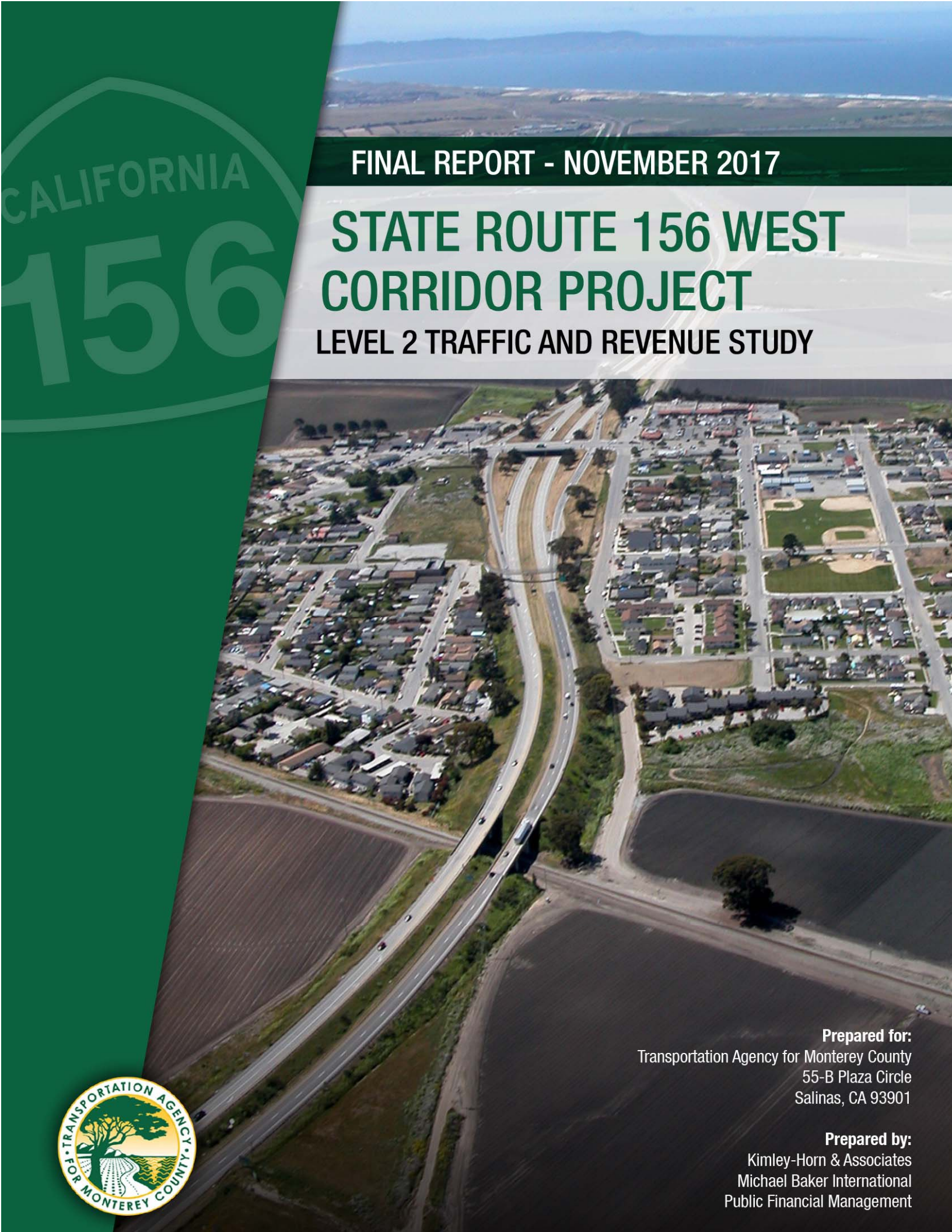

FINAL REPORT - NOVEMBER 2017

STATE ROUTE 156 WEST CORRIDOR PROJECT

LEVEL 2 TRAFFIC AND REVENUE STUDY

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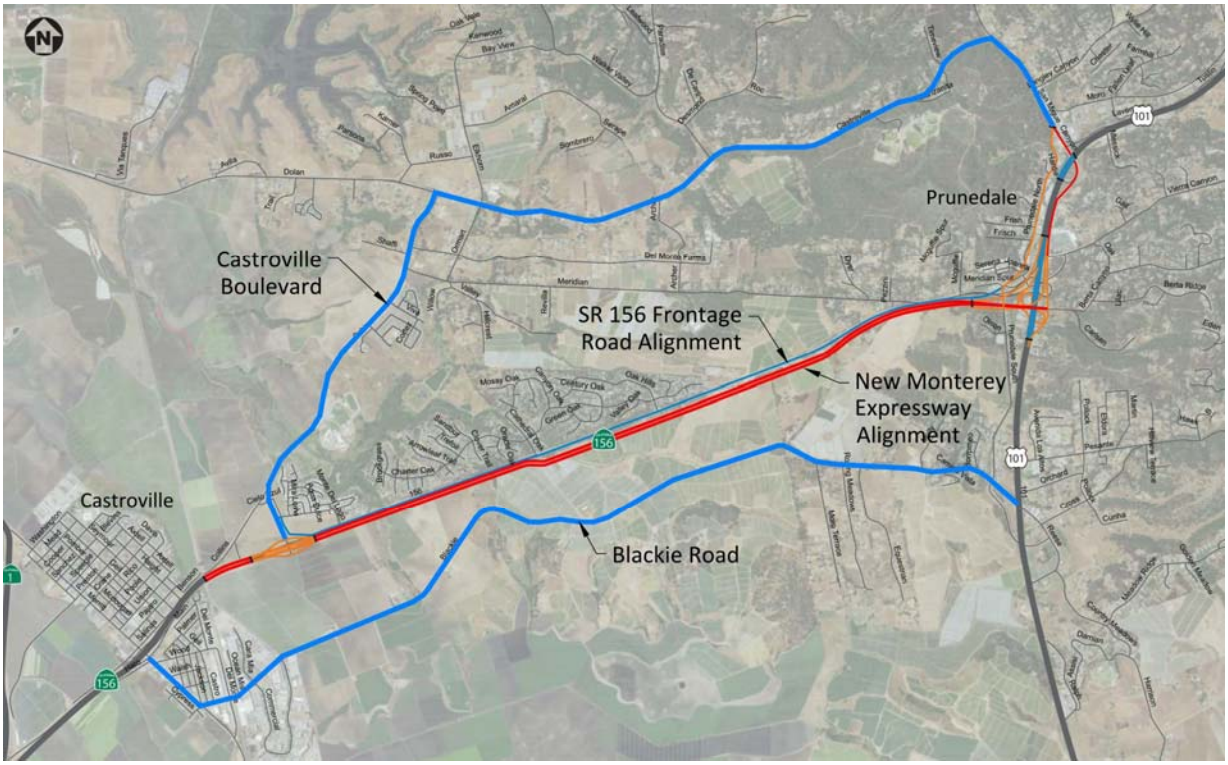
1 EXECUTIVE SUMMARY

The Transportation Agency for Monterey County (TAMC) Board commissioned a Level 2 Traffic and Revenue study on the feasibility of collecting tolls to fund the proposed new SR156 connector road between US 101 and Castroville Boulevard.

The project consists of constructing a new four-lane highway, called the Monterey Expressway, parallel and immediately south of the existing SR 156 and converting the existing two-lane SR 156 into a frontage road providing access to the local community. Traffic control at the intersections along the existing SR 156 will improve conditions for local residents. A major reconstruction of the US 101/SR 156 interchange and modifications to the San Miguel Canyon/US 101 interchange will be built along US 101. A full diamond interchange will replace the stop light at SR 156 and Castroville Boulevard. An overview of the study area and proposed Monterey Expressway alignment is shown below in **Figure 1-1**.

Figure 1-1: SR 156 Study Area & Monterey Expressway Alignment



1.1 Study Conclusions:

- Traffic is forecast to grow approximately 1.7% to 1.9% annually from 2015 to 2035 on SR 156. Traffic is severely congested on SR 156 on most weekends and many weekday peak travel hours. In the summer and during special events on the Monterey Peninsula, this congestion is even worse. Side street access onto SR 156 is severely constrained

which results in collisions. Providing additional capacity along the SR 156 corridor is the only option to relieve traffic flow and address safety concerns.

- Insufficient public funding is currently available for fully-funding the improvements.

- Funding for a portion of the construction, financing, operations and maintenance of the SR 156 improvement project can be provided by collecting tolls from road users either through a public-private partnership (P3) or through a public authority.

- Under the base scenario, there will be a shortfall in toll financing of the project, ranging from $77.6 million with a P3 option, to $119.0 million with a public toll option for the base scenario. This shortfall is in addition to an assumed $76.7 million in State funds, regional and FORA fees that are presumed to be available to the project. Additional funding sources must become available otherwise the toll road is not viable.

- Tolling will result in a diversion of traffic primarily onto the SR 156 frontage road, Castroville Boulevard, and Blackie Road. This diversion will cause congestion at intersections primarily on Castroville Boulevard and Blackie Road during peak travel hours. These intersections will also be congested in 2035 even if the new facility is not built.

- A sensitivity analysis on toll revenues indicates that revenues could increase by 15% due to congestion on diversion routes. This revenue would decrease the shortfall to a range of $57.4 million to $98.1 million.

- This study recommends a varied toll rate based on the demographic distribution of road users. A base toll rate of $3.00 roundtrip is recommended as the starting toll rate.

- The financial feasibility analysis uses a 50-year tolling horizon to pay obligations.

- A toll discount can be provided to local Castroville-Prunedale residents and workers. This discount is estimated to result in a toll revenue loss between approximately 5% (for residents that work and live in the local area around SR 156) to 15% (for people that live or work in the local area around SR 156).

- A 5% local discount is within the margin of error of forecasts. However, a 15% local discount is more significant and will almost deplete the additional income indicated in the sensitivity analysis. A full discount for everyone who lives or works in the local area is not a viable financial option; a partial discount is feasible at a maximum of 5% of toll revenue.

Caltrans is utilizing the results from the Level 2 Traffic and Revenue study to conduct a supplementary Environmental Impact Report for the toll facility. This report will keep policy options open should changes to assumptions occur, sufficient revenues from outside sources become available and state legislation authorizing public-private partnerships be enacted.

1.2 Project Description:

The project will provide benefits for the local community and regional traffic utilizing US 101, SR 1, and SR156 to and from the Monterey Peninsula community. Existing SR 156 is severely congested during a major portion of the day and even more so in the summer. Without improvement, SR 156 traffic conditions will continue to worsen in the future and limit access for visitors, freight traffic, and residents in the Castroville, Oak Hills, and Monte Del Lago local communities.

The Monterey Bay is a major tourist destination over weekends and during the summer. Throughout the year, there are also many special events at locations along the Peninsula. The area is a major destination for San Francisco Bay area residents for short one-day visits or weekend stays. In addition, the Peninsula is a major national and international tourist destination. Agricultural activity in the area also generates high truck traffic from food processing plants and produce to market trips. The largest distribution complex in the region located at the west end of the project, in Castroville. Daily commuters living both along the SR 156 corridor and beyond, travel to jobs on the Monterey Peninsula, the Salinas Valley, and north to Silicon Valley.

If tolling is implemented the existing SR 156 will remain a free alternative route, but will be modified to serve as a local access road with intersection controls at major driveways and adjoining roads and the speed limit will be reduced appropriately by 10-20 miles per hour. The intersection control measures (i.e. roundabouts or traffic signals) on the local access road will make the route less attractive for through traffic and reduce volumes, speeds and improve safety, especially the severity of collisions. In addition, access for the local communities will be greatly improved through much shorter delays at the entryways onto the existing SR 156.

Tolling the Monterey Expressway will result in a diversion of traffic primarily to adjacent streets, although such diversion already occurs during the peak congestion period. A large majority of the diversion will occur on the existing SR 156, Blackie Road, and Castroville Boulevard; however, these facilities have constrained intersection geometries and provide limited opportunity for travel time reduction. Despite the relatively short 4-mile length, Monterey Expressway provides significant travel time benefits and will be the preferred travel route choice. Also, the relatively low toll rates proposed for the Monterey Expressway will be enticing for San Francisco Bay travelers, whom are used to higher tolls on the Bay Area bridges and express lanes.

Toll collection for the Monterey Expressway will be implemented electronically using a gantry system over the roadway, similar to FasTrak in the Bay Area; toll booths for cash collection of tolls will not be provided. A camera detection system will be used to collect tolls from users without FasTrak transponders. The study results indicate that travelers who stay and work within the Castroville-Prunedale area can receive a discount or pay no toll based on who is selected to participate in the discount.

1.3 Project Demand and Revenue Estimation:

There will be two primary impacts to parallel roadways as a result of the construction and tolling of the Monterey Expressway: (1) added capacity provided by the Expressway will relieve travel demand on alternate routes – 40 to 45% of the total traffic in the corridor will use the new facility in 2035 instead of the alternate routes; and (2) tolling the Expressway will make it a less attractive route through SR 156, thus if the new Expressway were free, a higher percentage of the trips would use the expressway.

A travelers' decision whether to pay a toll or to take an alternate free route (toll diversion) is a trade-off among the toll rates on the Monterey Expressway, the travel time savings the expressway offers over an alternate route, and the monetary value the traveler places on travel time savings. The lower the cost of the toll and the higher the value of time savings, the more likely the traveler is to use the Monterey Expressway and enjoy the shorter travel time.

Except for discounts to residents and businesses within the local Castroville-Prunedale area, the preferred tolling plan charges a premium toll on commercial vehicles. Passenger vehicles travelling during the mid-day are also charged a premium, recognizing that demand at that time of day is higher in the study corridor and that tourism travelers are less sensitive to tolls than regular commuters. The roundtrip toll values used in forecasting were: $3.00 daily base toll; $3.60 for mid-day passenger vehicles; and $7.50 for commercial vehicles.[1] The preferred tolling plan was based on an examination of Year 2035 "build" travel demand estimates for the SR 156 corridor using an array of tolling plans and associated rates. Several tolling scenarios were examined; however, the $3.00 daily base toll was selected because this rate minimizes the diversion to alternative routes, yet maximizes the toll revenue. Results indicate that increasing the base toll rate above $5.00 would shift significantly more traffic to alternative routes. Even with the shift at only a $3.00 base toll rate, congestion would occur at the diversion route intersections, specifically on San Miguel Canyon close to US 101 and on SR 183 in Castroville.

Figure 1-2 compares the anticipated growth in daily peak season weekend roadway volume along the Expressway, as compared to the three primary diversion routes. Weekend traffic along the existing SR 156, Castroville Boulevard, and Blackie Road is expected to increase between Year 2015 and Year 2035 study scenarios. Under the 2035 "build" condition, the tolled Monterey Expressway will provide substantial traffic volume relief to the existing SR 156 facility, while weekend traffic volumes on Castroville Boulevard and Blackie Road will increase due to diversion from the toll road.

[1] Daily (2-way) toll rates in Year 2015 U.S. Dollars

Figure 1-2: Daily Peak Season Weekend Roadway Volumes

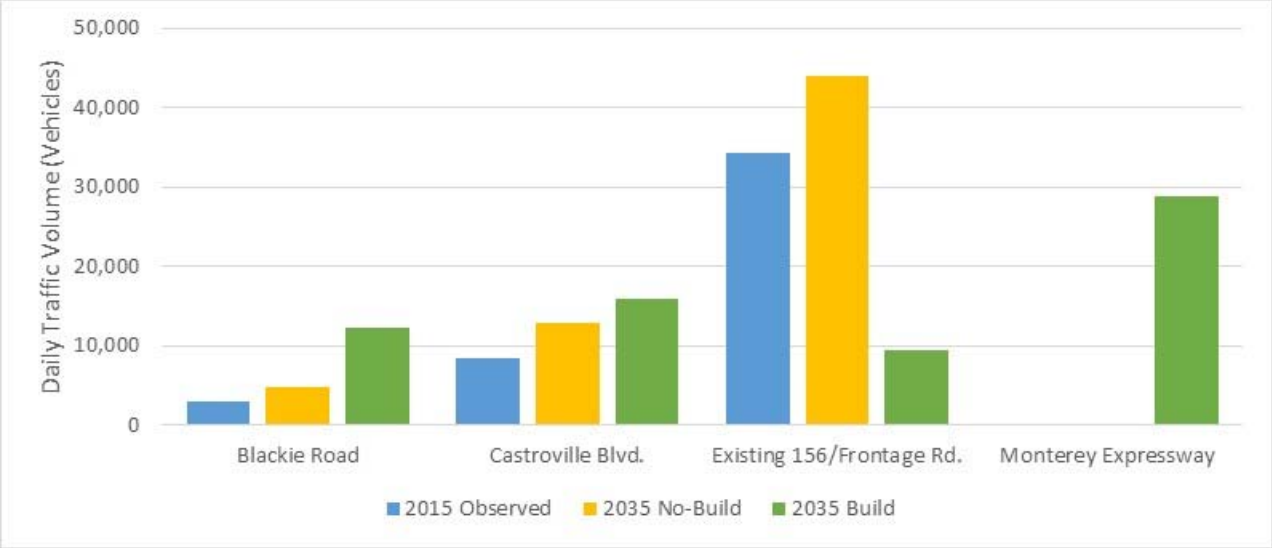


Table 1-1 on the next page shows the study corridor roadway volumes and toll diversion to the alternate routes in the corridor under the tolling plan in 2035. The majority of increase in demand, due to toll diversion, impacts these alternate routes in the study corridor and are reported at the following locations:

- Castroville Boulevard (Elkhorn Road – San Miguel Canyon Road)
- Existing Highway (156 Meridian Road – McGuffie Road)
- Blackie Road (E. of Commercial Pkwy.)

Table 1-1: Study Corridor Daily Roadway Traffic Volumes (Vehicles)

	Roadway	2015 Observed[1] (A)	2035 No-Build[1] (B)	Growth[2] (A:B)	2035 Build[3] (C)	Volume Change[4] (C-B)
Off-Peak Season Weekday	Blackie Road	2,700	2,900	0.37%	10,000	+7,100
	Castroville Boulevard	6,400	9,100	2.11%	13,900	+4,800
	Existing 156/Frontage Rd	29,000	40,000	1.90%	8,000	-32,000
	Monterey Expressway	-	-	-	25,300	+25,300
	TOTAL	38,100	52,000	1.82%	57,200	+5,200
Peak Season Weekday	Blackie Road	2,500	4,900	4.80%	13,100	+8,200
	Castroville Boulevard	7,450	9,700	1.51%	14,500	+4,800
	Existing 156/Frontage Rd	28,900	41,600	2.20%	9,200	-32,400
	Monterey Expressway	-	-	-	21,300	+21,300
	TOTAL	38,850	56,200	2.23%	58,100	+1,900
Peak Season Weekend	Blackie Road	2,850	4,800	3.42%	12,200	+7,400
	Castroville Boulevard	8,300	12,800	2.71%	15,800	+3,000
	Existing 156/Frontage Rd	34,250	43,900	1.41%	9,300	-34,600
	Monterey Expressway	-	-	-	28,800	+28,800
	TOTAL	45,400	61,500	1.77%	66,100	+4,600

Notes: (1) Unimproved SR 156
(2) Annual growth rate implied by the travel forecasts from 2015 to 2035
(3) Accounts for diversion to alternative routes to avoid toll
(4) Comparing 2035 build to no-build

Table 1-1 shows that traffic in the corridor is forecast to grow approximately 1.9% on the offseason weekday and 2.2% per year from 2015 to 2035 during the peak weekday. Weekday traffic growth on each of the roads is similar in the peak summer season compared to the rest of the year, except for traffic on Blackie Road, which grows faster during the summer. While summer weekend traffic is forecast to be greater than weekday, its growth is somewhat less at 1.4% per year. Growth on Castroville Boulevard and Blackie Road on the weekends at 2.5-3.5% per year.

The “Volume Change” column in the table shows the change in volume as a result of building and tolling the Monterey Expressway. Note the substantial volume relief to existing SR 156 at all times of the year; between 21,000 to 28,000 vehicles per day use the new Monterey Expressway facility. The increase in volumes on Castroville Boulevard and Blackie Road show the effects of toll diversion. During all times of the year Blackie Road experiences nearly twice the increase in traffic as compared with Castroville Boulevard under the Year 2035 “build” conditions.

Peaks during off-peak weekday and summer weekday would occur primarily in the early afternoon (lunchtime) through the PM peak hour. During the weekends, congestion occurs on Friday, Saturday, and Sunday. Congestion varies during these times, but is evident in future forecasts. At other times of the day, all roadways in the corridor are forecast to operate at an acceptable level-of-service under 2035 build conditions. During peak periods, alternative routes are congested in part due to traffic growth in the corridor and vehicles diverting from the Monterey Expressway to avoid paying the toll. Section 2.1.3 provides a detailed discussion of all operating conditions in the corridor.

1.4 Financial Feasibility Evaluation:

The financial feasibility analysis evaluates the ability of tolls to pay for the construction costs, operating expenses, and total lifecycle costs for the Monterey Expressway. The evaluation is based on a traffic and revenue study and a detailed estimate of capital and operating costs. The feasibility analysis is aimed at addressing three broad questions:

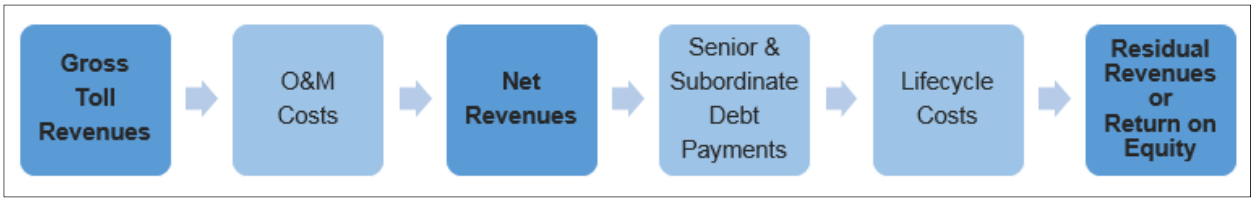
1. Is there enough upfront capital to fund all construction costs and financing costs to deliver the Project?
2. Upon project delivery, are the annual toll revenues sufficient to meet ongoing operating expenses and downstream lifecycle costs to maintain the road in good shape?
3. Upon project delivery, are annual toll revenues sufficient to pay debt service and is the overall capital structure marketable?

The Project feasibility and financing structure is assessed under **two delivery options:**

- **Public delivery by TAMC and/or Caltrans:** Under a public delivery option, TAMC or Caltrans would procure and manage the design-build or design-bid-build contract(s) to construct the Project. TAMC would arrange the Project funding, including the issuance of toll revenue debt and would serve as the public tool operator. Caltrans is presumed to maintain the Monterey Expressway.
- **P3 delivery with a toll concessionaire:** Under a Public-Private Partnership delivery option, the construction and ongoing operation and maintenance of the toll road would be managed by a private partner/concessionaire in accordance with terms negotiated under a concession agreement. TAMC's responsibility would be to oversee the performance of that contract. The private concessionaire would be responsible for arranging the financing for the expressway, including debt and equity contributions.

The Project has commitments for an estimated $69.9 million from various local, regional and state sources. The remaining project capital may be raised in the capital markets and will be secured by the sole source of revenue for the Project - future toll revenue collections on Monterey Expressway. The application of toll revenues is governed by a **'flow of funds'** presented in **Figure 1-3.**

Figure 1-3: Flow of Funds



First and foremost, toll revenues must be utilized to pay operating expenses. The remaining *net toll revenues* may be used to paid debt service costs on any debt issued for project construction. Gross toll collections and net toll revenues are subject to traffic and demand and actual collections may be different from estimates. Hence debt is structured such that resulting debt service payments are less than estimated net revenues to provide some cushion against revenue volatility. Any dollars remaining after debt payments may be set aside to fund future

lifecycle costs which may include anything from minor repairs to a full reconstruction of the road down the line. At this point all operating, lifecycle and financing costs are covered and the remaining revenues are called *residual revenues*. Under a public delivery model the tolling authority would retain all residual dollars. For a P3 delivery model, all residual revenues flow out to the private equity partner as return on upfront equity contribution for Project financing.

Potential Capital Funding Sources:

There are three primary sources of capital funding that are evaluated in this study for Project financing:

1. Senior Lien Toll Revenue Bonds: These are long-term bonds with 40 year terms that are secured by a first lien on *net toll revenues.* Toll revenue bonds may be utilized with either public or P3 delivery models. The driving force that constrains the amount of bonds that may be raised, is the maintenance of a minimum of 2.0x annual debt service coverage to protect against revenue volatility.
2. Subordinate Lien Federal Direct Loan (TIFIA): This is a federal direct loan also secured by *net toll revenues* but on a subordinate basis to toll revenue bonds. It has several attractive features including its low cost of borrowing, flexible drawdown and repayment options and ability to subordinate debt service payments. The TIFIA loan may also be utilized with either public or P3 delivery models. The loan amount is capped at 33% of eligible project costs and is also constrained by the requirement to demonstrate a 1.3x-1.5x annual debt service coverage on all debt including senior toll revenue bonds.
3. Equity Contribution (from a private partner): This financing option is only applicable with a P3 delivery of the Project. It is an expensive source of funding as equity partners usually demand 12%-14% pre-tax return on their investment for assuming project revenue risk among other factors. Nevertheless, it is an attractive option since the equity partner brings project expertise and efficiencies and enables us to leverage residual revenues from the bottom-most bucket to raise additional capital for construction and reducing the upfront funding shortfall.

Approach to Structuring:

The starting point of the analysis is to estimate the net toll revenues that may be generated under the public and P3 delivery options based on revenue and cost inputs provided by Kimley-Horn and Michael Baker that are unique to the two delivery options. The schedule of net toll revenues is utilized to estimate the maximum possible debt and/or equity that can be supported by such net toll revenues, subject to certain financing assumptions and structuring constraints. For the public delivery model, the feasibility analysis is designed to optimize the use of senior lien toll revenue bonds together with a subordinate TIFIA loan while meeting minimum debt service coverage requirements. The P3 delivery model seeks to optimize the debt structure with the use of toll revenue bonds and a TIFIA loan, while also satisfying industry standards for debt-to-equity ratio and adequate rate of return on equity investment.

Results of the Feasibility Analysis:

A summary of the feasibility results is presented in **Table 1-2.** The Project construction cost under the public delivery option is an estimated $374.4 million. The forecast toll revenues plus other committed funds can support 68% of these costs, resulting in an estimated funding shortfall of $119.0 million. In the P3 scenario, the Project construction cost is an estimated $339.1 million. About 77% of the cost can be funded with grants, debt and equity supported by net toll revenues, resulting in an estimated funding shortfall of $77.6 million. The funding shortfall could be as much as $90.0 million with a P3 delivery after accounting for the impact of taxes on equity return.

In addition to the base analysis, a sensitivity test on traffic and revenue was performed by Michael Baker. This sensitivity analysis showed that with congestion on the diversion routes, more vehicles would take the Monterey Expressway resulting in higher traffic and revenue. Taking these additional revenues into account the funding shortfall reduces under the sensitivity case analysis compared to the base case. The funding shortfall is $98.1 million for the public delivery and $57.4 million for the P3 delivery option.

The shortfall under the P3 delivery is lower compared to public delivery due to several factors. To begin with, the construction cost estimates were lower for a P3 delivery and the construction schedule was more condensed resulting in the toll road opening for operations sooner with a P3 delivery. Additionally, a private sector partner is assumed to be a little more aggressive with the tolling policy with a 1.5% annual increase in the real toll rate versus a 1% increase in the public delivery model. These additional revenues support the equity contribution, albeit at a higher, 14% cost of capital.

Table 1-2: Capital Funding Results

	Public			P3		
	Sensitivity Case	Base Case	Delta	Sensitivity Case	Base Case	Delta
Funding Uses						
Construction Cost	$374.4 M	$374.4 M	-	$339.1 M	$339.1 M	-
Financing Costs	$44.2 M	$38.6 M	$5.6 M	$28.7 M	$23.5 M	$5.2 M
Total Project Delivery Costs	$418.6 M	$413.0 M	$5.6 M	$367.8 M	$362.6 M	$5.2 M
Funding Sources						
Toll Revenue Bond Proceeds	$106.9 M	$82.1 M	$24.8 M	$55.8 M	$38.4 M	$17.5 M
TIFIA Loan	$136.9 M	$135.2 M	$1.7 M	$119.9 M	$118.2 M	$1.6 M
Equity Contribution	n/a	n/a	-	$58.0 M	$51.8 M	$6.2 M
Grant Funds/Other	$76.7 M	$76.7 M	-	$76.7 M	$76.7 M	-
Total Funding Sources	$320.5 M	$293.9 M	$26.5 M	$310.4 M	$285.0 M	$25.4 M
Project Funding Shortfall	$98.1 M	$119.0 M	$20.9 M	$57.4 M	$77.6 M	$20.2 M

Once the Project is delivered and operational, projected toll revenues are sufficient to cover all annual operations, maintenance, debt service, lifecycle and full reconstruction costs (in the later years), under either delivery scenario. Under the public delivery scenario, after all the annual costs are accounted for, TAMC is left with about $1.15 billion in cumulative 'residual revenues',

albeit most of these occur in the latter years of the 50-year forecast horizon. The present value of this stream of residual revenues is about $98.9 million.

Besides financial feasibility, when viewed from a broader perspective, the Monterey Expressway is a regional transportation investment that meets regional mobility needs. It is a valuable asset with the potential to unlock new revenues in the form of tolls if the funding shortfall can be addressed. The challenge will be to identify the best way to close the funding gap to meet the Board's policy objectives. The discussion on funding shortfall, will also be driven, in part by the chosen method for project delivery. There is currently no legislation in place to support the approval of a P3 delivery of the Project.

The public delivery of the Project entails several considerations for TAMC and the Board. Establishing a new tolling facility will require TAMC to take on a comprehensive approval process to get project and tolling approval from the California Transportation Commission. Also, a broader project risk analysis will have to be undertaken to identify the potential risk factors and develop mitigation strategies wherever possible and feasible.

1.5 Transportation System Impacts:

The SR 156 Traffic and Revenue Study assessed roadway and intersection operation impacts for the project study area. The potential transportation impacts associated with the proposed project were evaluated for weekday AM and PM and Saturday peak hours for the following analysis scenarios:

- **Scenario 1: 2016 Existing Conditions**
  Existing Conditions are represented by existing peak-hour traffic volumes on the existing roadway network. Traffic analysis is based on current traffic counts taken in 2016 as well as existing roadway geometry and traffic control.

- **Scenario 2: 2035 No Build Conditions**
  2035 "No Build" Conditions represents Year 2035 cumulative conditions, land use assumptions, and forecast traffic growth from the Association of Monterey Bay Area Governments (AMBAG) Travel Demand Model. Traffic analysis is based on existing roadway geometry assuming no roadway and intersection improvements to the street network.

- **Scenario 3: 2035 Buildout Conditions (Plus Project)**
  2035 "Buildout" Conditions represents Year 2035 cumulative conditions with buildout of the SR 156 Toll Road project and associated forecast traffic growth from the AMBAG Travel Demand Model. Traffic analysis is based on identified future roadway and intersection improvements.

The project will impact existing and future vehicular trips and travel patterns to the surrounding SR 156 street network in Monterey County. To assess changes in traffic conditions associated with the project, the study team analyzed seventeen (17) study intersections and sixteen (16) study roadway segments based on knowledge of the area, engineering judgement, and consultation with TAMC staff.

Under Existing 2016 Conditions, the existing side street stop controlled intersections and roadway segment along SR 156 are operating at unacceptable level of service (LOS) due to excessive traffic volumes and limited gap opportunities for stopped vehicles to access the highway. Several intersections and roadway segments along San Miguel Canyon Road also exceed acceptable LOS during the peak hour at Prunedale Road and Castroville Boulevard.

For 2035 No Build Conditions, future growth determined from the AMBAG travel demand model will increase traffic congestion and delay to many of the impacted study intersections and roadways. The roadway segment and intersections along SR 156 will continue to degrade beyond acceptable traffic operation levels while increased congestion will occur along the San Miguel Canyon Road corridor between Castroville Boulevard and US 101 during the AM, PM, and Saturday peak hour.

Implementation of the SR 156 Monterey Expressway under the 2035 Buildout scenario will significantly improve intersection and roadway operations for the SR 156 two-lane frontage road. SR 156 intersection and roadway conditions improve at Monte Del Lago, Cathedral Oak Road, Oak Hills Drive, and Meridian Road due to a reduction in traffic volume from travelers electing to use the Monterey Expressway.

The effects of toll diversion and increased traffic volume onto Castroville Boulevard and Blackie Road from tolling the Monterey Expressway will degrade the roadway and intersection operations at Blackie Road at SR 183 and Castroville Boulevard at San Miguel Canyon Road.