

Draft 2017 TIP Investment Analysis

A FOCUS ON LOW-INCOME AND MINORITY POPULATIONS,
SENIORS, AND PERSONS WITH DISABILITIES

1. INTRODUCTION

The Draft 2017 TIP Investment Analysis is an assessment of TIP investments through an equity lens, specifically focused on the Bay Area's disadvantaged populations. The purpose of the analysis is to understand if low-income and minority populations, seniors, and persons with disabilities are sharing equitably in the region's near-term transportation investments.

Draft 2017 TIP

The Bay Area's 2017 TIP covers the four year period of FY 2016-17 through FY 2019-20 and includes roughly 700 transportation projects and approximately \$6.6 billion in committed federal, state and local funding.

Projects in the TIP

The TIP includes all transportation projects that are federally funded, require a federal action, or are considered regionally significant for air quality conformity purposes. The majority of projects in the TIP are federally funded, although some local or state-funded projects are also included, particularly those that are large in scale or impact travel patterns over a relatively large geographic area, such as a new lane on a state highway. In reviewing TIP investments as a whole, it is important to keep in mind that most transportation projects are local, in both scale and funding, and these projects are typically not reflected in the TIP. These projects include pavement preservation, transit operations, planning efforts, and minor sidewalk or intersection improvements.

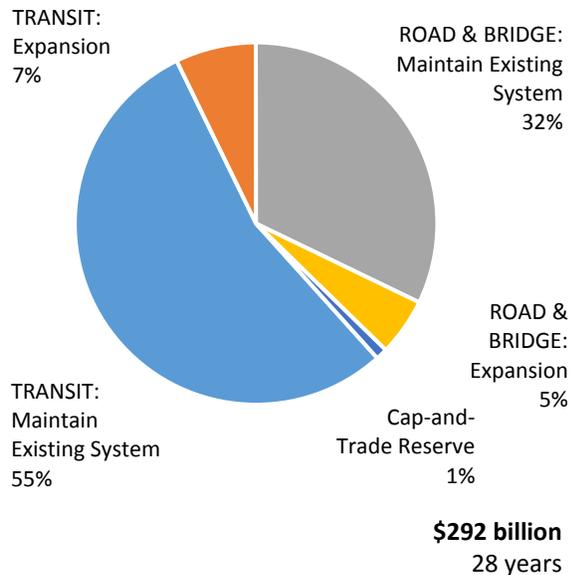
All projects included in the TIP must be consistent with the region's long-range plan, Plan Bay Area (the Plan). As such, the TIP represents a four-year snapshot of the 28 years of the Plan.

In addition to the total investments captured in the TIP versus the Plan, there is an important difference between these two documents that complicates any side-by-side comparison. While the Plan includes the universe of revenues reasonably available (federal, state, local, and private funds) to implement its planned transportation projects, program, and strategies, the TIP is much more focused on projects with federal funding or that affect air quality conformity. This means that the TIP ends up being more heavily weighted toward large capital projects, such as transit and highway expansions, that are more likely to require federal funds or action. The vast majority of funds that go to operate, maintain, and manage the region's existing transportation system, a top priority of the long-range plan, are not typically captured in a TIP as they tend to be locally funded. See Figure 1, on the following page, for an illustration of this distinction.

Figure 1. TIP and Plan Investments by Mode/Type

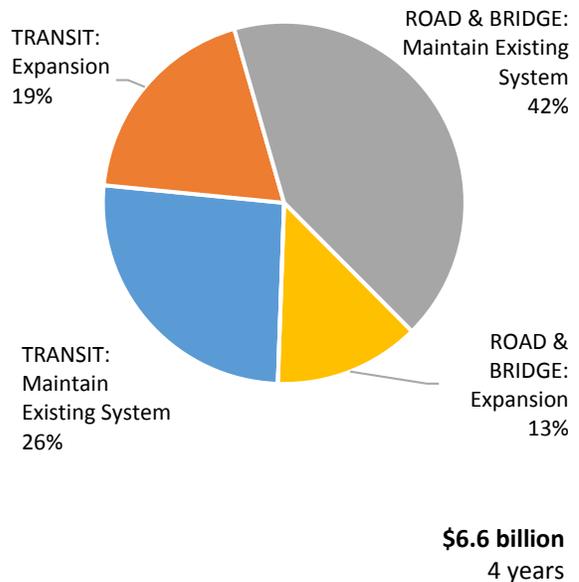
Plan Bay Area Investments

Expenditures by Mode/Type



Draft 2017 TIP Investments

Expenditures by Mode/Type



The narrower focus of the TIP also means only a fraction of total regional transportation expenditures are captured in any given year. On average, one year of investments in the Draft 2017 TIP accounts for only 16% of the average annual expenditures in the regional long-range plan.

Another feature of the TIP that distinguishes it from the regional long-range plan is that it tends to be a more dynamic document – meaning that it is revised frequently to reflect changing fund sources and project changes, and on-going programming efforts. For context, the 2015 TIP was amended or modified more than 30 times in the 24 months following its federal approval.

In addition to the anticipated project and funding changes, the 2017 TIP will also be amended following the adoption of different funding programs. For example, the Draft 2017 TIP does not yet reflect nearly \$2 billion in Federal Transit Administration (FTA) formula funds that are anticipated to be programmed to transit rehabilitation projects over the next four years. These funds will be programmed into the TIP for specific projects and transit operators after the Commission adopts a final program for each of the four years of the TIP. Other program adoptions anticipated to occur after the initial adoption of the 2017 TIP include the OBAG 2 program and future cycles of the regional and State Active Transportation Program (ATP).

Equity and Environmental Justice Considerations

As the federally-designated Metropolitan Planning Organization (MPO) for the Bay Area, MTC is required to ensure that the region’s transportation planning processes comply with

applicable equity and environmental justice requirements. The legal, regulatory, and policy framework for addressing those issues is described in Appendix A and includes:

- ❖ **Title VI of the Civil Rights Act:** states that no person shall be subject to discrimination based on their race, color or national origin under any federally-funded program.
- ❖ **Federal Guidance on Environmental Justice:** requirement that federal programs and funds do not result in disproportionately high and adverse impacts on minority and low-income populations.
- ❖ **MTC's Environmental Justice Principles:** adopted principles that affirm MTC's ongoing commitments to:
 - ◆ Create an open and transparent public participation process that empowers disadvantaged communities to participate in decision making that affects them, and
 - ◆ Collect accurate and current data essential to defining and understanding the presence and extent of inequities, if any, in transportation funding based on race and income.

MTC satisfies its requirements for equity and environmental justice primarily through Plan Bay Area's Equity Analysis, MTC's Public Participation Plan, and MTC's broader Title VI program. To further build upon MTC's commitment to address equity concerns, the TIP Investment Analysis provides the public with an additional opportunity to assess the region's transportation investments, with a specific focus on the equity implications of near-term transportation investments.

2. BAY AREA COMMUNITY CONTEXT

Demographic Profile

An important first step of the investment analysis is to understand the demographic context and travel patterns for the Bay Area.

Race/Ethnicity

The Bay Area is one of the most diverse regions in the country, with 59 percent of the population self-identifying as members of a racial and/or ethnic minority. After non-Hispanic white (41% of the population), the largest racial or ethnic group is Asian (25%), followed closely by Hispanic or Latino (24%), and then Blacks or African American (6%). Other racial minorities, including those identifying as two or more races, account for the remaining 5% of the population. Table 1 provides summary information on the Bay Area population's race and ethnicity.

TABLE 1. Population Distribution by Race/Ethnicity

	Population	%
Minority	4,497,334	59%
Asian	1,871,574	25%
Hispanic or Latino	1,800,220	24%
Black or African American	452,846	6%
Other minority	372,694	5%
Non-Minority	3,064,421	41%
Total	7,561,755	100%

Notes: Tabulation prepared by MTC based on data from 2014 American Community Survey, Table C03002.

Income

Although the Bay Area's economy has shown strong growth over the past few decades, regional levels of poverty have persisted. More than 10 percent of the population lives below the federal poverty level (\$24,000 a year for a family of four). Another 14 percent of the region's households are technically above the poverty line but still qualify as low-income for the purposes of this analysis, defined as households with incomes that fall below 200 percent of the federal poverty line (\$49,999 a year for a family of four).

TABLE 2. Population Distribution by Household Income

	Population	%
Low-Income	1,777,132	24%
<\$25,000	756,720	10%
\$25,000 - \$49,999	1,020,412	14%
Not Low-Income	5,645,706	76%
\$50,000 - \$99,999	1,981,134	27%
\$100,000 - \$149,999	1,516,171	20%
>\$150,000	2,148,401	29%
Total	7,422,838	100%

Notes: Tabulation prepared by MTC based on data from 2014 American Community Survey Public Use Microdata Samples. Note that the universe is persons in households and excludes persons living in group quarters.

Seniors and Persons with Disabilities

Nearly 14% of the Bay Area's population is aged 65 or older. Persons reporting disabilities across six categories defined by the Census Bureau total nearly 10% of the region's population.

TABLE 3. Seniors and Persons with Disabilities

	Population	%
Seniors	1,039,911	14%
Persons with Disabilities	721,101	10%

Notes: Tabulation prepared by MTC based on data from 2014 American Community Survey Tables C18101 and B01001. Note that the universe is civilian noninstitutionalized population counted in disability.

Travel Patterns

Commute trips by Bay Area residents are overwhelmingly made by motor vehicle (80%) followed by transit (12%), non-motorized trips (6%), and other modes (2%) (2014 American Community Survey, excludes telecommute trips).

The share of all trips made by target population groups is provided in Table 4 below. While there are differences in the travel patterns of low-income, minority and senior populations, the vast majority of all trips are categorized as roadway trips, which includes highway and roadway travel as well as trips made by walking or biking.

TABLE 4. Share of All Trips by Mode by Population

	Low- Income	Minority	Seniors	Total Population
Roadway (Motorized)	74%	80%	82%	80%
Roadway (Non-motorized)	18%	14%	14%	15%
Transit	7%	6%	4%	5%
Total	100%	100%	100%	100%

Notes: Tabulation based on 2012 California Household Travel Survey. Tabulation does not include share of trips made by persons with disabilities due to sample size limitations.

3. METHODOLOGY

The Draft 2017 TIP investment analysis calculates the shares of TIP investments flowing to identified communities, and compares those shares with the proportional size of this group's population and trip-making, relative to that of the general population. The analysis uses the following analytical methodology to compare how low-income and minority communities, and seniors and persons with disabilities may be affected by the proposed investments in the Draft 2017 TIP:

- Population Use-Based Analysis,
- Mapped Projects Analysis, and
- Title VI Analysis.

While this investment analysis is a companion to the Draft 2017 TIP, it is also a follow-up to several related MTC efforts, including the Plan Bay Area Equity Analysis (2013), the Snapshot Analysis for MTC Communities of Concern (June 2010), and the investment analyses for previous iterations of the TIP. Together, these efforts are meant to provide accurate and current data to help inform decision-makers and the public, and to inform and encourage public participation in the transportation planning and programming process.

MTC strives to employ best practices in metropolitan planning, and we constantly seek to refine and improve the analytical work that undergirds our planning processes. MTC seeks to further improve upon its existing practices for this next iteration of the TIP investment analysis, which is planned to occur following the next update to the long-range plan, scheduled for adoption in summer 2017.

Population Use-Based Analysis

This portion of the analysis compares the estimated percent of investments included in the TIP that benefit low-income and minority populations, as well as seniors, to the percent of these populations' relative usage of the transportation system, for both roadways and transit. The analysis measures transit and motor vehicle trips using the 2012-2013 California Household Travel Survey, a significant update over the previous analysis, which relied on information from the 2000 Bay Area Travel Survey (BATS).

1. For this analysis, investments in the TIP are separated into two modes: transit and local streets and roads/highway (referred to as "roadway"). For simplicity, pedestrian and bicycle projects are assigned to local streets and roads and not evaluated as a separate mode of travel or investment type.
2. To analyze what share of each mode (transit and roadway) low-income, minority, and senior populations utilize, the following definitions are used to identify disadvantaged populations:

- *Low-Income Households:* Low-income households were defined as households earning \$50,000 or less. This is roughly equivalent to 200 percent of the federal poverty level for a family of four.
 - *Minority Households:* For this analysis, minority households were defined using U.S. Census Bureau definitions. Racial and ethnic minorities examined in this analysis are: Hispanic, black or African American, Asian, and other or 2 or more races.
 - *Seniors:* Seniors are defined as persons aged 65 and over.
3. The assignment of investments by usage is then performed by multiplying the percent of use of the mode by the investment in that particular mode. This analysis is conducted at the county level for highways and roadways and at the transit-operator level for transit.

For the multimodal, aggregate analysis, trip data from the household travel survey is used. As an illustrative example, 32% of Alameda County roadway trips are made by low-income populations. For a \$50 million state highway project in that county, 32% or \$16 million, would be assigned as a financial benefit to low-income populations and the remaining 68%, or \$34 million, to the remaining population. A similar approach is followed for transit investments by operator.

For the in-depth analysis, transit usage data is derived from the most recent transit survey data available for each operator. For the bulk of the operators, this data comes from MTC's recent Transit Passenger Demographic Survey. Operator-collected data is used when recent MTC-collected data is not available, including surveys collected by San Francisco Municipal Transportation Agency and Santa Clara Valley Transportation Authority. Data from MTC's 2007 Transit Passenger Demographic Survey provides information for the remaining handful of small operators. For in-depth roadway usage, vehicle miles traveled (VMT) data is used from the household travel survey.

4. The investments by mode (from county or transit operator data) are summed for low-income, minority, and senior populations based on each group's usage share of each mode. The percent of usage of the system by the target and other populations is then compared to the percent of investment for trips supporting that population.

Disparate Impact Analysis

This portion of analysis compares Draft 2017 TIP investments per capita for racial or ethnic minority populations as a percentage of per capita investments identified for non-minority populations, to investigate whether disadvantaged persons in the region are receiving an equitable share of the benefits from TIP investments on a per capita basis. For this portion of the analysis, all racial or ethnic minority groups (Asian, Black or African American, Hispanic or Latino and other minorities) are evaluated collectively in comparison to the investments per capita for non-minority populations.

Due to the similarities in the analysis federally required for the long-range transportation plan, this portion of the analysis is also referred to as the Title VI analysis. The disparate impact analysis is not a required component of the TIP, and is provided for informational purposes only.

The key Title VI planning requirements that the TIP investment analysis addresses are described in the following table.

FTA Requirement	TIP Investment Analysis
“Demographic maps that overlay the percent minority and non-minority populations as identified by Census or ACS data ...”	(1) Project mapping analysis overlaying mappable TIP projects against Census tracts with above-average concentrations of minority residents (Appendix C).
“[C]harts that analyze the impacts of the distribution of State and Federal funds in the aggregate for public transportation purposes...”	(2) Population/use-based analysis of only public transit investments using State and Federal funding sources.
“An analysis of impacts identified in paragraph [above] that identifies any disparate impacts on the basis of race, color, or national origin”¹	(3) Disparate impact analysis comparing Federal and State funded TIP investments per capita for minority populations as a percentage of per-capita investments identified for non-minority populations.

The disparate impact analysis under (3) incorporates the quantitative results produced by the population/use-based analysis under (2) to make a determination of any disparate impact. The mapping analysis under (1) therefore shows all investments overlaid against minority tracts, regardless of fund source, and is a qualitative analysis only. MTC does have the ability to specify public transportation investments that use State and Federal funds in the population/use-based analysis under (2) above. Some of the State and Federal fund sources included in the Title VI analysis of are: FTA 5307, FTA 5309, FTA 5311, FTA 5337 funds, STP/CMAQ, and Proposition 1B funds.

To conduct the disparate impact analysis under (3) above, the results of the population/use-based analysis of public transportation investments using State and Federal funds under (2) are first expressed in terms of investments per capita for both minority and non-minority transit riders (or total population) in the region as follows:

$$\text{Minority benefit per capita} = \frac{\text{Total transit investments allocated to minority riders}}{\text{Total regional minority transit ridership (or population)}}$$

$$\text{Non-minority benefit per capita} = \frac{\text{Total transit investments allocated to non-minority riders}}{\text{Total regional non-minority transit ridership (or population)}}$$

¹ FTA Circular 4702.1B, page VI-2.



Next, the minority and non-minority per-capita benefit results are compared, expressing the minority benefit per capita as a percentage of the non-minority benefit per capita:

$$\text{Result (\%)} = \frac{\text{Minority benefit per capita}}{\text{Non-minority benefit per capita}}$$

Although FTA does not provide specific guidance or standard benchmarks for MPOs to use in the metropolitan planning process to determine whether any given result represents a disparate impact, a general practice in disparate impact analysis is to use the percentage result to determine whether any differences between benefits for minority or non-minority populations may be considered statistically significant. If a disparate impact is found to be statistically significant, consideration must then be given to “whether there is a substantial legitimate justification for the policy that resulted in the disparate impacts, and if there are alternatives that could be employed that would have a less discriminatory impact.”²

Mapped Projects Analysis

For the mapped projects analysis, projects in the Draft 2017 TIP are mapped over the region’s Communities of Concern and census tracts with concentrations of disadvantaged populations that are above the regional average. This analysis provides the public with an opportunity to visualize the distribution of projects planned in the near-term in relation to geographic concentrations of disadvantaged groups to identify any systemic exclusion of groups or imbalances in investments.

Limitations

As a regional analysis, the methods used in the TIP investment analysis are somewhat coarse and involve several limitations. The most significant limitation is that the analysis does not directly assess the resulting benefit and burden of specific projects or programs, such as travel time savings or improved accessibility to jobs or other destinations.

In addition, the analysis assumes that mode choice and system usage remains constant. System expansion, such as a new transit line or highway, and changing conditions, such as improvements to reliability, tend to influence travel behavior over time. However, this analysis assumes that the usage derived in the recent travel survey and transit passenger surveys remain static over time.

The classification of investments into either roadway or transit investments also presents some limitations. For example, classifying a pavement rehabilitation project as strictly roadway does not account for the benefit to the region’s transit vehicles that share the street with private automobiles.

The project mapping analysis also has some limitations. First, not all significant regional investments are mappable. For example, a substantial share of total funding in the TIP is dedicated to transit operators for ongoing operations and maintenance of their entire system, which cannot be represented as a simple point or line on a map in relation to a

² FTA Circular 4702.1B, page VI-2.

specific community. Second, despite previous attempts by MTC to quantify the spatial distribution of regional investments in response to stakeholder requests (as in the 2011 TIP Investment Analysis), stakeholders have not agreed on how investments can be appropriately accounted for in terms of whether or not a specific project or investment truly benefits a specific community and to what degree.

Given these limitations, the mapping analysis provides a qualitative, rather than quantitative, assessment of the spatial distribution of mappable projects included in the TIP. See Appendix C for the mapping analysis maps.

For the first time, the 2017 TIP investment analysis includes seniors as a target population. Unfortunately, a similar analysis for persons with disabilities is not included due to sample size limitations of the travel survey, and data unavailability from the transit passenger demographic survey. However, a qualitative discussion of regional transportation investments that benefit seniors and persons with disabilities is included in the following section.

Appendix B includes definitions and data sources used in this analysis.

4. ANALYSIS RESULTS & DISCUSSION

Population Use-Based Results

Income

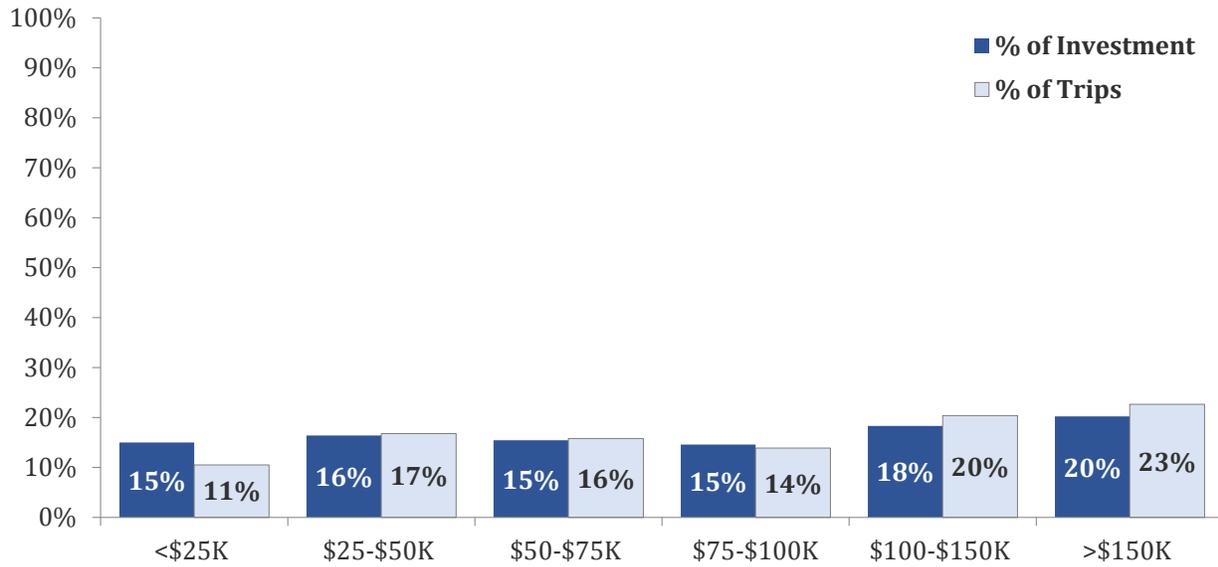
Bay Area residents living in low-income households, or households earning less than \$50,000 per year, account for 27% of all trips in the region. This is slightly more than their proportional share of the total population (24%), meaning that persons from low-income households make more trips per day on average than persons from households that are not low-income.

In terms of investments in the TIP, 31% or more than \$2 billion can be attributed to projects supporting trips made by residents of low-income households. The share of investments supporting low-income trips (31%) exceeds the share of trips made by persons from low-income households (27%) indicating an equitable distribution of funds directed to support low-income populations. See Table 5 and Figures 2 and 3 for detail.

TABLE 5. Draft 2017 TIP Investments and Trips by Income

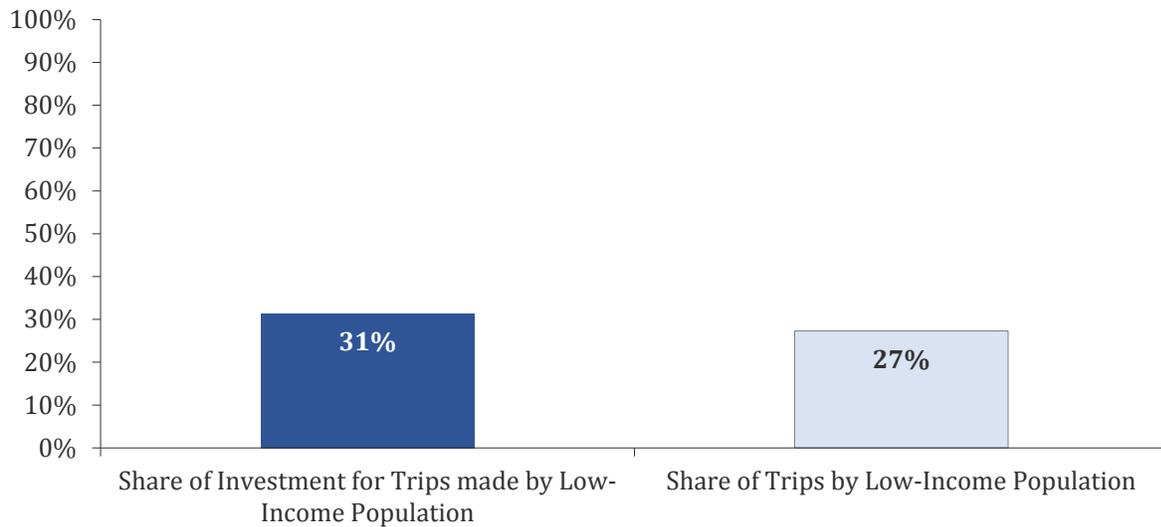
	Draft 2017 TIP Investments	% of Investment	% of Trips
Low-Income	\$2,076,005,840	31%	27%
<\$25,000	\$991,426,130	15%	11%
\$25,000 - \$49,999	\$1,084,579,710	16%	17%
Not Low-Income	\$4,531,410,055	69%	73%
\$50,000 - \$74,999	\$1,020,449,153	15%	16%
\$75,000 - \$99,999	\$963,588,947	15%	14%
\$100,000 - \$149,999	\$1,210,698,014	18%	20%
>\$150,000	\$1,336,673,941	20%	23%
Total	\$6,607,415,895	100%	100%

FIGURE 2. Draft 2017 TIP Investments and Low-Income Trips



Source: Draft 2017 TIP and California Household Travel Survey

FIGURE 3. Draft 2017 TIP Investments and Trips by Income Category



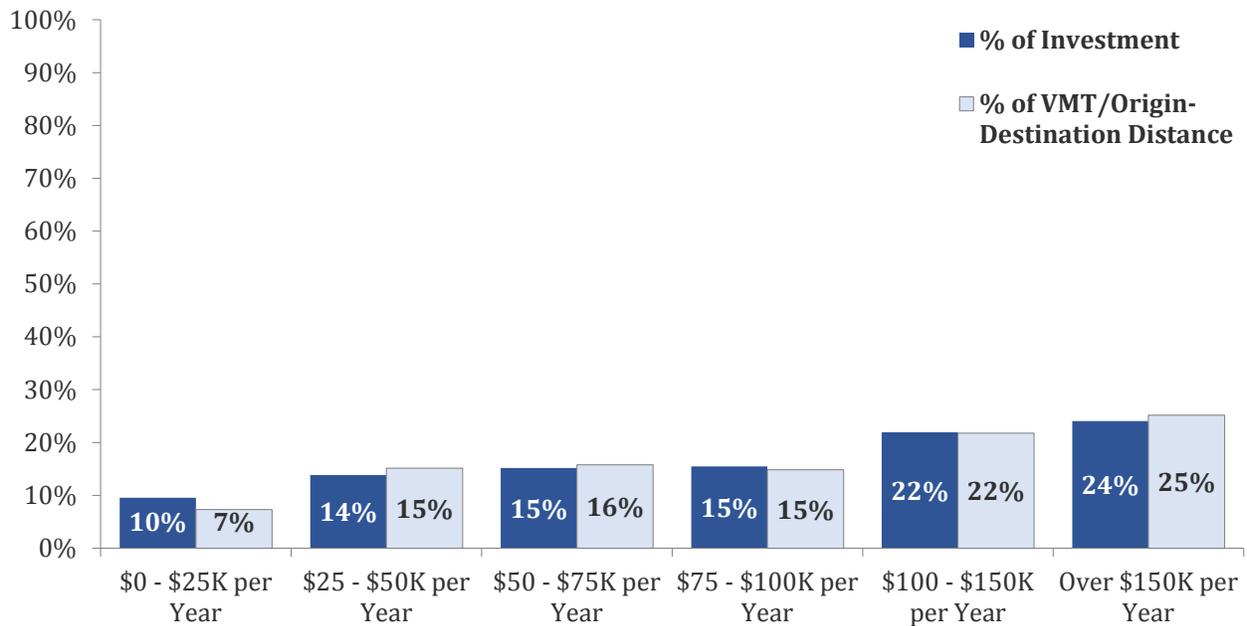
Source: Draft 2017 TIP and California Household Travel Survey

Similarly, the share of investments in projects that support travel made by low-income populations (23%) slightly exceeds their usage share of the transportation system in terms of vehicle miles traveled (VMT) for auto trips and origin-destination distance for transit trips (22%). See Table 6 and Figure 4.

TABLE 6. Draft 2017 TIP Investments and Travel Distance by Income

	Draft 2017 TIP Investments	% of Investment	% of Total Travel Distance
Low-Income	\$1,545,241,153	23%	22%
<\$25,000	\$630,900,377	10%	7%
\$25,000 - \$49,999	\$914,340,776	14%	15%
Not Low-Income	\$5,062,174,742	77%	78%
\$50,000 - \$74,999	\$1,001,569,075	15%	16%
\$75,000 - \$99,999	\$1,021,350,872	15%	15%
\$100,000 - \$149,999	\$1,449,415,700	22%	22%
>\$150,000	\$1,589,839,096	24%	25%
Total	\$6,607,415,895	100%	100%

FIGURE 4. Draft 2017 TIP Investments and Travel Distance by Income Category



Source: Draft 2017 TIP and California Household Travel Survey

While low-income households account for 24% of the population in the Bay Area, the drivers living in these households account for only 22% of the driving done in the region as measured by vehicle miles traveled (VMT). This means that on average, drivers from low-income households travel shorter distances in terms of VMT than persons from households that are not low-income.

The analysis indicates that the share of investments in local road, state highway and toll bridge systems that benefit drivers living in low-income households (21%) is roughly equivalent to the share of total VMT by drivers living in low-income households (22%). See Table 7 and Figure 5.

TABLE 7. Draft 2017 TIP Roadway Investments and Travel Distance by Income

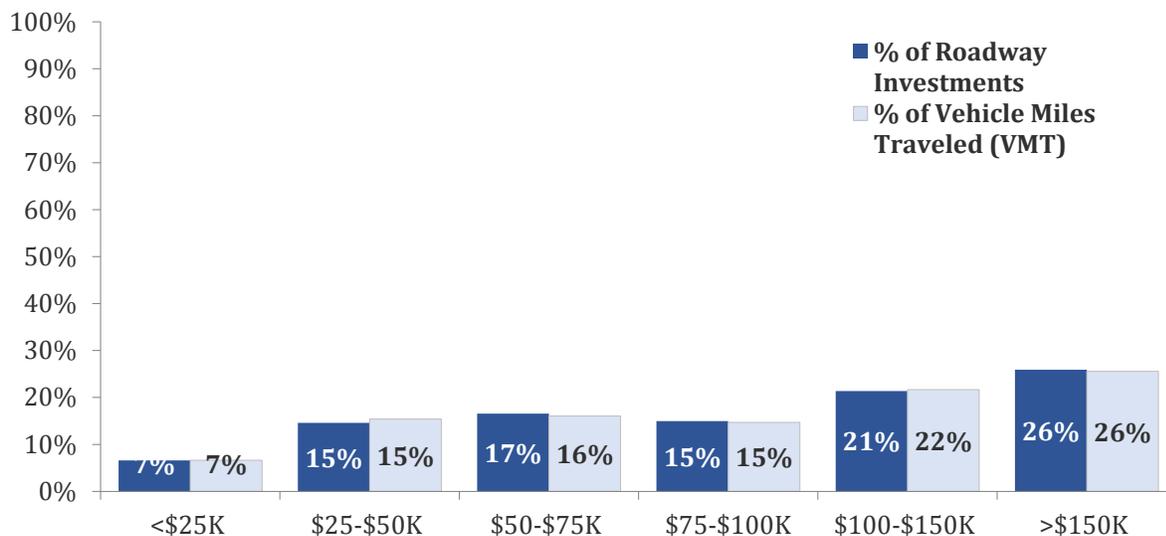
Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge

	Draft 2017 TIP Roadway Investments	% of Investment	% of Total Travel Distance*
Low-Income	\$770,158,342	21%	22%
<\$25,000	\$239,437,178	7%	7%
\$25,000 - \$49,999	\$530,721,164	15%	15%
Not Low-Income	\$2,866,322,847	79%	78%
\$50,000 - \$74,999	\$601,582,300	17%	16%
\$75,000 - \$99,999	\$544,382,822	15%	15%
\$100,000 - \$149,999	\$777,625,178	21%	22%
>\$150,000	\$942,732,546	26%	26%
Total	\$3,636,481,189	100%	100%

*Total travel distance is vehicle miles traveled (VMT) for all non-transit trips as derived from the California Household Travel Survey.

FIGURE 5. Draft 2017 TIP Roadway Investments and Travel Distance by Income

Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge



Source: Draft 2017 TIP and California Household Travel Survey

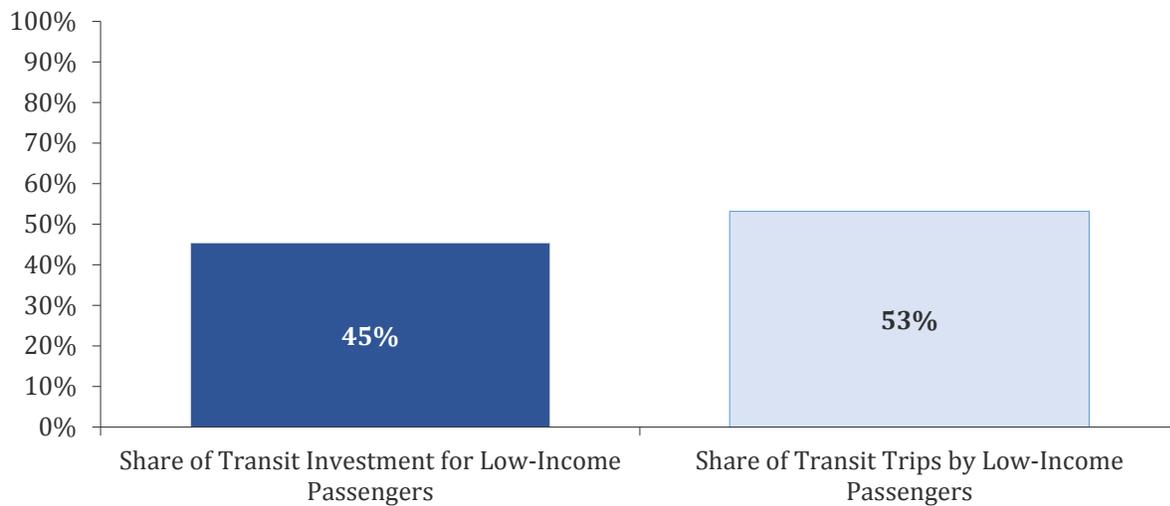


The share of transit investment for passengers living in low-income households (45%) falls short of the share of transit trips by passengers living in low-income households (53%).

TABLE 8. Draft 2017 TIP Transit Investments and Transit Trips by Income

	Draft 2017 TIP Transit Investments	% of Transit Investment	% of Passenger Transit Trips
Low-Income	\$1,349,040,429	45%	53%
Not Low-Income	\$1,621,894,277	55%	47%
Total	\$2,970,934,706	100%	100%

FIGURE 6. Draft 2017 TIP Transit Investments and Passenger Trips by Income



Sources: Draft 2017 TIP and Transit Passenger Demographic Survey (MTC), SFMTA Transit Passenger Demographic Survey, VTA Transit Passenger Demographic Survey, 2006-2007 Regional Transit Passenger Demographic Survey (Godbe Research)

Race/Ethnicity

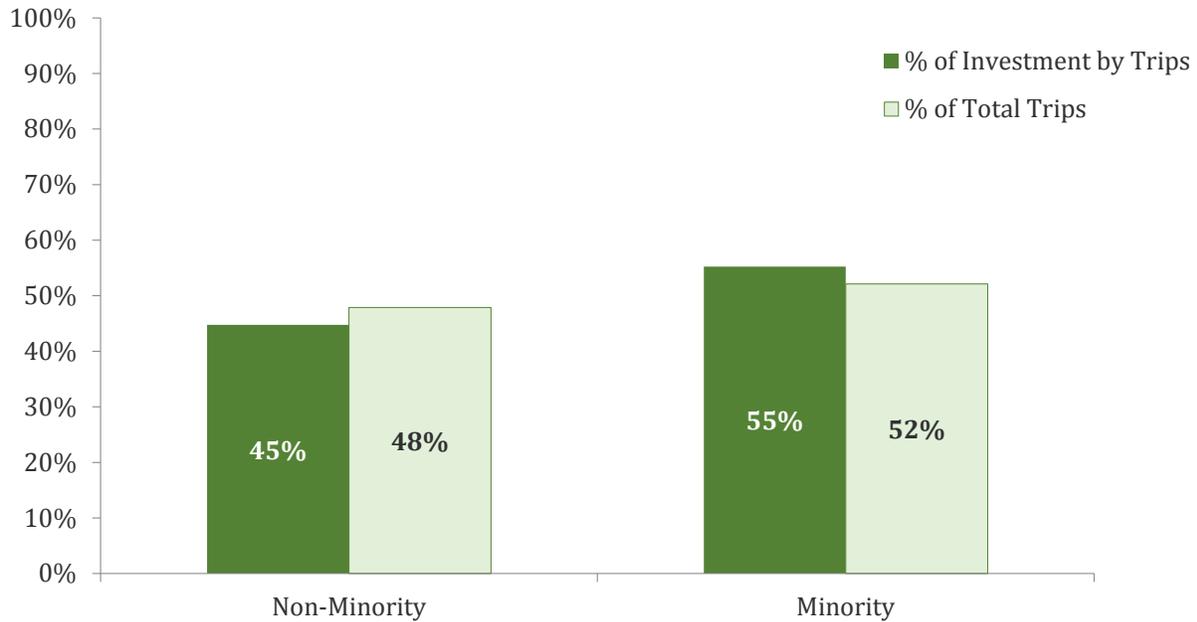
Minority households make up 59% of the population, and take 52% of all trips. This means that on average, persons from minority households take fewer trips than persons from non-minority households.

The share of transportation investments in the Bay Area that support minority population trips (55%) is greater than the share of trips taken by these populations.

TABLE 9. Draft 2017 TIP Investments and Trips by Race/Ethnicity

	TIP Investments by Trips	% of Investment	% of Trips
Non-Minority	\$2,957,029,834	45%	48%
Minority	\$3,650,386,061	55%	52%
Total	\$6,607,415,895	100%	100%

FIGURE 7. Draft 2017 TIP Investments and Trips by Race/Ethnicity



Source: Draft 2017 TIP and California Household Travel Survey

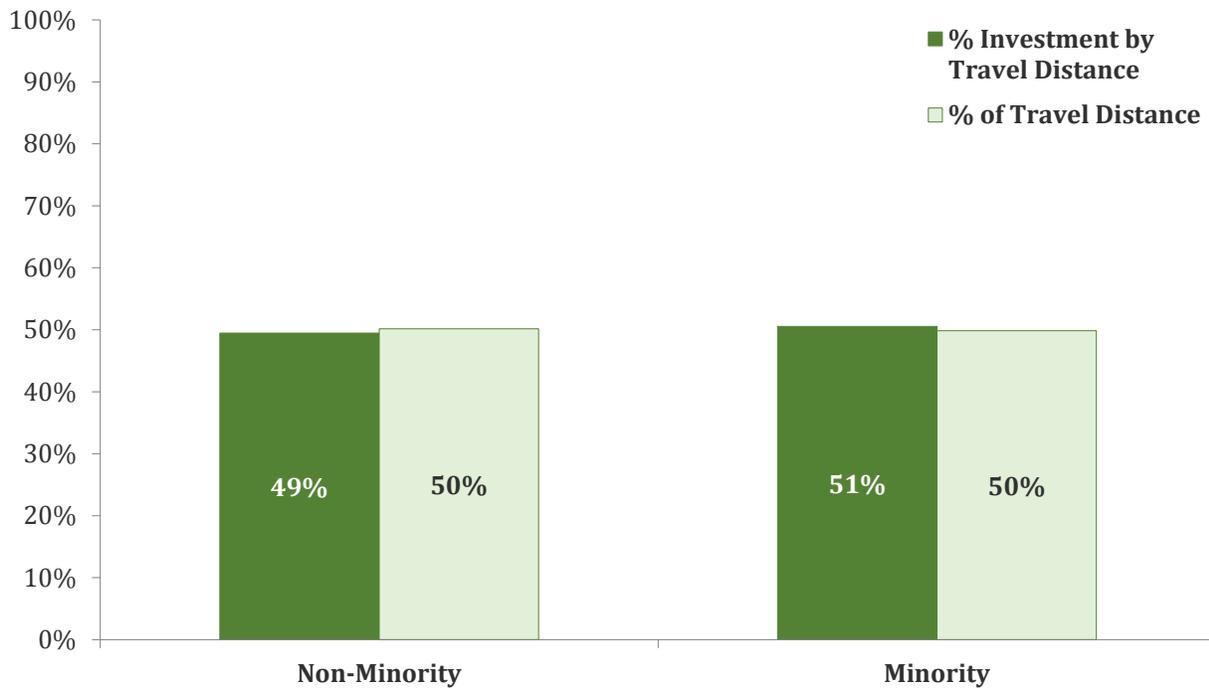
The minority household populations account for approximately half (50%) of all travel distance, as measured by VMT of roadway trips and origin destination distance for transit trips. This is less than their proportional share of the region's population (59%) indicating that distances travelled by persons from minority households are shorter, on average, than distances travelled by persons from non-minority households.

The share of investments supporting minority travel by distance (51%) is roughly on par with the overall distance traveled by the minority population (50%).

TABLE 10. Draft 2017 TIP Investments and Travel Distance by Race/Ethnicity

	TIP Investments by Travel Distance	% of Investment	% of Travel Distance
Non-Minority	\$3,268,247,926	49%	50%
Minority	\$3,339,167,969	51%	50%
Total	\$6,607,415,895	100%	100%

FIGURE 8. Draft 2017 TIP Investments and Travel Distance by Race/Ethnicity



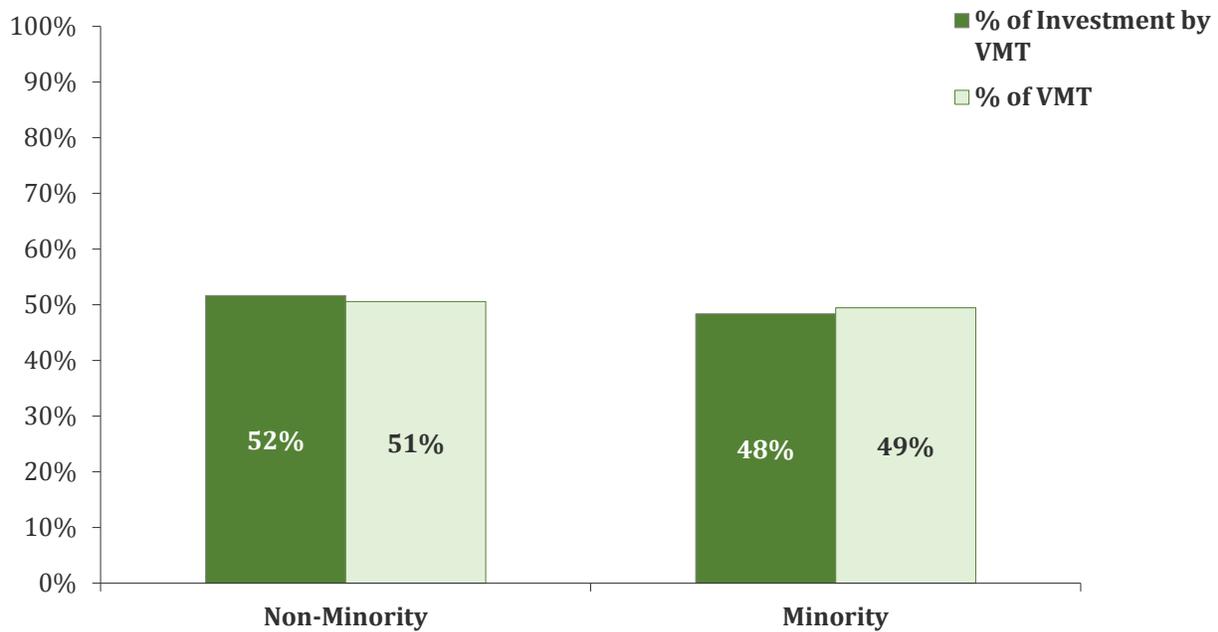
Source: Draft 2017 TIP and California Household Travel Survey

Persons from minority households account for approximately half (49%) of all roadway travel distance, as measured by VMT. On average, drivers from minority households drive shorter distances than drivers from non-minority households. The share of investments supporting minority roadway travel by distance (48%) is slightly less than the overall share of VMT traveled by minority populations (49%).

TABLE 11. Draft 2017 TIP Roadway Investments and Travel Distance (VMT) by Race/Ethnicity
Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge

	TIP Investments by VMT	% of Investment	% of VMT
Non-Minority	\$1,877,671,516	52%	51%
Minority	\$1,758,809,673	48%	49%
Total	\$3,636,481,189	100%	100%

FIGURE 9. Draft 2017 TIP Roadway Investments and Travel Distance (VMT) by Race/Ethnicity
Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge



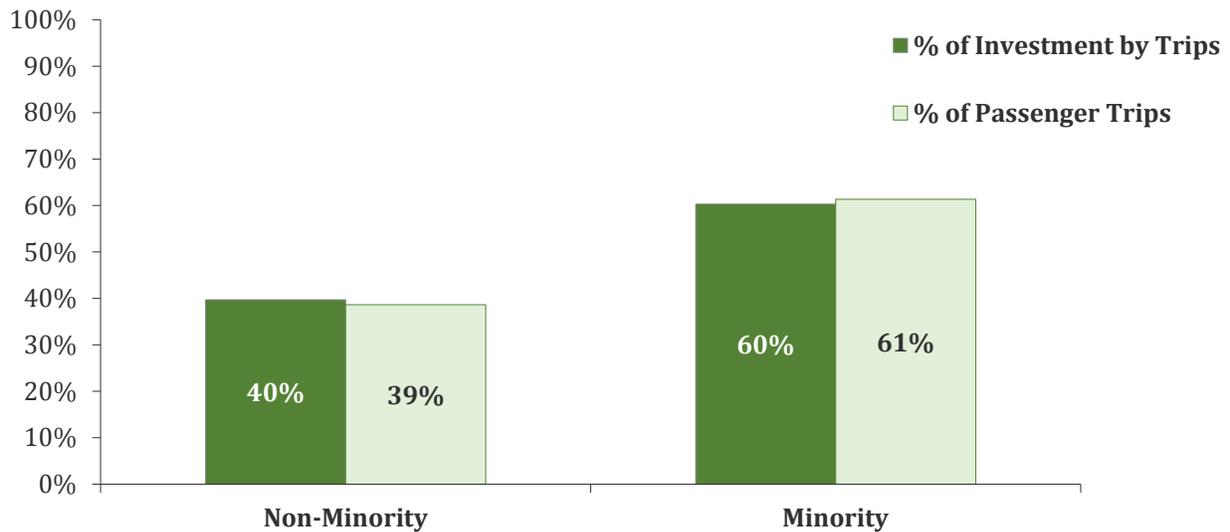
Source: Draft 2017 TIP and California Household Travel Survey

On average, minority residents take proportionately more transit trips than the non-minority population; 61% of transit trips are made by minority population, whereas minorities comprise 59% of the Bay Area population. The share of investments that support racial/ethnic minority transit trips (60%) is slightly less than the share of transit trips made by minority populations (61%).

TABLE 12. Draft 2017 TIP Transit Investments and Transit Trips by Race/Ethnicity

	TIP Investments by Transit Trips	% of Investment	% of Transit Trips
Non-Minority	\$1,179,742,069	40%	39%
Minority	\$1,791,192,637	60%	61%
Total	\$2,970,934,706	100%	100%

FIGURE 10. Draft 2017 TIP Transit Investments and Transit Trips by Race/Ethnicity



Sources: Draft 2017 TIP and Transit Passenger Demographic Survey (MTC), SFMTA Transit Passenger Demographic Survey, VTA Transit Passenger Demographic Survey, 2006-2007 Regional Transit Passenger Demographic Survey (Godbe Research)

Seniors and Persons with Disabilities

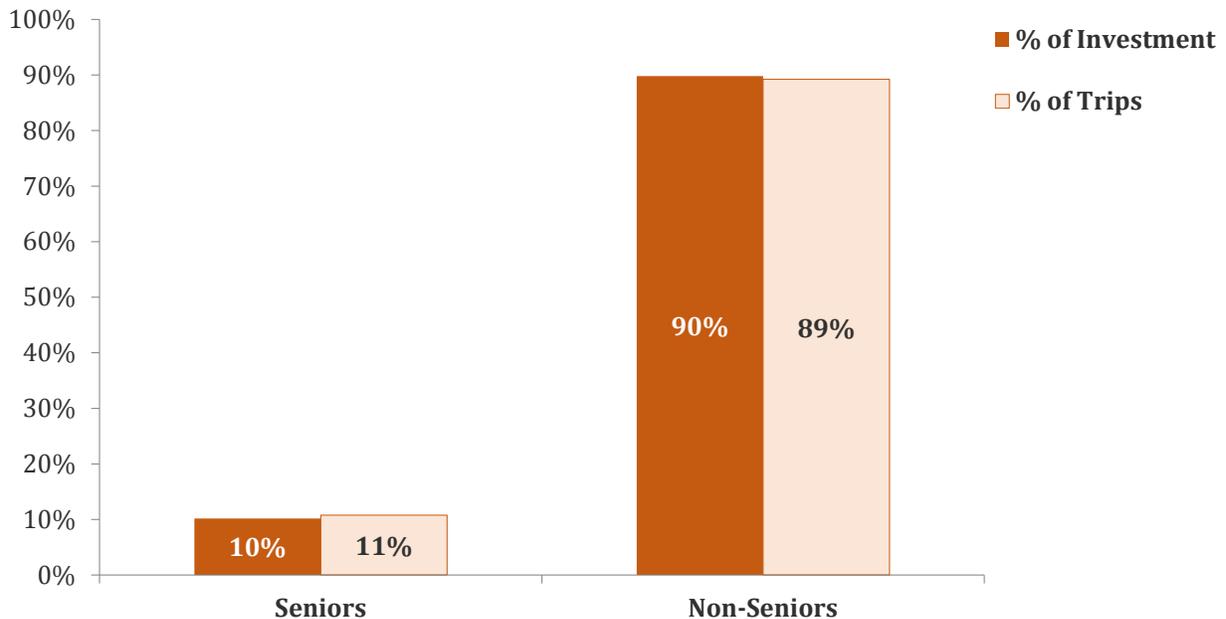
Seniors, defined for this analysis as persons over the age of 65, account for nearly 14% of the region's population, but their share of all trips taken is only 11%. On average, Bay Area seniors take fewer trips than persons under the age of 65.

The share of transportation investments that support trips taken by seniors (10%) is slightly less, but roughly equivalent to, than their share of trips.

TABLE 13. Draft 2017 TIP Investments and Trips by Seniors

	TIP Investments by Trips	% of Investment	% of Trips
Senior	\$672,697,246	10%	11%
Non-Senior	\$5,934,718,649	90%	89%
Total	\$6,607,415,895	100%	100%

FIGURE 11. Draft 2017 TIP Investments and Trips by Seniors



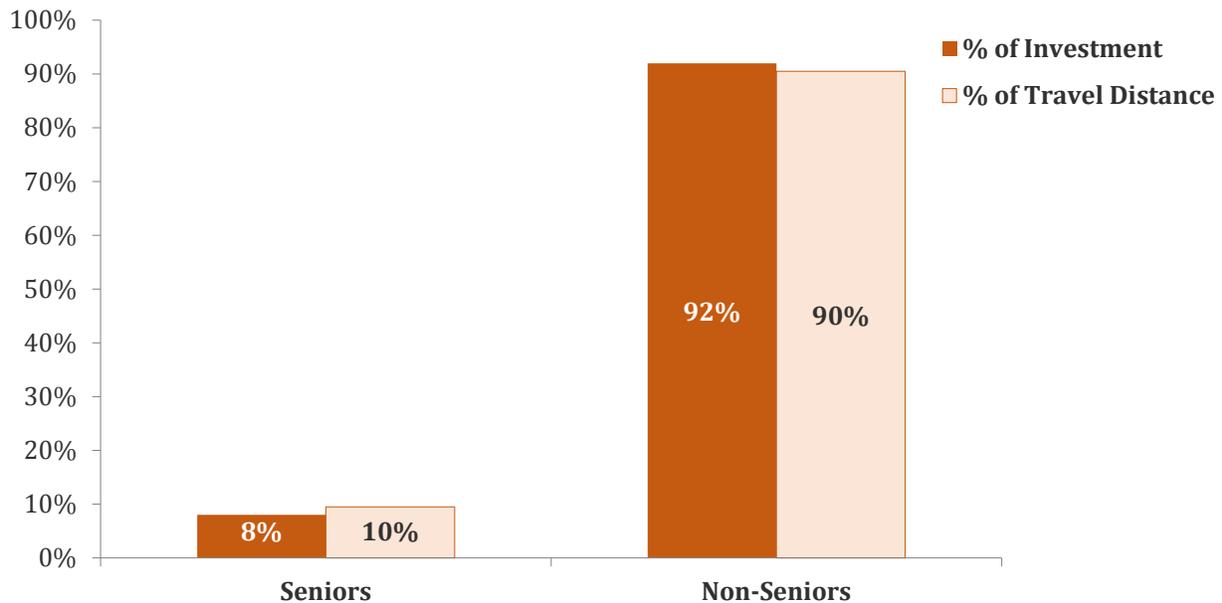
Source: Draft 2017 TIP and California Household Travel Survey

Seniors also account for 10% of all travel distance, as measured by VMT of roadway trips and origin/destination distance for transit trips. This is roughly equivalent to their share of all trips (11%) and somewhat less than their proportional share of the population (14%). This indicates that trips made by seniors are shorter in distance than trips made by non-seniors, on average.

TABLE 14. Draft 2017 TIP Investments and Travel Distance by Seniors

	TIP Investments Travel Distance	% of Investment	% of Travel Distance
Senior	\$529,576,460	8%	10%
Non-Senior	\$6,077,839,435	92%	90%
Total	\$6,607,415,895	100%	100%

FIGURE 12. Draft 2017 TIP Investments and Travel Distance by Seniors



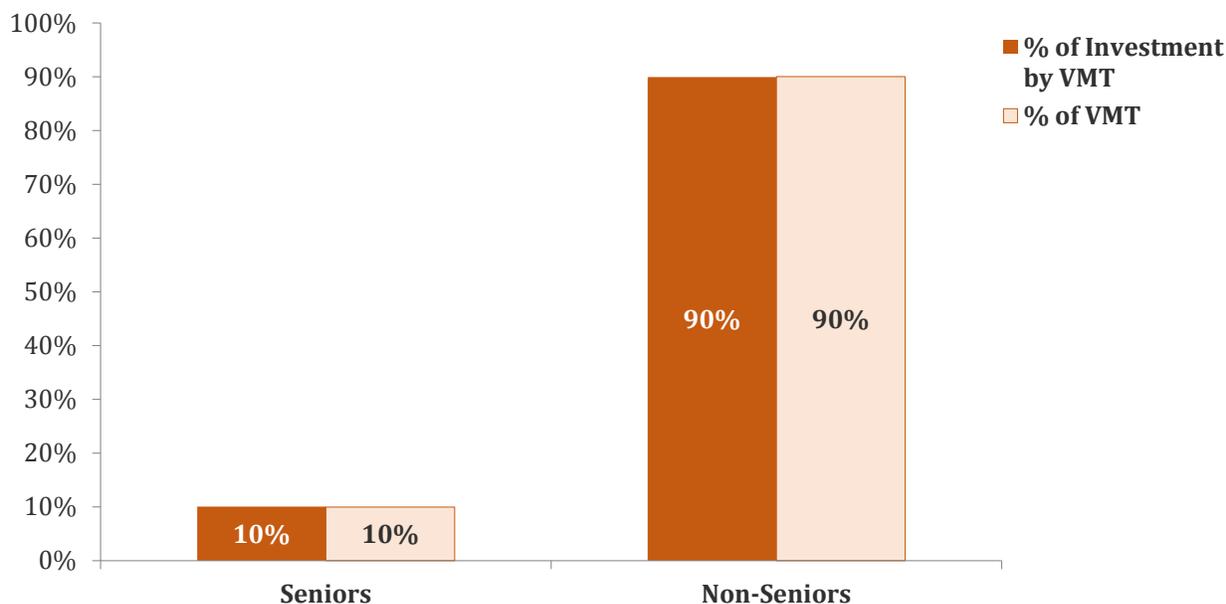
Source: Draft 2017 TIP and California Household Travel Survey

For roadway trips, seniors account for 10% of all VMT and benefit from an equivalent share of investments.

TABLE 15. Draft 2017 TIP Roadway Investments and Travel Distance (VMT) by Seniors
Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge

	TIP Investments by VMT	% of Investment	% of VMT
Senior	\$365,755,297	10%	10%
Non-Senior	\$3,270,725,892	90%	90%
Total	\$3,636,481,189	100%	100%

FIGURE 13. Draft 2017 TIP Roadway Investments and Travel Distance (VMT) by Seniors
Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge



Source: Draft 2017 TIP and California Household Travel Survey

Given the limitations of the data available, a detailed look at investments by transit trip length and passenger age is not included. Similarly, a quantitative analysis of TIP investments in relation to the transportation of persons with disabilities is not included in this analysis. Despite the inability to quantify them, transportation investments benefiting these populations are being made throughout the region. Below is an overview of regional investments and planning initiatives that support transportation by seniors and persons with disabilities.

- Community Based-Transportation Planning (CBTP) – provides planning funds for project recommendations in each of the region’s Communities of Concern. Forty-one CBTPs at \$60k each have been completed. A new round of funding for updated CBTP in communities of concern is expected in 2017.

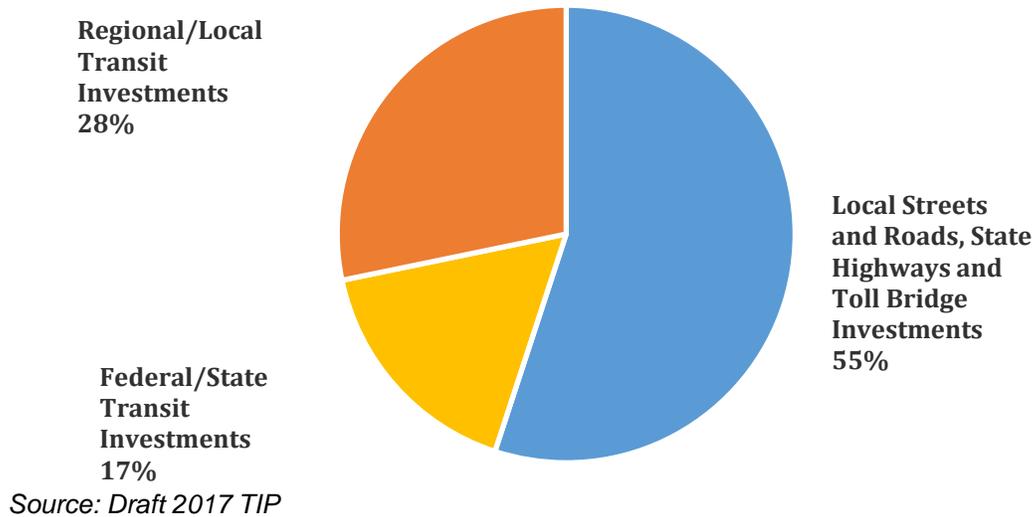
- Lifeline Transportation Program – provides funds to address mobility needs of low-income residents, including seniors and individuals with disabilities. Funding is used to support projects from CBTPs. Historically, \$21.7 million has been provided annually. However, this program is facing funding decrease to \$12 million per year.
- FTA Section 5310 Enhanced Mobility of Seniors & Individuals with Disabilities - provides capital and operating grants to private nonprofit and public agencies to improve mobility for seniors and individuals with disabilities by removing barriers to and expanding services. Under MAP-21, this program changed significantly: The New Freedom program was consolidated into this program, and funding is now apportioned by Large Urbanized Area, Small Urbanized Area and Rural areas. In the last round of funding, \$8.7 million in awards were made in region’s large urbanized areas. The region’s small urbanized areas received \$1.6 million in awards.
- Transit Capital Priorities - provides an optional ADA set aside of 10% of the FTA Section 5307 large urbanized area apportionment. Operators may use this funding to defray the operating costs of their paratransit systems. Annually, this amounts to approximately \$20 million.
- State Transit Assistance - 15.6% of the STA Population based funds are set aside for operators to use in order to defray the operating costs of their paratransit systems. Annually, this amounts to approximately \$9 million.
- MTC’s Coordinated Public Transit—Human Services Transportation Plan is a comprehensive strategy for public transportation service delivery that identifies the transportation needs of individuals with disabilities, older adults, and individuals with limited income, laying out strategies for meeting these needs, and prioritizing services. The Coordinated Plan is intended to meet the federal planning requirements as well as to provide MTC and its regional partners with a “blueprint” for implementing a range of strategies intended to promote and advance local efforts to improve transportation for persons with disabilities, older adults, and persons with low incomes. MTC staff works with stakeholders throughout the region to gather input on transportation gaps, as well as solutions that are then eligible for federal funding through the Section 5310 program.

The Coordinated Plan was last updated in 2013. Staff is currently updating the Coordinated Plan for an early 2017 adoption.

Disparate Impact Analysis

FTA's requirements for Title VI in the transportation planning process require an analysis of Federal and State funding sources for transit relative to other modes. The Federal and State funding sources for public transportation are separated out from the total draft 2017 TIP investments, as illustrated below in Figure 11.

FIGURE 11. Draft 2017 TIP Transit Investments from Federal and State Sources as a Share of All Investments



It is important to note that a substantial share of total funding dedicated to transit operators for ongoing operations and maintenance of their entire system comes from additional state, regional and local sources that are generally not included as part of the TIP as they generally do not require a federal action.

Similar to the used-based analysis, the disparate impact analysis indicates that the share of Federal and State transit investments are distributed equitably to minority populations as compared to their respective shares of regional transit ridership and regional population.

TABLE 16. Draft 2017 TIP Federal/State Transit Investments by Race/Ethnicity

	Federal/State Transit Investments (\$ millions)	% of Total Federal/State Transit Funding	% of Regional Transit Ridership	% of Total Regional Population
Non-Minority	\$458	41%	39%	41%
Minority	\$647	59%	61%	59%
Total	\$1,105	100%	100%	100%

Investments distributed on a per-capita basis indicate that minority populations in the region are receiving \$144 in benefits per person, slightly less than \$149 in benefits per person for non-minority populations (or 96% of the benefits received by non-minority residents).

TABLE 17. Draft 2017 TIP Federal/State Transit Investments, Disparate Impact Analysis by Population

	Federal/State Transit Investments (\$ millions)	Regional Population	Per-Capita Benefit	Minority per Capita Benefit as % of Non-Minority Per Capita Benefit
Non-Minority	\$458	3,064,421	\$149	
Minority	\$647	4,497,334	\$144	96%
Total	\$1,105	100%	100%	100%

Investments distributed on a per transit rider basis indicate that minority populations in the region receive \$653 in benefits per rider, somewhat less than \$733 in benefits per rider for non-minority populations (or 89% of the benefits received by non-minority residents).

TABLE 18. Draft 2017 TIP Federal/State Transit Investments, Disparate Impact Analysis by Boardings

	Federal/State Transit Investments (\$ millions)	Average Daily Transit Ridership	Per-Rider Benefit	Minority per Capita Benefit as % of Non-Minority Per Capita Benefit
Non-Minority	\$458	624,234	\$733	
Minority	\$647	990,834	\$653	89%
Total	\$1,105	100%	100%	100%

Mapping Analysis

To supplement the use-based analysis described above, TIP projects were mapped (where possible) and overlaid against communities of concern and census tracts with concentrations of minority populations that are above the regional average. This analysis provides an opportunity to analyze the overall spatial distribution of projects to assess equitable access to TIP investments.

This qualitative assessment mainly involves examining the distribution of projects for any apparent systematic exclusion of communities of concern or minority 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.

The component of this analysis overlaying TIP investments against communities with above-average minority populations also constitutes part of the Title VI Analysis. All the

maps are included as part of Appendix C and are also posted as part of an interactive online mapping tool at: <http://arcg.is/1ttLWBz>.

Key Findings

The results of the population use-based analysis indicates that overall, the investments in the draft 2017 TIP direct an equitable proportion of investments to projects that support the transportation of residents of low-income households and racial/ethnic minorities.

A couple exceptions worth noting is the share of transit investments by trips for passengers living in low-income households and the difference between minorities and non-minorities in terms of benefits per transit rider.

- The share of transit investments by trips for passengers in low-income households (45%) falls short of the share of transit trips by passengers living in low-income households (53%).
- Similarly, there is a discrepancy between benefits per transit riders, with minority transit riders receiving 89% of the benefits received by non-minority transit riders. There was also a smaller discrepancy in the per capita transit benefits (96% of the benefits, or 4% disbenefit), but the relatively minor difference does not appear to demonstrate a systemic disbenefit to minority populations.

As noted above, these discrepancies related to transit investments are likely due to the absence of approximately \$2 billion in transit formula funding from the Draft 2017 TIP. The programming of these funds into the 2017 TIP, which is anticipated to occur in the near future, is expected to alleviate these imbalances in TIP investments, if not completely eliminate any disparity.

The Draft 2017 TIP Investment Analysis demonstrates that overall, the investments in the Draft 2017 TIP are distributed equitably between low-income and minority populations as compared to the general population. However, staff recommends revisiting the analysis of transit investments in relation to low-income and minority populations with the next update of the TIP (estimated for summer 2017, to coincide with adoption of Plan Bay Area 2040). By that time the FTA funds for FY2016-17 through FY2019-20 are also expected to be programmed. Further, an understanding of the balance of investments serving low-income and minority communities will be added to the FTA formula fund programming process.

Appendix A: Regulatory and Policy Context for Environmental Justice in Transportation Planning

The contents of this analysis are intended to support other regional planning efforts and policy objectives to address federal requirements related to environmental justice. At the federal level, civil rights protections are afforded to persons against discrimination in federal programs on the basis of race, color, or national origin; and federal environmental justice objectives. At the regional level, MTC has adopted additional environmental justice principles to further advance efforts by MTC and ABAG to incorporate social equity throughout the agencies' regional planning efforts, including Plan Bay Area.

Title VI of the Civil Rights Act of 1964: The Right of Non-discrimination in Federally Funded Programs on the Basis of Race, Color, or National Origin

This section discusses the relationship between Title VI, its requirements, and the development of the Regional Transportation Plan and Transportation Improvement Program.

What Is Covered under Title VI?

Title VI of the Civil Rights Act of 1964 states that “[n]o person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”¹ Title VI further authorizes Federal agencies that make grants (for example, the U.S. Department of Transportation) to promulgate regulations to effectuate compliance with the law’s provisions.

U.S. Department of Transportation Title VI Regulations

Specific discriminatory actions prohibited under DOT Title VI regulations include:

- (1) A recipient under any program to which this part applies may not, directly or through contractual or other arrangements, on the grounds of race, color, or national origin.
 - (a) Deny a person any service, financial aid, or other benefit provided under the program;
 - (b) Provide any service, financial aid, or other benefit to a person which is different, or is provided in a different manner, from that provided to others under the program;
 - (c) Subject a person to segregation or separate treatment in any matter related to his receipt of any service, financial aid, or other benefit under the program;
 - (d) Restrict a person in any way in the enjoyment of any advantage or privilege enjoyed by others receiving any service, financial aid, or other benefit under the program;
 - (e) Treat a person differently from others in determining whether he satisfies any admission, enrollment, quota, eligibility, membership, or other requirement or condition which persons must meet in order to be provided any service, financial aid, or other benefit provided under the program;
 - (f) Deny a person an opportunity to participate in the program through the provision of services or otherwise or afford him an opportunity to do so which is different from that afforded others under the program; or
 - (g) Deny a person the opportunity to participate as a member of a planning, advisory, or similar body which is an integral part of the program.
- (2) A recipient, in determining the types of services, financial aid, or other benefits, or facilities which will be provided under any such program, or the class of person to whom, or the situations in which, such services, financial aid, other benefits, or facilities will be provided under any such program, or the class of persons to be afforded an opportunity to participate in any such program; may not, directly or through

¹ 42 U.S.C §2000d.

What Are MTC's Responsibilities?

As a recipient of DOT funds, MTC is responsible for complying with DOT regulations related to Title VI² (see sidebar, above). In October 2012, the Federal Transit Administration issued a Circular with guidance to its recipients for compliance with federal Title VI requirements.³ This guidance lays out requirements for FTA's recipients, including metropolitan planning organizations (MPOs) such as MTC, to ensure that their programs, policies, and activities comply with the Department of Transportation's Title VI regulations. The guidance offers several specific requirements that MPOs must submit to the State and to FTA as part of their overall Title VI Programs, including:

- “All general requirements set out in [the General Requirements section of the] Circular.
- “A demographic profile of the metropolitan area that includes identification of the locations of minority populations in the aggregate;
- “A description of the procedures by which the mobility needs of minority populations are identified and considered within the planning process;
- “Demographic maps that overlay the percent minority and non-minority populations as identified by Census or ACS data ... and charts that analyze the impacts of the distribution of State and Federal funds in the aggregate for public transportation purposes...;
- “An analysis of impacts identified in paragraph (4) that identifies any disparate impacts on the basis of race, color, or national origin, and, if so, determines whether there is a substantial legitimate justification for the policy that resulted in the disparate impacts, and if there are alternatives that could be employed that would have a less discriminatory impact.”⁴

Specific methods MTC uses in addressing these requirements for the Regional Transportation Plan are included in Plan Bay Area. In addition to analyzing the long-range Plan as described in this report, MTC's broader Title VI program includes a variety of commitments to ensure nondiscrimination on the basis of race, color, or national origin in its programs and activities.⁵

Environmental Justice: Avoiding, Minimizing, or Mitigating Disproportionately High and Adverse Effects on Low-Income and Minority Populations

Environmental justice is a concept related to, but distinct from civil rights and Title VI. Whereas Title VI provides legal protection from discrimination in Federal programs on the basis of “race, color, or national origin,” environmental justice in the context of the region's long range Plan relates to an administrative framework for internal management of federal agencies to ensure their programs and activities incorporate environmental justice principles and do not disproportionately burden low-income and minority populations.

² 49 CFR part 21.

³ Federal Transit Administration Circular 4702.1B, *Title VI Requirements and Guidelines for Federal Transit Administration Recipients*: http://www.fta.dot.gov/documents/FTA_Title_VI_FINAL.pdf.

⁴ FTA Circular 4702.1B, page VI-1f.

⁵ For more information, see MTC's Title VI page at: http://www.mtc.ca.gov/get_involved/rights/title_VI.htm.

The environmental justice movement emerged following the broader environmental movement of the 1960s and 1970s, out of concern that predominantly minority and low-income communities were bearing disproportionate environmental burdens relative to their non-minority and non-low-income counterparts. In this sense, the “justice” aspect of environmental justice is rooted in the basic concept of fairness in terms of an equitable distribution of environmental benefits and burdens, and seeks to promote participation of community members in the decision-making processes that affect them.

What Is Covered under Environmental Justice?

In an effort to address environmental justice concerns mounting across the country during the 1980s and early 1990s, in 1994 President Clinton signed Executive Order 12898, *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*. This Order directed each Federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...”⁶ Furthermore, the Executive Order directed each agency to develop an agency-wide environmental justice strategy.

Accordingly, the U.S. Department of Transportation issued its original Environmental Justice Order in April 1997, establishing DOT’s overall strategy and procedures to be used by DOT to comply with EO 12898. In response to the Memorandum of Understanding on Environmental Justice signed by heads of Federal agencies on August 4, 2011, in an effort to “renew the process under Executive Order 12898 for agencies to provide environmental justice strategies and implementation progress reports,”⁷ DOT issued its revised environmental justice strategy, DOT Order 5610.2(a), in March 2012. This Order places responsibility on the head of each Operating Administration within DOT to determine whether programs, policies, or activities for which they are responsible will have an adverse human health or environmental effect on minority and low-income populations and whether that adverse effect will be disproportionately high.

As operating administrations within DOT, the Federal Highway Administration and Federal Transit Administration both define three fundamental environmental justice principles consistent with the Executive and DOT Orders as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

⁶ Executive Order 12898 (1994, Clinton).

⁷ Memorandum of Understanding on Environmental Justice and Executive Order 12898, available at: <http://www.epa.gov/compliance/ej/resources/publications/interagency/ej-mou-2011-08.pdf>.

The DOT Order further defines “disproportionately high and adverse effect on minority and low-income populations” as an adverse effect that:

1. is predominately borne by a minority population and/or a low-income population, or
2. will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

In June 2012, the Federal Highway Administration released a new and updated Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.⁸ This Order clarifies FHWA’s environmental justice policies, guidance, and responsibilities consistent with the updated DOT Order.

In August 2012, the Federal Transit Administration released final guidance in the form of a Circular on incorporating environmental justice principles into plans, projects, and activities that receive funding from FTA.⁹ This final guidance provides recommendations to recipients of FTA funds, including metropolitan planning organizations, on how to fully engage environmental justice populations in the public transportation decision-making process; how to determine whether environmental justice populations would be subjected to disproportionately high and adverse human health or environmental effects as a result of a transportation plan, project, or activity; and how to avoid, minimize, or mitigate these effects.

MTC Environmental Justice Principles

In addition to MTC’s long-standing commitment to supporting DOT, FHWA, and FTA in fulfilling their environmental justice mission under the Executive Order, MTC’s commitment to environmental justice is embodied in the Environmental Justice principles adopted by the Commission in 2007. Developed in a collaborative process involving regional environmental-justice stakeholders and transportation agencies, the adopted principles affirm MTC’s ongoing commitments to:

1. Create an open and transparent public participation process that empowers low-income communities and communities of color to participate in decision making that affects them.
2. Collect accurate and current data essential to defining and understanding the presence and extent of inequities, if any, in transportation funding based on race and income.

⁸ FHWA Order 6640.23A, available at: <http://www.fhwa.dot.gov/legisregs/directives/orders/664023a.htm>.

⁹ FTA Circular 4703.1, *Environmental Justice Policy Guidance for Federal Transit Administration Recipients*, available at: http://www.fta.dot.gov/legislation_law/12349_14740.html.

What Are MTC's Responsibilities?

Recipients' responsibilities regarding environmental justice are part of FTA's annual Master Agreement, which requires recipients, including MTC, to promote environmental justice by following and facilitating FTA's compliance with Executive Order 12898, and following DOT's Order on environmental justice. MTC fulfills these responsibilities through a range of programs and activities that support environmental justice principles, including:

- Identifying mobility needs of low-income and minority communities through MTC's Community Based Transportation Planning Program.
- Developing and implementing MTC's Public Participation Plan, which lays out specific strategies for engaging low-income and minority populations and other community stakeholders throughout the metropolitan planning process in general, and providing for input on the development of the Equity Analysis methodology and the definitions of environmental justice populations and performance measures in particular.
- Conducting an environmental justice analysis of the Regional Transportation Plan (as referenced in this report), including an analysis of the distribution of regional transportation investments for low-income and minority populations, and analysis of benefits and burdens using technical performance measures to determine whether the proposed investment strategy may present any disproportionately high and adverse human health and environmental effects on environmental justice populations.
- Continually refining and updating the data and analytical methods required to carry out environmental justice analysis at the regional, programmatic level, incorporating both stakeholder feedback and ongoing improvements in analytical technologies and data collection.

Appendix B: Definitions and Data Sources

Definitions

Minority

Minority populations include persons who identify as any of the following groups defined by the Census Bureau in accordance with guidelines provided by the U.S. Office of Management and Budget (OMB):

- Asian alone
- Black or African-American alone
- Hispanic or Latino of any race
- Other minorities: American Indian or Pacific Islander alone, Native Hawaiian or Pacific Islander alone, some other race alone, or two or more races

For the purposes of this report, all Hispanic and Latino residents of all races are included in the Hispanic and Latino definition, and only non-Hispanic or Latino persons are included in other minority groups. Accordingly, the “non-minority” population consists of all other persons not included in any of the groups described above, namely those identifying as non-Hispanic white alone. Because the Bay Area is a “majority minority” region, the designation of non-Hispanic white persons as “non-minority” is not intended to be misleading, as this population still represents a relative majority (a plurality) in the region but not an absolute majority. Nevertheless, the term “non-minority” is used here to provide consistency and clarity with regard to federal guidance.

Low-Income Households

The TIP investment analysis defines low-income households as having incomes of less than \$50,000 a year. Non-low-income households, as a basis for comparison, are defined as having incomes of \$50,000 or more per year.

Low-Income Persons

A low income person is defined by MTC as persons identified by the Census Bureau as below 200% of the federal poverty level. MTC established the 200% of poverty threshold in 2001 to account for the Bay Area’s high cost of living relative to nationally defined poverty thresholds; the Census Bureau does not adjust the poverty level for different parts of the continental U.S. where different costs of living to factor into the varying affordability of basic necessities. The Census Bureau establishes poverty status for individuals based on a combination of an individual’s household composition, size, and income. As of 2016, the 200% threshold represented a household income of approximately \$48,600 a year for a family of four.

Communities of Concern

The definition of “communities of concern” is intended to represent a diverse cross-section of populations and communities that could be considered disadvantaged or vulnerable in terms of both current conditions and potential impacts of future growth. For Plan Bay Area 2040, the definition of communities of concern will include all census tracts that have a concentration of BOTH minority AND low-income households at specified thresholds of significance, or that have a concentration of three or more of six additional factors if they also have a concentration

of low-income households. Among the additional factors are people with disability, seniors 75 years and over, and cost-burdened renters.

Communities of Concern Framework for Plan Bay Area 2040

Definition – census tracts that have a concentration of BOTH minority AND low-income households, OR that have a concentration of three or more of the remaining six factors (#3 to #8) but only IF they also have a concentration of low-income households.		
<i>Disadvantage Factor</i>	<i>% Regional Population</i>	<i>Concentration Threshold</i>
1. Minority	58%	70%
2. Low Income (<200% Federal Poverty Level - FPL)	25%	30%
3. Limited English Proficiency	9%	20%
4. Zero-Vehicle Household	10%	10%
5. Seniors 75 Years and Over	6%	10%
6. People with Disability	9%	25%
7. Single-Parent Family	14%	20%
8. Severely Rent-Burdened Household	11%	15%

Data Sources

This section describes the various data sources used to perform the 2017 TIP Investment Analysis.

American Community Survey and Public Use Microdata Sample

The Census Bureau provides two key data sets used in this report. The first is the American Community Survey (ACS). The ACS is an ongoing annual sample-based survey of the U.S. population and provides basic demographic information similar to the decennial Census but also provides far greater detail on various socioeconomic characteristics, including such data relevant to this analysis as household income and disability status. As of this writing, the most recently available ACS data year is 2014, and that year’s data were used in this report to characterize the regional population’s disability status, number and share of seniors, and race/ethnicity.

The second Census Bureau data set used is one derived from the ACS – the Public Use Microdata Sample (PUMS). PUMS data are a 1% subsample of the ACS data, and they include complete household and person records, allowing for custom data tabulations. Public Use Microdata Areas (PUMA), the units of reporting for PUMS data, must have a population of at least 100,000. As of the last decennial census, there are 55 PUMAs in the Bay Area, and PUMAs nest into the nine Bay Area counties – allowing for county-level data summaries. Data from the 2014 PUMS were used to summarize the number of county and Bay Area-level persons residing in households by income category.

California Household Travel Survey

MTC participated with the State of California Department of Transportation and other constituents within the state in implementing the 2012/2013 California Household Travel Survey (CHTS). The CHTS is an activity-based travel survey that collected information on all in-home and out-of-home activities, including all trips, over a one-day period for nearly 10,000 Bay Area households. The survey provides detailed information on many trip characteristics such as trip purpose, mode, origins and destinations, as well as household demographic and socioeconomic characteristics, and informs development of the regional travel demand model. In this report, CHTS is used primarily to provide data on usage of the regional transportation system, and in particular the share of trip-making and vehicle-miles of travel (VMT) on the region's road, highway, and transit systems, for different demographic and socioeconomic groups.

Bay Area Transit Passenger Demographic Survey

In 2012, MTC began a program of collecting consistent demographic and trip data from Bay Area transit passengers. Since then, passengers from 15 transit agencies have been surveyed, and the rest of the region's system is anticipated to be surveyed by 2017. Data collected includes race/ethnicity, age, fare payment information, household income, and vehicle availability, as well as the full one-way trip patterns of all passengers. Results for this survey are used in the investment analysis to determine transit-investment benefits to low-income and minority populations based on these groups' share of transit use on individual systems and across the region as a whole. Operator-collected data was used when recent MTC-collected data was not available, including surveys collected by San Francisco Municipal Transportation Agency and Santa Clara Valley Transportation Authority. Data from MTC's 2007 Transit Passenger Demographic Survey provided information for the remaining six operators. Where appropriate, the 2015 MTC Statistical Summary of Bay Area Transit Operators was used to provide current ridership totals for regional comparisons. The Transit Passenger Demographic Survey also informs the disparate impact by establishing a consistent demographic profile of the region's overall transit ridership across all systems by minority and non-minority status