

2019 TIP Investment Analysis

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

INTRODUCTION

The 2019 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.

2019 TIP

The Bay Area's 2019 TIP covers the four-year period of FY 2018-19 through FY 2021-22 and includes more than 500 transportation projects with \$13 billion in committed funding during the four-year period.

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 and maintenance, planning efforts, bicycle/pedestrian improvements, and minor intersection improvements.

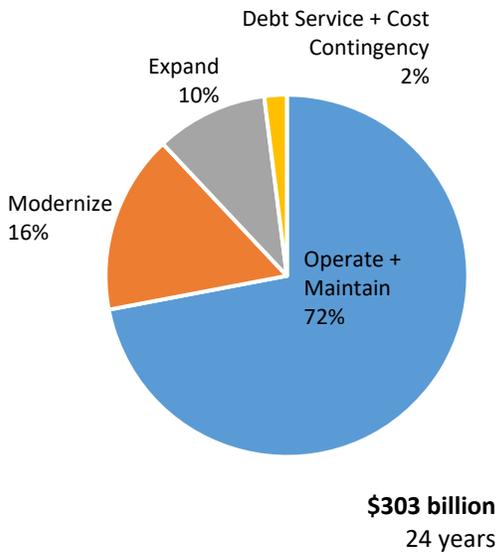
All projects included in the TIP must be consistent with the region's long-range plan, Plan Bay Area 2040 (the Plan). As such, the TIP represents a four-year snapshot that is a small part of the 24 years of the Plan.

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 expected to be available (federal, state, local, and private funds) to implement 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 is 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

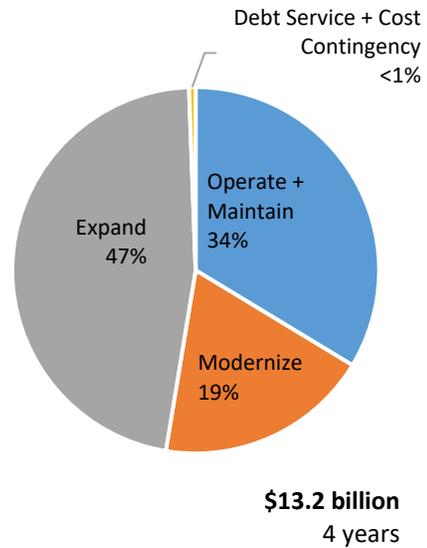
Plan Bay Area 2040 Investments

Expenditures by Investment Strategy



2019 TIP Investments

Expenditures by Investment Strategy



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 2019 TIP accounts for only a quarter of 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 funding and project changes, and on-going funding efforts. For context, the 2017 TIP was amended or modified more than 30 times in the two years following its federal approval.

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 his or her 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.

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 60 percent of the population self-identifying as members of a racial and/or ethnic minority. In this majority-minority region, a quarter of the population identifies as Asian (25%), followed closely by Hispanic or Latino (24%), and then Black 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. Population Distribution by Race/Ethnicity

	Population (in millions)	%
Minority	4.6	60%
Asian	2.0	25%
Hispanic or Latino	1.8	24%
Black or African American	0.4	6%
Other minority	0.4	5%
Non-Minority	3.0	40%
Total	7.6	100%

Notes: Tabulation prepared by MTC based on data from 2016 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 persist. Nearly nine percent of the population lives below the federal poverty level (\$24,300 a year for a family of four). Another 12 percent of the region's households are technically above the federal poverty line but still qualify as low-income for the purposes of this analysis, defined as households with incomes that fall below \$50,000 (approximately 200 percent of the federal poverty line for a family of four). For reference, the 2016 median income for a family of four ranges from just over \$69,000 in Solano County to more than \$101,000 in Santa Clara County.

TABLE 2. Population Distribution by Household Income

	Population (in millions)	%
Low-Income	1.6	21%
<\$25,000	0.7	9%
\$25,000 - \$49,999	0.9	12%
Not Low-Income	6.0	79%
\$50,000 - \$99,999	1.8	24%
\$100,000 - \$149,999	1.4	19%
>\$150,000	2.7	36%
Total	7.5	100%

Notes: Tabulation prepared by MTC based on data from 2016 American Community Survey Public Use Microdata Samples. Income is calculated in 2016-denominated dollars. Note that the universe is persons in households and excludes persons living in group quarters.

Seniors and Persons with Disabilities

More than 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 (in millions)	%
Seniors	1.1	14%
Persons with Disabilities	0.8	10%

Notes: Tabulation prepared by MTC based on data from 2016 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 (76%) followed by transit (12%), non-motorized trips (5%), telecommute (6%), and other modes (1%).

TABLE 4. Share of Commute Trips by Mode by Population

	Low- Income	Minority	Seniors	Total Population
Roadway (Motorized)	73%	78%	73%	76%
Roadway (Non-motorized)	8%	4%	4%	5%
Transit	11%	12%	8%	12%
Telecommute	6%	4%	14%	6%
Other	2%	1%	1%	1%
Total	100%	100%	100%	100%

Notes: Tabulation prepared by MTC based on data from 2016 American Community Survey Public Use Microdata Samples. Income is calculated in 2016-denominated dollars. Note that the universe is persons in households and excludes persons living in group quarters.

The share of all trips (including both commute and non-commute 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.

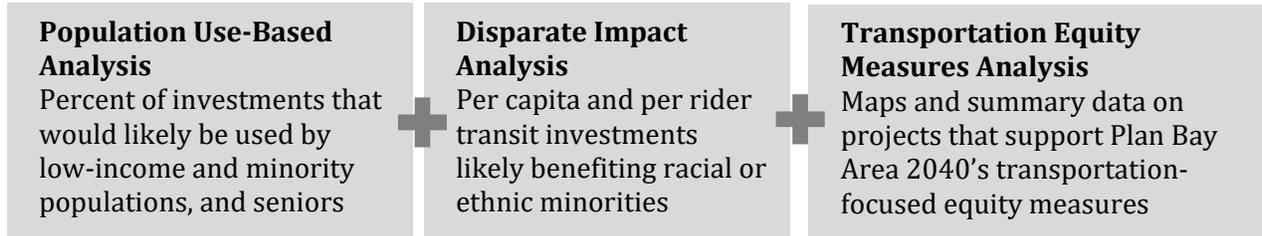
TABLE 5. Share of Commute and Non-Commute Trips by Mode by Population

	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.

METHODOLOGY

The 2019 TIP investment analysis is built on three components that work together to inform how low-income and minority communities, seniors, and persons with disabilities may be affected by the proposed investments in the 2019 TIP.



The methodologies used in each analysis are described in more detail below. Appendix B includes definitions and data sources used in this analysis.

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.

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.

For reference, Appendix C includes maps for each county with projects shown with their roadway or transit categorization.

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 two 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, low-income populations make 32% of Alameda County roadway trips. 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. A similar analysis is conducted using roadway vehicle miles traveled (VMT) and transit origin-destination distance.

For the in-depth analysis, transit usage data is derived from the most recent transit survey data available for each operator through MTC's ongoing Transit Passenger Demographic Survey. For in-depth roadway usage, 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 the analysis compares 2019 TIP investments per capita for racial or ethnic minority populations to 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. Due to the similarities in the analysis required by the Federal Transit Administration (FTA) 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.

This portion of the analysis focuses on federal- and state-funded projects only. Some of the State and Federal fund sources included are FTA 5307, FTA 5309, FTA 5311, FTA 5337 funds, STP/CMAQ, Proposition 1B, and Senate Bill 1 (SB 1) funds. In addition, 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.

The disparate impact analysis incorporates the quantitative results produced by the population/use-based analysis for state and federally funded projects. Investments 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:

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

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

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 for a long-range plan represents a disparate impact, a general practice 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 in the long-range plan 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.”¹ As stated earlier, the disparate impact analysis is not a federal requirement for the TIP, and is included in the 2019 TIP Investment Analysis for informational purposes.

Transportation Equity Measures Analysis

The third component of the analysis highlights projects and investments that are likely to support our regional performance targets in five transportation-related equity measures from Plan Bay Area 2040.

Plan Bay Area 2040		
Goal Area	Goal #	Performance Target
Healthy and Safe Communities	3	Reduced adverse health impacts associated with air quality, road safety, and physical inactivity by 10%
Economic Vitality	8	Increase by 20% the share of jobs accessible within 30 minutes by auto or within 45 minutes by transit in congested conditions
Transportation System Effectiveness	12	Reduce vehicle operating and maintenance costs due to pavement conditions by 100%
Equitable Access	13	Reduce per-rider transit delay due to aged infrastructure by 100%
	5	Decrease the share of lower-income residents’ household income consumed by transportation and housing by 10%

Healthy and Safe Communities

Projects that are expected to contribute towards reaching our regional goals for healthy and safe communities include projects that improve road safety, projects that increase physical activity, and projects that improve air quality. These projects are identified by:

¹ FTA Circular 4702.1B, page VI-2.

- **Safety:** Projects identified by the project sponsors as having a primary purpose of addressing safety, or as anticipated to have a significant impact on reducing fatalities and serious injuries for all users.
- **Physical Activity:** Projects identified by project sponsors as being focused primarily on bicycle or pedestrians (greater than 50% of the project's investment supports bicyclists and/or pedestrians), and the total investments included in the TIP that support bicycle or pedestrian mode regardless of the project's primary purpose.
- **Air Quality:** Projects funded with federal Congestion Mitigation Air Quality Improvement Program (CMAQ), state California Air Resources Board (CARB), regional Transportation for Clean Air (TFCA) grants, or in MTC's Climate Initiatives Program.

The number and investment level of the projects supporting the healthy and safe communities goal area are summarized at the regional and county level. Safety and active transportation projects that have physical locations (ex.: a complete streets project, or an interchange improvement) are also mapped over the region's Communities of Concern (COCs).

Economic Vitality

Transportation projects that can be expected to increase accessibility to the share of jobs by car and transit are projects that reduce traffic congestion or improve the reliability of the existing transportation system. These projects are identified by:

- **Road Congestion/Reliability:** Road projects identified by the project sponsors as having a primary purpose of addressing congestion or system reliability, or projects anticipated as having a significant impact on congestion reduction or improved system reliability.
- **Transit Service/Capacity:** Transit projects identified by the project sponsors as having a primary purpose of addressing congestion or system reliability, or projects anticipated as having a significant impact on congestion reduction or improved system reliability.

The number and investment level of projects supporting the economic vitality goal area are summarized at the regional and county level. Additionally, projects identified as improving congestion or system reliability that have physical locations (ex.: a new bus rapid transit project, or a new HOV or express lane) are also mapped over the region's Communities of Concern (COCs).

Transportation System Effectiveness

The transportation system effectiveness goal area encompasses two performance measures: pavement condition and transit state of good repair. These projects are identified by:

- **Pavement Condition:** Projects that include a pavement rehabilitation or preservation component.
- **Transit State of Good Repair:** Projects that rehabilitate or replace existing transit assets.

The number and investment level of projects supporting improved pavement conditions are summarized at the regional level and county level. Additionally, pavement projects are also mapped over the region's Communities of Concern (COCs).

Transit state of good repair investments are summarized at the regional and transit operator level. As transit asset projects tend to be systemwide, rather than tied to a static location, they are not included in the Transportation System Effectiveness maps. Transit projects associated with new or expanded service in specific locations, such as a new light rail line, are represented in the Economic Vitality maps.

Equitable Access

The Equitable Access component is calculated at the program level for the 2019 TIP. Replicating Plan Bay Area 2040's methodology, data is provided from the regional transportation model to report the transportation costs for low-income households in 2022 (end of the 2019 TIP period) as compared to the transportation costs for the general population. In the travel model, and thus for purposes of this calculation, low-income households are defined as those earning less than \$60,000 per year in year 2000 dollars, roughly reflecting the lower two quartiles of the income spectrum.

Given the focus of the TIP on transportation investments, the housing costs portion of the Equitable Access measure is excluded from this analysis.

Limitations

As a regional analysis, the methods used in the TIP investment analysis have 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. Other limitations are:

- ***TIP is a snapshot in time:*** It is also important to re-emphasize that the TIP does not reflect the full picture of transportation investments in the Bay Area over the long-term. As discussed in the introduction, the TIP only includes four years of near-term fund programming, compared to the 20+ years forecast in Plan Bay Area 2040. Also, funding shown in the TIP is included in the year that project phases begin or are obligated and does not reflect the actual flow of funding and expenditures within these phases. While rehabilitation programs will typically have their funding spread

across many years, large capital projects tend to have their funding lumped into a single year in the TIP, even if the funds will actually be expended over a number of years, some of which may be outside the 4-year period of the TIP.

- **Notes on assumptions:** In addition, the analysis assumes that mode choice and system usage remains constant over time. System expansion, such as a new transit line or highway, and changing conditions, such as improvements to reliability and travel costs, 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.

- **Mapping limitations:** Mapping projects provides a visual representation of the location of projects in relation to COCs. However, project mapping also presents certain 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 maintenance of their entire system, which cannot be represented as a simple point or line on a map in relation to a specific community. Second, displaying investments on a map does not translate into a direct benefit or burden for the surrounding communities. Given these limitations, the mapping analysis provides a qualitative, rather than quantitative, assessment of the spatial distribution of mappable projects included in the TIP.
- **Funding and project types:** Given the document's federal focus, the investments reflected in the TIP represent only about a quarter of all transportation investments in the Bay Area at any given time. As a result, the investment analysis does not capture the equity implications of many locally funded projects. Local projects tend to be smaller, in both geography and scope, but collectively, these projects are expected to have a significant impact on travel behaviors and experiences throughout the region.
- **Demographic data:** While the latest available demographic data was used in the investment analysis, some data sets have been updated more recently than others. The information from the household travel survey is more than 5 years old, with data collected from households between 2012 and 2013. The transit passenger survey data is more recent. However, the exact year of data collection varies, as MTC conducts the surveys by operator on a rolling basis. Given the pace with which travel patterns and behaviors have changed in recent years, the year in which data is collected is expected to influence the results of the analysis.

The 2019 TIP investment analysis includes an analysis of investments benefiting seniors. 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.

ANALYSIS RESULTS & DISCUSSION

Population Use-Based Results

The population use-based analysis is divided into three focus areas: income, race/ethnicity, and seniors. Additional information is also provided at the end of this section on regional efforts and initiatives to support and better understand the transportation needs of residents with transportation related disabilities.

Investments by Income

Bay Area residents living in low-income households, earning less than \$50,000 per year, account for nearly a third of all trips (27%) in the region.

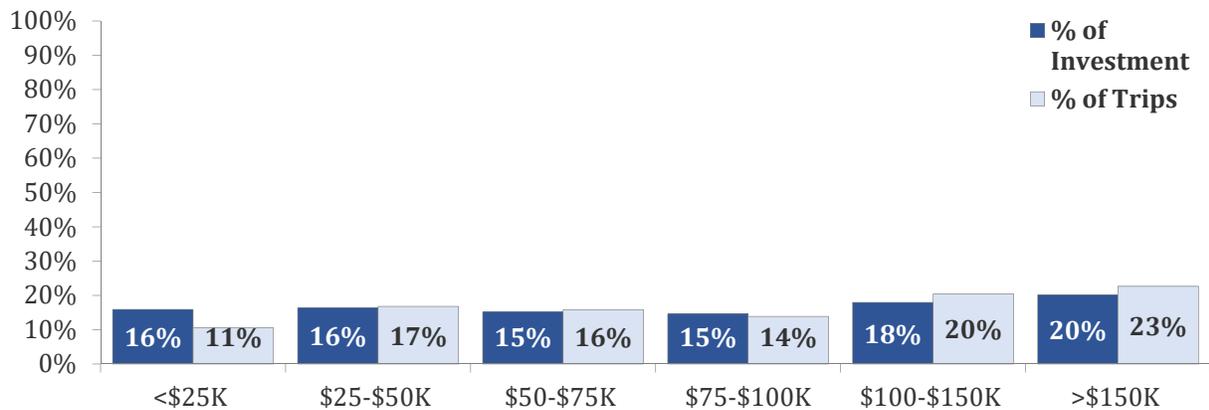
In the 2019 TIP, 32% or more than \$4 billion is directed to projects supporting trips made by residents from low-income households. The share of these investments supporting low-income trips exceeds the share of trips made by persons from low-income households by approximately 5%.

See Table 6 and Figures 2 and 3 for additional detail.

TABLE 6. 2019 TIP Investments and Trips by Income

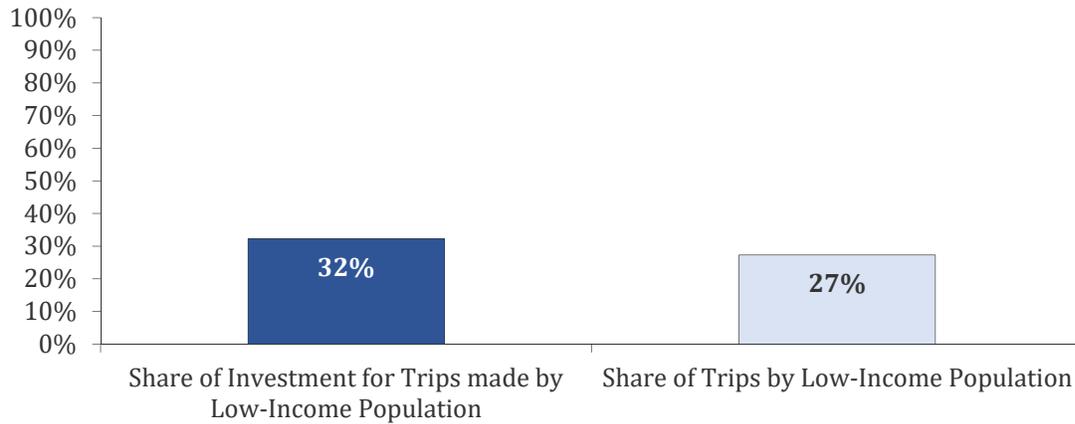
	2019 TIP Investments (in \$ billions)	% of Investment	% of Trips
Low-Income	\$4.3	32%	27%
<\$25,000	\$2.1	16%	11%
\$25,000 - \$49,999	\$2.2	16%	17%
Not Low-Income	\$9.0	68%	73%
\$50,000 - \$74,999	\$2.0	15%	16%
\$75,000 - \$99,999	\$1.9	15%	14%
\$100,000 - \$149,999	\$2.4	18%	20%
>\$150,000	\$2.7	20%	23%
Total	\$13.2	100%	100%

FIGURE 2. 2019 TIP Investments and Trips by Income Category



Source: Draft 2019 TIP and California Household Travel Survey

FIGURE 3. 2019 TIP Investments and Low-Income Trips



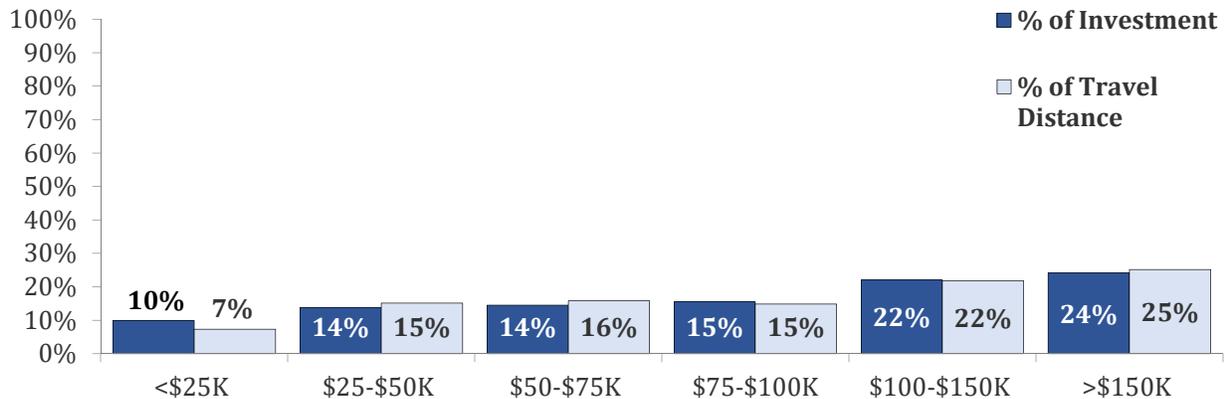
Source: Draft 2019 TIP and California Household Travel Survey

Similarly, the share of investments in projects that support travel made by low-income populations (24%) slightly exceeds their usage share of the transportation system in terms of share of the total distance traveled (22%) – vehicle miles traveled (VMT) for auto trips and origin-destination distance for transit trips. See Table 7 and Figure 4.

TABLE 7. 2019 TIP Investments and Travel Distance by Income

	2019 TIP Investments (in \$ billions)	% of Investment	% of Total Travel Distance
Low-Income	\$3.1	24%	22%
<\$25,000	\$1.3	10%	7%
\$25,000 - \$49,999	\$1.8	14%	15%
Not Low-Income	\$10.1	76%	78%
\$50,000 - \$74,999	\$1.9	14%	16%
\$75,000 - \$99,999	\$2.1	15%	15%
\$100,000 - \$149,999	\$2.9	22%	22%
>\$150,000	\$3.2	24%	25%
Total	\$13.2	100%	100%

FIGURE 4. 2019 TIP Investments and Travel Distance by Income Category



Source: Draft 2019 TIP and California Household Travel Survey

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 very similar to the share of total VMT by drivers living in low-income households (22%). See Table 8 and Figure 5.

TABLE 8. 2019 TIP Roadway Investments and Travel Distance by Income

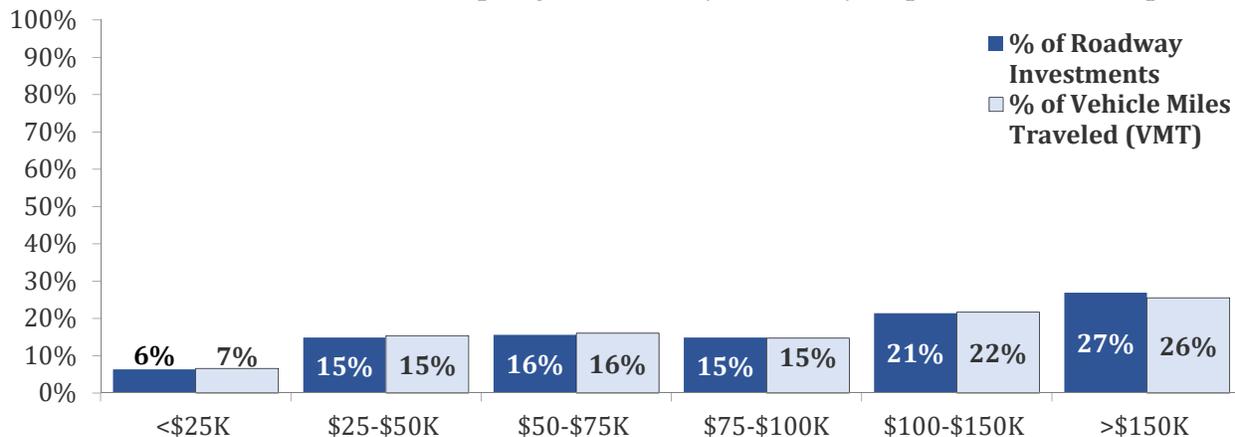
Includes Local Streets and Roads, State Highway, Public Lands/Trails, Port/Freight Rail and Toll Bridge

	2019 TIP Roadway Investments (in \$ billions)	% of Investment	% of Total Travel Distance*
Low-Income	\$1.3	21%	22%
<\$25,000	\$0.4	6%	7%
\$25,000 - \$49,999	\$0.9	15%	15%
Not Low-Income	\$4.9	79%	78%
\$50,000 - \$74,999	\$1.0	16%	16%
\$75,000 - \$99,999	\$0.9	15%	15%
\$100,000 - \$149,999	\$1.3	21%	22%
>\$150,000	\$1.7	27%	26%
Total	\$6.3	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. 2019 TIP Roadway Investments and Travel Distance by Income

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



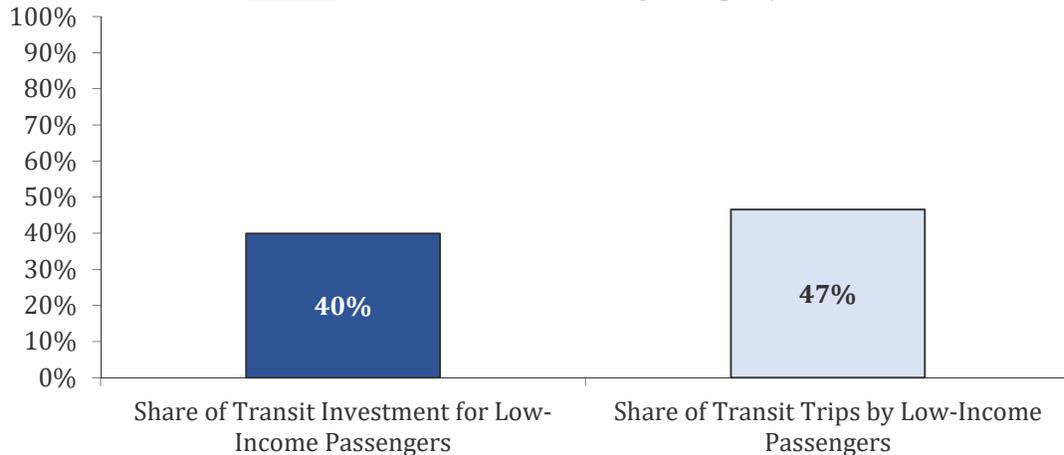
Source: Draft 2019 TIP and California Household Travel Survey

The share of transit investments in the 2019 TIP for passengers living in low-income households (40%) falls short of the share of transit trips by passengers living in low-income households (47%).

TABLE 9. 2019 TIP Transit Investments and Transit Trips by Income

	2019 TIP Transit Investments (in \$ billions)	% of Transit Investment	% of Passenger Transit Trips
Low-Income	\$2.8	40%	47%
Not Low-Income	\$4.2	60%	53%
Total	\$7.0	100%	100%

FIGURE 6. 2019 TIP Transit Investments and Passenger Trips by Income



Sources: Draft 2019 TIP and Transit Passenger Demographic Survey (MTC) and BART Customer Satisfaction Survey

Investments by Race/Ethnicity

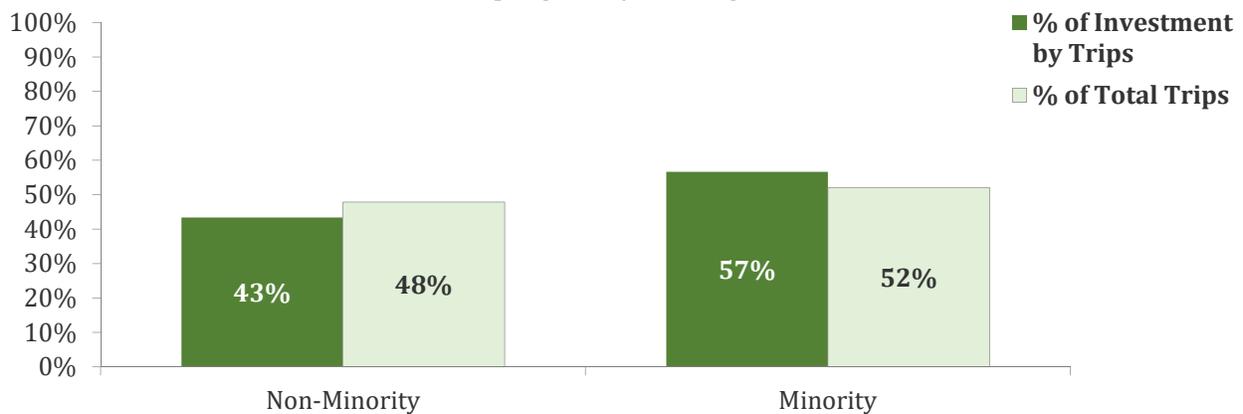
Minority households make up 60% of the region’s population and account for 52% of all trips.

The share of transportation investments in the Bay Area that support minority population trips (57%) is greater than the share of trips taken by these populations (52%).

TABLE 10. 2019 TIP Investments and Trips by Race/Ethnicity

	2019 TIP Investments by Trips (in \$ billions)	% of Investment	% of Trips
Non-Minority	\$5.7	43%	48%
Minority	\$7.5	57%	52%
Total	\$13.2	100%	100%

FIGURE 7. 2019 TIP Investments and Trips by Race/Ethnicity



Source: Draft 2019 TIP and California Household Travel Survey

The minority household populations account for approximately half (50%) of all travel

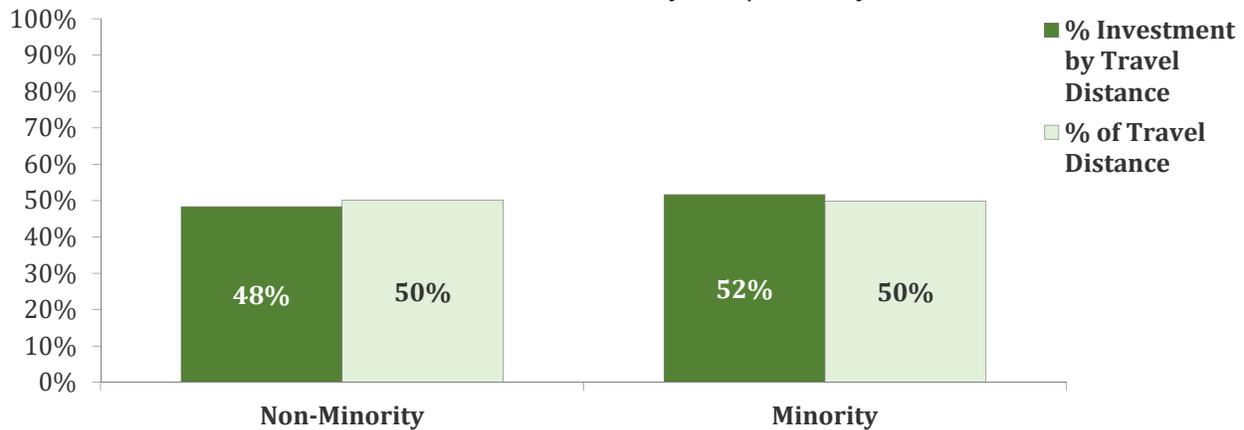
distance, as measured by VMT of roadway trips and origin destination distance for transit trips.

The share of investments supporting minority travel by distance (52%) is slightly more than the share of travel distance traversed by the minority populations (50%).

TABLE 11. 2019 TIP Investments and Travel Distance by Race/Ethnicity

	2019 TIP Investments by Travel Distance (in \$ billions)	% of Investment	% of Travel Distance
Non-Minority	\$6.4	48%	50%
Minority	\$6.8	52%	50%
Total	\$13.2	100%	100%

FIGURE 8. 2019 TIP Investments and Travel Distance by Race/Ethnicity



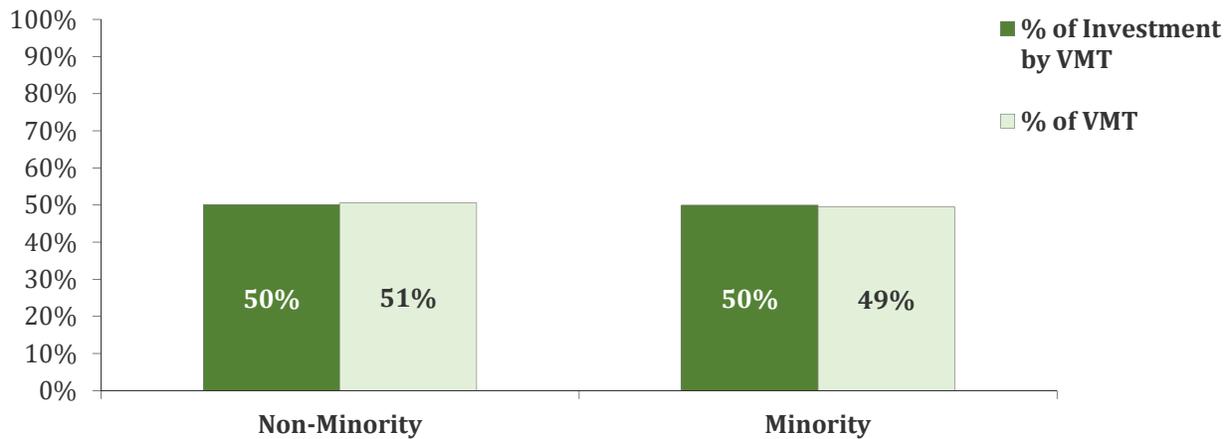
Source: Draft 2019 TIP and California Household Travel Survey

Persons from minority households account for half of all roadway travel distance, as measured by VMT. The share of investments supporting minority roadway travel by distance (50%) is roughly equivalent to the overall share of VMT traveled by minority populations (49%).

TABLE 12. 2019 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

	2019 TIP Investments by VMT (in \$ billions)	% of Investment	% of VMT
Non-Minority	\$3.1	50%	51%
Minority	\$3.1	50%	49%
Total	\$6.3	100%	100%

FIGURE 9. 2019 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



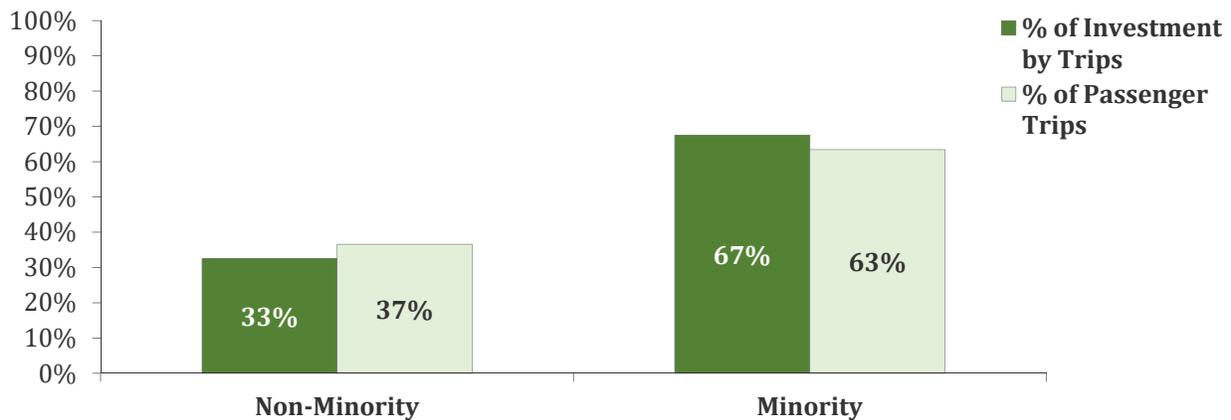
Source: Draft 2019 TIP and California Household Travel Survey

Nearly two-thirds (63%) of transit trips in the Bay Area are taken by residents identifying as a racial or ethnic minority. The share of investments in the 2019 TIP that support these transit trips (67%) is slightly more than the share of transit trips made by minority populations (63%).

TABLE 13. 2019 TIP Transit Investments and Transit Trips by Race/Ethnicity

	2019 TIP Investments by Transit Trips (in \$ billions)	% of Investment	% of Transit Trips
Non-Minority	\$2.3	33%	37%
Minority	\$4.6	67%	63%
Total	\$7.0	100%	100%

FIGURE 10. 2019 TIP Transit Investments and Transit Trips by Race/Ethnicity



Sources: Draft 2019 TIP and Transit Passenger Demographic Survey (MTC) and BART Customer Satisfaction Survey

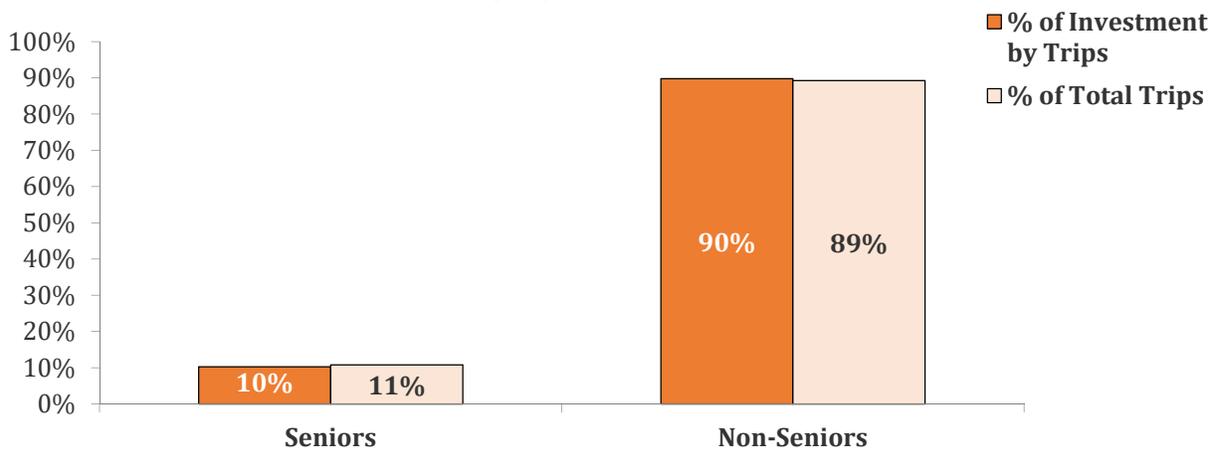
Investments by Seniors

Seniors, defined for this analysis as persons over the age of 65, account for nearly 14% of the region’s population. The share of transportation investments that support trips taken by seniors (10%) is slightly less than, but roughly equivalent to, their share of trips (11%).

TABLE 14. 2019 TIP Investments and Trips by Seniors

	2019 TIP Investments by Trips (in \$ billions)	% of Investment	% of Trips
Senior	\$1.3	10%	11%
Non-Senior	\$11.9	90%	89%
Total	\$13.2	100%	100%

FIGURE 11. 2019 TIP Investments and Trips by Seniors



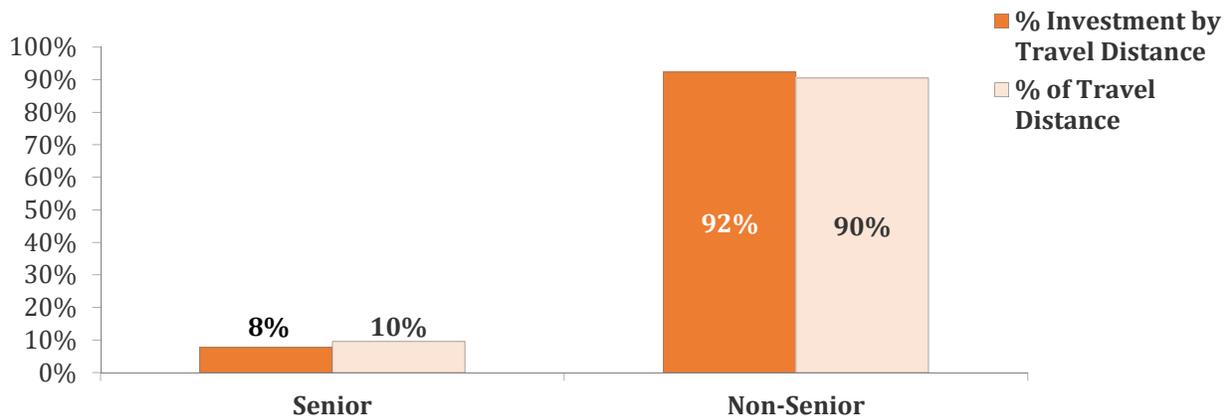
Source: 2019 TIP and California Household Travel Survey

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 the investments (8%) supporting distance travelled by senior populations.

TABLE 15. 2019 TIP Investments and Travel Distance by Seniors

	2019 TIP Investments by Travel Distance (in \$ billions)	% of Investment	% of Travel Distance
Senior	\$1.0	8%	10%
Non-Senior	\$12.2	92%	90%
Total	\$13.2	100%	100%

FIGURE 12. 2019 TIP Investments and Travel Distance by Seniors



Source: Draft 2019 TIP and California Household Travel Survey

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

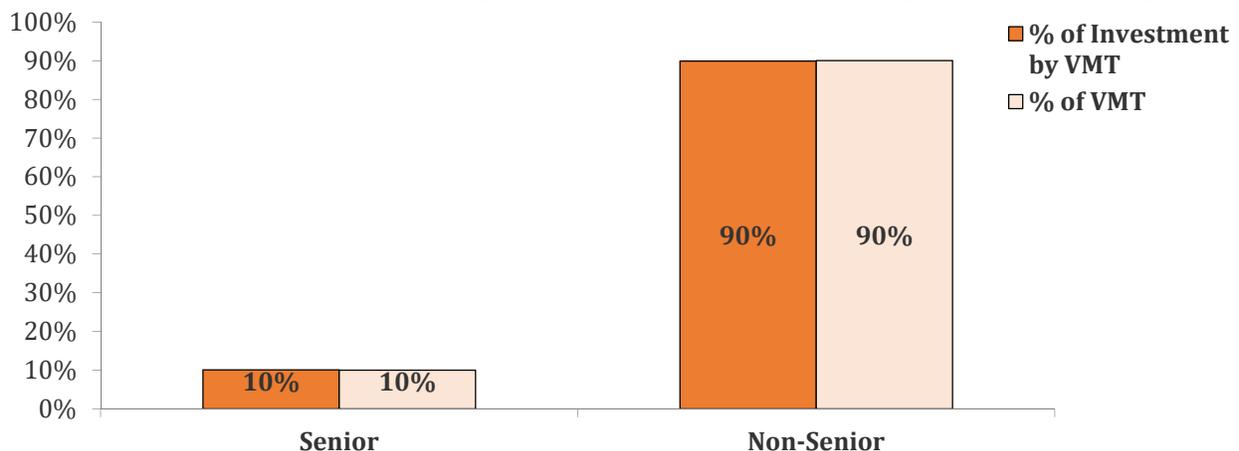
TABLE 16. 2019 TIP Roadway Investments and Travel Distance (VMT) by Seniors

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

	2019 TIP Investments by VMT (in \$ billions)	% of Investment	% of VMT
Senior	\$0.6	10%	10%
Non-Senior	\$5.6	90%	90%
Total	\$6.3	100%	100%

FIGURE 13. 2019 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: 2019 TIP and California Household Travel Survey

Given the limitations of the data available, a detailed look at investments by transit trip length by passenger age is not included in the population use-based analysis.

Supplemental Information - Persons with Transportation-Related Disabilities

Limitations in the data available make it difficult to quantify transportation system usage of persons with disabilities to the degree necessary for the population use-based analysis. However, 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 persons with disabilities. A list of transit projects compliant with the Americans with Disabilities Act (ADA) is included Appendix A-49.

- **Community Based-Transportation Planning (CBTP)** – Provides planning funds for developing project recommendations in each of the region’s Communities of Concern (COCs). Persons with disabilities are one of eight factors that are used to determine COC designations. To date, forty-one CBTPs at \$60,000 each have been completed for these communities. A new round of funding for updated CBTPs is expected in the fall of 2018.
- **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, \$20 million has been provided annually.
- **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. In the last round of funding, \$13.2 million in awards were made in the region’s large urbanized areas. The region’s small urbanized areas received \$1.4 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** – Historically, a portion of STA Population-Based funds were set aside for operators to use in order to defray the operating costs of their paratransit systems. With the adoption of MTC Resolution No. 4321 in February 2018, 70% of all STA Population-Based funds now flow to each county Congestion Management Agency through the STA County Block Grant and 30% is directed to the Regional Program managed by MTC. Paratransit operations are an eligible use of the County Block Grant program.
- **MTC’s Coordinated Public Transit—Human Services Transportation Plan** – Identifies the transportation needs of individuals with disabilities, older adults, and individuals with limited income, and identifies funding priorities and coordination strategies for meeting these needs. The Coordinated Plan is intended to meet the federal planning requirements as well as to provide MTC and its regional partners

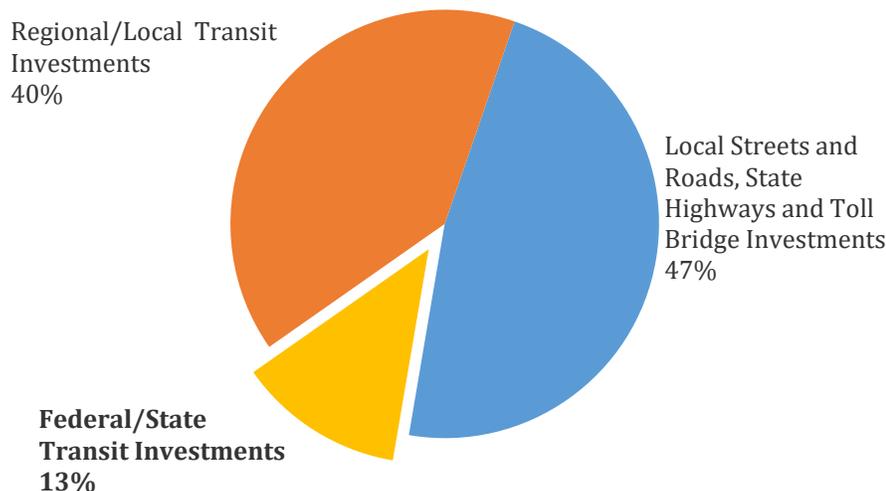
with a “blueprint” for implementing a range of strategies intended to promote and advance local efforts to improve transportation for persons with disabilities, older adults, and persons with low incomes. MTC staff works with stakeholders throughout the region to gather input on transportation gaps, as well as solutions that are then eligible for federal funding through the Section 5310 program. The Coordinated Plan was last updated in 2018.

- Caltrans recently awarded a \$407,000 grant to MTC and the World Institute on Disability (WID) for a pilot project focused on identifying and addressing access and mobility needs of people with disabilities in the Bay Area. The project will explore ways to expand institutional capacity at transit and paratransit service providers, county congestion management agencies, local jurisdictions and regional agencies to better understand and address access and mobility needs of people with a disability. MTC will partner with WID to engage community-based organizations and other stakeholders to develop a methodology and process for collecting data and updating a regional needs assessments. The project is anticipated to start in fall 2018 and end by March 2020.

Disparate Impact Analysis

The second component of the investment analysis includes a closer look at federal and state transit investments. The federal and state funding sources for public transportation account for only a small portion (13%) of funding in the 2019 TIP, as illustrated below in Figure 11.

FIGURE 11. 2019 TIP Transit Investments from Federal/State Sources as a Share of All Investments



Source: Draft 2019 TIP

Although 40% of the TIP is made up of regional or local investments in public transit, it is important to note that a substantial share of total funding dedicated to transit operators for ongoing operations and maintenance are not included in the TIP. This funding comes from state, regional and local sources and may not be captured in the TIP as these projects and programs do not typically require a federal action.

The disparate impact analysis indicates that the share of federal and state transit investments distributed to transit service supporting minority populations vary as compared to respective shares of regional transit ridership and regional population.

TABLE 17. 2019 TIP Federal/State Transit Investments by Minority Status

	Federal/State Transit Investments (\$ millions)	% of Total Federal/State Transit Funding	% of Regional Transit Ridership	% of Total Regional Population
Minority	\$1,025	62%	63%	60%
Non-Minority	\$640	38%	37%	40%
Total	\$1,665	100%	100%	100%

Investments distributed on a per-capita basis indicate that minority populations in the region are receiving \$221 in benefits per person, more than the \$210 in benefits per person for non-minority populations (or 105% of the benefits received by non-minority residents).

TABLE 18. 2019 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
Minority	\$1,025	4,634,040	\$221	105%
Non-minority	\$640	3,049,971	\$210	
Total	\$1,665	7,684,011	\$217	

Investments distributed on a per transit rider basis indicate that minority populations in the region receive \$1,007 in benefits per rider, slightly less than \$1,089 in benefits per transit rider for non-minority populations (or 92% of the benefits received by non-minority residents).

TABLE 19. 2019 TIP Federal/State Transit Investments, Disparate Impact Analysis by Boardings

	Federal/State Transit Investments (\$ millions)	Average Daily Transit Ridership	Per-Rider Benefit	Minority per Rider Benefit as % of Non-Minority Per Rider Benefit
Minority	\$1,025	1,018,086	\$1,007	92%
Non-minority	\$640	587,771	\$1,089	
Total	\$1,129	1,605,856	\$1,037	

Transportation Equity Measures

Healthy and Safe Communities

Projects that are expected to contribute towards reaching our regional goals for healthy and safe communities include projects that improve road safety, increase physical activity, and improve air quality.

- **Road Safety:** In the 2019 TIP, more than 160 projects and nearly \$2 billion in funding are directed to projects that are identified by project sponsors as having a primary purpose of improving road safety or that are otherwise anticipated to significantly reduce fatalities and serious injuries

Table 20. 2019 TIP Road Safety Improvements

County	Projects	Investments
Alameda	40	\$368
Contra Costa	26	\$169
Marin	10	\$28
Napa	10	\$36
San Francisco	10	\$65
San Mateo	25	\$38
Santa Clara	24	\$278
Solano	11	\$37
Sonoma	5	\$11
Multiple	3	\$696
	164	\$1,726

due to traffic collisions (Table 20). It is important to note that many other projects in the 2019 TIP are anticipated to have a moderate or slight positive impact on transportation safety. However, this analysis focuses on those projects that have safety improvement as a primary purpose or that are otherwise anticipated to lead to significant reductions in transportation fatalities and serious injuries caused by traffic collisions.

Some of the largest safety investments in the 2019 TIP include:

- ❖ \$545 million for various State Highway Operation and Protection Program (SHOPP) Collision Reduction projects
- ❖ \$102 million for various SHOPP Safety Improvement Mandates projects, which are primarily focused on ensuring compliance with the Americans with Disabilities Act (ADA)
- ❖ \$62 million for I-680 / SR 4 Interchange Reconstruction - Phase 3 in Contra Costa County
- ❖ \$49 million for various local Highway Safety Improvement Program projects
- ❖ \$22 million for McKee Rd and Tully Rd Safety Improvements in San Jose

Additional information is provided on projects that are expected to improve the safety of our roads for pedestrians and bicyclists.

As shown in Table 21, \$1.3 billion is invested in 77 projects in the 2019 TIP that are identified by the project sponsors as anticipated to have a significant impact on reducing fatalities and serious injuries for pedestrians and bicyclists.

Safety of the transportation system includes more than just the reduction of collisions. Projects unrelated to reducing collisions can also have significant impacts on safety to the traveling public, including seismic retrofits, security improvements, and resiliency

projects. The 2019 TIP also includes a significant investment in the Golden Gate Bridge Suicide Deterrent Safety Barrier, which aims to impede the ability of individuals to jump off the bridge resulting in a safer environment for the landmark transportation facility. This project was not included in the Healthy and Safe Communities measure for this analysis, but does have an important safety purpose.

Table 21. 2019 TIP Safety Improvements for Pedestrians & Bicyclists

County	Projects	Investments
Alameda	28	\$334
Contra Costa	3	\$23
Marin	6	\$22
Napa	5	\$28
San Francisco	6	\$47
San Mateo	11	\$23
Santa Clara	13	\$237
Solano	1	\$1
Sonoma	2	\$1
Multiple Counties	2	\$594
	77	\$1,311

- **Physical Activity:** The TIP includes 136 projects and over \$400 million invested on projects that are primarily focused on bicycle and pedestrian improvements and programs, which enable and encourage active transportation.

Some of the largest bicycle and pedestrian investments in the 2019 TIP include:

- ❖ \$17 million for Improved Bike/Ped Access to East Span of the San Francisco-East Bay Bridge
- ❖ \$14 million for the Iron Horse Trail Bike and Pedestrian Overcrossing in Contra Costa County
- ❖ \$13 million for Oakland’s 14th St Safe Routes in the City project
- ❖ \$12 million for the North-South Greenway Cap Closure in Marin County

Many projects in the TIP that are focused on other modes or purposes also include improvements that benefit bicyclists or pedestrians, such as a pavement rehabilitation project that includes adding a new bike lane. Project sponsors report the share of each project’s total project cost that can be attributed to the various modes that will benefit from the project. Table 22 displays county and regional investments in bike/pedestrian projects as well as the total dollars invested on all projects that are anticipated to benefit bicyclists and pedestrians over the four-year TIP period, as reported by the project sponsors.

Table 22. 2019 TIP Bike & Pedestrian Investments

County	Bicycle & Pedestrian Projects		Projects with Bicycle & Pedestrian Elements	
	Projects	Investments	Projects	Investments
Alameda	26	\$136	50	\$137
Contra Costa	17	\$59	47	\$69
Marin	10	\$26	15	\$31
Napa	6	\$12	12	\$18
San Francisco	10	\$26	17	\$45
San Mateo	20	\$28	40	\$32
Santa Clara	32	\$97	60	\$200
Solano	8	\$19	15	\$24
Sonoma	6	\$8	16	\$12
Multiple Counties	1	\$3	3	\$5
	136	\$413	276	\$573

- **Air Quality:** Projects funded with federal Congestion Mitigation Air Quality Improvement Program (CMAQ), California Air Resources Board (CARB), or regional Transportation for Clean Air (TFCA) funds are expected to improve air quality through promoting cleaner technologies or alternative modes of transportation. Many other projects in the 2019 TIP may also support improved air quality, but this analysis focused on projects funded with air quality specific fund sources (Table 23).

A few of the projects funded through air quality funding programs in the 2019 TIP include:

- ❖ \$50 million for BART Railcar Procurement
- ❖ \$12 million for Electric Vehicle Infrastructure/Vehicle Buyback programs
- ❖ \$10 million for MTC’s Clipper 2.0 Fare Collection System
- ❖ \$10 million for ACE’s Locomotive Procurement project
- ❖ \$7 million for SFMTA’s Geary Bus Rapid Transit project
- ❖ \$5 million for MTC’s Spare the Air program

Table 23. 2019 TIP Air Quality Focused Investments

County	Projects	Investments
Alameda	12	\$51
Contra Costa	10	\$22
Marin	6	\$5
Napa	3	\$4
San Francisco	2	\$10
San Mateo	13	\$9
Santa Clara	25	\$50
Solano	8	\$10
Sonoma	3	\$4
Multiple	12	\$83
	94	\$248



Maps: 2019 TIP Healthy & Safe Communities

Safety and active transportation projects are mapped, where possible, by county and overlaid against Communities of Concern to display the overall spatial distribution of projects that support the region’s goals to improve the health and safety of region. These maps can be viewed starting on pages 34. These projects can also be viewed on an interactive webmap that include additional data on spatial concentrations by race and ethnicity (<https://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program>).

Economic Vitality

Projects that reduce congestion, improve reliability, or improve transit service or capacity are most likely to support the regional goal to increase the share of jobs accessible within 30 minutes by car or 45 minutes by transit in congested conditions.

- **Road Congestion/Reliability:** There are 102 roadway projects in the 2019 TIP, totaling about \$2 billion, which are identified by project sponsors as having a primary purpose of reducing congestion or improving system reliability or are otherwise anticipated to significantly improve congestion or reliability (Table 24).

A few of these projects in the 2019 TIP include:

- ❖ \$473 million for US 101 Managed Lanes: San Mateo County South of Grand Ave to Santa Clara County Line
- ❖ \$167 million for various SHOPP Mobility Program projects
- ❖ \$142 million for US 101/Zanker Road-Skyport Drive-N. Fourth St. Improvements in Santa Clara County
- ❖ \$66 million for I-680 SB HOV Lane Completion in Contra Costa County
- ❖ \$47 million for the East-West Connector in Fremont and Union City
- ❖ \$22 million for 511 NextGen Traveler Information

Table 24. 2019 TIP Roadway Congestion/Reliability Investments

County	Projects	Investments
Alameda	22	\$344
Contra Costa	15	\$159
Marin	2	\$20
Napa	5	\$34
San Francisco	6	\$21
San Mateo	15	\$550
Santa Clara	18	\$580
Solano	2	\$28
Sonoma	3	\$9
Multiple	14	\$238
	102	\$1,984

- **Transit Service/Capacity:** There are 33 transit projects in the 2019 TIP, totaling nearly \$5 billion, which are identified by project sponsors as having a primary purpose of reducing congestion or improving system reliability or are otherwise anticipated to significantly improve congestion or reliability (Table 25).

A few of these projects in the 2019 TIP include:

- ❖ \$2.6 billion for the BART – Berryessa to San Jose Extension
- ❖ \$1.1 billion for the BART Transbay Core Capacity Improvements
- ❖ \$598 million for the Transbay Terminal/Caltrain Downtown Extension Phase 2
- ❖ \$268 million for VTA’s Eastridge to BART Regional Connector
- ❖ \$128 million for Caltrain’s Peninsula Corridor Electrification Expansion
- ❖ \$54 million for SFMTA’s Additional Light Rail Vehicles to Expand Muni Rail Service

Table 25. 2019 TIP Transit Service/Capacity Improvements

County	Projects	Investments
Alameda	4	\$20
Contra Costa	2	\$8
Marin	2	\$2
Napa	-	-
San Francisco	12	\$678
San Mateo	3	\$141
Santa Clara	3	\$2,842
Solano	1	\$2
Sonoma	-	-
Multiple	6	\$1,099
	33	\$4,793



Maps: 2019 TIP Economic Vitality

Road congestion or reliability projects and transit service or capacity improvement projects are mapped, where possible, by county and overlaid against Communities of Concern to display the overall spatial distribution of projects that support the region’s goals to improve economic vitality.

These maps can be viewed starting on page 34. These projects can also be viewed on an interactive webmap that include additional data on spatial concentrations by race and ethnicity (<https://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program>).

Transportation System Effectiveness

The transportation system effectiveness goal area encompasses two performance measures: improved pavement condition and transit state of good repair. Projects that include a pavement or bridge rehabilitation or preservation component or rehabilitate or replace existing transit assets are compiled for this portion of the analysis.

- **Pavement and Bridge Condition:** In the 2019 TIP, 97 projects totaling \$2.5 billion is invested in rehabilitation and preservation of existing roads and bridges (Table 26).

A few of the larger rehabilitation projects in the 2019 TIP include:

- ❖ \$1 billion for various SHOPP Roadway Preservation projects
- ❖ \$583 million for various SHOPP Bridge Rehabilitation and Reconstruction projects
- ❖ \$303 million for the regional Toll Bridge Rehabilitation Program
- ❖ \$207 million for various Local Highway Bridge Program projects

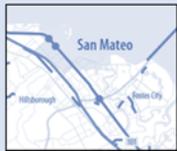
Table 26. 2019 TIP Pavement and Bridge Rehabilitation Projects

County	Projects	Investments
Alameda	14	\$36
Contra Costa	24	\$49
Marin	4	\$8
Napa	3	\$6
San Francisco	2	\$200
San Mateo	19	\$17
Santa Clara	14	\$46
Solano	3	\$3
Sonoma	8	\$16
Multiple	6	\$2,122
	97	\$2,504

- **Transit State of Good Repair:** There are 81 transit state of good repair projects in the 2019 TIP, totaling \$1.9 billion in committed investments. The transit investments in the 2019 TIP include:
 - ❖ \$737 million for the BART Railcar Procurement Program
 - ❖ \$210 million for the Caltrain Electrification project
 - ❖ \$67 million for SFMTA’s Rail Replacement Program
 - ❖ \$62 million for the Clipper® 2.0 Fare Payment System
 - ❖ \$59 million for GGBHTD’s Diesel to Hybrid Bus Replacement project
 - ❖ \$50 million for VTA’s Standard and Small Bus Replacement project

Table 27. 2019 TIP Transit Rehabilitation/Replacement Projects

Sponsor	Projects	Investments	Sponsor	Projects	Investments
AC Transit	5	\$56	SamTrans	2	\$2
ACE	2	\$25	SantaRosa Bus	3	\$5
BART	10	\$947	SFMTA	14	\$326
Caltrain	3	\$246	SMART	-	-
CCCTA	-	-	SolTrans	2	\$3
ECCTA	-	-	Son Co Transit	3	\$5
Fairfield	1	\$2	Union City Transit	1	\$2
GGBHTD	12	\$135	Vacaville	-	-
LAVTA	-	-	VTA	7	\$92
MCTD	5	\$13	WCCTA	6	\$9
MTC Clipper	1	\$62	WETA	3	\$41
NVTA	1	<\$1			
Grand Total			81	\$1,971	



Maps: 2019 TIP Transportation System Effectiveness

Pavement and bridge condition projects and transit asset management projects are mapped, where possible, by county and overlaid against Communities of Concern to display the overall spatial distribution of projects that support the region’s goals to improve economic vitality. These maps can be viewed starting on page 34. These projects can also be viewed on an interactive webmap that include additional data on spatial concentrations by race and ethnicity (<https://mtc.ca.gov/our-work/fund-invest/transportation-improvement-program>).

Equitable Access

The equitable access measure estimates the share of income consumed by transportation costs with a goal of reducing the financial burden on the region’s lowest income residents. This portion of the analysis incorporates various outputs from the regional travel demand model to calculate household transportation costs as a share of household income.

The 2019 TIP investments appear to have a negligible effect on the share of income spent on transportation, across all income levels, when compared to a scenario in which none of the projects in the 2019 TIP is completed (Table 28).

Table 28. Share of Income Consumed by Transportation Costs

	With 2019 TIP Projects (2022)	Without 2019 TIP Projects (2022)
Low-Income	21%	21%
<\$30,000	25%	25%
\$30,000 - \$59,999	16%	16%
Not Low-Income	10%	10%
\$60,000 - \$99,999	13%	13%
\$100,000+	8%	8%

Note: Income is in 1999 dollars.

These results do not necessarily indicate that the projects in the 2019 TIP will have no impact on household transportation costs. Rather, it is more likely that the travel model may not be appropriate for assessing changes in transportation costs resulting from TIP investments. A couple of notes about the limitations of this approach:

1. Although there is more than \$13 billion in transportation investments programmed in the 2019 TIP, many of these projects will not be completed until after the 2019 TIP period. For example, major projects with funds programmed for construction in 2022 may not be complete and open to the public for another several years. The impacts of these investments were not captured in the 2022 model year, but can be assumed to have an effect on trips and cost.
2. For the projects that are completed by 2022, only a handful have a scope that is evaluated in a regional travel model. Many local roadway and transit asset projects, as well as bicycle and pedestrian projects, cannot be captured in the regional travel model, but are still expected to have significant cumulative impacts on travel in the region.

2019 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 2019 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.

- The share of investments supporting overall low-income trips (32%) and trips made by minority populations (57%) exceeds the share of trips made by each group (27% and 52%, respectively).
- The share of investments supporting overall travel distance by low-income populations (24%) and minority populations (52%) also slightly exceeds the share of overall distance travelled by each group (22% and 50%, respectively).
- The share of investments supporting trips (10%) and travel distance (8%) made by seniors is slightly under, but still roughly equivalent, to their relative share of each measure (11 and 10%).

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 (40%) 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 (105% 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 92% of the non-minority per rider benefit.

The varied results in the 2019 TIP are attributed to a number of large projects, including:

- BART's Railcar Procurement Program;
- BART's Transbay Core Capacity Improvements Program;
- Caltrain Electrification;
- Caltrain's Peninsula Corridor Electrification Expansion; and
- Transbay Joint Power Authority's Caltrain Downtown Extension.

Together, these five projects account for almost 40% of all transit funding in the 2019 TIP. When focusing only on state and federal funds, these projects account for approximately 35% 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. Caltrain is used by a lower proportion of low-income and minority riders than the regional average for transit riders.

The degree of the variances seen in the 2019 TIP disparate impact transit analysis are notably improved as compared to the 2017 TIP, with the minority per transit rider investment disbenefit decreasing from 89% in the 2017 TIP to 92% in the 2019 TIP. In addition, the minority per capita transit investment increases from 96% of the non-minority per capita investment (disbenefit) in the 2017 TIP to 105% of the non-minority per capita investment (benefit) in the 2019 TIP.

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 2019 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 2019 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 2019 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>.

2019 TIP Investment Analysis

Alameda County Project List

1	AC Transit: East Bay Bus Rapid Transit	39	BART: Traction Power System Renovation
2	AC Transit: San Pablo and Telegraph Ave Rapid Bus Upgrades	40	BART:ADA Paratransit Capital Accessibility Improve
3	ACE: Platform Extensions	41	BATA: Toll Bridge Maintenance
4	ACTC: 7th Street Grade Separation East	42	BATA: Toll Bridge Rehabilitation Program
5	ACTC: 7th Street Grade Separation West	43	Berkeley: John Muir Safe Routes to School
6	ACTC: East-West Connector in Fremont & Union City	44	Berkeley: Sacramento Street Complete Streets Improvements
7	ACTC: Freight Intelligent Transportation System (FITS)	45	Berkeley: Southside Complete Streets & Transit Improvement
8	ACTC: I-580/680 Interchange HOV/HOT Widening	46	Caltrans: Oakland to San Jose Double Track (Segment 2A)
9	ACTC: I-680 NB HOV/HOT Lane	47	Dublin: Dublin Blvd-North Canyons Pkwy Extension
10	ACTC: I-80 Gilman Interchange Reconfiguration	48	Dublin: Dublin Blvd Rehabilitation
11	ACTC: I-80/Ashby Avenue Interchange Improvements	49	Dublin: Dublin Boulevard widening
12	ACTC: I-880 NB HOV/HOT: North of Hacienda to Hegenberger	50	Dublin: I-580 Interchange Imps at Hacienda/Fallon Rd, Ph 2
13	ACTC: I-880/Industrial Parkway West Interchange	51	EBRPD: Doolittle Drive Bay Trail
14	ACTC: I-880/West Winton Avenue Interchange	52	Emeryville: Frontage Rd, 65th St and Powell St Pavement Maint
15	ACTC: I-880/Whipple Road Interchange Improvements	53	Emeryville: Greenway Crossing Improvements
16	ACTC: Oakland/Alameda Freeway Access Project	54	Fremont: Complete Streets Upgrade of Relinquished SR-84
17	ACTC: SR-262 (Mission Blvd) Improvements	55	Fremont: Pavement Rehabilitation
18	ACTC: SR-84 widening, South of Ruby Hills Dr to I-680	56	Fremont: Widen Kato Rd from Warren Ave to Milmont Dr
19	ACTC: Widen I-680 NB and SB for EL from SR-84 to Alcosta	57	Hayward: I-880 Auxiliary lanes at Industrial Parkway
20	Alameda County: Cherryland/Ashland/CastroValley/Fairview BikePed	58	Hayward: I-880/A Street Interchange Reconstruction
21	Alameda County: Crow Canyon Safety Improvements	59	Hayward: Main Street Complete Street
22	Alameda County: Estuary Bridges Seismic Retrofit and Repairs	60	Hayward: Rt 92/Clawiter/Whitesell Interchange Improvements
23	Alameda County: Fruitvale Ave Roadway Bridge Retrofit	61	Hayward: Winton Ave Complete Street
24	Alameda County: Niles Canyon Rd (SR-84)/Pleas-Sunol Rd I/C Imps	62	Livermore: Pavement Rehabilitation - MTS Routes
25	Alameda County: Various Streets and Roads Preservation	63	MTC: Bay Bridge Forward-Commuter Parking Initiative
26	Alameda County: Vasco Road Safety Improvements	64	MTC: Bay Bridge Forward-West Grand HOV/Bus Only Lane
27	Alameda: Central Avenue Safety Improvements	65	MTC: Bay Bridge Forward-West Grand TSP
28	Alameda: City-Wide Pavement Rehabilitation	66	MTC: Bay Bridge Park
29	Alameda: Clement Avenue Complete Streets	67	MTC: Bike Share Capital Program (Fremont)
30	Albany: San Pablo Ave & Buchanan St Pedestrian Improvements	68	MTC: Freeway Performance Program-I-880 Corridor
31	BART Car Exchange (Preventive Maintenance)	69	MTC: Freeway Performance Program-SR-84
32	BART Train Control Renovation	70	MTC: I-880 Integrated Corridor Management-Central
33	BART Transbay Core Capacity Improvements	71	MTC: Improved Bike/Ped Access to East Span of SFOBB
34	BART: 19th Street BART Station Modernization-GO Uptown	72	Newark: Thornton Avenue Pavement Rehabilitation
35	BART: Bay Fair Connection	73	Oakland: 14th St Safe Routes in the City
36	BART: Fare Collection Equipment	74	Oakland: 19th St BART to Lake Merritt Urban Greenway
37	BART: Rail, Way and Structures Program	75	Oakland: 35th Ave Bike/Ped Improvements
38	BART: Railcar Procurement Program	76	Oakland: 42nd Ave. & High St I-880 Access Improvements

2019 TIP Investment Analysis

Alameda County Project List (Continued)

- 77 Oakland: Army Base Infrastructure Improvements
- 78 Oakland: Crossing to Safety
- 79 Oakland: Fruitvale Alive Gap Closure Project
- 80 Oakland: Fruitvale Ave Bike/Ped Improvements
- 81 Oakland: Lake Merritt to Bay Trail Bike/Ped Bridge
- 82 Oakland: Lakeside Family Streets
- 83 Oakland: Shattuck and Claremont Bike/Ped Improvements
- 84 Oakland: Telegraph Ave Bike/Ped Improvements and Road Diet
- 85 Oakland: Telegraph Avenue Complete Streets
- 86 Oakland: Waterfront Bay Trail
- 87 Piedmont: Oakland Avenue Improvements
- 88 Pleasanton: Pavement Rehabilitation Hacienda Business Park
- 89 San Leandro: SR 185-E. 14th St/ Hesperian Blvd/150th Ave
- 90 San Leandro: Washington Avenue Rehabilitation
- 91 Union City: Dyer Street Pavement Rehabilitation
- 92 WETA: Ferry Service-Berkeley

NOT MAPPED

AC Transit: ADA Paratransit Assistance

AC Transit: Paratransit Van Replacement

AC Transit: Purchase (10) 24ft Cut-aways

AC Transit: Purchase (24) 60ft Artic Hybrid Buses

AC Transit: Replace (27) 40ft Urban Buses - Hybrid

AC Transit: Replace (6) 24ft Cut-Away Vans

ACE: Fixed Guideway (Capital Lease)

ACE: Locomotive Procurement

ACE: Railcar Midlife Overhaul

ACTC: Alameda Safe Routes to School

Alameda County: Active Oakland Safe Routes to School

Caltrans: Alameda County - TOS-Mobility

LAVTA: ADA Paratransit Operating Subsidy

LAVTA: Livermore Transit Center Rehabilitation and Improvement

MTC: Bay Bridge Forward - Casual Carpool

MTC: Bay Bridge Forward - Integrated Bridge Corridor

MTC: Bay Bridge Forward - Commuter Parking Initiative O&M

MTC: Regional Planning Activities and PPM - Alameda County

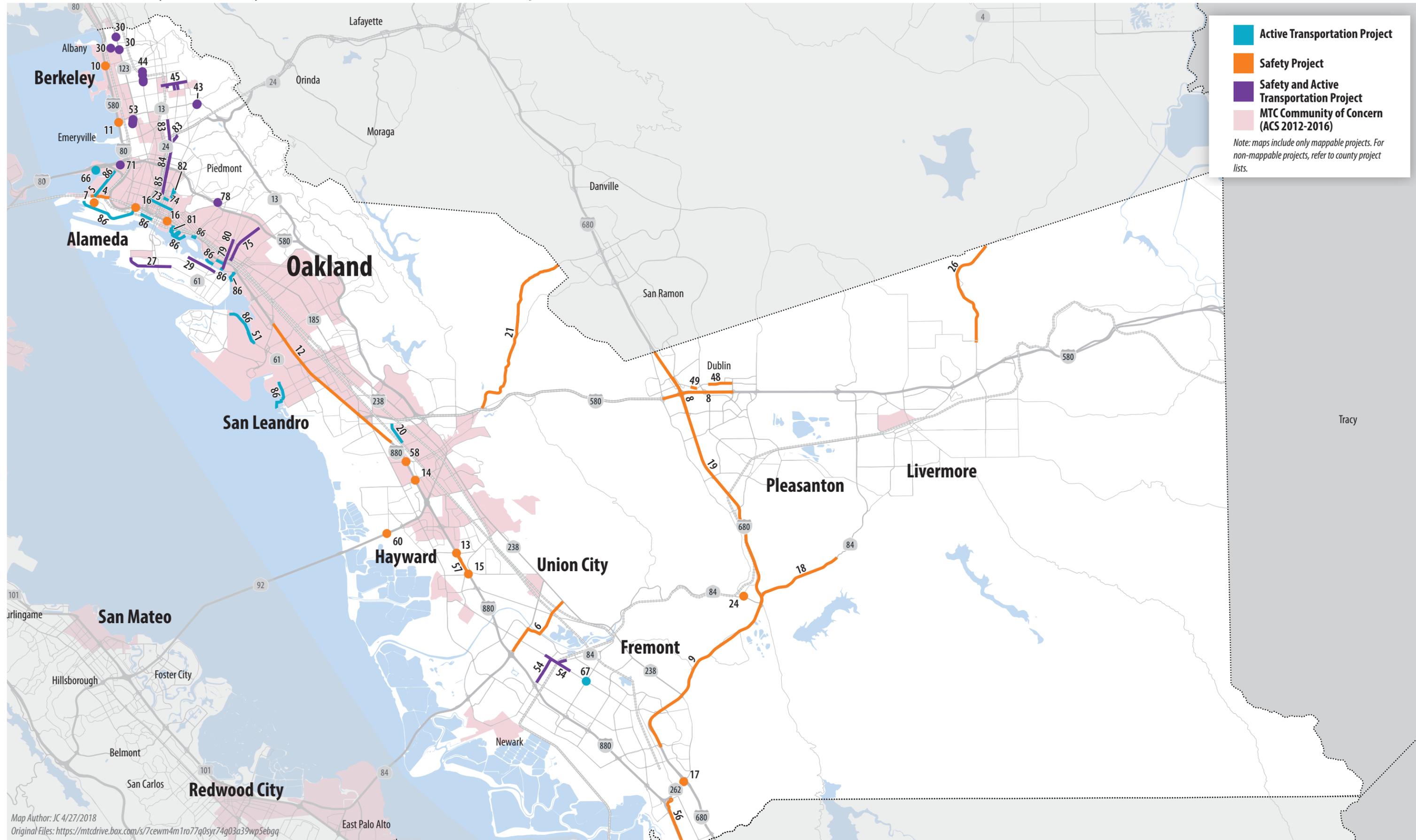
Oakland: Local Streets and Roads Paving

Union City Transit: ADA Paratransit Operating Subsidy

Union City Transit: Replace Heavy-Duty Transit Vehicles

Union City Transit: Travel Time Improvements

Alameda County: Healthy and Safe Communities Projects



Active Transportation Project

Safety Project

Safety and Active Transportation Project

MTC Community of Concern (ACS 2012-2016)

Note: maps include only mappable projects. For non-mappable projects, refer to county project lists.

Alameda County: Economic Vitality Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

2019 TIP Investment Analysis

Contra Costa County Project List

1	AC Transit: San Pablo and Telegraph Ave Rapid Bus Upgrades	39	Contra Costa County: Kirker Pass Road NB Truck Climbing Lanes
2	Antioch: L Street Pathway to Transit	40	Contra Costa County: Kirker Pass Road Open Grade Overlay
3	Antioch: Laurel Road Extension	41	Contra Costa County: Local Streets and Roads Preservation
4	Antioch: Pavement Rehabilitation	42	Contra Costa County: Pacheco Blvd Sidewalk Gap Closure Phase 3
5	Antioch: Slatten Ranch Road Extension	43	Contra Costa County: Vasco Road Safety Improvements
6	BART Car Exchange (Preventive Maintenance)	44	Danville: Camino Ramon Improvements
7	BART Train Control Renovation	45	Danville: Diablo Road Imps. - Green Valley to Avenida Neuva
8	BART Transbay Core Capacity Improvements	46	Danville: San Ramon Valley Blvd Lane Addition and Overlay
9	BART: Concord BART Station Modernization	47	El Cerrito Blvd: Carlson Blvd and Central Ave Pavement Rehab
10	BART: Fare Collection Equipment	48	El Cerrito: El Cerrito del Norte Area TOD Complete Street Imps
11	BART: Rail, Way and Structures Program	49	El Cerrito: Ohlone Greenway Station Area Bike/Ped Improvements
12	BART: Railcar Procurement Program	50	Hercules: Sycamore/Willow Pavement Rehabilitation
13	BART: Traction Power System Renovation	51	Lafayette: Pleasant Hill Rd Pavement Rehab & Maintenance
14	BART:ADA Paratransit Capital Accessibility Improve	52	Martinez: Downtown Streets Rehabilitation
15	BATA: Toll Bridge Maintenance	53	Moraga: Moraga Way and Canyon/Camino Pablo Improvements
16	BATA: Toll Bridge Rehabilitation Program	54	MTC: ALA/CC-80 and Bay Bridge Approach Express Lanes
17	Brentwood: Brentwood Blvd Widening-(Phase I) North	55	MTC: Bike Share Capital Program (Richmond)
18	Brentwood: Brentwood Blvd Widening Phase II	56	MTC: Richmond-San Rafael Bridge Access Improvements
19	Brentwood: John Muir Parkway Extension: Phase II	57	Oakley: Civic Center Railroad Platform Park & Ride Complex
20	Brentwood: Various Streets and Roads Preservation	58	Oakley: Street Repair and Resurfacing
21	CCTA: I-680 Advanced Technologies	59	Orinda: Orinda Way Pavement Rehabilitation
22	CCTA: I-680 Bus On Shoulder	60	Pinole: San Pablo Avenue Rehabilitation
23	CCTA: I-680 SB HOV Lane Completion	61	Pittsburg: BART Pedestrian and Bicycle Connectivity
24	CCTA: I-680/SR 4 Interchange Reconstruction-Phase 3	62	Pittsburg: Pavement Improvements
25	CCTA: I-680/SR 4 Interchange Reconstruction-Phases I & II	63	Pleasant Hill: Road Improvements
26	CCTA: Mokelumne Trail Bike/Ped Overcrossing	64	Richmond: Citywide Pavement Rehab ADA Improvement
27	CCTA: Reconstruct I-80/San Pablo Dam Rd Interchange	65	Richmond: I-80/Central Avenue Interchange Modification
28	CCTA: SR-4 Operational Improvements-Initial Phases	66	Richmond: Lincoln Elementary SRTS Pedestrian Enhancements
29	Clayton: Neighborhood Street Rehab	67	San Pablo: Market Street Pavement Rehabilitation
30	Concord: Commerce Ave Complete Streets	68	San Pablo: Rumrill Blvd Complete Streets Improvements
31	Concord: Downtown Corridors Bike/Pedestrian Improvements	69	San Ramon: Alcosta Boulevard Pavement Rehab
32	Concord: Monument Boulevard Class I Path	70	San Ramon: Crow Canyon Rd Widening (Alcosta to Indian Rice)
33	Concord: Willow Pass Road Repaving and 6th St SRTS	71	San Ramon: Iron Horse Trail Bike and Pedestrian Overcrossing
34	Concord: Ygnacio Valley Road Widening	72	Walnut Creek: BART TOD Access Improvements
35	Contra Costa County: Bailey Road-SR-4 Interchange	73	Walnut Creek: N. Main St Rehab-I-680 to California
36	Contra Costa County: Bailey Road Bike and Pedestrian Improvements	74	Walnut Creek: Ygnacio Valley & Oak Grove Road Rehabilitation
37	Contra Costa County: Camino Tassajara Realignment	75	WETA: Richmond Ferry Service
38	Contra Costa County: Fred Jackson Way First/Last Mile Connection		

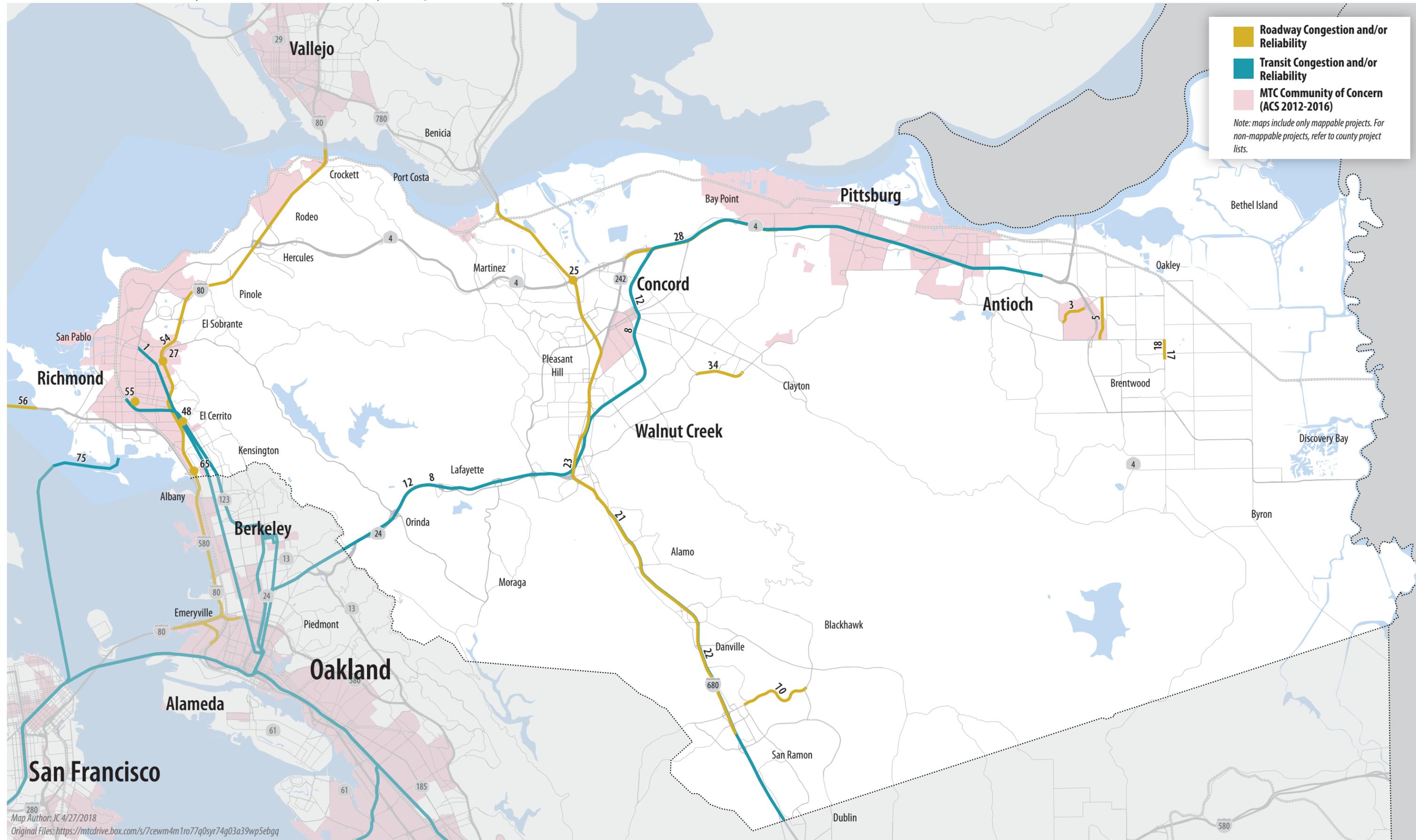
2019 TIP Investment Analysis

Contra Costa County Project List

NOT MAPPED

AC Transit: ADA Paratransit Assistance
AC Transit: Paratransit Van Replacement
AC Transit: Purchase (10) 24ft Cut-aways
AC Transit: Purchase (24) 60ft Artic Hybrid Buses
AC Transit: Replace (27) 40ft Urban Buses - Hybrid
AC Transit: Replace (6) 24ft Cut-Away Vans
CCCTA: County Connection ADA Paratransit Assistance
CCTA: SR 239 - New State Highway Study
Contra Costa County: West County Walk and Bike Leaders
EBRPD: Contra Costa Parks Bike/Ped Trail Improvements
ECCTA: Tri-Delta ADA Operating Assistance
MTC: Regional Planning Activities and PPM - Contra Costa County
San Ramon: San Ramon Valley Street Smarts
Walnut Creek: Parking Guidance System Pilot
WCCTA: WestCAT ADA Paratransit Operating Subsidy
WCCTA: WestCAT Purchase (6) Electronic Fareboxes
WCCTA: WestCAT Purchase (9) Electronic Fareboxes
WCCTA: WestCAT Purchase of (2) Radio Systems
WCCTA: WestCAT Replace (2) DAR MiniVans
WCCTA: WestCAT Replace (6) 2008 35ft Revenue Vehicles
WCCTA: WestCAT Replace (5) 35ft and (4) 40ft Vehicles

Contra Costa County: Economic Vitality Projects



2019 TIP Investment Analysis

Marin County Project List

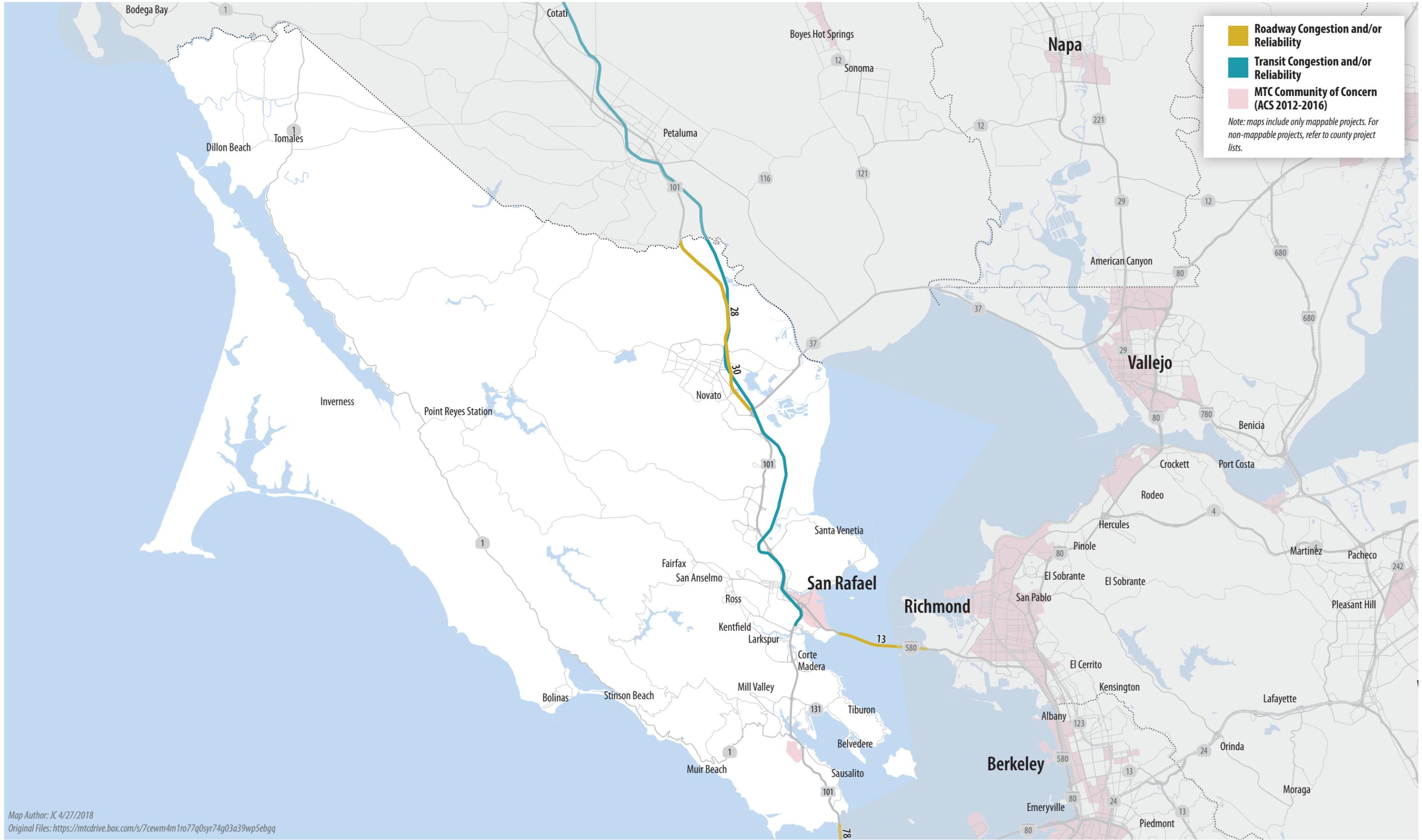
- 1 BATA: Toll Bridge Maintenance
- 2 BATA: Toll Bridge Rehabilitation Program
- 3 Corte Madera: Central Marin Regional Pathway Gap Closure
- 4 Corte Madera: Paradise Drive Multiuse Path
- 5 GGBHTD: Ferry Channel & Berth Dredging
- 6 GGBHTD: Golden Gate Bridge-Suicide Deterrent Safety Barrier
- 7 GGBHTD: Golden Gate Bridge Seismic Retrofit, Phase 1-3A
- 8 GGBHTD: Golden Gate Bridge Seismic Retrofit, Phase 3B
- 9 GGBHTD: Larkspur Ferry Terminal Parking Garage
- 10 GGBHTD: San Rafael Transit Center Relocation
- 11 Marin County: Hicks Valley/Marshall Petaluma/Wilson Hill Rd Rehab
- 12 Marin County: Mountain View Rd Bridge Replacement
- 13 MTC: Richmond-San Rafael Bridge Access Improvements
- 14 Novato: Carmel Open Space Acquisition
- 15 Novato: Downtown SMART Station Commuter Lot
- 16 Novato: Hill Recreation Area Improvements
- 17 Novato: Measure A Group 10 Pavement Rehabilitation
- 18 Novato: Novato Boulevard Widening, Diablo to Grant
- 19 Novato: Vineyard Road Improvements
- 20 NPS: Fort Baker's Vista Point Trail
- 21 San Anselmo: Bike Spine

- 22 San Anselmo: Center Blvd Bridge Replace
- 23 San Anselmo: Sir Francis Drake Blvd Pavement Rehabilitation
- 24 San Rafael: Francisco Blvd East Sidewalk Widening
- 25 San Rafael: Francisco Blvd West Multi-Use Pathway
- 26 San Rafael: Grand Avenue Bicycle Pedestrian Improvements
- 27 Sausalito: Bridgeway/US 101 Off Ramp Bicycle Imps
- 28 SMART: Larkspur Extension
- 29 TAM: North-South Greenway Gap Closure
- 30 TAM: US 101 HOV Lanes-Marin-Sonoma Narrows (Marin)

NOT MAPPED

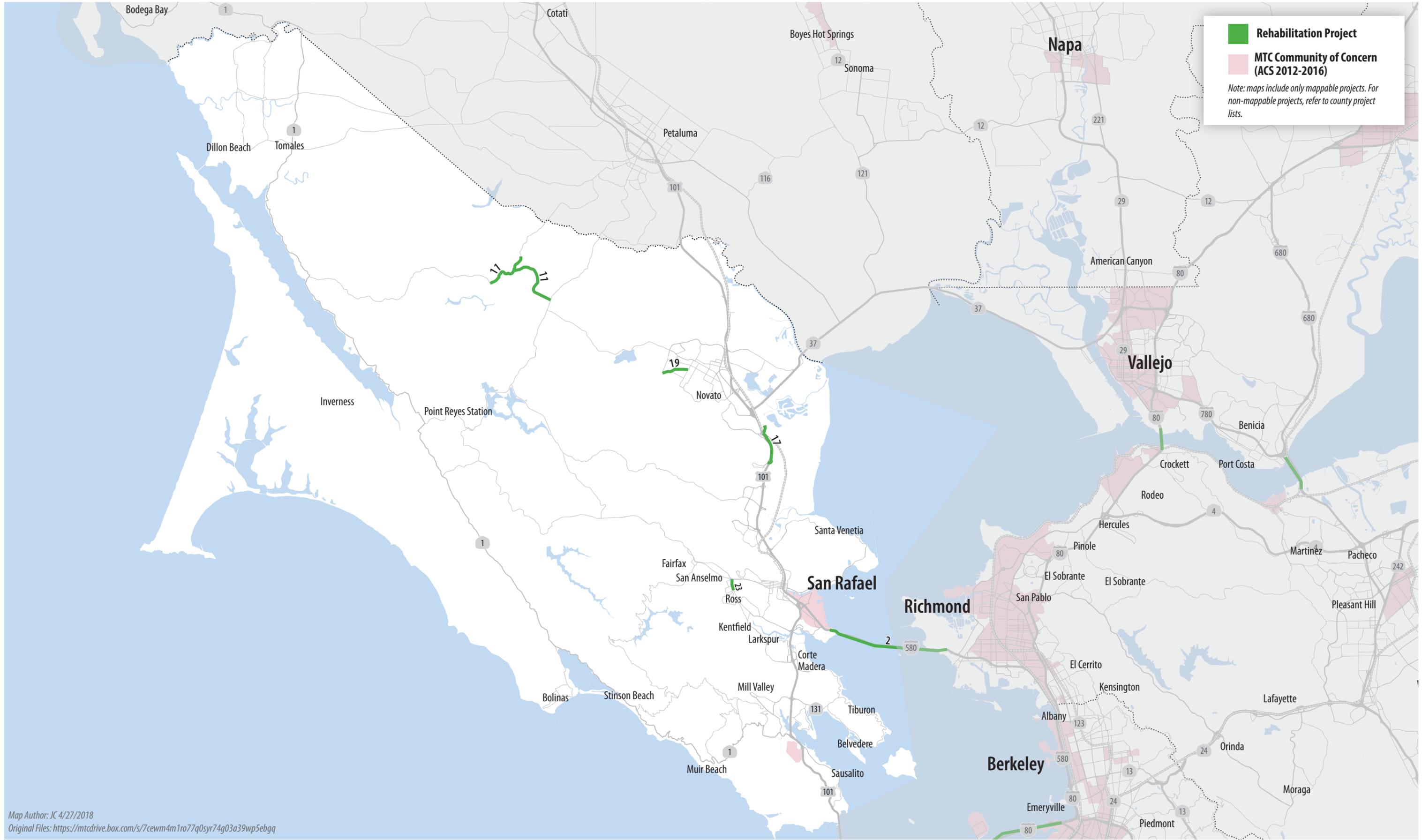
- Caltrans: Marin County - TOS-Mobility
- GGBHTD: Facilities Rehabilitation
- GGBHTD: Ferry Propulsion Systems Replacement
- GGBHTD: Fixed Guideway Connectors
- GGBHTD: Purchase (7) Hybrid Buses
- GGBHTD: Replace (14) 22' Gas Body-on-Chassis Vehicles
- GGBHTD: Replace (2) Paratransit Vehicles
- GGBHTD: Replace (67) Diesel Buses with Hybrid Buses
- GGBHTD: Replace (7) 40' Diesel Buses
- GGBHTD: Replace Paratransit Vehicles
- GGBHTD: Transit Systems Enhancements
- MCTD: ADA Paratransit Assistance
- MCTD: Preventive Maintenance
- MCTD: Relocate Transit Maintenance Facility
- MCTD: Replace Articulated Vehicles
- MCTD: Replace Diesel Vehicles
- MCTD: Replace Shuttle Vehicles
- MTC: Regional Planning Activities and PPM - Marin County
- Novato: Downtown SMART Station Commuter Lot
- TAM/SCTA: Bike Share Capital Program (SMART Corridor in Marin and Sonoma Counties)

Marin County: Economic Vitality Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

Marin County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

2019 TIP Investment Analysis

Napa County Project List

- 1 American Canyon: Devlin Road and Vine Trail Extension
- 2 American Canyon: Eucalyptus Drive Realignment Complete Streets
- 3 American Canyon: Green Island Road Class I
- 4 Calistoga: SR-128 and Petrified Forest Intersection Improvements
- 5 Napa County: Airport Boulevard Rehabilitation
- 6 Napa County: Hardin Rd Bridge Replacement
- 7 Napa County: Loma Vista Dr Bridge Replacement
- 8 Napa County: Silverado Trail Phase L Rehab
- 9 Napa: California Boulevard Roundabouts
- 10 Napa: Silverado Trail Five-Way Intersection Improvements
- 11 Napa: SR 29 Bicycle & Pedestrian Undercrossing
- 12 Napa: Vine Trail Gap Closure-Soscol Avenue Corridor
- 13 NVTA: Napa Valley Vine Trail Calistoga-St. Helena Segment
- 14 NVTA: SR 12/29/221 Soscol Junction Interchange Improvements
- 15 NVTA: Vine Transit Bus Maintenance Facility
- 16 St. Helena: Main Street Pedestrian Improvements
- 17 Yountville: Hopper Creek Pedestrian Bridge and Path Project

NOT MAPPED

MTC: Regional Planning Activities and PPM - Napa County

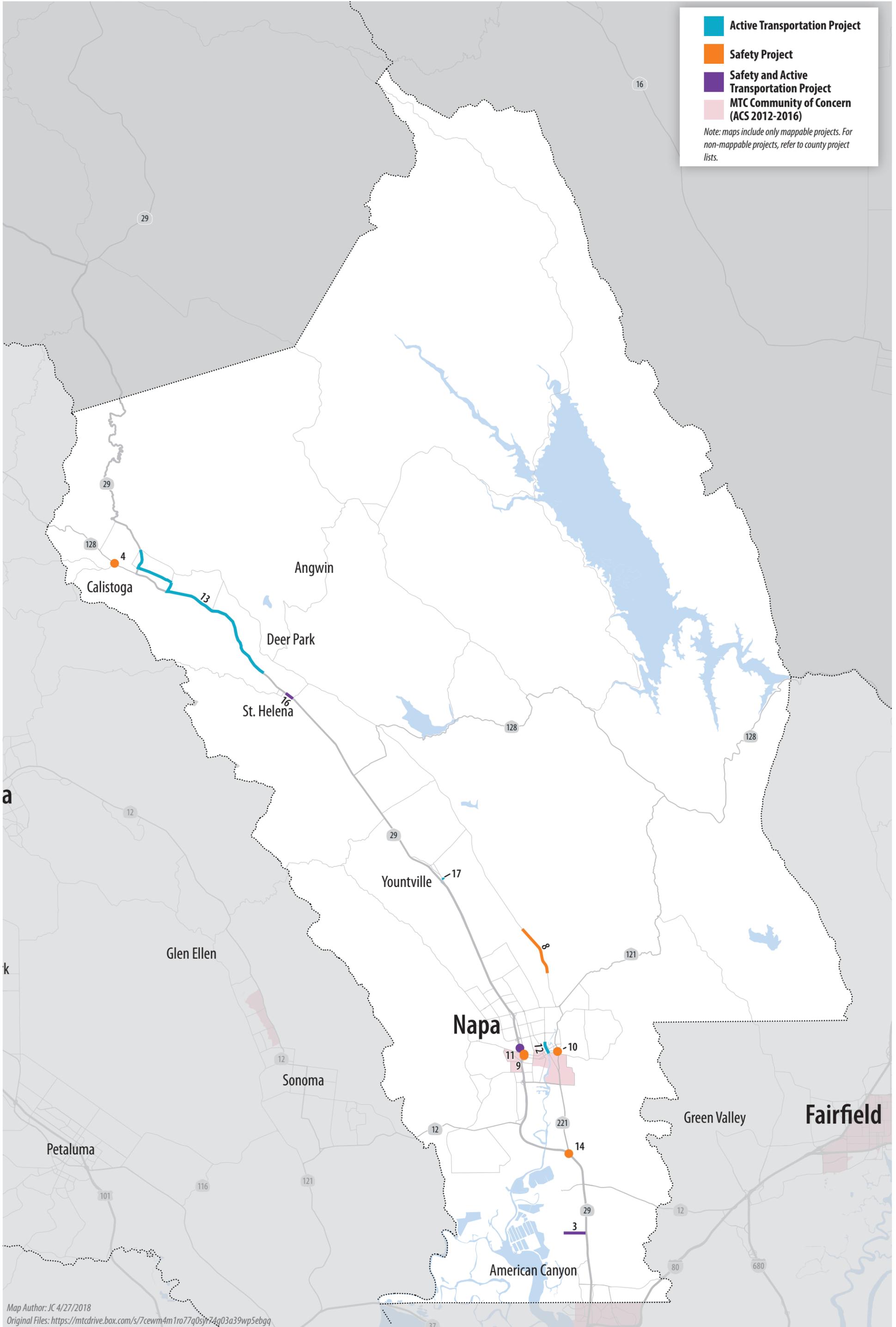
Napa County: 2014 Earthquake Pavement Repair

NVTA: Napa Vine ADA Operating Assistance

NVTA: Napa Vine Equipment Replacement and Upgrades

VVTA: Napa Vine Operating Assistance

Napa County: Healthy and Safe Communities Projects

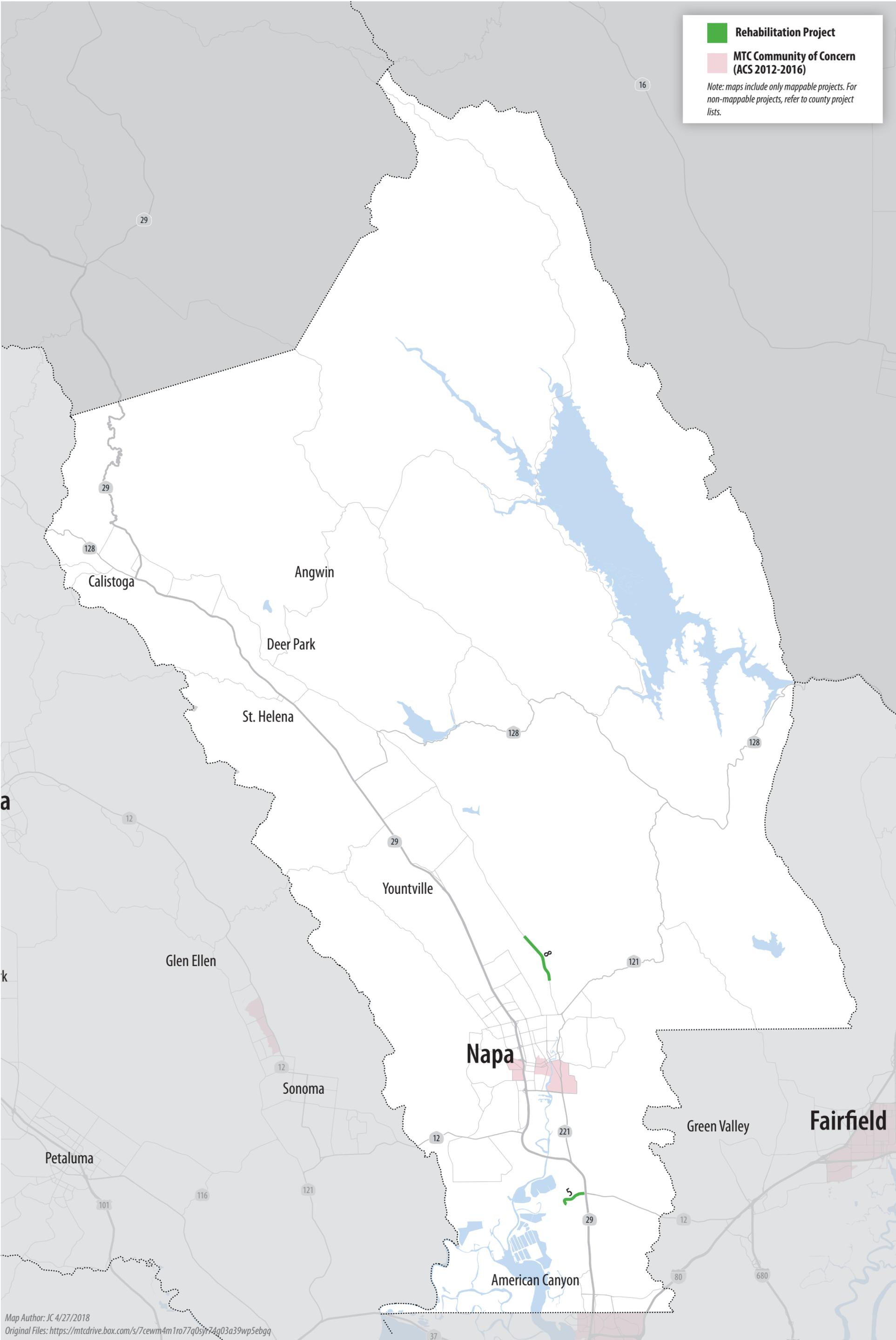


Napa County: Economic Vitality Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74q03a39wp5ebgq>

Napa County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0sjr74q03a39wp5ebgq>

2019 TIP Investment Analysis

San Francisco County Project List

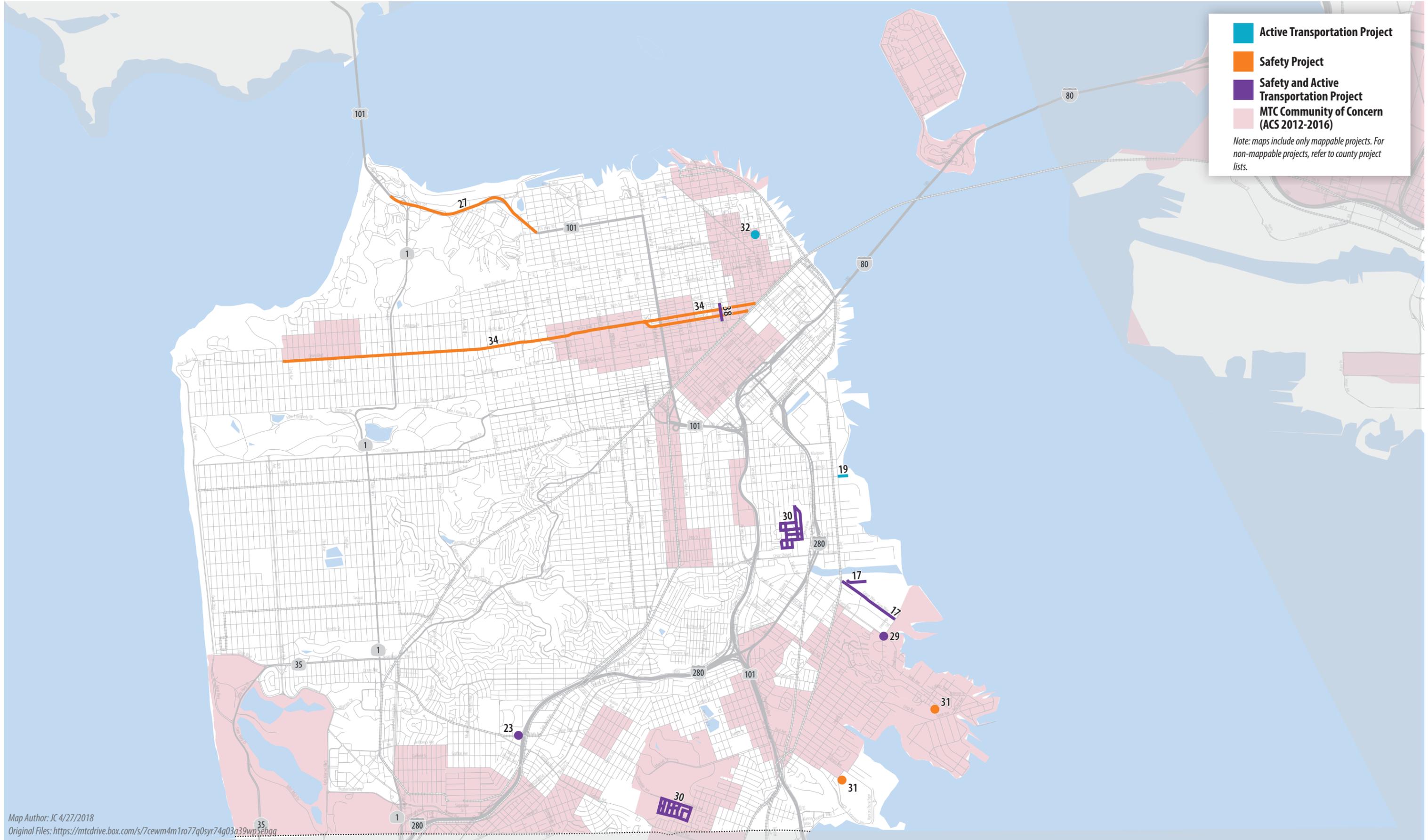
- 1 BART Car Exchange (Preventive Maintenance)
- 2 BART Train Control Renovation
- 3 BART Transbay Core Capacity Improvements
- 4 BART: BART/MUNI Direct Connection Platform
- 5 BART: Embarcadero Station New North-Side Platform Elevator
- 6 BART: Fare Collection Equipment
- 7 BART: Rail, Way and Structures Program
- 8 BART: Railcar Procurement Program
- 9 BART: Traction Power System Renovation
- 10 BART:ADA Paratransit Capital Accessibility Improve
- 11 BATA: Toll Bridge Maintenance
- 12 BATA: Toll Bridge Rehabilitation Program
- 13 Caltrain: Electrification
- 14 GGBHTD: Golden Gate Bridge-Suicide Deterrent Safety Barrier
- 15 GGBHTD: Golden Gate Bridge Seismic Retrofit, Phase 3B
- 16 MTC: Bay Bridge Forward-Sterling/Bryant St Managed Lane
- 17 Port of SF: Cargo Way and Amador Street Improvements
- 18 Port of SF: Mission Bay Ferry Terminal
- 19 Port of SF: Pier 70 19th Street & Illinois Street Sidewalk
- 20 SFCTA: Construct Treasure Island Bus Terminal Facility
- 21 SFCTA: Oakdale Caltrain Station
- 22 SFCTA: Quint-Jerrold Connector Road
- 23 SFCTA: SB I-280 Off-Ramp at Ocean Ave Realignment
- 24 SFCTA: SF Downtown Congestion Pricing
- 25 SFCTA: Treasure Island Congestion Pricing Program
- 26 SFCTA: Treasure Island/Yerba Buena Island Street Improvements
- 27 SFCTA: US 101 Doyle Drive Replacement
- 28 SFDPW: Better Market Street Transportation Elements
- 29 SFDPW: HOPE SF Street Network-Hunters View
- 30 SFDPW: HOPE SF Street Network-Sunnydale and Potrero
- 31 SFDPW: Hunters Pt Shipyard and Candlestick Pt Local Roads
- 32 SFDPW: John Yehall Chin Safe Routes to School
- 33 SFMTA: Cable Car Traction Power & Guideway Rehab
- 34 SFMTA: Geary Bus Rapid Transit
- 35 SFMTA: Geneva Harney BRT Infrastructure: Central Segment
- 36 SFMTA: Geneva Harney BRT Infrastructure: Eastern Segment
- 37 SFMTA: Historic Streetcar Extension to Fort Mason
- 38 SFMTA: Powell Street Safety Project

- 39 SFMTA: Transit Center in Hunters Point
- 40 TBJPA: Transbay Terminal/Caltrain Downtown Ext: Phase 2
- 41 WETA: SF Ferry Terminal/Berthing Facilities

NOT MAPPED

- MTC: Bay Bridge Forward - Casual Carpool
- MTC: Bay Bridge Forward - Integrated Bridge Corridor
- MTC: Bay Bridge Forward-Sterling/Bryant St Managed Lane
- MTC: Regional Planning Activities and PPM - San Francisco County
- SFCTA: Treasure Island Pricing Mobility Improvements
- SFDPH: SF Safe Routes to School 2017-2019
- SFMTA: 40' Motor Coach Mid-Life Overhaul
- SFMTA: 60' Motor Coach Mid-Life Overhaul
- SFMTA: ADA Paratransit Operating Support
- SFMTA: Additional Light Rail Vehicles to Expand Muni Rail
- SFMTA: Cable Car Vehicle Renovation Program
- SFMTA: Farebox Replacement
- SFMTA: Muni Rail Replacement Program
- SFMTA: Overhead Line Reconstruction & Traction Power Program
- SFMTA: Paratransit Vehicle Replacements
- SFMTA: Rehabilitate Historic Streetcars
- SFMTA: Replace (35) Paratransit Cutaway Vans
- SFMTA: Replacement of 30' Motor Coaches
- SFMTA: Safe Routes to School Non-Infrastructure Program
- SFMTA: Station-area Pedestrian and Bike Access Improvements
- SFMTA: Train Control & Trolley Signal Rehabilitation/Replacement
- SFMTA: Wayside Fare Collection Equipment
- TBJPA: Transbay Transit Center - TIFIA Loan Debt Service
- WETA: Ferry Major Component Rehabilitation/Replacement
- WETA: Fixed Guideway Connectors
- WETA: Replace Ferry Vessels

San Francisco County: Healthy and Safe Communities Projects



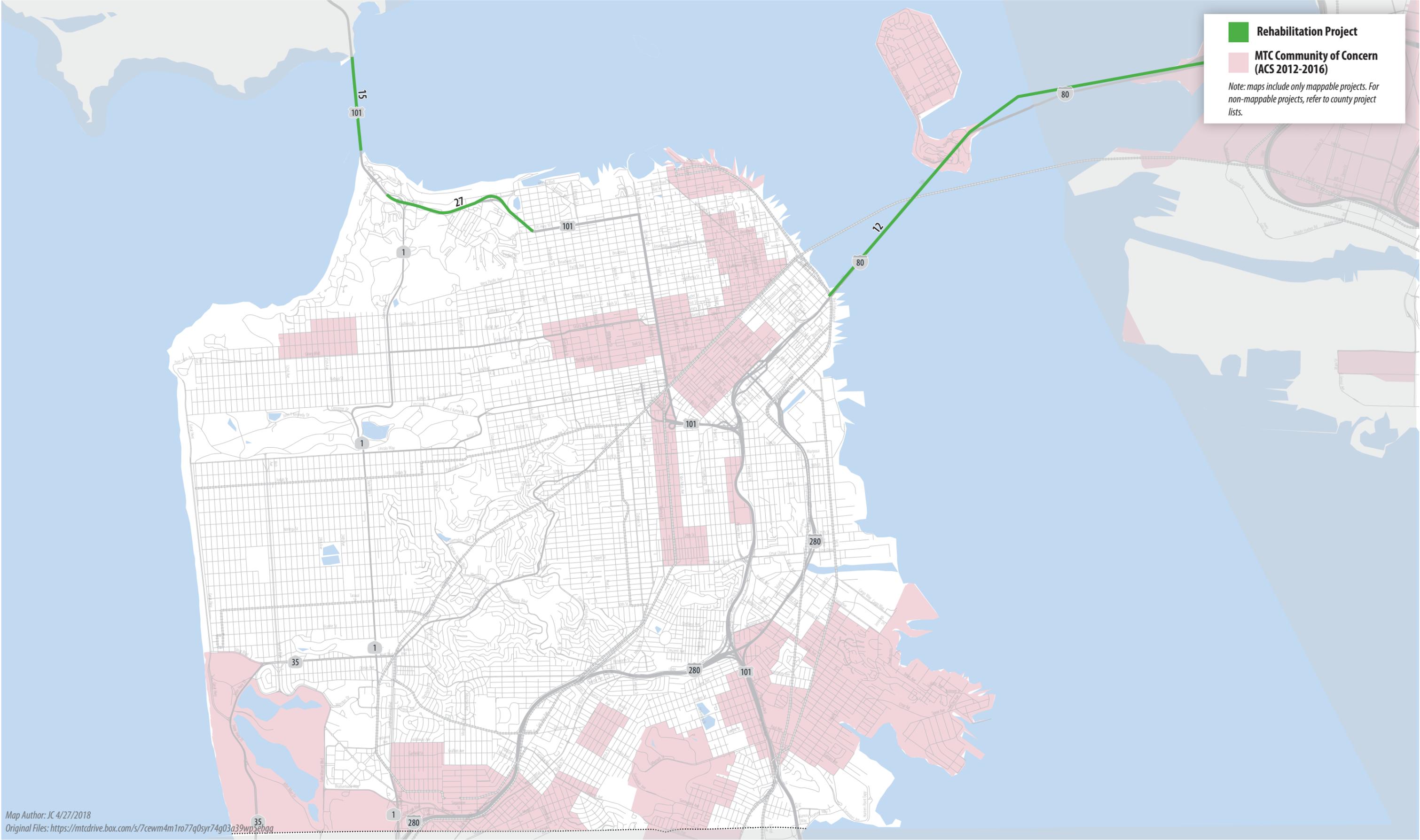
Active Transportation Project
Safety Project
Safety and Active Transportation Project
MTC Community of Concern (ACS 2012-2016)

Note: maps include only mappable projects. For non-mappable projects, refer to county project lists.

San Francisco County: Economic Vitality Projects



San Francisco County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wn5ebga>

2019 TIP Investment Analysis

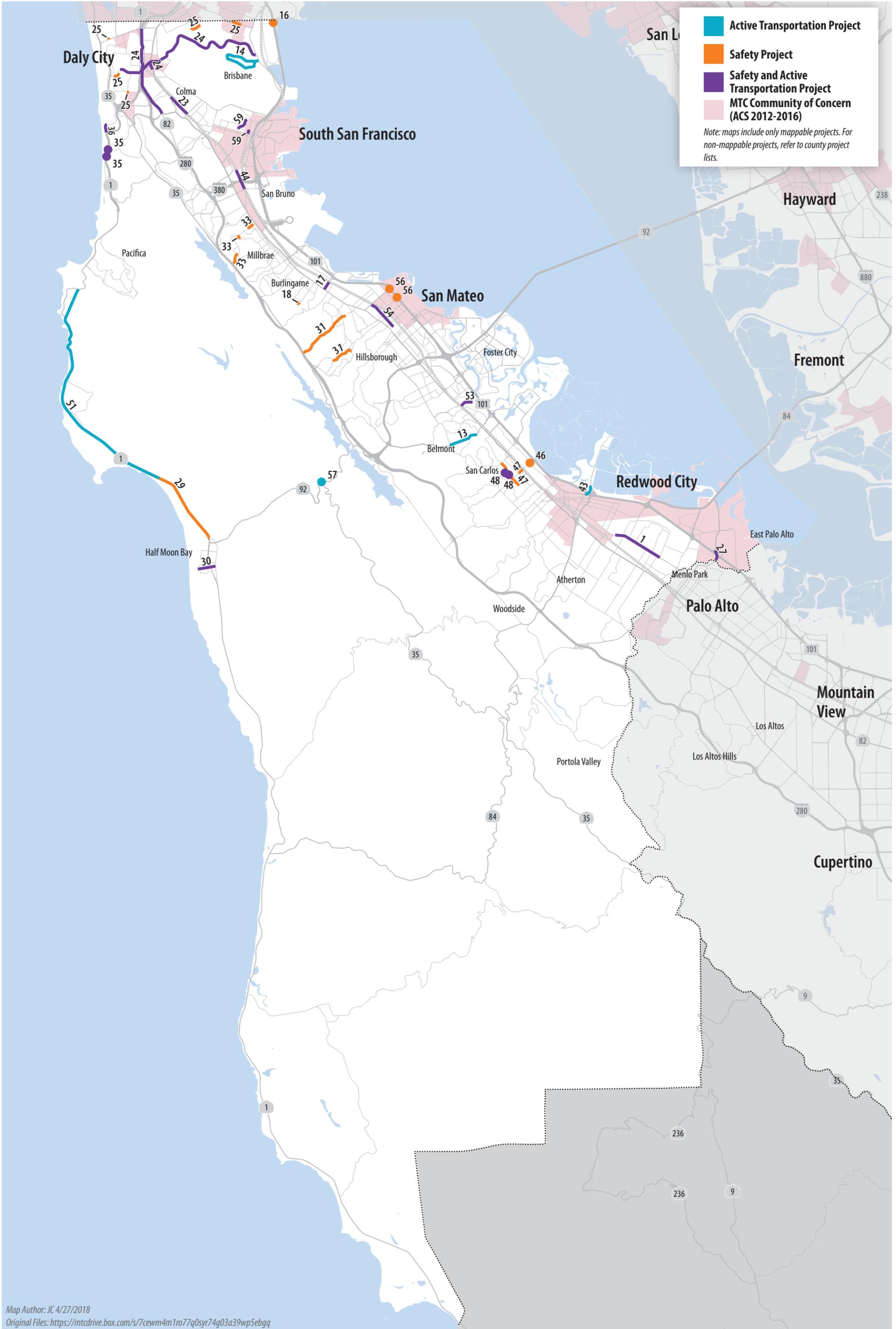
San Mateo County Project List

- | | |
|---|---|
| <ol style="list-style-type: none"> 1 Atherton: Middlefield Road Class II Bike Lanes 2 BART Car Exchange (Preventive Maintenance) 3 BART Train Control Renovation 4 BART Transbay Core Capacity Improvements 5 BART: Fare Collection Equipment 6 BART: Rail, Way and Structures Program 7 BART: Railcar Procurement Program 8 BART: Traction Power System Renovation 9 BART:ADA Paratransit Capital Accessibility Improve 10 BATA: Toll Bridge Maintenance 11 BATA: Toll Bridge Rehabilitation Program 12 Belmont: Pavement Preservation 13 Belmont: Ralston Avenue Corridor Segment 3 14 Brisbane: Crocker Trail Commuter Connectivity Upgrades 15 Brisbane: Tunnel Ave Rehabilitation 16 Brisbane: US 101/Candlestick Interchange 17 Burlingame: Broadway PDA Lighting Improvements 18 Burlingame: Hoover School Area Sidewalk Impvts (Summit Dr.) 19 Burlingame: Street Resurfacing 20 C/CAG: ITS Improvements in San Mateo County Northern Citi 21 C/CAG: US 101 Managed Lanes Santa Clara Co-S of Grand Ave 22 Caltrain: Electrification 23 Colma: Mission Road Bike/Ped Improvements 24 Daly City: Central Corridor Bike/Ped Safety Imprmnt 25 Daly City: Pavement Preservation 26 East Palo Alto: Citywide Street Resurfacing 27 East Palo Alto: US 101/University Ave Interchange Improvements 28 Foster City: Pavement Rehabilitation 29 Half Moon Bay: Hwy 1 Improvements 30 Half Moon Bay: Poplar Complete Streets 31 Hillsborough: Street Resurfacing 32 Menlo Park: Santa Cruz and Middle Avenues Rehab 33 Millbrae: Street Rehabilitation 34 MTC: Freeway Performance Program-SR-84 35 Pacifica: Manor Drive Overcrossing and Milagra On Ramp 36 Pacifica: Palmetto Sidewalk Extension 37 Pacifica: Pavement Rehabilitation | <ol style="list-style-type: none"> 38 Portola Valley: Street Preservation 39 Redwood City: Blomquist Street Extension 40 Redwood City: Pavement Preservation 41 Redwood City: Redwood City Ferry Service 42 Redwood City: US 101/Woodside Interchange Improvement 43 Redwood City: US 101/Woodside Road Class 1 Bikeway 44 San Bruno: Huntington Transit Corridor Bike/Ped Improvements 45 San Bruno: Street Rehabilitation 46 San Carlos: Brittan Ave Widening 47 San Carlos: Cedar and Brittan Ave Pavement Rehab 48 San Carlos: Ped Enhancements Arroyo/Cedar & Hemlock/Orange 49 San Mateo County: Canada Road and Edgewood Road Resurfacing 50 San Mateo County: Countywide Pavement Maintenance 51 San Mateo County: Hwy 1 Congestion Throughput and Safety Improvement 52 San Mateo: Improve US 101 Operations near SR-92 53 San Mateo: Laurie Meadows Ped/Bike Safety Improvements 54 San Mateo: North San Mateo Drive Sustainable Streets 55 San Mateo: Street Rehabilitation 56 San Mateo: US 101/Peninsula Avenue Interchange Improvements 57 SFPUC: Southern Skyline Blvd. Ridge Trail Extension 58 South San Francisco: Grand Boulevard (Phase III) 59 South San Francisco: Linden/Spruce Ave Traffic Calming Improvements 60 South San Francisco: Pavement Rehabilitation 61 South San Francisco: US 101/Produce Avenue Interchange |
|---|---|

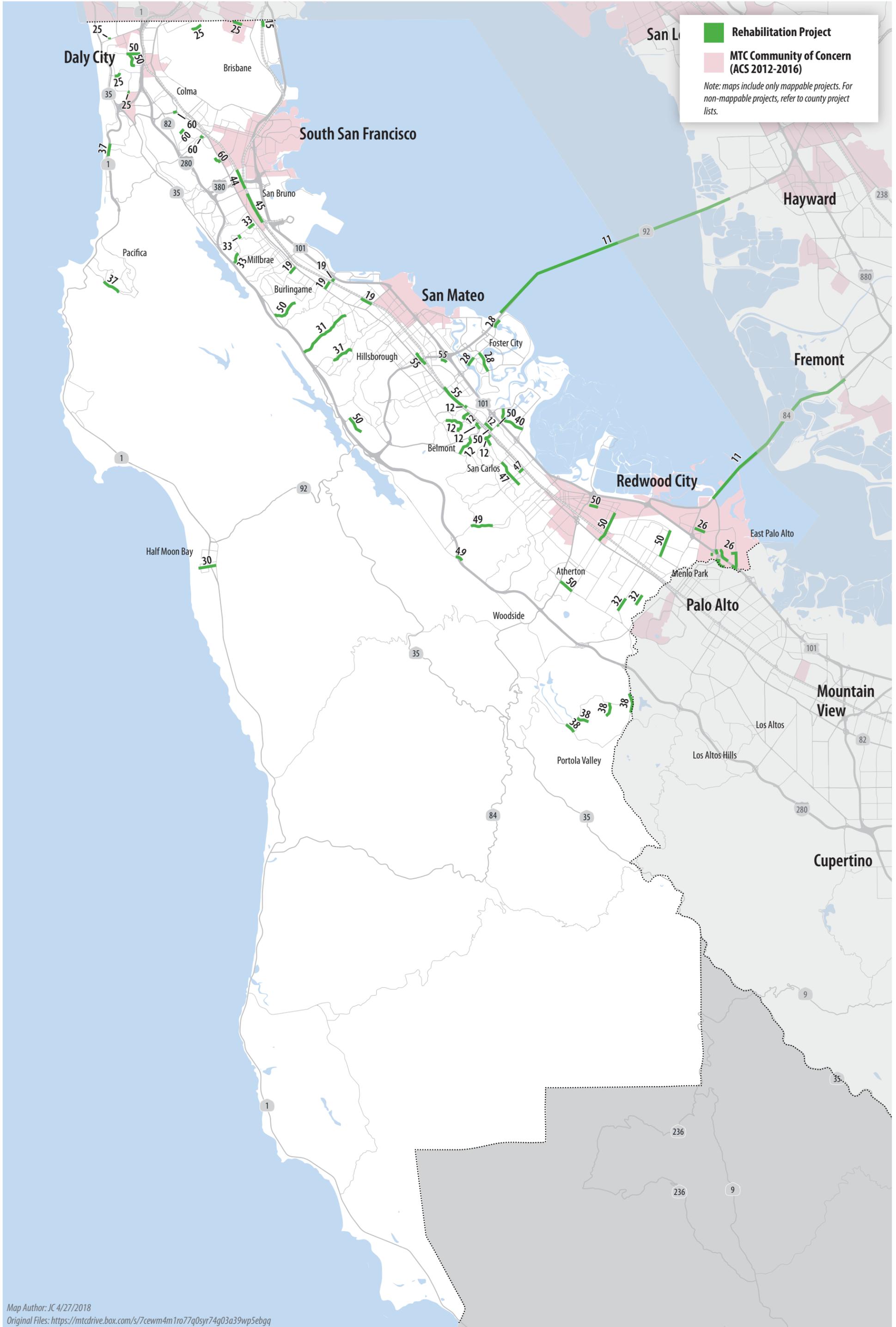
NOT MAPPED

- C/CAG: San Mateo Countywide ITS Improvements
- Caltrain: Systemwide Track Rehabilitation & Related Structures
- MTC: Regional Planning Activities and PPM - San Mateo County
- Pacifica: Citywide Curb Ramps
- SamTrans: ADA Paratransit Operating Subsidy
- SamTrans: Express Bus Service
- SamTrans: Purchase of Replacement Minivans
- SamTrans: Replacement of Cutaway Buses

San Mateo County: Healthy and Safe Communities Projects



San Mateo County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



2019 TIP Investment Analysis

Santa Clara County Project List

1	BART Car Exchange (Preventive Maintenance)	39	Santa Clara: Hetch-Hetchy Trail Phase 1
2	BART Train Control Renovation	40	Santa Clara: Montague Expwy Widening-Trade Zone-I-680
3	BART Transbay Core Capacity Improvements	41	Santa Clara: San Tomas Aquino Creek Trail Underpass
4	BART: Berryessa to San Jose Extension	42	Santa Clara: Saratoga Creek Trail Phase 1
5	BART: Fare Collection Equipment	43	Santa Clara: Streets and Roads Preservation
6	BART: Rail, Way and Structures Program	44	Saratoga: Prospect Rd Complete Streets
7	BART: Railcar Procurement Program	45	Saratoga: Saratoga Village Crosswalks and Sidewalk Rehab
8	BART: Traction Power System Renovation	46	Sunnyvale: Bernardo Avenue Bicycle Underpass
9	BART:ADA Paratransit Capital Accessibility Improve	47	Sunnyvale: East Sunnyvale Area Sense of Place
10	Caltrain: Electrification	48	Sunnyvale: Fair Oaks Avenue Bikeway-Phase 2
11	Caltrans: Oakland to San Jose Double Track (Segment 2A)	49	Sunnyvale: Homestead Rd at Homestead High School Improvements
12	Campbell: Eden Avenue Sidewalk Improvements	50	Sunnyvale: Java Dr Road Diet and Bike Lanes
13	Campbell: Winchester Blvd Overlay	51	Sunnyvale: Lawrence Station Area Sidewalks & Bike Facilities
14	Cupertino: Pavement Maintenance Phase 2	52	Sunnyvale: Ped and Bike Infrastructure Improvements
15	Gilroy: Downtown Monterey Road Rehabilitation	53	Sunnyvale: Peery Park Sense of Place Improvements
16	Los Altos: Fremont Ave Preservation	54	Sunnyvale: Safe Routes to School Improvements
17	Los Altos: Miramonte Ave Bike Ped Access Improvements	55	Sunnyvale: SNAIL Neighborhood Improvements
18	Los Gatos: Los Gatos Creek Trail to Hwy 9 Trailhead Connector	56	VTA: Calaveras Boulevard Widening
19	Milpitas: Street Resurfacing	57	VTA: Eastridge to BART Regional Connector
20	Morgan Hill: Dunne Avenue Pavement Rehabilitation	58	VTA: I-280 HOV-San Mateo County line to Magdalena Ave
21	Mountain View: West Middlefield Road Improvements	59	VTA: I-280 NB Braided Ramps btw Foothill Expwy & SR 85
22	MTC: Freeway Performance Program-I-880 Corridor	60	VTA: I-280 Soundwalls-Bird Avenue to Los Gatos Creek
23	Palo Alto: Adobe Creek/US-101 Bicycle Pedestrian Bridge	61	VTA: I-280/Foothill Expressway Off Ramp Improvement
24	Palo Alto: El Camino Real Ped Safety & Streetscape	62	VTA: I-280/Saratoga Avenue Interchange Improvement
25	Palo Alto: Street Resurfacing	63	VTA: I-280/Winchester Study
26	Palo Alto: Waverley, E. Meadow & Fabian Enhanced Bikeways	64	VTA: I-280/Wolfe Road Interchange Improvement
27	San Jose: Bay Trail Reach 9 & 9B	65	VTA: I-680 Soundwalls-Capitol Expwy to Mueller Ave
28	San Jose: Better Bikeways	66	VTA: I-680/ Alum Rock/ McKee Road Interchange Improvements
29	San Jose: Coyote Creek Trail (Hwy 237-Story Rd)	67	VTA: Montague Expy Ped Bridge at Milpitas BART
30	San Jose: East Side Alum Rock (East of 680) Urban Village	68	VTA: New SR-152 Alignment Study
31	San Jose: McKee Road Safety Improvements	69	VTA: SR-17 Corridor Congestion Relief in Los Gatos
32	San Jose: Mt Pleasant Ped & Bike Traffic Safety Improvements	70	VTA: SR-237 WB Auxiliary Lane from McCarthy to North 1st
33	San Jose: Pavement Maintenance	71	VTA: SR-237/US 101/Mathilda Interchange Modifications
34	San Jose: Tully Road Safety Improvements	72	VTA: SR-85 Express Lanes
35	San Jose: W San Carlos Urban Village Streets Improvements	73	VTA: US-101/Buena Vista Avenue Interchange Improvement
36	Santa Clara County: Capitol Expressway Pavement Rehabilitation	74	VTA: US-101/De L Cruz Blvd-Trimble Road I/C Imp
37	Santa Clara County: McKean Rd Pavement Rehabilitation	75	VTA: US-101/San Antonio Rd/Charleston/Rengstorff Improvements
38	Santa Clara County: Uvas Road Pavement Rehabilitation	76	VTA: US-101/SR 25 Interchange-Phase 1

2019 TIP Investment Analysis

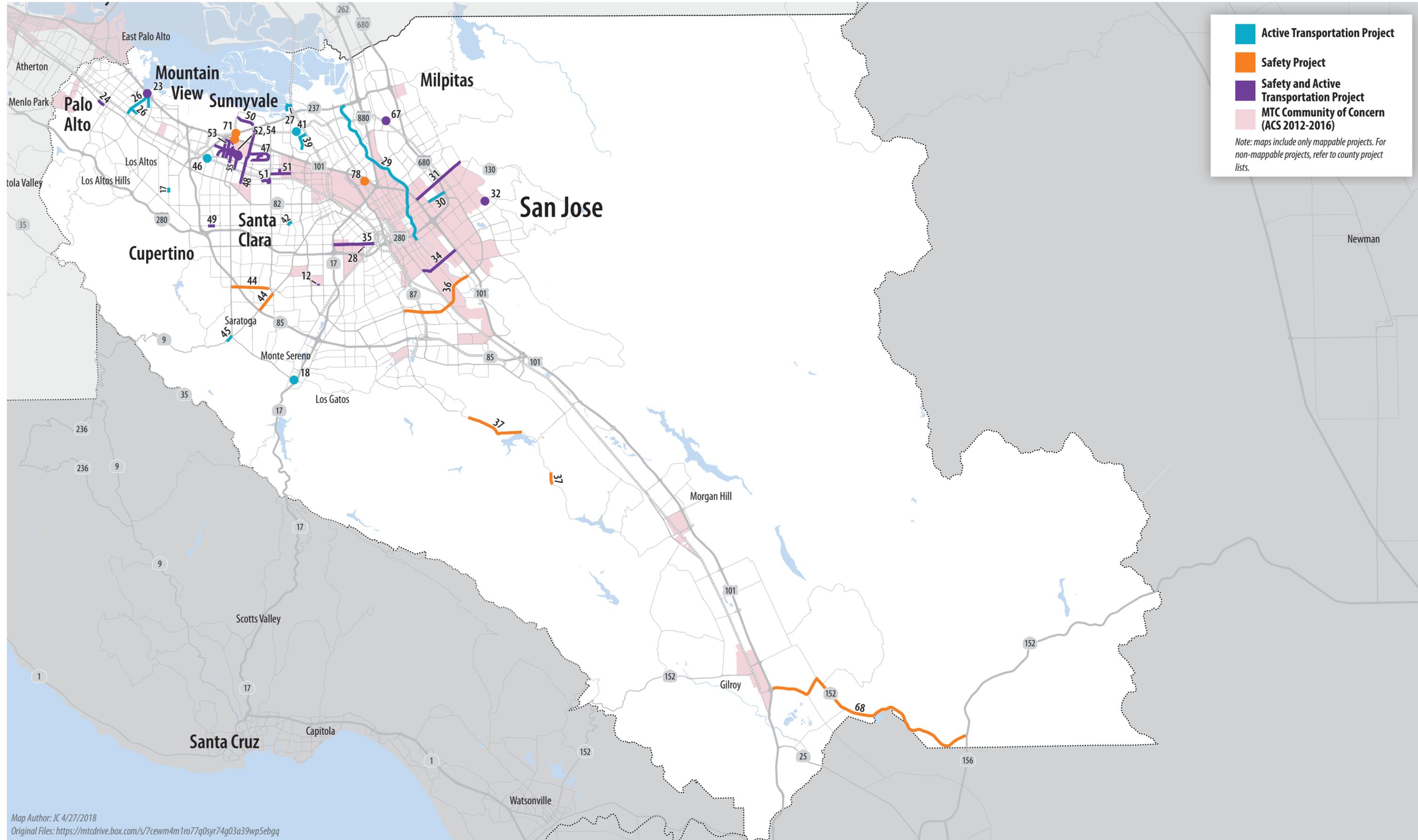
Santa Clara County Project List

- 77 VTA: US 101 Express Lanes
- 78 VTA: US 101/Zanker Road-Skyport Drive-N. Fourth St. Improvements

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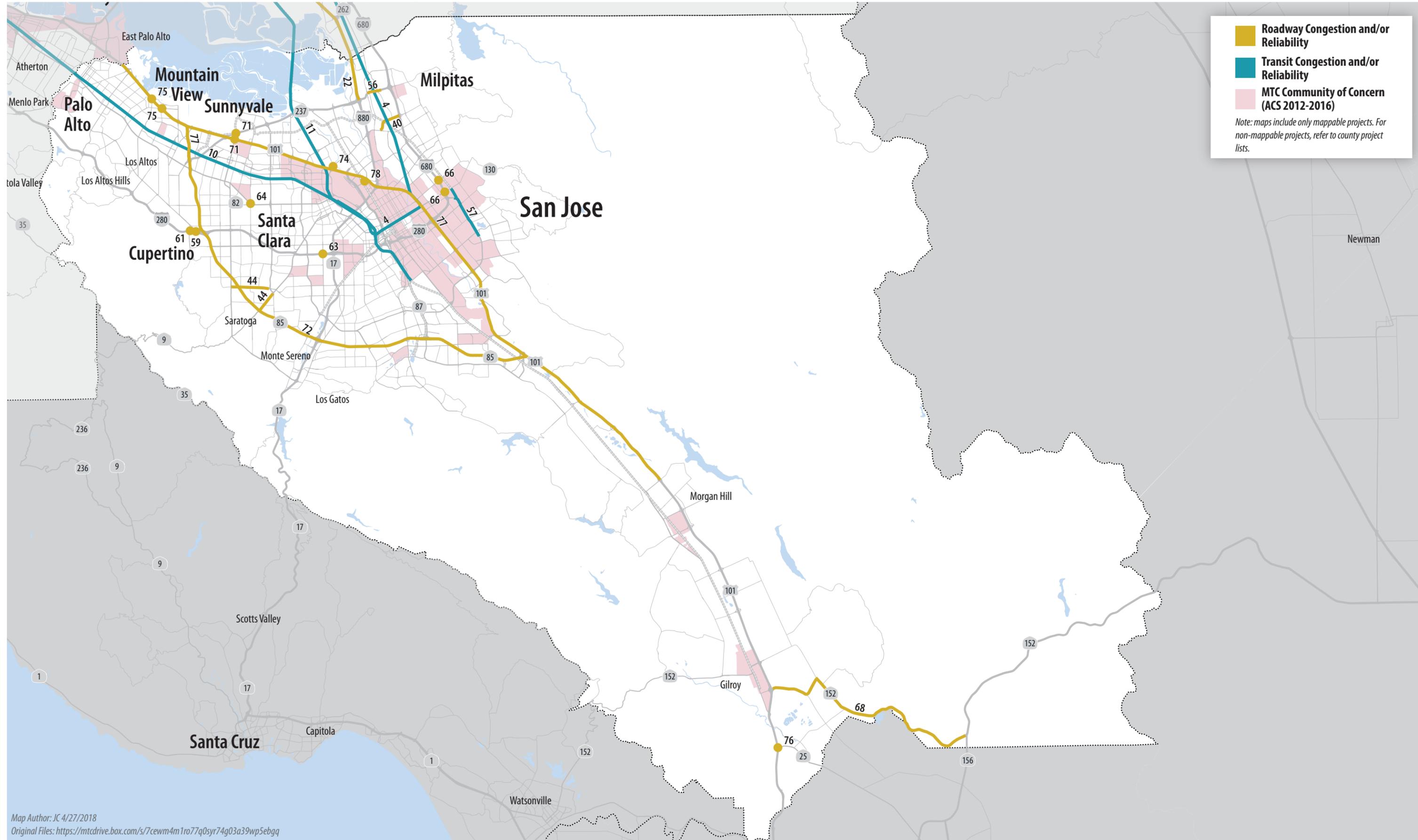
Caltrain: Systemwide Track Rehabilitation & Related Structures
MTC: Regional Planning Activities and PPM - Santa Clara County
Palo Alto: Bay Area Fair Value Commuting Mobility on Demand Sandbox
Palo Alto: North Ventura Coordinated Area Plan
San Jose: Downtown Mobility Streetscape and Public Life Plan
San Jose: East San Jose Bikeways
Santa Clara: School Access Improvements
Sunnyvale: Traffic Signal Upgrades/Replacements
VTA: ADA Operating Set-Aside
VTA: Highway Transp Operations System/FPI Phases 1 & 2
VTA: IDEA Category 2 Improvements
VTA: Light Rail Track Crossovers and Switches
VTA: Non-Revenue Vehicle Procurement
VTA: Overhead Catenary Syst. Rehabilitation & Replacement
VTA: Paratransit Vehicle Procurement
VTA: Rail Replacement Program
VTA: Rail Substation Rehab/Replacement
VTA: Standard & Small Bus Replacement
VTA: Systemwide Security Improvements

Santa Clara County: Healthy and Safe Communities Projects



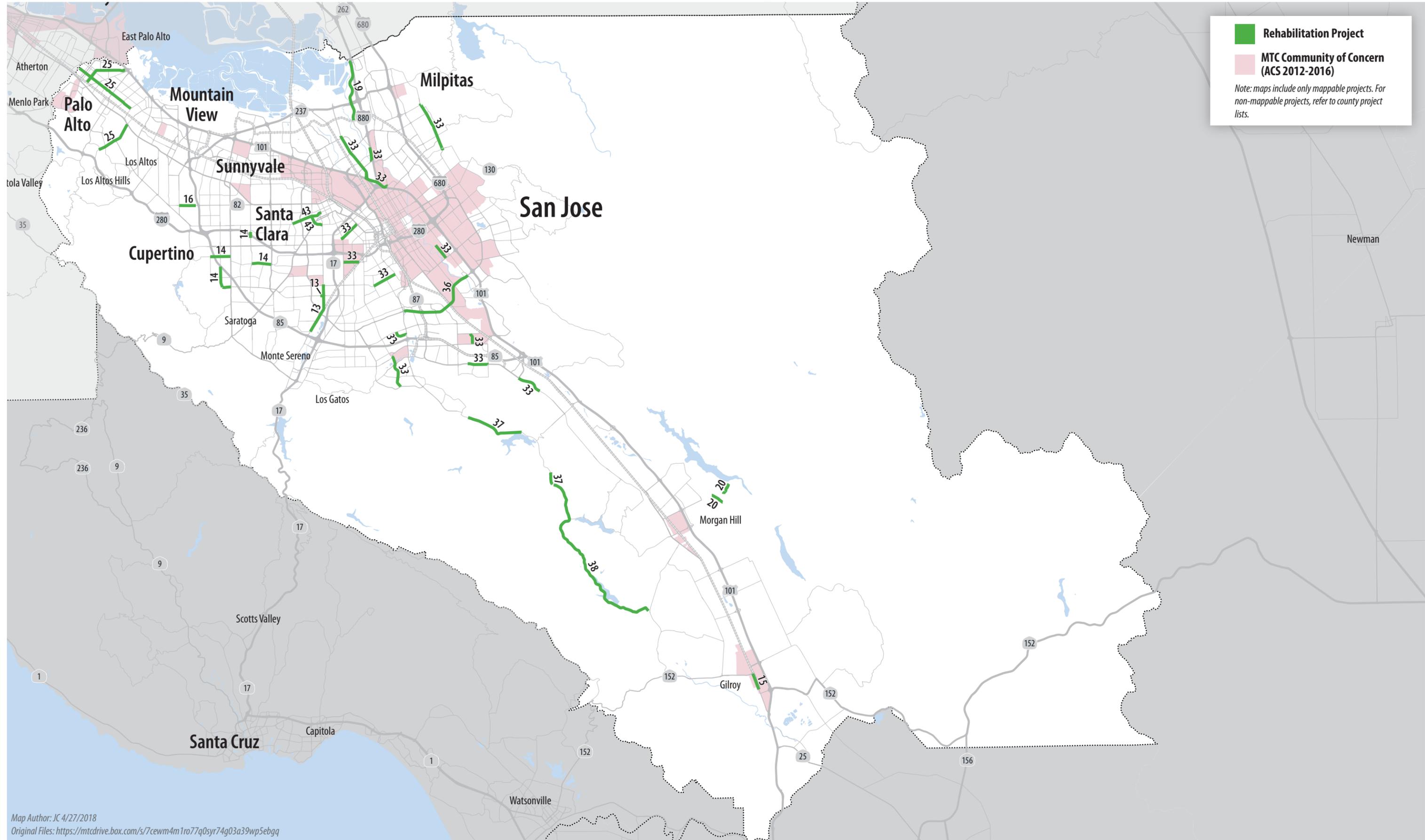
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Santa Clara County: Economic Vitality Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

Santa Clara County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

2019 TIP Investment Analysis

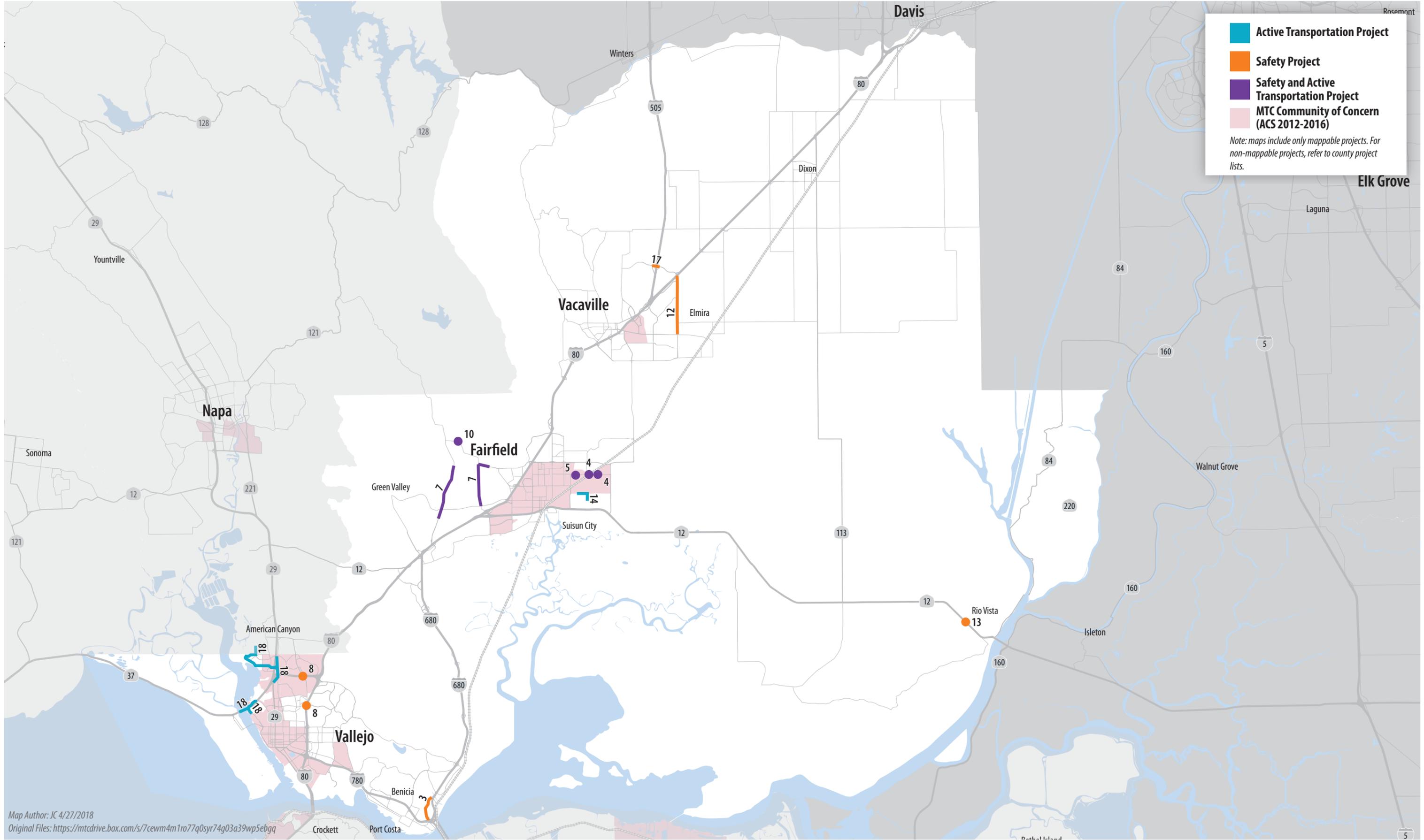
Solano County Project List

- 1 BATA: Toll Bridge Maintenance
- 2 BATA: Toll Bridge Rehabilitation Program
- 3 Benicia: Park Road Improvements
- 4 Fairfield: East Tabor Tolenas SR2S Sidewalk Gap Closure
- 5 Fairfield: Grange Middle School Safe Routes to School
- 6 MTC: I-80 Express Lanes-Fairfield & Vacaville Ph I&II
- 7 Solano County: Farm to Market Phase 3
- 8 Solano County: Redwood-Fairgrounds Dr Interchange Improvements
- 9 Solano County: Roadway Preservation
- 10 Solano County: Suisun Vallley Bicycle and Pedestrian Improvements
- 11 STA: I-80/I-680/SR-12 Interchange Project
- 12 STA: Jepson-Leisure Town Road (Phase 1B and 1C)
- 13 STA: SR-12/Church Rd Intersection Improvements
- 14 Suisun City: McCoy Creek Trail-Phase 2
- 15 Suisun City: New Railroad Avenue Pavement Rehabilitation
- 16 Vacaville: Pavement Preservation
- 17 Vacaville: Vaca Valley/I-505 Multimodal Improvements
- 18 Vallejo: Bay Trail/Vine Trail Gap Closure

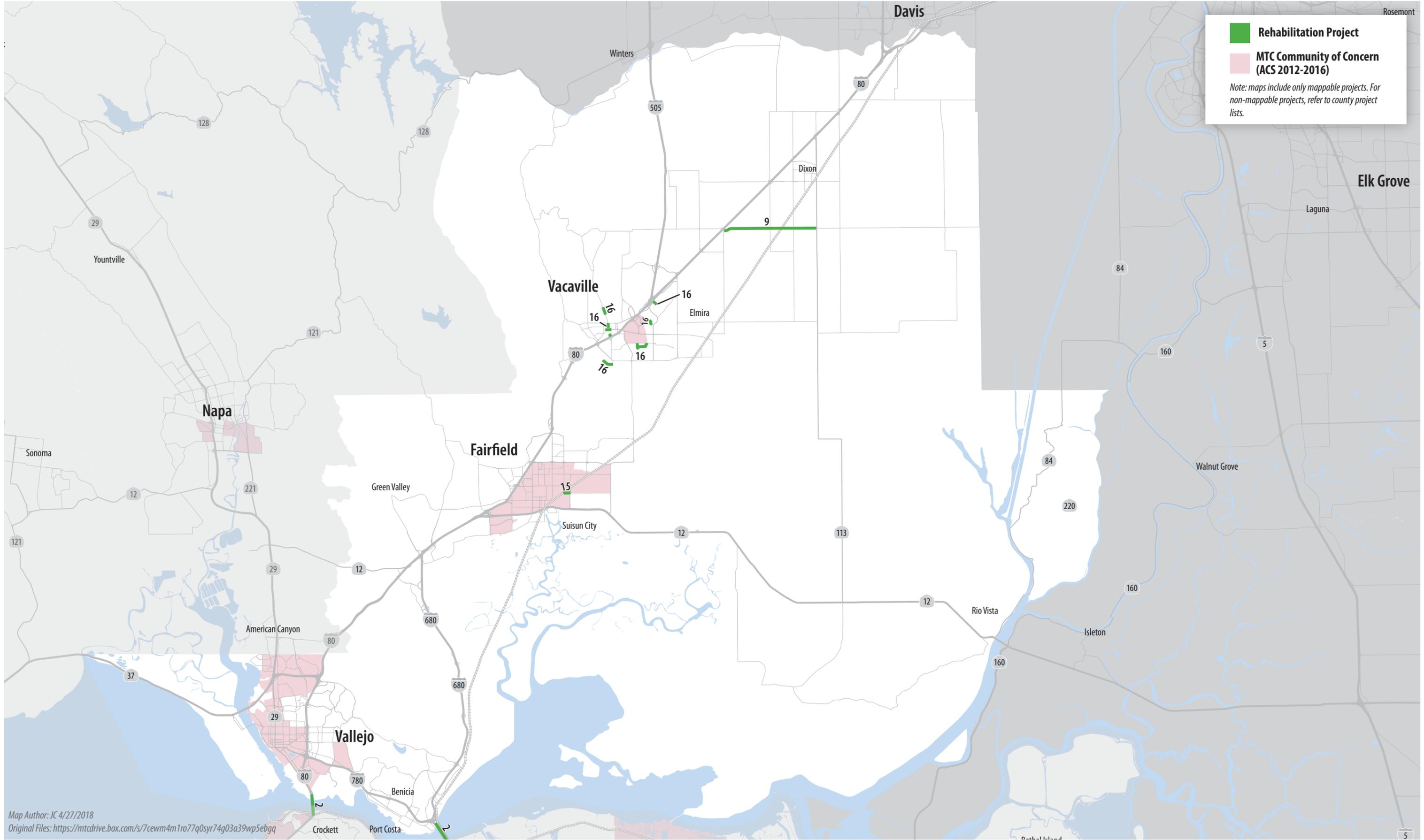
NOT MAPPED

Fairfield: Operating Assistance
Fairfield-Suisun: Intercity/Local Bus Replacement
MTC: Regional Planning Activities and PPM - Solano County
SolTrans: ADA Paratransit Operating Subsidy
SolTrans: Bus Replacement (Alternative Fuel)
SolTrans: Operating Assistance
SolTrans: Preventive Maintenance
STA: Safe Routes to School Infrastructure & Non-Infrastructure
STA: Solano Mobility Call Center
STA: Solano Safe Routes to School Program
Vacaville Transit: Operating Assistance

Solano County: Healthy and Safe Communities Projects



Solano County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



2019 TIP Investment Analysis

Sonoma County Project List

- 1 Cloverdale: Safe Routes to School Phase 2
- 2 Cotati: E. Cotati Avenue Street Rehabilitation Project
- 3 Healdsburg: Healdsburg Avenue Complete Streets Improvements
- 4 Petaluma: Petaluma Blvd South Road Diet at E Street
- 5 Rohnert Park: Various Streets Rehabilitation
- 6 Santa Rosa: Pavement Rehab of Various Streets
- 7 Santa Rosa: US-101 Bicycle and Pedestrian Bridge
- 8 Santa Rosa: US-101 Hearn Ave Interchange
- 9 SCTA: SR-116/SR-121 Intersection Improvement Project
- 10 SCTA: US-101 Marin/Sonoma Narrows (Sonoma)
- 11 Sebastopol: Bodega Avenue Bike Lanes and Pavement Rehab
- 12 Sonoma County Regional Park: Joe Rodota Trail Bridge Replacement
- 13 Sonoma County: Crocker Bridge Bike and Pedestrian Passage
- 14 Sonoma County: Rehab King Ridge Bridge over Austin Creek
- 15 Sonoma County: Rehabilitaiton of Various Roads
- 16 Sonoma County: Replace Chalk Hill Bridge over Maacama Creek
- 17 Sonoma County: Replace Freestone Flat Bridge over Salmon Creek
- 18 Sonoma County: Replace Geysers Bridge over Sulpher Creek
- 19 Sonoma County: Replace Lambert Bridge over Dry Creek
- 20 Sonoma County: Replace West Dry Creek Bridge over Pena Creek
- 21 Sonoma County: River Road Pavement Rehab
- 22 Sonoma: Fryer Creek Pedestrian and Bicycle Bridge
- 23 Windsor: Windsor River Road/Windsor Road Intersection

NOT MAPPED

MTC: Regional Planning Activities and PPM - Sonoma County

Santa Rosa CityBus: Electric Bus Replacement

Santa Rosa CityBus: Operating Assistance

Santa Rosa CityBus: Paratransit Operations

Santa Rosa CityBus: Preventative Maintenance

SantaRosa CityBus: Bus Replacement Purchase

Sonoma County Transit: Preventive Maintenance Program

Sonoma County Transit: Replace 2006 CNG Buses

Sonoma County Transit: Replace 2009 CNG Buses

TAM/SCTA: Bike Share Capital Program (SMART Corridor in Marin and Sonoma Counties)

Sonoma County: Healthy and Safe Communities Projects



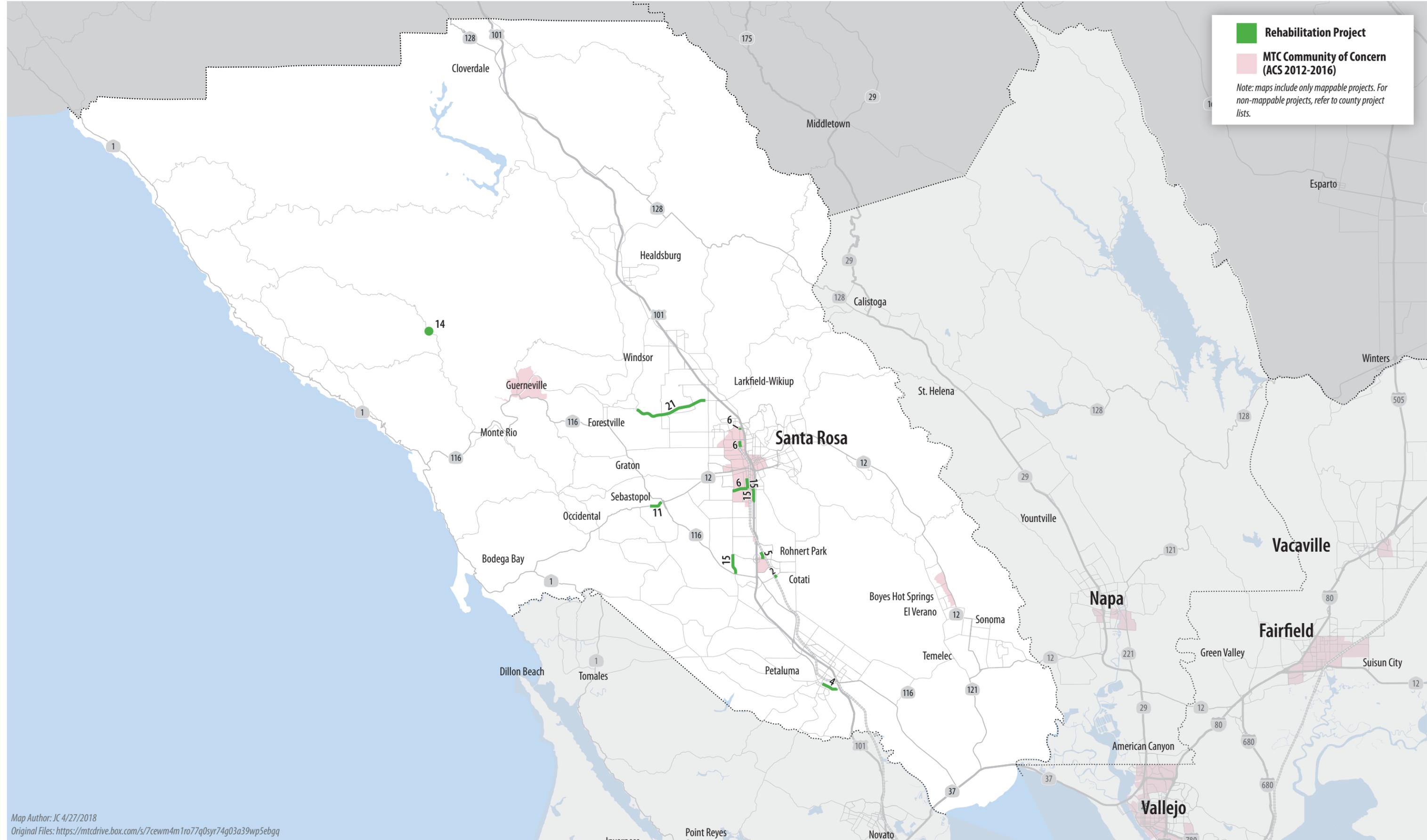
Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

Sonoma County: Economic Vitality Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

Sonoma County: Transportation System Effectiveness-Pavement and Bridge Condition Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

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

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 contractual or other arrangements, utilize criteria or methods of administration which have the effect of subjecting persons to discrimination because of their race, color, or national origin, or have the effect of defeating or substantially impairing accomplishment of the objectives of the program with respect to individuals of a particular race, color, or national origin.

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.

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,

¹ 42 U.S.C §2000d.

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.

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.

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.

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>.

- 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.

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.

⁸ FHWA Order 6640.23A, available at: <http://www.fhwa.dot.gov/legsregs/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.

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.

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 (MTC's equity analysis), 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 2019 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 2016, 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 2016 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 23 transit agencies have been surveyed including all of the region's operators. 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. Data summaries for BART were compiled by BART staff, based on their more recent Customer Satisfaction Survey. 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.

Appendix C: Transit/Roadway Classification Maps



2019 TIP Investment Analysis

Alameda County Project List

1	AC Transit: East Bay Bus Rapid Transit	39	BART: Traction Power System Renovation
2	AC Transit: San Pablo and Telegraph Ave Rapid Bus Upgrades	40	BART: ADA Paratransit Capital Accessibility Improve
3	ACE: Platform Extensions	41	BATA: Toll Bridge Maintenance
4	ACTC: 7th Street Grade Separation East	42	BATA: Toll Bridge Rehabilitation Program
5	ACTC: 7th Street Grade Separation West	43	Berkeley: John Muir Safe Routes to School
6	ACTC: East-West Connector in Fremont & Union City	44	Berkeley: Sacramento Street Complete Streets Improvements
7	ACTC: Freight Intelligent Transportation System (FITS)	45	Berkeley: Southside Complete Streets & Transit Improvement
8	ACTC: I-580/680 Interchange HOV/HOT Widening	46	Caltrans: Oakland to San Jose Double Track (Segment 2A)
9	ACTC: I-680 NB HOV/HOT Lane	47	Dublin: Dublin Blvd-North Canyons Pkwy Extension
10	ACTC: I-80 Gilman Interchange Reconfiguration	48	Dublin: Dublin Blvd Rehabilitation
11	ACTC: I-80/Ashby Avenue Interchange Improvements	49	Dublin: Dublin Boulevard widening
12	ACTC: I-880 NB HOV/HOT: North of Hacienda to Hegenberger	50	Dublin: I-580 Interchange Imps at Hacienda/Fallon Rd, Ph 2
13	ACTC: I-880/Industrial Parkway West Interchange	51	EBRPD: Doolittle Drive Bay Trail
14	ACTC: I-880/West Winton Avenue Interchange	52	Emeryville: Frontage Rd, 65th St and Powell St Pavement Maint
15	ACTC: I-880/Whipple Road Interchange Improvements	53	Emeryville: Greenway Crossing Improvements
16	ACTC: Oakland/Alameda Freeway Access Project	54	Fremont: Complete Streets Upgrade of Relinquished SR-84
17	ACTC: SR-262 (Mission Blvd) Improvements	55	Fremont: Pavement Rehabilitation
18	ACTC: SR-84 widening, South of Ruby Hills Dr to I-680	56	Fremont: Widen Kato Rd from Warren Ave to Milmont Dr
19	ACTC: Widen I-680 NB and SB for EL from SR-84 to Alcosta	57	Hayward: I-880 Auxiliary lanes at Industrial Parkway
20	Alameda County: Cherryland/Ashland/CastroValley/Fairview BikePed	58	Hayward: I-880/A Street Interchange Reconstruction
21	Alameda County: Crow Canyon Safety Improvements	59	Hayward: Main Street Complete Street
22	Alameda County: Estuary Bridges Seismic Retrofit and Repairs	60	Hayward: Rt 92/Clawiter/Whitesell Interchange Improvements
23	Alameda County: Fruitvale Ave Roadway Bridge Retrofit	61	Hayward: Winton Ave Complete Street
24	Alameda County: Niles Canyon Rd (SR-84)/Pleas-Sunol Rd I/C Imps	62	Livermore: Pavement Rehabilitation - MTS Routes
25	Alameda County: Various Streets and Roads Preservation	63	MTC: Bay Bridge Forward-Commuter Parking Initiative
26	Alameda County: Vasco Road Safety Improvements	64	MTC: Bay Bridge Forward-West Grand HOV/Bus Only Lane
27	Alameda: Central Avenue Safety Improvements	65	MTC: Bay Bridge Forward-West Grand TSP
28	Alameda: City-Wide Pavement Rehabilitation	66	MTC: Bay Bridge Park
29	Alameda: Clement Avenue Complete Streets	67	MTC: Bike Share Capital Program (Fremont)
30	Albany: San Pablo Ave & Buchanan St Pedestrian Improvements	68	MTC: Freeway Performance Program-I-880 Corridor
31	BART Car Exchange (Preventive Maintenance)	69	MTC: Freeway Performance Program-SR-84
32	BART Train Control Renovation	70	MTC: I-880 Integrated Corridor Management-Central
33	BART Transbay Core Capacity Improvements	71	MTC: Improved Bike/Ped Access to East Span of SFOBB
34	BART: 19th Street BART Station Modernization-GO Uptown	72	Newark: Thornton Avenue Pavement Rehabilitation
35	BART: Bay Fair Connection	73	Oakland: 14th St Safe Routes in the City
36	BART: Fare Collection Equipment	74	Oakland: 19th St BART to Lake Merritt Urban Greenway
37	BART: Rail, Way and Structures Program	75	Oakland: 35th Ave Bike/Ped Improvements
38	BART: Railcar Procurement Program	76	Oakland: 42nd Ave. & High St I-880 Access Improvements

2019 TIP Investment Analysis

Alameda County Project List (Continued)

- 77 Oakland: Army Base Infrastructure Improvements
- 78 Oakland: Crossing to Safety
- 79 Oakland: Fruitvale Alive Gap Closure Project
- 80 Oakland: Fruitvale Ave Bike/Ped Improvements
- 81 Oakland: Lake Merritt to Bay Trail Bike/Ped Bridge
- 82 Oakland: Lakeside Family Streets
- 83 Oakland: Shattuck and Claremont Bike/Ped Improvements
- 84 Oakland: Telegraph Ave Bike/Ped Improvements and Road Diet
- 85 Oakland: Telegraph Avenue Complete Streets
- 86 Oakland: Waterfront Bay Trail
- 87 Piedmont: Oakland Avenue Improvements
- 88 Pleasanton: Pavement Rehabilitation Hacienda Business Park
- 89 San Leandro: SR 185-E. 14th St/ Hesperian Blvd/150th Ave
- 90 San Leandro: Washington Avenue Rehabilitation
- 91 Union City: Dyer Street Pavement Rehabilitation
- 92 WETA: Ferry Service-Berkeley

NOT MAPPED

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| <ul style="list-style-type: none"> AC Transit: ADA Paratransit Assistance AC Transit: Paratransit Van Replacement AC Transit: Purchase (10) 24ft Cut-aways AC Transit: Purchase (24) 60ft Artic Hybrid Buses AC Transit: Replace (27) 40ft Urban Buses - Hybrid AC Transit: Replace (6) 24ft Cut-Away Vans ACE: Fixed Guideway (Capital Lease) ACE: Locomotive Procurement ACE: Railcar Midlife Overhaul ACTC: Alameda Safe Routes to School Alameda County: Active Oakland Safe Routes to School Caltrans: Alameda County - TOS-Mobility LAVTA: ADA Paratransit Operating Subsidy LAVTA: Livermore Transit Center Rehabilitation and Improvement MTC: Bay Bridge Forward - Casual Carpool MTC: Bay Bridge Forward - Integrated Bridge Corridor MTC: Bay Bridge Forward - Commuter Parking Initiative O&M MTC: Regional Planning Activities and PPM - Alameda County Oakland: Local Streets and Roads Paving Union City Transit: ADA Paratransit Operating Subsidy | <ul style="list-style-type: none"> Union City Transit: Replace Heavy-Duty Transit Vehicles Union City Transit: Travel Time Improvements |
|--|---|

2019 TIP Investment Analysis

Contra Costa County Project List

1	AC Transit: San Pablo and Telegraph Ave Rapid Bus Upgrades	39	Contra Costa County: Kirker Pass Road NB Truck Climbing Lanes
2	Antioch: L Street Pathway to Transit	40	Contra Costa County: Kirker Pass Road Open Grade Overlay
3	Antioch: Laurel Road Extension	41	Contra Costa County: Local Streets and Roads Preservation
4	Antioch: Pavement Rehabilitation	42	Contra Costa County: Pacheco Blvd Sidewalk Gap Closure Phase 3
5	Antioch: Slatten Ranch Road Extension	43	Contra Costa County: Vasco Road Safety Improvements
6	BART Car Exchange (Preventive Maintenance)	44	Danville: Camino Ramon Improvements
7	BART Train Control Renovation	45	Danville: Diablo Road Imps. - Green Valley to Avenida Neuva
8	BART Transbay Core Capacity Improvements	46	Danville: San Ramon Valley Blvd Lane Addition and Overlay
9	BART: Concord BART Station Modernization	47	El Cerrito Blvd: Carlson Blvd and Central Ave Pavement Rehab
10	BART: Fare Collection Equipment	48	El Cerrito: El Cerrito del Norte Area TOD Complete Street Imps
11	BART: Rail, Way and Structures Program	49	El Cerrito: Ohlone Greenway Station Area Bike/Ped Improvements
12	BART: Railcar Procurement Program	50	Hercules: Sycamore/Willow Pavement Rehabilitation
13	BART: Traction Power System Renovation	51	Lafayette: Pleasant Hill Rd Pavement Rehab & Maintenance
14	BART:ADA Paratransit Capital Accessibility Improve	52	Martinez: Downtown Streets Rehabilitation
15	BATA: Toll Bridge Maintenance	53	Moraga: Moraga Way and Canyon/Camino Pablo Improvements
16	BATA: Toll Bridge Rehabilitation Program	54	MTC: ALA/CC-80 and Bay Bridge Approach Express Lanes
17	Brentwood: Brentwood Blvd Widening-(Phase I) North	55	MTC: Bike Share Capital Program (Richmond)
18	Brentwood: Brentwood Blvd Widening Phase II	56	MTC: Richmond-San Rafael Bridge Access Improvements
19	Brentwood: John Muir Parkway Extension: Phase II	57	Oakley: Civic Center Railroad Platform Park & Ride Complex
20	Brentwood: Various Streets and Roads Preservation	58	Oakley: Street Repair and Resurfacing
21	CCTA: I-680 Advanced Technologies	59	Orinda: Orinda Way Pavement Rehabilitation
22	CCTA: I-680 Bus On Shoulder	60	Pinole: San Pablo Avenue Rehabilitation
23	CCTA: I-680 SB HOV Lane Completion	61	Pittsburg: BART Pedestrian and Bicycle Connectivity
24	CCTA: I-680/SR 4 Interchange Reconstruction-Phase 3	62	Pittsburg: Pavement Improvements
25	CCTA: I-680/SR 4 Interchange Reconstruction-Phases I & II	63	Pleasant Hill: Road Improvements
26	CCTA: Mokelumne Trail Bike/Ped Overcrossing	64	Richmond: Citywide Pavement Rehab ADA Improvement
27	CCTA: Reconstruct I-80/San Pablo Dam Rd Interchange	65	Richmond: I-80/Central Avenue Interchange Modification
28	CCTA: SR-4 Operational Improvements-Initial Phases	66	Richmond: Lincoln Elementary SRTS Pedestrian Enhancements
29	Clayton: Neighborhood Street Rehab	67	San Pablo: Market Street Pavement Rehabilitation
30	Concord: Commerce Ave Complete Streets	68	San Pablo: Rumrill Blvd Complete Streets Improvements
31	Concord: Downtown Corridors Bike/Pedestrian Improvements	69	San Ramon: Alcosta Boulevard Pavement Rehab
32	Concord: Monument Boulevard Class I Path	70	San Ramon: Crow Canyon Rd Widening (Alcosta to Indian Rice)
33	Concord: Willow Pass Road Repaving and 6th St SRTS	71	San Ramon: Iron Horse Trail Bike and Pedestrian Overcrossing
34	Concord: Ygnacio Valley Road Widening	72	Walnut Creek: BART TOD Access Improvements
35	Contra Costa County: Bailey Road-SR-4 Interchange	73	Walnut Creek: N. Main St Rehab-I-680 to California
36	Contra Costa County: Bailey Road Bike and Pedestrian Improvements	74	Walnut Creek: Ygnacio Valley & Oak Grove Road Rehabilitation
37	Contra Costa County: Camino Tassajara Realignment	75	WETA: Richmond Ferry Service
38	Contra Costa County: Fred Jackson Way First/Last Mile Connection		

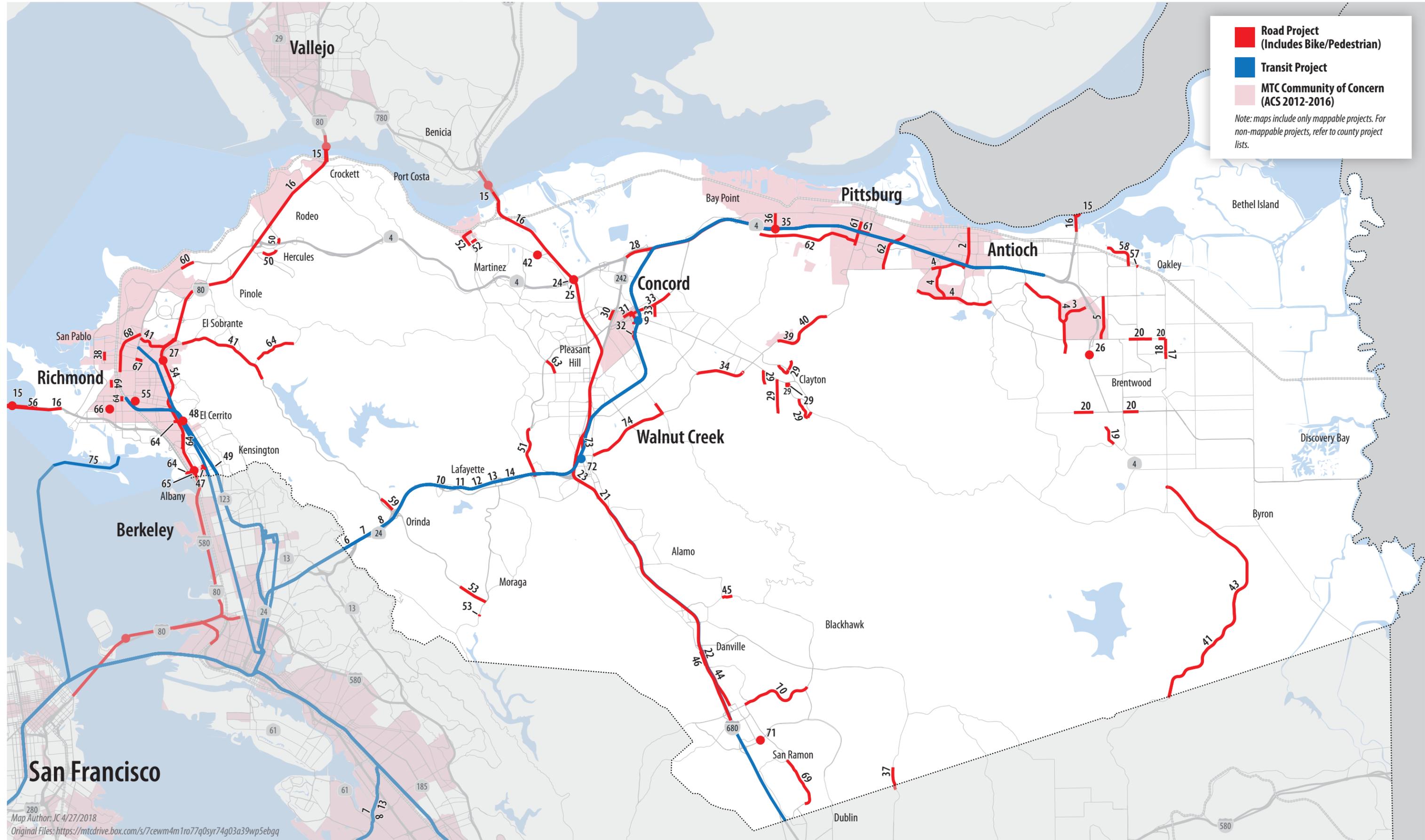
2019 TIP Investment Analysis

Contra Costa County Project List

NOT MAPPED

AC Transit: ADA Paratransit Assistance
AC Transit: Paratransit Van Replacement
AC Transit: Purchase (10) 24ft Cut-aways
AC Transit: Purchase (24) 60ft Artic Hybrid Buses
AC Transit: Replace (27) 40ft Urban Buses - Hybrid
AC Transit: Replace (6) 24ft Cut-Away Vans
CCCTA: County Connection ADA Paratransit Assistance
CCTA: SR 239 - New State Highway Study
Contra Costa County: West County Walk and Bike Leaders
EBRPD: Contra Costa Parks Bike/Ped Trail Improvements
ECCTA: Tri-Delta ADA Operating Assistance
MTC: Regional Planning Activities and PPM - Contra Costa County
San Ramon: San Ramon Valley Street Smarts
Walnut Creek: Parking Guidance System Pilot
WCCTA: WestCAT ADA Paratransit Operating Subsidy
WCCTA: WestCAT Purchase (6) Electronic Fareboxes
WCCTA: WestCAT Purchase (9) Electronic Fareboxes
WCCTA: WestCAT Purchase of (2) Radio Systems
WCCTA: WestCAT Replace (2) DAR MiniVans
WCCTA: WestCAT Replace (6) 2008 35ft Revenue Vehicles
WCCTA: WestCAT Replace (5) 35ft and (4) 40ft Vehicles

Contra Costa County: Roadway and Transit Projects



Map Author: JC 4/27/2018
Original Files: <https://mtdrive.box.com/s/7cewm4m1ro77q0sy74g03a39wp5ebgq>

2019 TIP Investment Analysis

Marin County Project List

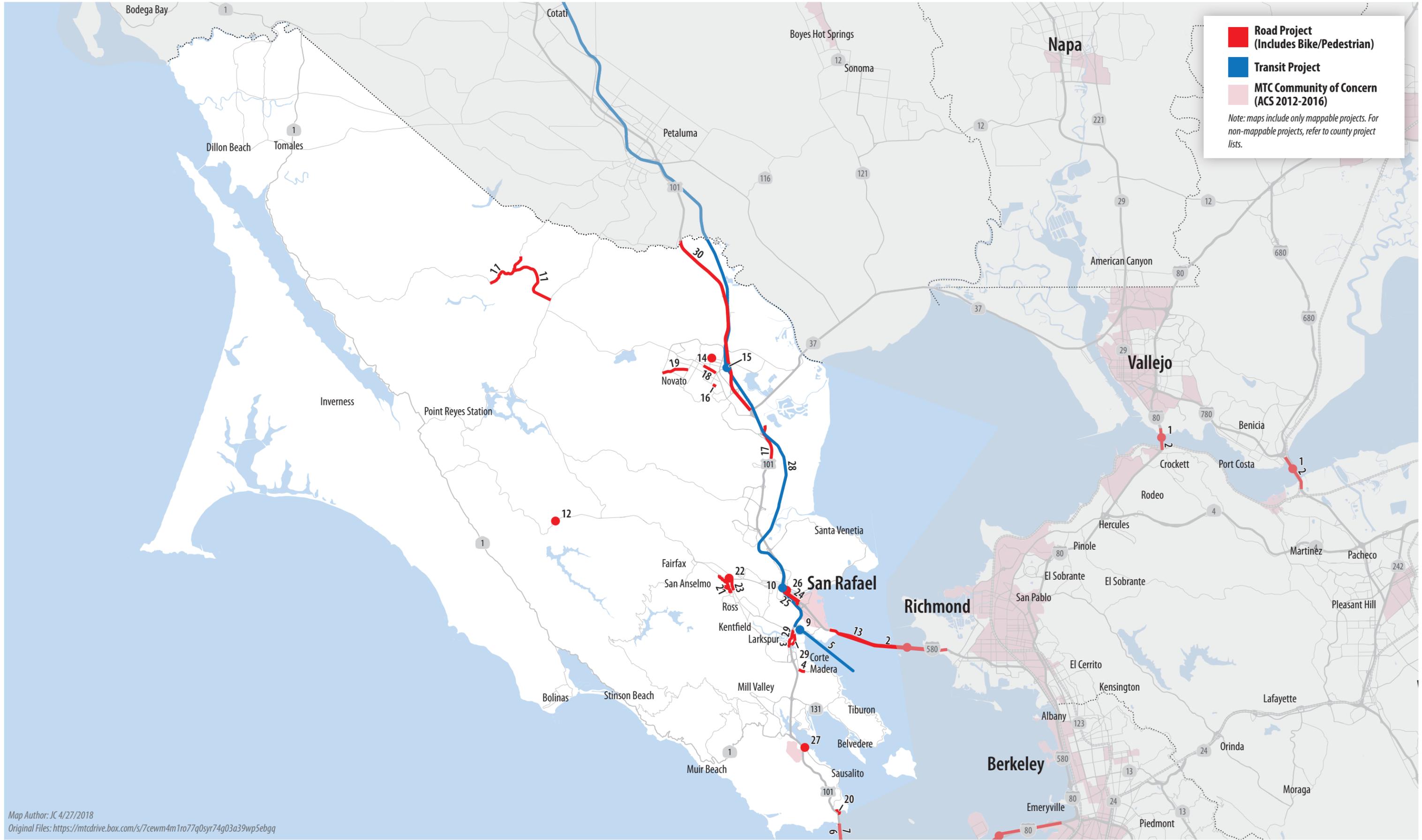
- 1 BATA: Toll Bridge Maintenance
- 2 BATA: Toll Bridge Rehabilitation Program
- 3 Corte Madera: Central Marin Regional Pathway Gap Closure
- 4 Corte Madera: Paradise Drive Multiuse Path
- 5 GGBHTD: Ferry Channel & Berth Dredging
- 6 GGBHTD: Golden Gate Bridge-Suicide Deterrent Safety Barrier
- 7 GGBHTD: Golden Gate Bridge Seismic Retrofit, Phase 1-3A
- 8 GGBHTD: Golden Gate Bridge Seismic Retrofit, Phase 3B
- 9 GGBHTD: Larkspur Ferry Terminal Parking Garage
- 10 GGBHTD: San Rafael Transit Center Relocation
- 11 Marin County: Hicks Valley/Marshall Petaluma/Wilson Hill Rd Rehab
- 12 Marin County: Mountain View Rd Bridge Replacement
- 13 MTC: Richmond-San Rafael Bridge Access Improvements
- 14 Novato: Carmel Open Space Acquisition
- 15 Novato: Downtown SMART Station Commuter Lot
- 16 Novato: Hill Recreation Area Improvements
- 17 Novato: Measure A Group 10 Pavement Rehabilitation
- 18 Novato: Novato Boulevard Widening, Diablo to Grant
- 19 Novato: Vineyard Road Improvements
- 20 NPS: Fort Baker's Vista Point Trail
- 21 San Anselmo: Bike Spine

- 22 San Anselmo: Center Blvd Bridge Replace
- 23 San Anselmo: Sir Francis Drake Blvd Pavement Rehabilitation
- 24 San Rafael: Francisco Blvd East Sidewalk Widening
- 25 San Rafael: Francisco Blvd West Multi-Use Pathway
- 26 San Rafael: Grand Avenue Bicycle Pedestrian Improvements
- 27 Sausalito: Bridgeway/US 101 Off Ramp Bicycle Imps
- 28 SMART: Larkspur Extension
- 29 TAM: North-South Greenway Gap Closure
- 30 TAM: US 101 HOV Lanes-Marin-Sonoma Narrows (Marin)

NOT MAPPED

- Caltrans: Marin County - TOS-Mobility
- GGBHTD: Facilities Rehabilitation
- GGBHTD: Ferry Propulsion Systems Replacement
- GGBHTD: Fixed Guideway Connectors
- GGBHTD: Purchase (7) Hybrid Buses
- GGBHTD: Replace (14) 22' Gas Body-on-Chassis Vehicles
- GGBHTD: Replace (2) Paratransit Vehicles
- GGBHTD: Replace (67) Diesel Buses with Hybrid Buses
- GGBHTD: Replace (7) 40' Diesel Buses
- GGBHTD: Replace Paratransit Vehicles
- GGBHTD: Transit Systems Enhancements
- MCTD: ADA Paratransit Assistance
- MCTD: Preventive Maintenance
- MCTD: Relocate Transit Maintenance Facility
- MCTD: Replace Articulated Vehicles
- MCTD: Replace Diesel Vehicles
- MCTD: Replace Shuttle Vehicles
- MTC: Regional Planning Activities and PPM - Marin County
- Novato: Downtown SMART Station Commuter Lot
- TAM/SCTA: Bike Share Capital Program (SMART Corridor in Marin and Sonoma Counties)

Marin County: Roadway and Transit Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

2019 TIP Investment Analysis

Napa County Project List

- 1 American Canyon: Devlin Road and Vine Trail Extension
- 2 American Canyon: Eucalyptus Drive Realignment Complete Streets
- 3 American Canyon: Green Island Road Class I
- 4 Calistoga: SR-128 and Petrified Forest Intersection Improvements
- 5 Napa County: Airport Boulevard Rehabilitation
- 6 Napa County: Hardin Rd Bridge Replacement
- 7 Napa County: Loma Vista Dr Bridge Replacement
- 8 Napa County: Silverado Trail Phase L Rehab
- 9 Napa: California Boulevard Roundabouts
- 10 Napa: Silverado Trail Five-Way Intersection Improvements
- 11 Napa: SR 29 Bicycle & Pedestrian Undercrossing
- 12 Napa: Vine Trail Gap Closure-Soscol Avenue Corridor
- 13 NVTA: Napa Valley Vine Trail Calistoga-St. Helena Segment
- 14 NVTA: SR 12/29/221 Soscol Junction Interchange Improvements
- 15 NVTA: Vine Transit Bus Maintenance Facility
- 16 St. Helena: Main Street Pedestrian Improvements
- 17 Yountville: Hopper Creek Pedestrian Bridge and Path Project

NOT MAPPED

MTC: Regional Planning Activities and PPM - Napa County

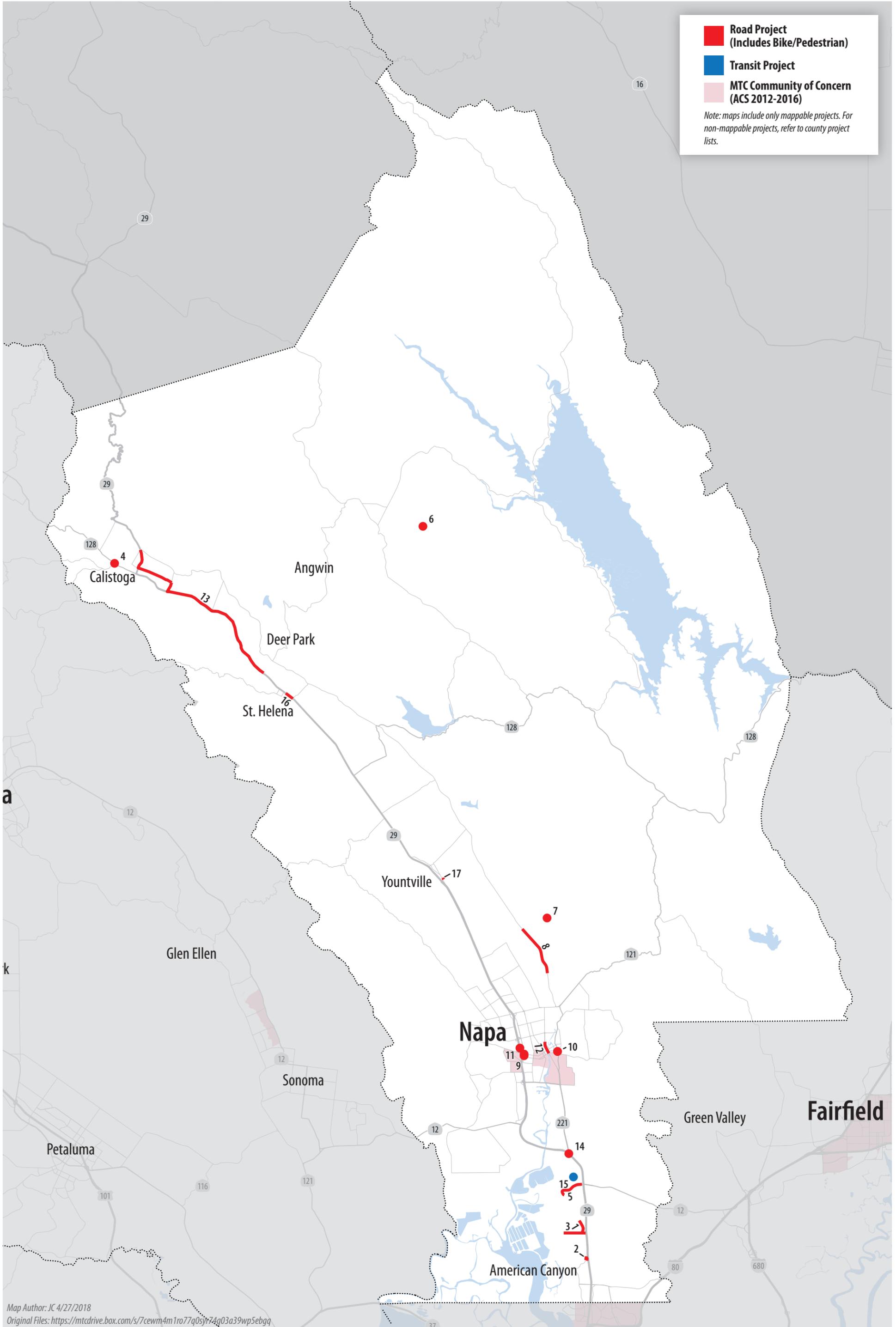
Napa County: 2014 Earthquake Pavement Repair

NVTA: Napa Vine ADA Operating Assistance

NVTA: Napa Vine Equipment Replacement and Upgrades

VVTA: Napa Vine Operating Assistance

Napa County: Roadway and Transit Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0sjr74q03a39wp5ebgq>

2019 TIP Investment Analysis

San Francisco County Project List

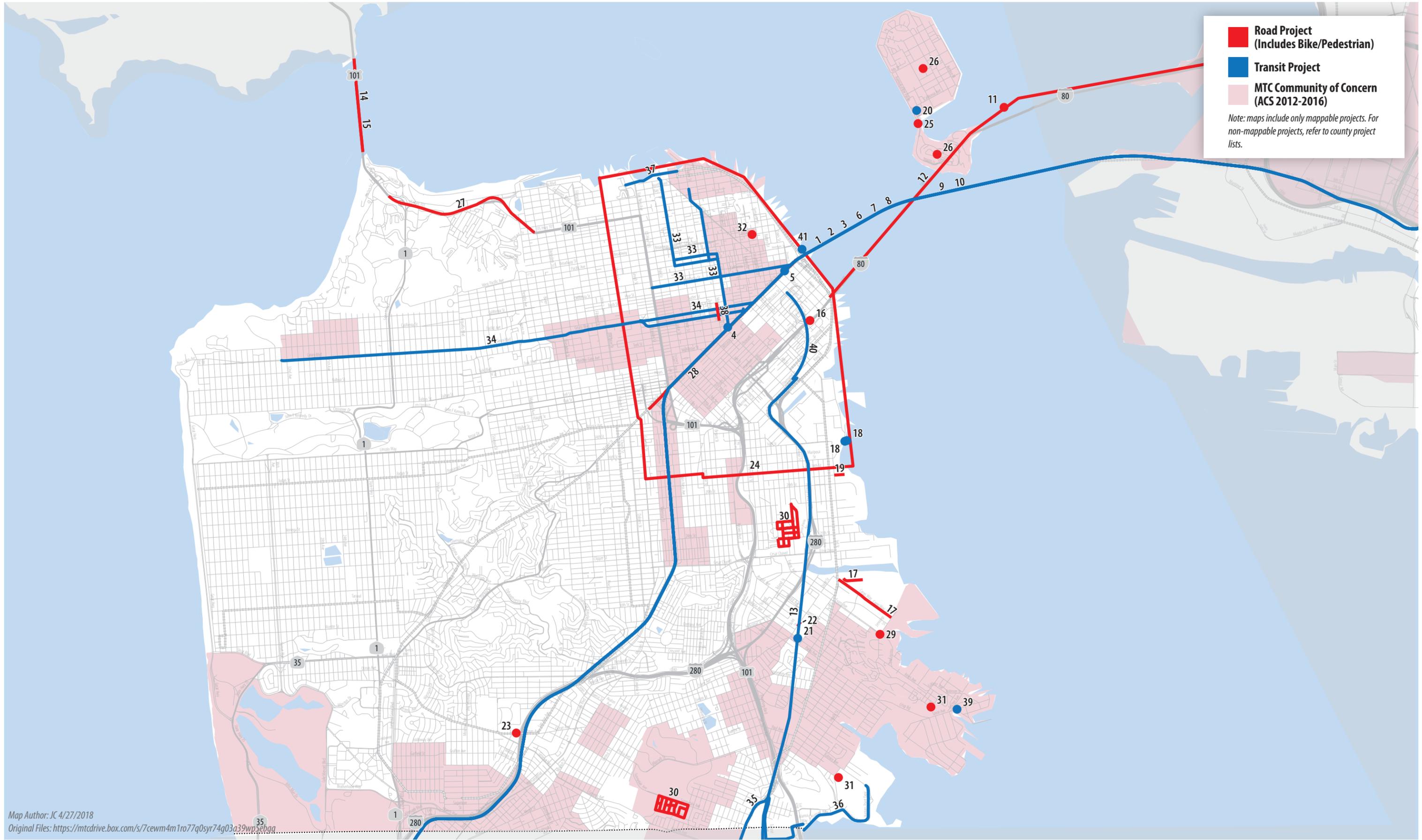
- 1 BART Car Exchange (Preventive Maintenance)
- 2 BART Train Control Renovation
- 3 BART Transbay Core Capacity Improvements
- 4 BART: BART/MUNI Direct Connection Platform
- 5 BART: Embarcadero Station New North-Side Platform Elevator
- 6 BART: Fare Collection Equipment
- 7 BART: Rail, Way and Structures Program
- 8 BART: Railcar Procurement Program
- 9 BART: Traction Power System Renovation
- 10 BART:ADA Paratransit Capital Accessibility Improve
- 11 BATA: Toll Bridge Maintenance
- 12 BATA: Toll Bridge Rehabilitation Program
- 13 Caltrain: Electrification
- 14 GGBHTD: Golden Gate Bridge-Suicide Deterrent Safety Barrier
- 15 GGBHTD: Golden Gate Bridge Seismic Retrofit, Phase 3B
- 16 MTC: Bay Bridge Forward-Sterling/Bryant St Managed Lane
- 17 Port of SF: Cargo Way and Amador Street Improvements
- 18 Port of SF: Mission Bay Ferry Terminal
- 19 Port of SF: Pier 70 19th Street & Illinois Street Sidewalk
- 20 SFCTA: Construct Treasure Island Bus Terminal Facility
- 21 SFCTA: Oakdale Caltrain Station
- 22 SFCTA: Quint-Jerrold Connector Road
- 23 SFCTA: SB I-280 Off-Ramp at Ocean Ave Realignment
- 24 SFCTA: SF Downtown Congestion Pricing
- 25 SFCTA: Treasure Island Congestion Pricing Program
- 26 SFCTA: Treasure Island/Yerba Buena Island Street Improvements
- 27 SFCTA: US 101 Doyle Drive Replacement
- 28 SFDPW: Better Market Street Transportation Elements
- 29 SFDPW: HOPE SF Street Network-Hunters View
- 30 SFDPW: HOPE SF Street Network-Sunnydale and Potrero
- 31 SFDPW: Hunters Pt Shipyard and Candlestick Pt Local Roads
- 32 SFDPW: John Yehall Chin Safe Routes to School
- 33 SFMTA: Cable Car Traction Power & Guideway Rehab
- 34 SFMTA: Geary Bus Rapid Transit
- 35 SFMTA: Geneva Harney BRT Infrastructure: Central Segment
- 36 SFMTA: Geneva Harney BRT Infrastructure: Eastern Segment
- 37 SFMTA: Historic Streetcar Extension to Fort Mason
- 38 SFMTA: Powell Street Safety Project

- 39 SFMTA: Transit Center in Hunters Point
- 40 TBJPA: Transbay Terminal/Caltrain Downtown Ext: Phase 2
- 41 WETA: SF Ferry Terminal/Berthing Facilities

NOT MAPPED

- MTC: Bay Bridge Forward - Casual Carpool
- MTC: Bay Bridge Forward - Integrated Bridge Corridor
- MTC: Bay Bridge Forward-Sterling/Bryant St Managed Lane
- MTC: Regional Planning Activities and PPM - San Francisco County
- SFCTA: Treasure Island Pricing Mobility Improvements
- SFDPH: SF Safe Routes to School 2017-2019
- SFMTA: 40' Motor Coach Mid-Life Overhaul
- SFMTA: 60' Motor Coach Mid-Life Overhaul
- SFMTA: ADA Paratransit Operating Support
- SFMTA: Additional Light Rail Vehicles to Expand Muni Rail
- SFMTA: Cable Car Vehicle Renovation Program
- SFMTA: Farebox Replacement
- SFMTA: Muni Rail Replacement Program
- SFMTA: Overhead Line Reconstruction & Traction Power Program
- SFMTA: Paratransit Vehicle Replacements
- SFMTA: Rehabilitate Historic Streetcars
- SFMTA: Replace (35) Paratransit Cutaway Vans
- SFMTA: Replacement of 30' Motor Coaches
- SFMTA: Safe Routes to School Non-Infrastructure Program
- SFMTA: Station-area Pedestrian and Bike Access Improvements
- SFMTA: Train Control & Trolley Signal Rehabilitation/Replacement
- SFMTA: Wayside Fare Collection Equipment
- TBJPA: Transbay Transit Center - TIFIA Loan Debt Service
- WETA: Ferry Major Component Rehabilitation/Replacement
- WETA: Fixed Guideway Connectors
- WETA: Replace Ferry Vessels

San Francisco County: Roadway and Transit Projects



2019 TIP Investment Analysis

San Mateo County Project List

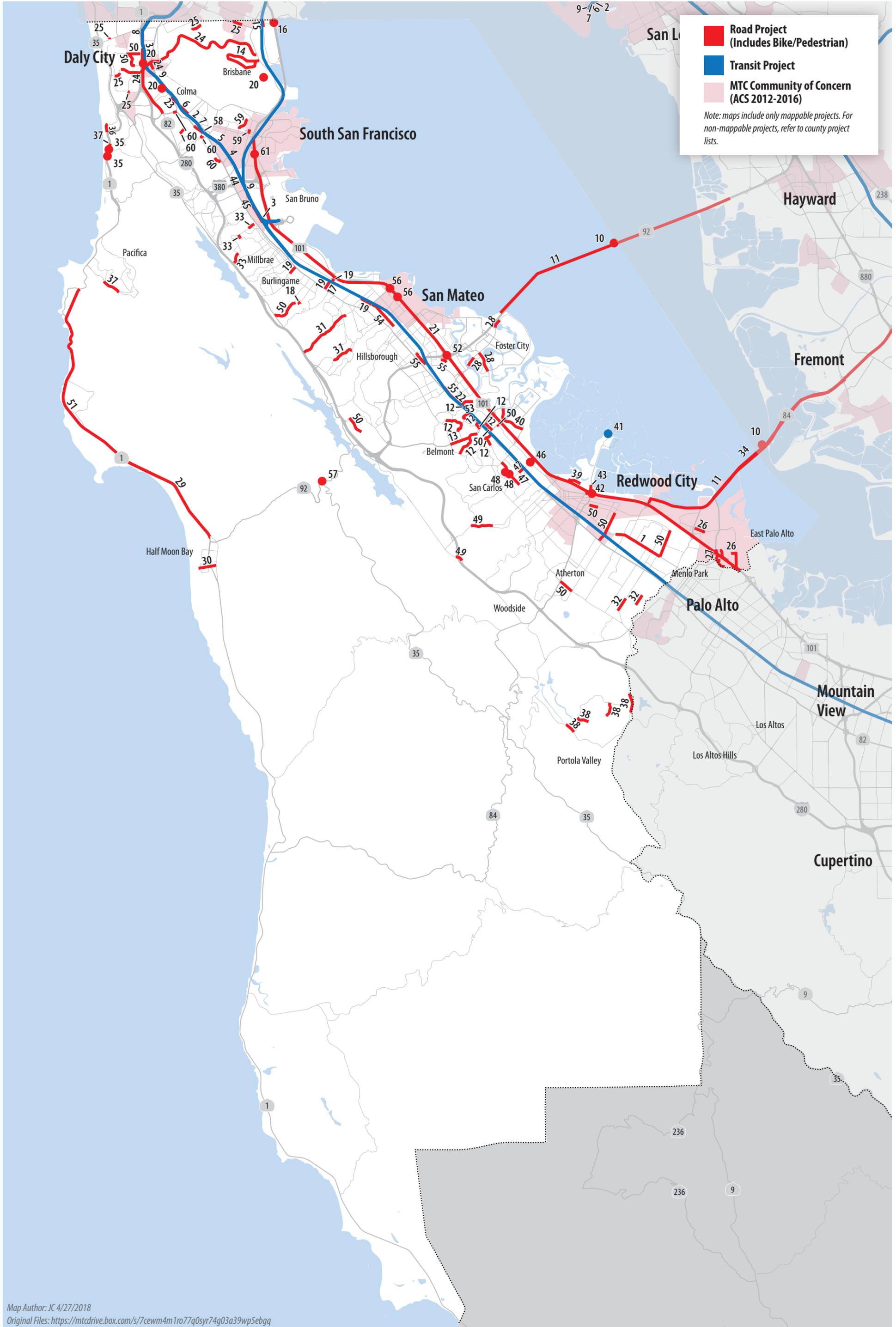
- | | |
|---|---|
| <ol style="list-style-type: none"> 1 Atherton: Middlefield Road Class II Bike Lanes 2 BART Car Exchange (Preventive Maintenance) 3 BART Train Control Renovation 4 BART Transbay Core Capacity Improvements 5 BART: Fare Collection Equipment 6 BART: Rail, Way and Structures Program 7 BART: Railcar Procurement Program 8 BART: Traction Power System Renovation 9 BART:ADA Paratransit Capital Accessibility Improve 10 BATA: Toll Bridge Maintenance 11 BATA: Toll Bridge Rehabilitation Program 12 Belmont: Pavement Preservation 13 Belmont: Ralston Avenue Corridor Segment 3 14 Brisbane: Crocker Trail Commuter Connectivity Upgrades 15 Brisbane: Tunnel Ave Rehabilitation 16 Brisbane: US 101/Candlestick Interchange 17 Burlingame: Broadway PDA Lighting Improvements 18 Burlingame: Hoover School Area Sidewalk Impvts (Summit Dr.) 19 Burlingame: Street Resurfacing 20 C/CAG: ITS Improvements in San Mateo County Northern Citi 21 C/CAG: US 101 Managed Lanes Santa Clara Co-S of Grand Ave 22 Caltrain: Electrification 23 Colma: Mission Road Bike/Ped Improvements 24 Daly City: Central Corridor Bike/Ped Safety Imprmnt 25 Daly City: Pavement Preservation 26 East Palo Alto: Citywide Street Resurfacing 27 East Palo Alto: US 101/University Ave Interchange Improvements 28 Foster City: Pavement Rehabilitation 29 Half Moon Bay: Hwy 1 Improvements 30 Half Moon Bay: Poplar Complete Streets 31 Hillsborough: Street Resurfacing 32 Menlo Park: Santa Cruz and Middle Avenues Rehab 33 Millbrae: Street Rehabilitation 34 MTC: Freeway Performance Program-SR-84 35 Pacifica: Manor Drive Overcrossing and Milagra On Ramp 36 Pacifica: Palmetto Sidewalk Extension 37 Pacifica: Pavement Rehabilitation | <ol style="list-style-type: none"> 38 Portola Valley: Street Preservation 39 Redwood City: Blomquist Street Extension 40 Redwood City: Pavement Preservation 41 Redwood City: Redwood City Ferry Service 42 Redwood City: US 101/Woodside Interchange Improvement 43 Redwood City: US 101/Woodside Road Class 1 Bikeway 44 San Bruno: Huntington Transit Corridor Bike/Ped Improvements 45 San Bruno: Street Rehabilitation 46 San Carlos: Brittan Ave Widening 47 San Carlos: Cedar and Brittan Ave Pavement Rehab 48 San Carlos: Ped Enhancements Arroyo/Cedar & Hemlock/Orange 49 San Mateo County: Canada Road and Edgewood Road Resurfacing 50 San Mateo County: Countywide Pavement Maintenance 51 San Mateo County: Hwy 1 Congestion Throughput and Safety Improvement 52 San Mateo: Improve US 101 Operations near SR-92 53 San Mateo: Laurie Meadows Ped/Bike Safety Improvements 54 San Mateo: North San Mateo Drive Sustainable Streets 55 San Mateo: Street Rehabilitation 56 San Mateo: US 101/Peninsula Avenue Interchange Improvements 57 SFPUC: Southern Skyline Blvd. Ridge Trail Extension 58 South San Francisco: Grand Boulevard (Phase III) 59 South San Francisco: Linden/Spruce Ave Traffic Calming Improvements 60 South San Francisco: Pavement Rehabilitation 61 South San Francisco: US 101/Produce Avenue Interchange |
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NOT MAPPED

- C/CAG: San Mateo Countywide ITS Improvements
- Caltrain: Systemwide Track Rehabilitation & Related Structures
- MTC: Regional Planning Activities and PPM - San Mateo County
- Pacifica: Citywide Curb Ramps
- SamTrans: ADA Paratransit Operating Subsidy
- SamTrans: Express Bus Service
- SamTrans: Purchase of Replacement Minivans
- SamTrans: Replacement of Cutaway Buses

2019 TIP Investment Analysis

San Mateo County: Roadway and Transit Projects



Map Author: JC 4/27/2018
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2019 TIP Investment Analysis

Santa Clara County Project List

1	BART Car Exchange (Preventive Maintenance)	39	Santa Clara: Hetch-Hetchy Trail Phase 1
2	BART Train Control Renovation	40	Santa Clara: Montague Expwy Widening-Trade Zone-I-680
3	BART Transbay Core Capacity Improvements	41	Santa Clara: San Tomas Aquino Creek Trail Underpass
4	BART: Berryessa to San Jose Extension	42	Santa Clara: Saratoga Creek Trail Phase 1
5	BART: Fare Collection Equipment	43	Santa Clara: Streets and Roads Preservation
6	BART: Rail, Way and Structures Program	44	Saratoga: Prospect Rd Complete Streets
7	BART: Railcar Procurement Program	45	Saratoga: Saratoga Village Crosswalks and Sidewalk Rehab
8	BART: Traction Power System Renovation	46	Sunnyvale: Bernardo Avenue Bicycle Underpass
9	BART:ADA Paratransit Capital Accessibility Improve	47	Sunnyvale: East Sunnyvale Area Sense of Place
10	Caltrain: Electrification	48	Sunnyvale: Fair Oaks Avenue Bikeway-Phase 2
11	Caltrans: Oakland to San Jose Double Track (Segment 2A)	49	Sunnyvale: Homestead Rd at Homestead High School Improvements
12	Campbell: Eden Avenue Sidewalk Improvements	50	Sunnyvale: Java Dr Road Diet and Bike Lanes
13	Campbell: Winchester Blvd Overlay	51	Sunnyvale: Lawrence Station Area Sidewalks & Bike Facilities
14	Cupertino: Pavement Maintenance Phase 2	52	Sunnyvale: Ped and Bike Infrastructure Improvements
15	Gilroy: Downtown Monterey Road Rehabilitation	53	Sunnyvale: Peery Park Sense of Place Improvements
16	Los Altos: Fremont Ave Preservation	54	Sunnyvale: Safe Routes to School Improvements
17	Los Altos: Miramonte Ave Bike Ped Access Improvements	55	Sunnyvale: SNAIL Neighborhood Improvements
18	Los Gatos: Los Gatos Creek Trail to Hwy 9 Trailhead Connector	56	VTA: Calaveras Boulevard Widening
19	Milpitas: Street Resurfacing	57	VTA: Eastridge to BART Regional Connector
20	Morgan Hill: Dunne Avenue Pavement Rehabilitation	58	VTA: I-280 HOV-San Mateo County line to Magdalena Ave
21	Mountain View: West Middlefield Road Improvements	59	VTA: I-280 NB Braided Ramps btw Foothill Expwy & SR 85
22	MTC: Freeway Performance Program-I-880 Corridor	60	VTA: I-280 Soundwalls-Bird Avenue to Los Gatos Creek
23	Palo Alto: Adobe Creek/US-101 Bicycle Pedestrian Bridge	61	VTA: I-280/Foothill Expressway Off Ramp Improvement
24	Palo Alto: El Camino Real Ped Safety & Streetscape	62	VTA: I-280/Saratoga Avenue Interchange Improvement
25	Palo Alto: Street Resurfacing	63	VTA: I-280/Winchester Study
26	Palo Alto: Waverley, E. Meadow & Fabian Enhanced Bikeways	64	VTA: I-280/Wolfe Road Interchange Improvement
27	San Jose: Bay Trail Reach 9 & 9B	65	VTA: I-680 Soundwalls-Capitol Expwy to Mueller Ave
28	San Jose: Better Bikeways	66	VTA: I-680/ Alum Rock/ McKee Road Interchange Improvements
29	San Jose: Coyote Creek Trail (Hwy 237-Story Rd)	67	VTA: Montague Expy Ped Bridge at Milpitas BART
30	San Jose: East Side Alum Rock (East of 680) Urban Village	68	VTA: New SR-152 Alignment Study
31	San Jose: McKee Road Safety Improvements	69	VTA: SR-17 Corridor Congestion Relief in Los Gatos
32	San Jose: Mt Pleasant Ped & Bike Traffic Safety Improvements	70	VTA: SR-237 WB Auxiliary Lane from McCarthy to North 1st
33	San Jose: Pavement Maintenance	71	VTA: SR-237/US 101/Mathilda Interchange Modifications
34	San Jose: Tully Road Safety Improvements	72	VTA: SR-85 Express Lanes
35	San Jose: W San Carlos Urban Village Streets Improvements	73	VTA: US-101/Buena Vista Avenue Interchange Improvement
36	Santa Clara County: Capitol Expressway Pavement Rehabilitation	74	VTA: US-101/De L Cruz Blvd-Trimble Road I/C Imp
37	Santa Clara County: McKean Rd Pavement Rehabilitation	75	VTA: US-101/San Antonio Rd/Charleston/Rengstorff Improvements
38	Santa Clara County: Uvas Road Pavement Rehabilitation	76	VTA: US-101/SR 25 Interchange-Phase 1

2019 TIP Investment Analysis

Santa Clara County Project List

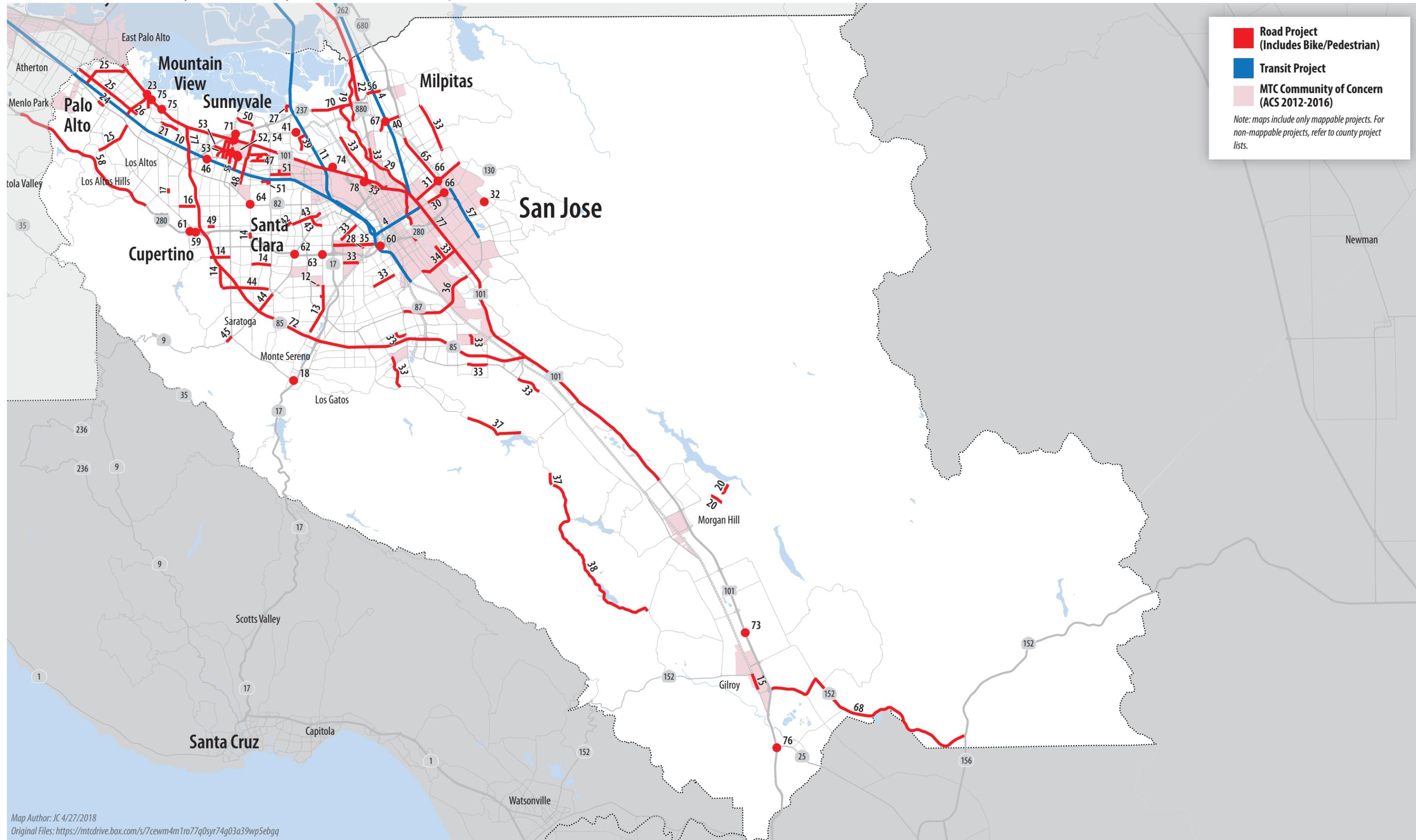
- 77 VTA: US 101 Express Lanes
- 78 VTA: US 101/Zanker Road-Skyport Drive-N. Fourth St. Improvements

NOT MAPPED

Caltrain: Systemwide Track Rehabilitation & Related Structures
MTC: Regional Planning Activities and PPM - Santa Clara County
Palo Alto: Bay Area Fair Value Commuting Mobility on Demand Sandbox
Palo Alto: North Ventura Coordinated Area Plan
San Jose: Downtown Mobility Streetscape and Public Life Plan
San Jose: East San Jose Bikeways
Santa Clara: School Access Improvements
Sunnyvale: Traffic Signal Upgrades/Replacements
VTA: ADA Operating Set-Aside
VTA: Highway Transp Operations System/FPI Phases 1 & 2
VTA: IDEA Category 2 Improvements
VTA: Light Rail Track Crossovers and Switches
VTA: Non-Revenue Vehicle Procurement
VTA: Overhead Catenary Syst. Rehabilitation & Replacement
VTA: Paratransit Vehicle Procurement
VTA: Rail Replacement Program
VTA: Rail Substation Rehab/Replacement
VTA: Standard & Small Bus Replacement
VTA: Systemwide Security Improvements

2019 TIP Investment Analysis

Santa Clara County: Roadway and Transit Projects



Map Author: JC 4/27/2018
Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

2019 TIP Investment Analysis

Solano County Project List

- 1 BATA: Toll Bridge Maintenance
- 2 BATA: Toll Bridge Rehabilitation Program
- 3 Benicia: Park Road Improvements
- 4 Fairfield: East Tabor Tolenas SR2S Sidewalk Gap Closure
- 5 Fairfield: Grange Middle School Safe Routes to School
- 6 MTC: I-80 Express Lanes-Fairfield & Vacaville Ph I&II
- 7 Solano County: Farm to Market Phase 3
- 8 Solano County: Redwood-Fairgrounds Dr Interchange Improvements
- 9 Solano County: Roadway Preservation
- 10 Solano County: Suisun Vallley Bicycle and Pedestrian Improvements
- 11 STA: I-80/I-680/SR-12 Interchange Project
- 12 STA: Jepson-Leisure Town Road (Phase 1B and 1C)
- 13 STA: SR-12/Church Rd Intersection Improvements
- 14 Suisun City: McCoy Creek Trail-Phase 2
- 15 Suisun City: New Railroad Avenue Pavement Rehabilitation
- 16 Vacaville: Pavement Preservation
- 17 Vacaville: Vaca Valley/I-505 Multimodal Improvements
- 18 Vallejo: Bay Trail/Vine Trail Gap Closure

NOT MAPPED

Fairfield: Operating Assistance

Fairfield-Suisun: Intercity/Local Bus Replacement

MTC: Regional Planning Activities and PPM - Solano County

SolTrans: ADA Paratransit Operating Subsidy

SolTrans: Bus Replacement (Alternative Fuel)

SolTrans: Operating Assistance

SolTrans: Preventive Maintenance

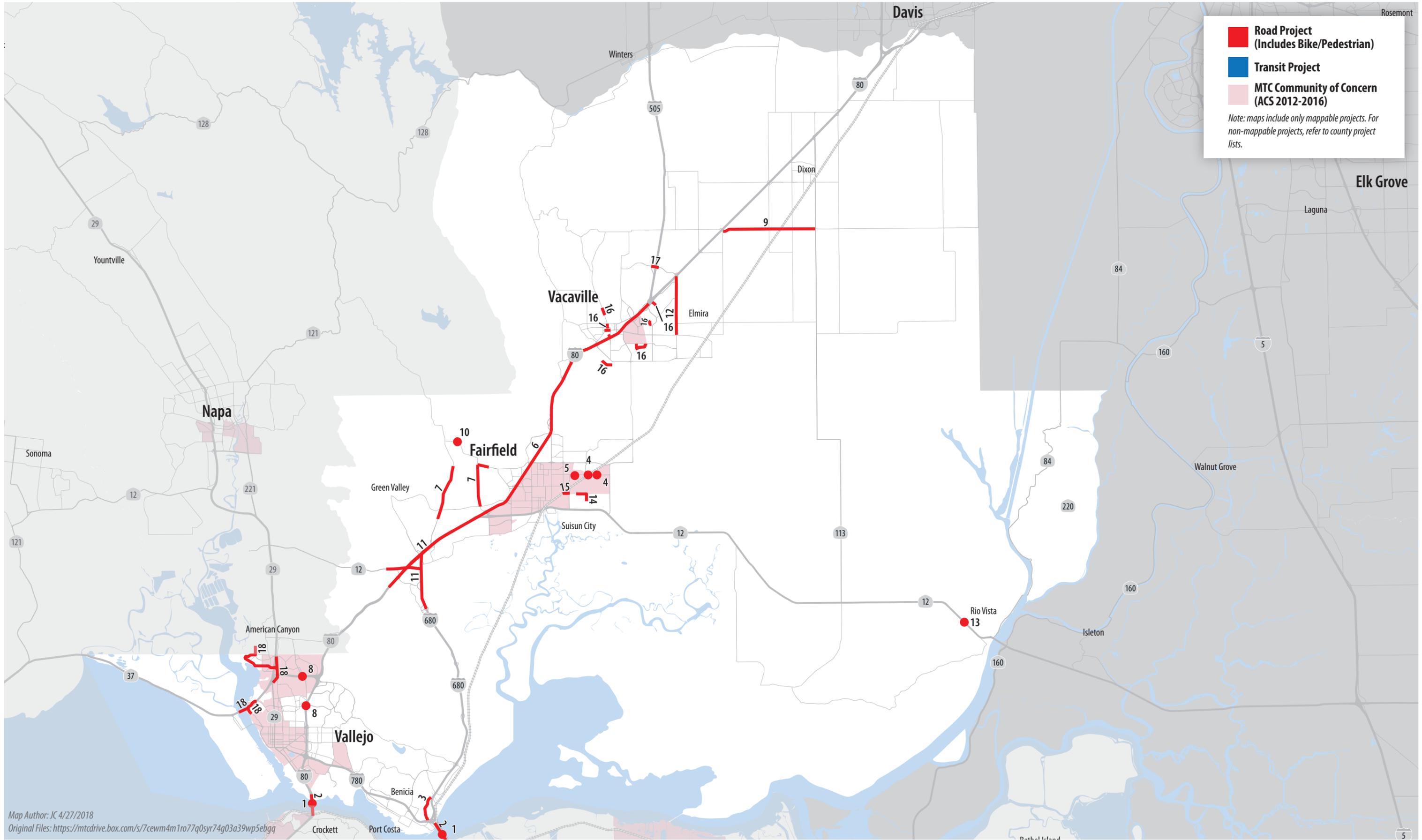
STA: Safe Routes to School Infrastructure & Non-Infrastructure

STA: Solano Mobility Call Center

STA: Solano Safe Routes to School Program

Vacaville Transit: Operating Assistance

Solano County: Roadway and Transit Projects



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Original Files: <https://mtcdrive.box.com/s/7cewm4m1ro77q0syr74g03a39wp5ebgq>

2019 TIP Investment Analysis

Sonoma County Project List

- 1 Cloverdale: Safe Routes to School Phase 2
- 2 Cotati: E. Cotati Avenue Street Rehabilitation Project
- 3 Healdsburg: Healdsburg Avenue Complete Streets Improvements
- 4 Petaluma: Petaluma Blvd South Road Diet at E Street
- 5 Rohnert Park: Various Streets Rehabilitation
- 6 Santa Rosa: Pavement Rehab of Various Streets
- 7 Santa Rosa: US-101 Bicycle and Pedestrian Bridge
- 8 Santa Rosa: US-101 Hearn Ave Interchange
- 9 SCTA: SR-116/SR-121 Intersection Improvement Project
- 10 SCTA: US-101 Marin/Sonoma Narrows (Sonoma)
- 11 Sebastopol: Bodega Avenue Bike Lanes and Pavement Rehab
- 12 Sonoma County Regional Park: Joe Rodota Trail Bridge Replacement
- 13 Sonoma County: Crocker Bridge Bike and Pedestrian Passage
- 14 Sonoma County: Rehab King Ridge Bridge over Austin Creek
- 15 Sonoma County: Rehabilitaiton of Various Roads
- 16 Sonoma County: Replace Chalk Hill Bridge over Maacama Creek
- 17 Sonoma County: Replace Freestone Flat Bridge over Salmon Creek
- 18 Sonoma County: Replace Geysers Bridge over Sulpher Creek
- 19 Sonoma County: Replace Lambert Bridge over Dry Creek
- 20 Sonoma County: Replace West Dry Creek Bridge over Pena Creek
- 21 Sonoma County: River Road Pavement Rehab
- 22 Sonoma: Fryer Creek Pedestrian and Bicycle Bridge
- 23 Windsor: Windsor River Road/Windsor Road Intersection

NOT MAPPED

MTC: Regional Planning Activities and PPM - Sonoma County

Santa Rosa CityBus: Electric Bus Replacement

Santa Rosa CityBus: Operating Assistance

Santa Rosa CityBus: Paratransit Operations

Santa Rosa CityBus: Preventative Maintenance

SantaRosa CityBus: Bus Replacement Purchase

Sonoma County Transit: Preventive Maintenance Program

Sonoma County Transit: Replace 2006 CNG Buses

Sonoma County Transit: Replace 2009 CNG Buses

TAM/SCTA: Bike Share Capital Program (SMART Corridor in Marin and Sonoma Counties)

Sonoma County: Roadway and Transit Projects

