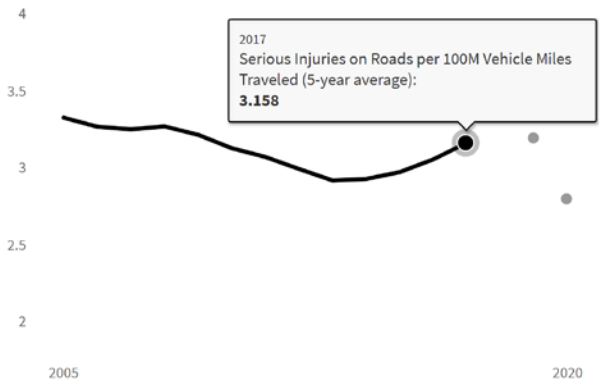
Fatalities per 100 million VMT



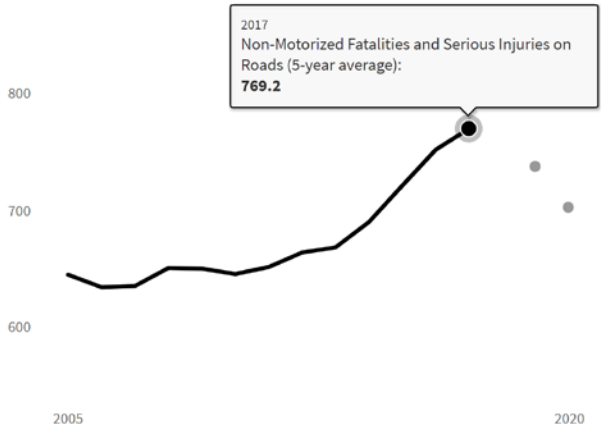
Number of Serious Injuries



Serious Injuries per 100 million VMT



Number of Non-Motorized Fatalities and Serious Injuries



Source: http://www.vitalsigns.mtc.ca.gov/targets

2021 TIP Investments

In the 2021 TIP, more than $1 billion in federal, state, regional and local funds are directed to projects that have a primary purpose of improving roadway safety for all users (Table 1). Funding for safety-focused projects account for 10% of the dollars in the 2021 TIP, and 22% of all projects in the 2021 TIP have a primary purpose of improving road safety.

$1.0 billion

Table 1
2021 TIP Projects with Primary Purpose to Improve Road Safety *$ in millions*

	Safety Investments	% of TIP Investments	Safety Projects	% of TIP Projects
Alameda	$68	9%	10	18%
Contra Costa	$51	27%	8	21%
Marin	$12	9%	5	29%
Napa	$5	6%	3	19%
San Francisco	$110	14%	4	13%
San Mateo	$35	8%	9	25%
Santa Clara	$219	5%	20	28%
Solano	$24	12%	7	27%
Sonoma	$12	40%	4	27%
Multiple Counties	$508	15%	4	14%
	$1,043	10%	74	22%

Note: Project purpose data provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

This significant investment in road safety projects includes $504 million from three key state-funded safety programs: State Highway Operation and Protection Program (SHOPP) – Collision Reduction Program, Safety Improvements (SHOPP) – Emergency Repair, and State Highway Safety Improvement Program (HSIP). In addition to the state safety investments directed to projects throughout the region, a sampling of other significant road safety investments in the 2021 TIP include:

- $131 million for Caltrain Rengstorff Grade Separation in Mountain View
- $17 million for the Iron Horse Trail Bike and Pedestrian Overcrossing in Contra Costa County
- $15 million for Powell Street Safety Improvements in San Francisco
- $11 million for Better Bikeway San Jose – San Fernando Street in Santa Clara County

Transportation projects that are primarily focused on other non-safety objectives, such as congestion reduction or operational improvements, can often contribute to a safer roadway environment. Table 2 details the project investments in the TIP, regardless of the project's primary purpose, that are expected to reduce fatalities or serious injuries for all modes, as well as projects that result in safer travel environments specifically for bicyclists and pedestrians. Many of these projects have a primary objective other than road safety.

Table 2
2021 TIP Projects Anticipated to Result in Road Safety Benefits *$ in millions*

Benefit:	Reduction in the Number and Rate of Fatalities				Reduction in the Number and Rate of Serious Injuries				Reduction in Non-Motorized Fatalities and Serious Injuries			
	Investments		Projects		Investments		Projects		Investments		Projects	
Alameda	$427	56%	30	54%	$430	57%	33	59%	$430	57%	33	59%
Contra Costa	$105	56%	15	39%	$105	56%	15	39%	$61	32%	12	32%
Marin	$12	9%	6	35%	$13	10%	7	41%	$15	11%	8	47%
Napa	$48	64%	6	38%	$59	78%	7	44%	$63	84%	10	63%
San Francisco	$169	22%	6	19%	$169	22%	6	19%	$173	22%	8	26%
San Mateo	$43	10%	12	33%	$43	10%	12	33%	$46	10%	14	39%
Santa Clara	$793	18%	37	52%	$793	18%	37	52%	$711	17%	36	51%
Solano	$117	60%	10	38%	$117	60%	10	38%	$45	23%	10	38%
Sonoma	$14	47%	6	40%	$15	49%	7	47%	$17	58%	8	53%
Multiple	$874	26%	5	17%	$874	26%	5	17%	$874	26%	5	17%
	$2,602	25%	133	40%	$2,618	25%	139	41%	$2,434	24%	144	43%

Note: Anticipated effect of projects on transit safety provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

Combined into a single measure, more than 150 projects programmed in the 2021 TIP, accounting for nearly $2.7 billion in investments, are anticipated to reduce traffic fatalities and/or serious injuries (Table 3). The data in Table 2 is not additive for Table 3, as individual projects may benefit more than one road safety performance measure.

$2.7 billion

Table 3
2021 TIP Projects Anticipated to Result in Road Safety Benefits *$ in millions*

Reduction in Fatalities or Serious Injuries (including non-motorized)				
	Investments		Projects	
Alameda	$430	57%	34	61%
Contra Costa	$117	62%	17	45%
Marin	$15	11%	8	47%
Napa	$63	84%	10	63%
San Francisco	$173	22%	8	26%
San Mateo	$46	10%	14	39%
Santa Clara	$798	19%	40	56%
Solano	$122	62%	11	42%
Sonoma	$17	58%	8	53%
Multiple	$874	26%	5	17%
	$2,654	26%	155	46%

Note: Anticipated effect of projects on transit safety provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

Underscoring MTC's commitment to address roadway safety in the region, MTC adopted a Regional Safety/Vision Zero Policy in July 2020. The policy recognizes that MTC is uniquely positioned to facilitate region-wide safety planning and coordination to eliminate traffic fatalities and serious injuries in the Bay Area by 2030. The policy establishes a framework for MTC to:

1) Provide regional leadership to promote safety, engaging and incentivizing leadership across jurisdictions to prioritize safety and work towards aligning funding policy with safety goals.
2) Apply a data-driven approach to inform safety policy and strategic use of available funds and resources. Establish a regional safety data system at MTC that enables local jurisdictions to benefit from consistent and reliable data.
3) Promote equity in regional safety policies by considering and analyzing impacts on historically disadvantaged and under-invested communities and protecting vulnerable roadway users.
4) Support beneficial safety policies and legislation that target evidence-based solutions to safety problems.
5) Engage key regional stakeholders for safety policy development, implementation, and collaboration on safety best practices. Provide education and technical assistance.

TRANSIT SAFETY

Goal: Improve the safety of all public transportation systems, specifically in the areas of fatalities, injuries, safety events (ex.: collisions, derailments), and system reliability.

Performance Measures

The National Public Transportation Safety Plan includes seven performance measures that transit operators and MPOs will be required to track and report. These measures will be used to identify trends and assess progress towards making reductions in transit fatalities, injuries, safety events, and mechanical failures. Each performance measure is tracked and reported by mode of public transportation (i.e. bus, heavy rail).

Goal Area	Transit Safety
Performance Measure(s)	• Number of fatalities, by mode • Rate of fatalities per vehicle revenue miles, by mode • Number of injuries, by mode • Rate of injuries per vehicle revenue miles, by mode • Number of transit safety events, by mode • Rate of transit safety events per vehicle revenue miles, by mode • Mean distance between major mechanical failures, by mode

Performance Targets

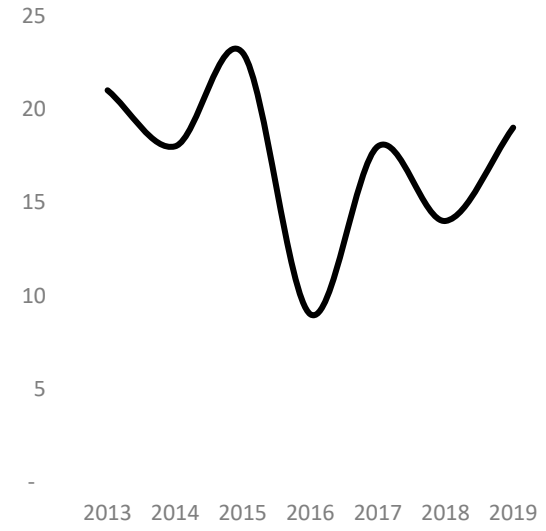
The final rule for these performance measures went into effect in July 2019. Transit operators were required to establish a Public Transportation Agency Plan, including safety performance targets, by

December 2020. At this time, not all Bay Area transit operators have established their safety targets. Once all operators have established their targets, MTC will have 180 days to set regional transit safety targets.

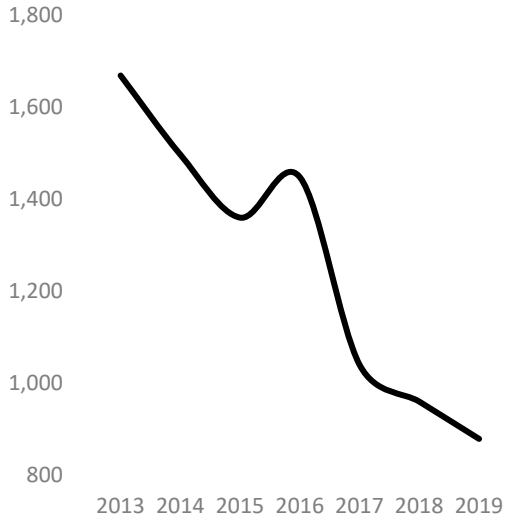
Performance Measures	*MTC Regional Targets*
Fatalities – total, by mode	Pending
Fatalities – rate per vehicle revenue miles, by mode	
Injuries – total, by mode	
Injuries – rate per vehicle revenue miles, by mode	
Transit safety events – total, by mode	
Transit safety events – rate per vehicle revenue miles, by mode	
Major mechanical failures – mean distance between, by mode	

Bay Area Regional Transit Safety Trends

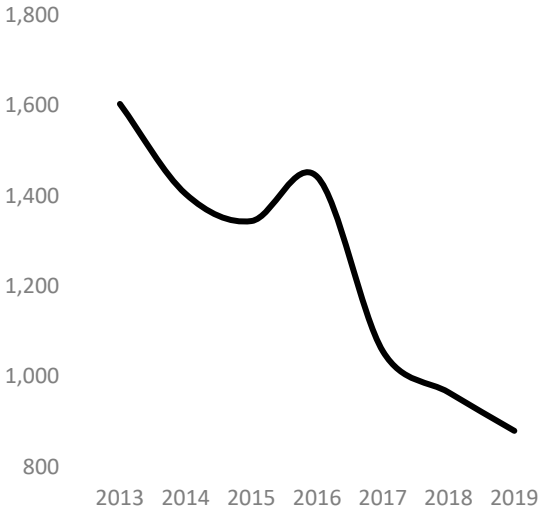
Number of Fatalities - All modes



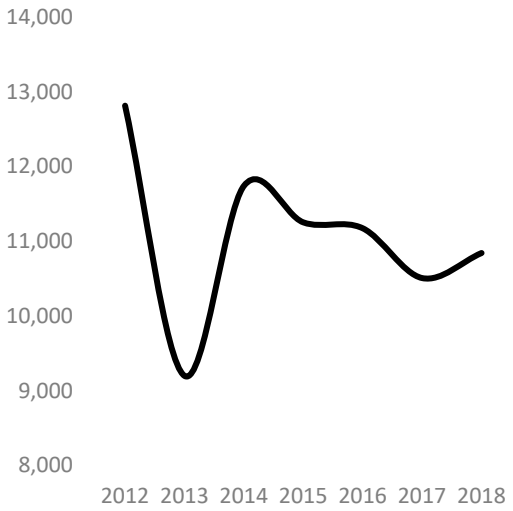
Number of Injuries – All modes



Number of Transit Safety Events - All modes



Number of Major Mechanical Failures - All modes



Source: National Transit Database

2021 TIP Investments

In the 2021 TIP, $53 million is committed to projects that have a primary purpose of improving transit safety (Table 4).

Table 4
2021 TIP Projects with Primary Purpose to Improve Transit Safety *$ in millions*

	Safety Investments	% of 2021 TIP Investments	Safety Projects	% of 2021 TIP Projects
Regional total	$53	1%	5	2%
	$53	1%	5	2%

Note: Project purpose data provided by project sponsors through the 2021 TIP.

However, nearly $1.8 billion of 2021 TIP investments are anticipated to improve performance of one or more transit safety performance measures, regardless of overall project purpose (Table 5). This accounts for 18% of the investments included in the 2021 TIP. The bulk of these investments are state of good repair and modernization projects that are also expected to improve the performance of one or more of the transit safety performance measures.

$1.8 billion

Table 5
2021 TIP Projects Anticipated to Result in Transit Safety Benefits *$ in millions*
Investments improving performance outcomes for transit safety

	Investments		Projects	
Regional total	$1,833	18%	71	21%
	$1,833	18%	71	21%

Note: Anticipated effect of projects on transit safety provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

A few projects in the 2021 TIP with anticipated transit safety benefits include:

- $131 million for Caltrain Rengstorff Grade Separation in Mountain View
- $41 million for the SFMTA Train Control and Trolley Signal Rehabilitation/Replacement project
- $21 million for the Geneva Harney BRT Infrastructure-East Segment in San Francisco
- $14 million for CCTA's Automated Driving System

INFRASTRUCTURE CONDITION

The maintenance and preservation of our existing transportation infrastructure are critical for supporting a safe and efficient transportation system. The overall goal of the infrastructure condition performance area is to improve the condition of existing pavements, bridges, and transit assets.

Pavement Condition

Goal: Maintain the condition of highway infrastructure assets in a state of good repair

Performance Measures

Four performance measures were established to identify trends and assess progress towards maintaining a state of good repair on the Interstate and Non-Interstate National Highway System (NHS).

Goal Area	Pavement Condition
Performance Measures	• Percentage of pavements on the Interstate in good condition *(lane miles)* • Percentage of pavements on the Interstate in poor condition *(lane miles)* • Percentage of pavements on the non-Interstate NHS in good condition *(lane miles)* • Percentage of pavements on the non-Interstate NHS in poor condition *(lane miles)*

Performance Targets

State DOTs are required to develop a Transportation Asset Management Plan to develop long-range investment strategies for assets on the National Highway System, including pavement condition. The plan establishes 10-year performance goals and interim two- and four-year performance targets to monitor progress. MPOs are required to set four-year targets and may choose to adopt the statewide target or adopt quantifiable performance targets for the region.

Caltrans adopted its statewide two- and four-year targets for pavement condition in May 2018. In November 2018, MTC chose to support state targets for the four-year performance period.

Performance Measure *Percentage of system total*	**Baseline Condition** 2016	**2 Year Targets**			**4 Year Targets**		
		Caltrans		**MTC**	**Caltrans**		**MTC**
		Statewide Targets 2019	2-year Change	Regional Targets 2019	Statewide Targets 2021	4-year Change	Regional Targets 2021
Interstate in good condition	**44.9%**	**45.1%**	+0.2%	N/A	**44.5%**	-0.5%	Support State Targets
Interstate in poor condition	**3.1%**	**3.5%**	+0.4%		**3.8%**	+0.7%	
Non-Interstate NHS in good condition	**25.5%**	**28.2%**	+2.7%		**29.9%**	+4.4%	
Non-Interstate NHS in poor condition	**7.1%**	**7.3%**	+0.2%		**7.2%**	+0.1%	

2021 TIP Investments

In the 2021 TIP, $785 million is directed to projects with a primary purpose of improving pavement condition on the NHS (Table 6). Of this total amount, $762 million is programmed to various projects in the SHOPP-Roadway Preservation program.

Table 6
2021 TIP Projects with Primary Purpose to Improve Pavement Condition on the NHS
$ in millions

	Investments		Projects	
Regional total	$785	8%	11	3%
	$785	8%	11	3%

Note: Project purpose data provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

A total of $1.9 billion is programmed to projects in the 2021 TIP that will improve pavement condition on the Interstate or non-Interstate NHS, regardless of the primary purpose of the projects. These investments are anticipated to bring 845.1 lane-miles of the Interstate and 150.9 lane-miles of the non-Interstate NHS from fair or poor condition into good condition (Table 7). However, the precise impact of these investments on reaching regional performance targets will be affected both by ongoing deterioration of pavement conditions throughout the TIP period as well as additional locally- funded pavement preservation and rehabilitation projects that are not reflected in the TIP.

$1.9 billion

Table 7
2021 TIP Anticipated Improvements in Pavement Condition on NHS

Interstate lane-miles Improved *% of regional total*			**Non-Interstate NHS lane-miles Improved** *% of regional total*		
Fair to Good	Poor to Good	**Total Improved to Good**	Fair to Good	Poor to Good	**Total Improved to Good**
817.3 *36.6%*	27.8 *1.2%*	**845.1** ***37.8%***	93.9 *1.6%*	57.0 *1.0%*	**150.9** ***2.6%***

Note: Pavement condition improvements data provided by project sponsors through the 2021 TIP.

Bridge Condition

Goal: Maintain the condition of bridge assets in a state of good repair

Performance Measures

Two performance measures were established to identify trends and assess progress towards maintaining a state of good repair of bridges on the National Highway System (NHS).

Goal Area	Bridge Condition
Performance Measures	• Percentage of NHS bridges classified in good condition *(deck area square meters)* • Percentage of NHS bridges classified in poor condition *(deck area square meters)*

Performance Targets

State DOTs are required to develop a Transportation Asset Management Plan to develop long-range investment strategies for assets on the National Highway System, including bridge condition. The plan establishes 10-year performance targets as well as targets for years 2 and 4 to monitor progress. MPOs are required to set four-year targets and may choose to adopt the statewide target or adopt quantifiable performance targets for the region.

Caltrans finalized the statewide bridge condition targets in May 2018. In November 2018, MTC chose to support state targets for the four-year performance period.

Performance Measure *Percentage of system total*	**Baseline Conditions** 2017	**2 Year Targets**			**4 Year Targets**		
		Caltrans		**MTC**	**Caltrans**		**MTC**
		Statewide Target 2019	2-year change	Regional Target 2019	Statewide Target 2021	2-year change	Regional Target 2021
NHS bridges in good condition	**66.5%**	**69.1%**	+2.6%	N/A	**70.5%**	+4.0%	Support State Targets
NHS bridges in poor condition	**4.8%**	**4.6%**	-0.2%		**4.4%**	-0.4%	

2021 TIP Investments

The 2021 TIP includes project investments totaling $1.8 billion on projects with a primary purpose of improving bridge conditions on the NHS (Table 8). Of this amount, $509 million is programmed to various projects through the SHOPP-Bridge Rehabilitation and Reconstruction program.

Table 8
2021 TIP Projects with Primary Purpose to Improve Bridge Condition on the NHS
$ in millions

	Investments		Projects	
Regional Total	$1,824	18%	22	7%
	$1,824	18%	22	7%

Note: Project purpose data provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

More than $1.8 billion is directed to all projects, regardless of project purpose, that will improve bridge deck conditions on the NHS (Table 9). These investments are anticipated to bring 526,161 square meters of bridge deck area, or 0.9% of the regional total, from fair or poor condition into good condition. As compared with bridge conditions from 2017, the projects included in the 2021 TIP can be expected to improve regional

performance on bridge condition by 0.9%. However, the precise impact of these investments on performance will be affected by ongoing deterioration of bridge conditions throughout the TIP period as well as other locally-funded bridge projects not captured in the TIP.

$1.8 billion

Table 9
2021 TIP Investments in Bridge Condition on NHS
$ in millions

Bridge Deck Square Meters Improved *% of regional total*		
Fair to Good	Poor to Good	**Total Improved to Good**
377,884 *0.6%*	148,277 *0.2%*	**526,161** ***0.9%***

Note: Bridge deck condition improvement data provided by project sponsors through the 2021 TIP.

Transit Asset Management

Goal: Maintain the condition of public transit assets in a state of good repair

Performance Measures

Four performance measures were established to identify trends and assess progress towards maintaining a state of good repair (SGR) for public transit assets, including rolling stock, equipment, infrastructure, and facilities.

Goal Area	Transit Asset Condition
Performance Measures	• Percentage of revenue vehicles that have met or exceeded their useful life benchmark *(by asset class)* • Percentage of facilities with a condition rating below fair *(by asset class)* • Percentage of rail fixed-guideway with speed restrictions *(directional route-miles)* • Percentage of non-revenue vehicles that have met or exceeded their useful life benchmark

Performance Targets

Transit operators and MPOs are required to set annual targets for each transit asset performance measure. In the case of rolling stock and facilities, the major asset categories are further broken down into distinct asset classes. To develop regional targets, MTC consolidates the targets set by individual operators for each asset class. Targets established by operators reflect realistic forecasts for the coming fiscal year for funding that will be available for the repair or replacement of transit assets.

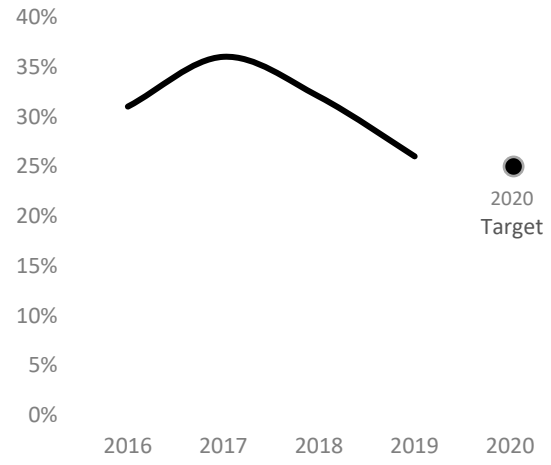
MTC established its latest regional transit asset performance targets in April 2020 based on an aggregation of individual targets set by operators. The regional targets anticipate modest improvements in the percentage of assets in a state of good repair for three of the four asset classes, which represents a

continuation of progress made over the previous year. However, guideway assets are expected to see a slight decline in state of good repair in 2020, though guideway condition improved significantly from 2018 to 2019. The targets for each measure are detailed in the table below, followed by Bay Area regional trend charts for each performance measure.

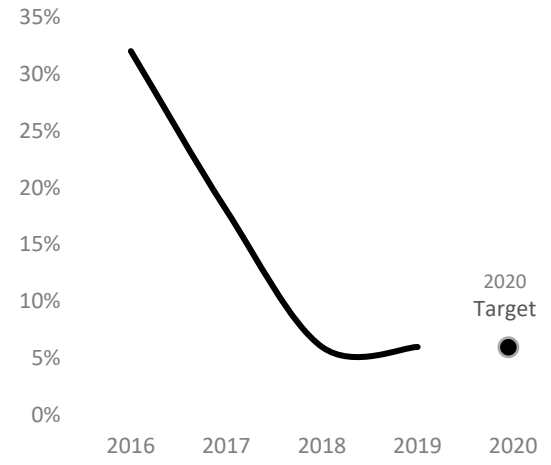
Performance Measures	**Baseline Condition** 2019	**MTC Target** 2020
Revenue Vehicles – percent exceeding useful life benchmark (ULB)	26%	24%
Articulated bus	*12%*	*1%*
Automated guideway vehicle	*0%*	*0%*
Automobile	*18%*	*1%*
Bus	*17%*	*17%*
Cable car	*70%*	*70%*
Commuter rail – locomotive	*56%*	*56%*
Commuter rail – passenger car	*41%*	*41%*
Commuter rail – self-propelled passenger coach	*0%*	*0%*
Cutaway bus	*26%*	*1%*
Double decker bus	*0%*	*0%*
Ferryboat	*21%*	*15%*
Heavy rail	*78%*	*73%*
Light rail	*0%*	*0%*
Minivan	*29%*	*0%*
Over-the-road bus	*35%*	*35%*
Trolley bus	*21%*	*24%*
Van	*10%*	*10%*
Vintage trolley	*100%*	*100%*
Facilities – percent with condition rating below fair	6%	6%
Administrative and maintenance facilities	*5%*	*6%*
Passenger facilities	*7%*	*6%*
Rail fixed-guideway – percent with speed restrictions	1.0%	1.3%
Non-Revenue Vehicles – percent exceeding ULB	56%	53%

Bay Area Transit Asset Management Trends

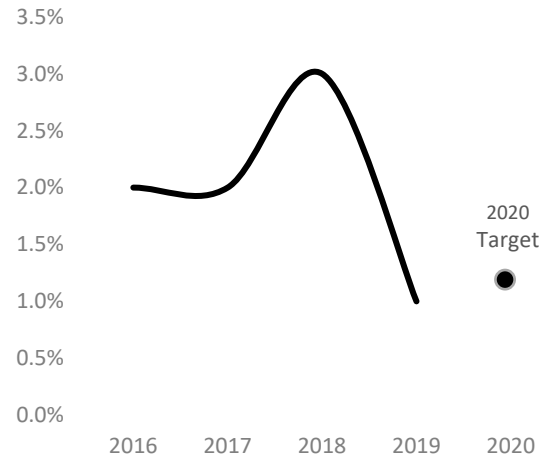
Revenue Vehicles That Have Met or Exceeded Their Useful Life Benchmark (all vehicle classes)



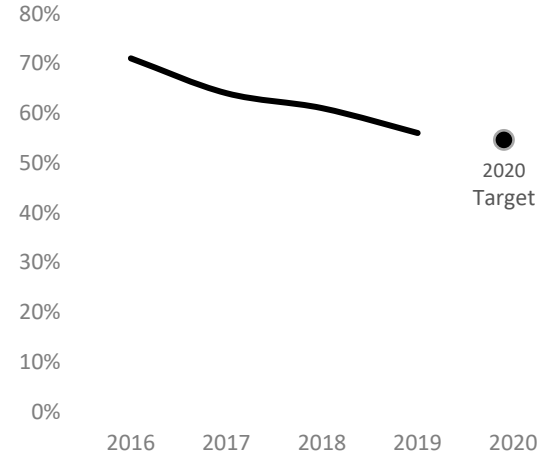
Facilities with a Condition Rating Below Fair



Guideway Route-Miles with Performance Restrictions



Non-Revenue Vehicles That Have Met or Exceeded Their Useful Life Benchmark



2021 TIP Investments

Roughly $300 million is invested in the 2021 TIP on projects with a primary purpose of transit asset management (Table 10).

A total of $3.9 billion is invested in transit maintenance, rehabilitation, or expansion projects regardless of the primary project purpose. Transit rehabilitation or replacement projects directly affect regional transit asset conditions by increasing the share of assets in a state of good repair. Adding new assets as part of a transit service expansion also has an impact on the share of transit assets in a state of good repair by increasing the total number of assets in a particular class.

Table 10
2021 TIP Projects with Primary Purpose of Transit Asset Management *$ in millions*

	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
ACE	$7	<1%	1	<1%
BART	$196	2%	4	1%
Fairfield	$0	<1%	1	<1%
GGBHTD	$1	<1%	1	<1%
NVTA	$4	<1%	1	<1%
SFMTA	$49	<1%	3	1%
SolTrans	$1	<1%	1	<1%
STA	$11	<1%	1	<1%
Union City Transit	$7	<1%	1	<1%
VTA	$20	<1%	7	2%
Total	**$297**	3%	21	6%

Note: Project purpose data provided by provided by project sponsors through the 2021 TIP.

Some of the largest investments in transit assets, including expansion projects, in the 2021 TIP include:

$3.9 billion

- $3.2 billion - BART Berryessa to San Jose Extension
- $259 million - Caltrain Electrification & expansion projects
- $174 million – BART Transbay Core Capacity Improvements
- $34 million – SFMTA Light Rail Vehicle Procurement
- $9.5 million – Concord BART Station Modernization
- $4 million – NVTA Vine Transit Bus Maintenance Facility

Rail transit accounts for the majority of the transit asset investment in the 2021 TIP, with the BART extension from Berryessa to San Jose, alone, programmed to receive 81% of the funds programmed to transit asset projects in the 2021 TIP.

The specific impact of these transit investments on annual performance will be heavily influenced by the rate of continued wear and tear on existing transit assets during the TIP period as well as additional investments made by transit operators that are not captured in the 2021 TIP.

In the Bay Area, FTA formula funding for transit capital assets are programmed through the Transit Capital Priorities (TCP) program. The next cycle of the TCP program will begin in early 2021, with a significant influx of FTA-funded transit asset management projects anticipated to be programmed into the TIP at that time.

Table 11. 2021 TIP Anticipated Effect on Transit Asset Management Performance						
Performance Measures/Assets	**Baseline Condition** 2019	**MTC Target** 2020	**Asset Totals** 2020	**New Assets in 2021 TIP**		**Performance with 2021 TIP**
				Expansion	**Replacement**	
Revenue Vehicles *(% past ULB)*						
Articulated bus	12%	1%	489	12		**12%**
Automated guideway vehicle	0%	0%	4			**0%**
Automobile	18%	1%	151			**18%**
Bus	17%	17%	2787	12	41	**15%**
Cable car	70%	70%	42			**70%**
Commuter rail – locomotive	56%	56%	42			**56%**
Commuter rail – passenger coach	41%	41%	177		5	**38%**
Commuter rail – self-propelled passenger car	0%	0%	18	40	96	**0%**
Cutaway bus	26%	1%	409			**26%**
Double decker bus	0%	0%	13			**0%**
Ferryboat	21%	15%	23			**21%**
Heavy rail	78%	73%	669	412	669	**0%**
Light rail	0%	0%	250	109		**0%**
Minivan	29%	0%	218			**29%**
Over-the-road bus	35%	35%	156			**35%**
Trolley bus	21%	24%	309			**21%**
Van	10%	10%	351			**10%**
Vintage trolley	100%	100%	43			**100%**
Facilities *(% with condition rating below fair)*						
Administrative and maintenance facilities	5%	6%	223	1	31	**0%**
Passenger facilities	7%	6%	238	9	43	**0%**
Rail fixed-guideway *(% with speed restrictions)*						
Rail fixed-guideway	1.0%	1.30%	501	6.5	18.1	**0%**
Non-Revenue Vehicles *(% past ULB)*						
Non-Revenue Vehicles	56%	53%	1941			**56%**

Note: Data provided by project sponsors through the 2021 TIP.

Blue = meets 2020 target
Green = does not meet 2020 target

CONGESTION REDUCTION

Goal: Achieve a significant reduction in congestion on the National Highway System

Performance Measures

Two performance measures were established to identify trends and assess progress towards reducing traffic congestion on the National Highway System in urban areas.

Goal Area	Congestion Reduction
Performance Measure	• Annual hours of peak-hour excessive delay per capita by urbanized area • Percent of non-single occupancy vehicle (non-SOV) travel by urbanized area

Performance Targets

State DOTs and MPOs are required to set two- and four-year targets every four years for both congestion measures. Both targets are federally-required to be fully consistent between the state DOT and the MPO for each urbanized area.

For the first performance period, targets must be set by urbanized areas (UAs) with populations over one million that are also in nonattainment or maintenance areas for ozone, carbon monoxide or particulate matter. In the Bay Area, the San Francisco-Oakland and San Jose urbanized areas meet these thresholds. In the second performance period, beginning in 2022, three more urbanized areas in the San Francisco Bay Area will be required to set targets.

For the first round of target-setting, Caltrans and MTC are responsible for setting four-year targets (2022) for the excessive delay measure and two- and four-year targets (2020 and 2022) for the mode share measure.

Caltrans adopted statewide targets in May 2018. The state's targets for the delay measure in the Bay Area's urbanized areas aim to reduce peak-hour excessive delay per capita by 4% over 2017 conditions. The non-SOV share targets set by Caltrans for the Bay Area urbanized areas align with the mode shift targets adopted by MTC through Plan Bay Area 2040. MTC adopted targets for urbanized areas within its region in November 2018; however, given the requirement for full consistency between the MPO and the state DOT targets for each urbanized area, the state targets shown below effectively serve as the regional targets as well.

Performance Measures	Baseline 2017	2-year Targets Caltrans & MTC 2019	4-year Targets Caltrans & MTC 2021
Peak-hour excessive delay – annual, per capita			
San Francisco-Oakland UA	31.3 hours	*Not required to set two-year targets this cycle*	**30.0 hours** (-4.0%)
San Jose UA	27.5 hours		**26.4 hours** (-4.0%)
Concord UA	*Not required to set two- or four-year targets this cycle*		
Santa Rosa UA			
Antioch UA			
Non-SOV travel – percent			
San Francisco-Oakland UA	44.3%	**45.3%** (+1.0%)	**46.3%** (+2.0%)
San Jose UA	24.5%	**25.5%** (+1.0%)	**26.5%** (+2.0%)
Concord UA	N/A	*Not required to set two- or four-year targets this cycle*	
Santa Rosa UA			
Antioch UA			

2021 TIP Investments

More than $2.6 billion is invested through the 2021 TIP in projects that are intended to improve congestion throughout the region (Table 12). Approximately 13% of that total amount is directed to projects located within the San Francisco-Oakland or San Jose urban areas. An additional 8% of the total is programmed on projects that aim to improve congestion in more than one urban area (Table 13).

$2.6 billion

Table 12. 2021 TIP Congestion Reduction Projects *$ in millions*

	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
Significant improvement	$898	9%	47	14%
Moderate improvement	$1,749	17%	86	26%
	$2,648	26%	133	40%

Note: Anticipated effect of projects on congestion provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

Table 13. 2021 TIP Congestion Reduction Projects, by Urbanized Areas				*$ in millions*
	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
San Francisco-Oakland UA	$638	6%	50	15%
San Jose UA	$694	7%	23	7%
Concord UA	$260	3%	9	3%
Santa Rosa UA	$6	0%	2	1%
Antioch UA	$0	0%	0	0%
Other Areas	$241	2%	25	7%
Multiple areas or regional	$810	8%	24	7%
	$2,648	26%	133	40%

Note: Location of congestion reduction projects provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

Projects intended to reduce congestion in the 2021 TIP include:

- $356 million – for various projects in the SHOPP Mobility Improvements program
- $218 million – Caltrain Electrification
- $201 million – SR 84 Widening, South of Ruby Hill Drive to I-680 in Alameda County
- $154 million – US 101/Zanker Rd Skyport Drive-North Fourth St Improvements in San Jose
- $94 million – BART Bay Fair Connection project in Alameda County
- $27 million – SR12/29/221 Soscol Junction Interchange Improvements in Napa County

In terms of shifting travel away from single-occupancy vehicle modes, more than $5.2 billion is invested through the 2021 TIP in projects primarily supporting non-auto modes (Table 15).

$5.2 billion

Table 15 2021 TIP Projects with Primary Mode other than Auto				*$ in millions*
	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
Alameda	$391	4%	27	8%
Contra Costa	$105	1%	16	5%
Marin	$56	1%	10	3%
Napa	$22	<1%	8	2%
San Francisco	$554	5%	24	7%
San Mateo	$303	3%	13	4%
Santa Clara	$3,521	34%	38	11%
Solano	$44	<1%	16	5%
Sonoma	$23	<1%	11	3%
Multiple Counties	$213	2%	10	3%
	$5,234	51%	173	52%

Note: Primary mode information provided by project sponsors through the 2021 TIP.

When considering all investments in the TIP, regardless of project's primary focus, a total of $5.4 billion is invested in bicycle, pedestrian, or transit travel (Table 16). An example of a project that supports multiple modes is a pavement preservation rehabilitation project that adds sidewalks, bicycle facilities or transit stop improvements. While the pavement rehabilitation is the primary focus of the scope and cost of the project, additional investments are directed to elements that support non-auto modes.

Table 16
2021 TIP Investments in Non-Auto Modes *$ in millions*

	Investments	% of 2021 TIP Investments
Alameda	$388	4%
Contra Costa	$108	1%
Marin	$58	1%
Napa	$27	<1%
San Francisco	$564	5%
San Mateo	$325	3%
Santa Clara	$3,632	35%
Solano	$53	1%
Sonoma	$22	<1%
Multiple Counties	$216	2%
	$5,394	52%

Note: Investments by mode provided by project sponsors through the 2021 TIP.

SYSTEM RELIABILITY

Goal: Improve the efficiency of the surface transportation system

Performance Measures

Two performance measures were established to identify trends and assess progress towards improving reliability of the Interstate system and non-Interstate National Highway System (NHS).

Goal Area	System Reliability
Performance Measures	• Percentage of person-miles traveled on the Interstate highway system that are reliable • Percentage of person-miles traveled on the non-Interstate NHS that are reliable

Performance Targets

State DOTs and MPOs are required to set two- and four-year targets every four years for each reliability measure. MPOs have the option of supporting State targets or setting their own region-specific numerical targets on a target-by-target basis.

Caltrans set their targets in May 2018, which aim for small improvements in reliability for passenger transportation on both the Interstate and non-Interstate NHS. In November 2018, MTC elected to support the state four-year targets for both measures of reliability.

Performance Measure *Percentage of system total*	**Caltrans**			**MTC**		
	Baseline 2017	**2-year Targets** 2019	**4-year Targets** 2021	**Baseline** 2017	**2-year Targets** 2019	**4-year Targets** 2021
Reliable person-miles traveled on Interstate system	64.6%	**65.1%** (+0.5%)	**65.6%** (+1.0%)	63.3%	N/A	Supported State Targets
Reliable person-miles traveled on non-Interstate NHS	73.0%	N/A	**74.0%** (+1.0%)	64.7%	N/A	Supported State Targets

2021 TIP Investments

In the 2021 TIP, nearly $2.7 billion is invested in projects that are expected to improve system reliability on the Interstate system (Table 18). On the non-Interstate NHS, a roughly equivalent total of $2.7 billion is invested on system reliability improvements (Table 19).

$2.7 billion

Table 18 2021 TIP Interstate System Reliability Projects *$ in millions*

	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
Significant improvement	$1,508	15%	23	7%
Moderate improvement	$1,162	11%	37	11%
	$2,670	26%	60	18%

Note: Anticipated effect of projects on reliability provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

$2.7 billion

Table 19
2021 TIP Non-Interstate NHS System Reliability Projects *$ in millions*

	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
Significant improvement	$1,962	19%	34	10%
Moderate improvement	$700	7%	52	16%
	$2,662	26%	125	37%

Note: Anticipated effect of projects on reliability provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

Reliability projects in the 2021 TIP that support improvements in Interstate and the non-Interstate NHS system include:

- $3.1 billion – BART's Berryessa to San Jose extension
- $356 million for various projects in the SHOPP Mobility Program
- $319 million for various projects in the SHOPP Collision Reduction Program
- $243 million – BATA's Toll Bridge Rehabilitation and Maintenance programs

FREIGHT MOVEMENT AND ECONOMIC VITALITY

Goal: Improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development

Performance Measures

One performance measure was created to identify trends and assess progress towards improving reliability of the Interstate system specifically for freight trucks.

Goal Area	Freight Movement and Economic Vitality
Performance Measure	• Percentage of Interstate highway system mileage providing reliable truck travel times (Truck Travel Time Reliability Index)

Performance Targets

State DOTs and MPOs are required to set 2- and 4-year numerical targets for the freight movement target. MPOs have the option of supporting State targets or setting their own region-specific numerical targets on a target-by-target basis.

Caltrans set statewide targets in May 2018. These targets reflect a slight degradation of truck travel time reliability, with the percent of reliable Interstate miles decreasing by one tenth of a percentage point in both 2020 and 2022. In November 2018, MTC elected to support the state four-year target.

Performance Measure	Caltrans			MTC		
	Baseline 2017	**2-year Targets** 2019	**4-year Targets** 2021	**Baseline** 2017	**2-year Targets** 2019	**4-year Targets** 2021
Reliable Interstate miles of truck travel – Truck Travel Reliability Index	1.69	**1.68** (-0.6%)	**1.67** (-1.2%)	2.30	N/A	Supported State Target

2021 TIP Investments

Reliability improvement projects for Interstate truck travel account for $2.0 billion of investments in the 2021 TIP (Table 20). Many of the investments that improve reliability on the Interstate for all travelers also improve reliability specifically for truck travel.

$2.0 billion

Table 20
2021 TIP Interstate System Truck Travel Reliability Projects *$ in millions*

	Investments	% of 2021 TIP Investments	Projects	% of 2021 TIP Projects
Significant improvement	$945	9%	18	5%
Moderate improvement	$1,097	11%	24	7%
	$2,042	20%	42	13%

Note: Anticipated effect of projects on reliability provided by project sponsors through the 2021 TIP. Project totals include one or more "grouped listings," which combine numerous projects into a single listing in the TIP.

A few reliability projects in the 2021 TIP that target freight travel specifically include:

- $77 million – I-80/I-680/SR 12 Interchange Phase 2A in Solano County
- $45 million – I-880/Industrial Parkway West Interchange in Alameda County
- $9.2 million – Reconstruct I-80/San Pablo Dam Rd Interchange in Contra Costa County

ENVIRONMENTAL SUSTAINABILITY

Goal: Enhance the performance of the transportation system while protecting and enhancing the natural environment

Performance Measures

One performance measure was created to identify trends and assess progress towards improving emissions reductions under the Congestion Mitigation Air Quality Improvement (CMAQ) Program,

Goal Area	Environmental Sustainability
Performance Measure	• Total emissions reductions from CMAQ-funded projects, by pollutant

Performance Targets

State DOTs and MPOs are required to set 2- and 4-year numerical targets for the emissions reduction measure for each applicable pollutant. MPOs have the option of supporting State targets or setting their own region-specific numerical targets on a target-by-target basis.

Caltrans set statewide targets for emissions reductions in May 2018. These targets reflect a steady increase in the daily kilograms reduced for each pollutant for projects funded through the CMAQ program. MTC adopted regional targets in November 2018, based on the results of MTC's emissions reductions model, which accounts for projects within the CMAQ pipeline and vehicle fleet characteristics, among other factors.

Performance Measure	**Caltrans**			**MTC**		
	Baseline (2014-17)	**2-year Targets** (2018-19)	**4-year Targets** (2018-21)	**Baseline** (2014-17)	**2-year Targets** (2018-19)	**4-year Targets** (2018-21)
Total emissions reductions from CMAQ-funded projects, by pollutant						
Fine particulate matter – PM2.5 (kg/day)	904.25	**913.29** (+1%)	**922.34** (+2%)	24.5	**8.66**	**16.53**
Particulate matter – PM10 (kg/day)	2,431.21	**2,455.52** (+1%)	**2,479.83** (+2%)	31.29	**10.99**	**21.00**
Carbon monoxide – CO* (kg/day)	6,683.26	**6,931.90** (+1%)	**7,000.54** (+2%)	31,046.04	**8,373.38**	**14,963.60**
Volatile organic compounds – VOCs (kg/day)	951.83	**961.35** (+1%)	**970.87** (+2%)	2,248.93	**528.31**	**897.70**
Nitrogen oxide – NOx (kg/day)	1,753.36	**1,770.89** (+1%)	**1,788.43** (+2%)	2,179.66	**557.61**	**962.58**

** A regional target for carbon monoxide may not be required, as the San Francisco Bay Area's maintenance period for carbon monoxide ended as of June 30, 2018.*

***Two-year target is the expected emissions reduction per day for federal fiscal years 2018 and 2019; 2021 target is expected emissions reduction per day for federal fiscal years 2018 through 2021.*

2021 TIP Investments

Pollutant reduction calculations are performed for each CMAQ-funded project in the TIP. For emissions benefits targets, only those projects that will obligate CMAQ funds for the first time during the current performance period can be credited towards performance achievements during the period. Projects that have obligated CMAQ funds in prior years can still be credited for performance achievements of the traffic congestion targets (peak-hour excessive delay per capita and percent of non-SOV travel).

There are 26 projects programmed to obligate $35 million in CMAQ funds for the first time during the 2021 TIP (Table 20). During the first two years of the performance period (2018 and 2019), 54 additional projects contributed to the Bay Area's CMAQ emissions reductions targets for the period.

$35 million

Table 20
2021 TIP CMAQ Investments (2021 – 2024)

Total emissions reductions from CMAQ-funded projects, by pollutant*	
Fine particulate matter – PM2.5 (kg/day)	4.83
Particulate matter – PM10 (kg/day)	6.80
Carbon monoxide – CO (kg/day)	1,141.29
Volatile organic compounds – VOCs (kg/day)	104.12
Nitrogen oxide – NOx (kg/day)	156.55

Note: Based on latest available emissions reduction calculations; calculated by MTC.

** Does not include emissions from projects credited in prior years.*

The CMAQ-funded projects in the 2021 TIP with the largest emissions reductions for one or more pollutant include:

- San Jose: Better Bikeways
- San Ramon: Iron Horse Trail Bike and Pedestrian Overcrossing
- San Jose: West San Carlos Urban Village Streets Improvements
- Concord: Monument Boulevard Class I Path
- Santa Clara: Saratoga Creek Trail Phase 1
- Belmont: Ralston Avenue Corridor Bike-Pedestrian Improvements

In the Bay Area, CMAQ funds are programmed to projects through the One Bay Area Grant (OBAG) grant program. The CMAQ projects currently programmed in the 2021 TIP are the last of the projects awarded funding through the current OBAG cycle, OBAG 2. The next cycle of the program, OBAG 3, will begin in 2022. A significant influx of CMAQ projects is anticipated to be programmed into the TIP at that time.

LIMITATIONS

- *Limitations of self-reported data:* MTC relies on self-reported data from project sponsors to compile program level effects of investments on regional targets. This approach provides a great deal of new project-level data on a range of topics and in relatively short period of time. However, self-reported data may introduce into the analysis inaccurate data or inconsistent interpretations of the anticipated performance benefits resulting from similar project types. Staff is continuing efforts to improve the analytical approach to evaluating performance for quantification of benefits and improved consistency across projects.

- *External forces at play:* Performance in each goal area is influenced by a variety of factors that are not captured in the assessment of the effect of 2021 TIP investments on regional performance. For road safety and traffic congestion, growth or decline in economic activity is directly related to the total number of traffic fatalities and serious injuries as well as levels of congestion. The COVID-19 pandemic has also had significant effects on travel behavior in the Bay Area in recent months. These changes in roadway and transit safety trends, congestion and reliability, and mode shift are anticipated to continue into the 2021 TIP period as travel conditions start to slowly return to a "new normal." In the case of asset management, ongoing deterioration rates, and unanticipated events (earthquakes, wildfires, or flooding) can also affect the resulting state of good repair for regional assets.

- *Limitations of Current Tools:* The regional travel demand model was used to calculate performance for several measures in the previous TIP. However, the focus of the model on regional travel behavior, combined with the relatively small number of "modelable" projects included in the TIP (projects that are large enough in scope to be captured in the regional model), make it difficult to draw clear conclusions about the effect of TIP investments on measures for congestion, reliability, and mode share. For these reasons, the model was not used in the 2021 TIP federal performance report to assess potential changes in peak-hour excessive delay and non-auto mode share resulting from transportation investments in the TIP. MTC will continue to pursue new analytical approaches to quantify the impacts of near-term transportation investments on performance. Additionally, new tools may be needed to better analyze the effects of different project and program types on reaching the region's federal performance targets.