Madera County Transportation Commission

2024

Regional Transportation Improvement Program

Fiscal Years 2024/25 through 2028/29

APPROVED

November 29, 2023

MCTC
Madera County Transportation Commission

MCTC
Madera County Transportation Commission

2001 Howard Road, Suite 201
Madera, California 93637
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November 29, 2023

Tanisha Taylor, Executive Director
California Transportation Commission
1120 N Street, Room 2233 (MS-52)
Sacramento, CA 95814

RE: Submittal of MCTC's 2024 Regional Transportation Improvement Program

Dear Ms. Taylor:

The Madera County Transportation Commission (MCTC) is the Metropolitan Planning Organization (MPO), and Regional Transportation Planning Agency (RTPA) for Madera County. The development of the MCTC 2024 Regional Transportation Improvement Program (RTIP) incorporates input from stakeholders, partner agencies, and the public. The list of projects identified in this RTIP represents some of the Madera region's priority projects.

MCTC has worked closely with Caltrans District 6 Staff to develop the project list in the 2024 RTIP. Caltrans and MCTC staffs meet on a quarterly basis to discuss the status of STIP projects and other regional projects for which Caltrans is either the lead agency or provides direct oversight.

Please feel free to contact myself, or Jeff Findley of my staff at (559) 675-0721 or jeff@maderactc.org if you have any questions or require additional information regarding the MCTC 2024 RTIP.

Patricia Taylor, Executive Director
Madera County Transportation Commission

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2024 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (2024 RTIP)

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A. Overview and Schedule

Section 1. Executive Summary

The 2024 Regional Transportation Improvement Program (RTIP) for Madera County is prepared by the Madera County Transportation Commission (MCTC) and proposes how regional discretionary transportation dollars should be programmed. The deadline to submit programming requests for the 2024 STIP is December 15, 2023. The California Transportation Commission (CTC) will adopt the 2024 STIP in March 2024. For purposes of this 2024 RTIP, the 2024 STIP Guidelines and Revised Fund Estimate are the basis of current funding assumptions. The RTIP is updated every two years and submitted to the CTC. This RTIP covers the period from July 1, 2024, through June 30, 2028 (State Fiscal Years 2024/25 – 2028/29).

Section 2. General Information

- **Regional Agency Name**
  Madera County Transportation Commission

- **Agency website links for Regional Transportation Improvement Program (RTIP) and Regional Transportation Plan (RTP).**

  Regional Agency Website Link: MCTC Website

  RTIP document link: MCTC Website

  RTP link: MCTC Website

- **Regional Agency Executive Director/Chief Executive Officer Contact Information**

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- **California Transportation Commission (CTC) Staff Contact Information**

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Section 3. Background of Regional Transportation Improvement Program (RTIP)

A. What is the Regional Transportation Improvement Program?

The Regional Transportation Improvement Program (RTIP) is a program of highway, local road, transit and active transportation projects that a region plans to fund with State and Federal revenue programmed by the California Transportation Commission in the State Transportation Improvement Program (STIP). The RTIP is developed biennially by the regions and is due to the Commission by December 15 of every odd numbered year. The program of projects in the RTIP is a subset of projects in the Regional Transportation Plan (RTP), a federally mandated master transportation plan which guides a region's transportation investments over a 20-to-25-year period. The RTP is based on all reasonably anticipated funding, including federal, state, and local sources. Updated every 4 to 5 years, the RTP is developed through an extensive public participation process in the region and reflects the unique mobility, sustainability, and air quality needs of each region.

B. Regional Agency's Historical and Current Approach to developing the RTIP

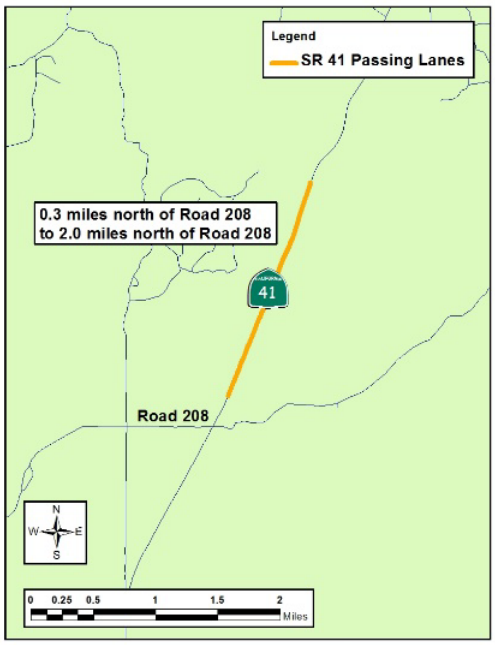
As the Regional Transportation Planning Agency, MCTC is responsible for developing the Madera County Regional Transportation Improvement Program (RTIP). The RTIP serves two functions: Proposes projects and funding reserves for programming in the STIP. Conveys the transportation needs of the Madera County Region. The RTIP is one part of the planning, programming, and monitoring process that occurs in cooperation with local, State and Federal agencies to achieve the ultimate goal of implementing or constructing transportation projects that reflect a well-based and long-term plan. The cycle begins with the preparation of the RTP. The RTP is the long-term twenty-year plan for transportation in Madera County. Based on the findings of the RTP, MCTC prepares the RTIP, which proposes transportation projects to the CTC and covers a period of five years. Simultaneously, Caltrans prepares the Interregional Transportation Improvement Program (ITIP), which nominates highway, rail and other projects that are important to the State. The CTC combines all of the regional RTIPs and the ITIP, creating a single programming document, the STIP. Funds are allocated only to projects that are included in the STIP. After the STIP is adopted, MCTC will prepare the four-year Federal Transportation Improvement Plan (FTIP), which only contains funded projects. In the RTIP, Madera County nominates projects under the Regional Improvement Program (RIP). In the ITIP, Caltrans nominates highway construction projects under the Interregional Improvement Program (IIP). In the past, projects from the regional and interregional programs in a county competed for the same pool of funding, then known as the

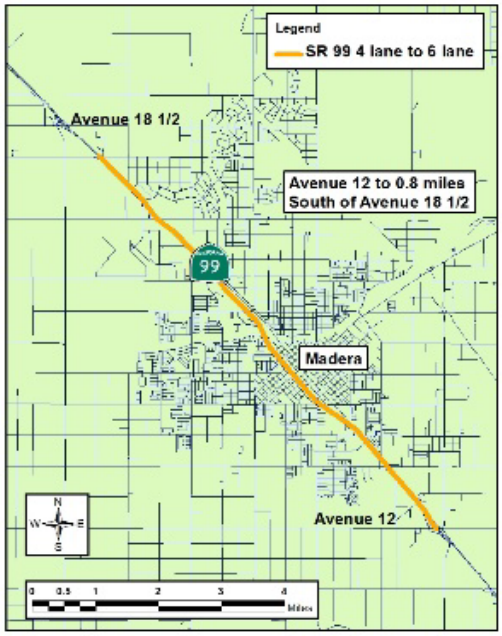
county minimum. Now this pool is called the county share, and it is allocated only to the region. The interregional program is now separate, with funds allocated on a statewide basis, and no requirement that any minimum amount be spent in each county.

Section 4. Completion of Prior RTIP Projects (Required per Section 78)

No projects have been completed since the MCTC 2022 RTIP adoption.

- The State Route 41 Passing Lanes project, PPNO: 6606 is currently open to traffic and in the close-out phase.
- State Route 99 Avenue 12 to Avenue 17 project, PPNO: 5335 is currently open to traffic and in the close-out phase.
- State Route 99 Avenue 7 to 12 project, PPNO: 6297 is fully funded with additional ITIP funding for CON and Con Support is currently in the ROW phase.

Project Name and Location	Description	Summary of Improvements/Benefits
State Route 41 Passing Lanes PPNO: 6606	The SR 41 Passing Lanes are located between SR 145 and Road 200 in Madera County at the location of the initial climb from the San Joaquin Valley floor to the Sierra Nevada Mountain Range. 	The addition of passing lanes improves safety and overall traffic operations by breaking up traffic platoons and reducing traffic delays caused by inadequate passing opportunities. This project is currently open to traffic.

SR 99 Avenue 12 to Avenue 17 - 4 to 6 Lanes PPNO: 5335	The SR 99 Avenue 12 to Avenue 17 is located within the City of Madera.  	Adding additional lanes of this section of SR 99 is needed to improve safety, reduce congestion, and increase connectivity of the highway system, and preserve acceptable facility operation of SR 99 by closing existing gaps/pinch points and “Finishing SR 99”. This project is currently open to traffic.
SR 99 Avenue 7 to Avenue 12 - 4 to 6 Lanes (South Madera 6 Lane) PPNO: 6297	The SR 99 Avenue 7 to Avenue 12 is located south of the City of Madera.  	Adding additional lanes of this section of SR 99 is needed to improve safety, reduce congestion, and increase connectivity of the highway system, and preserve acceptable facility operation of SR 99 by closing existing gaps/pinch points and “Finishing SR 99”.

Section 5. RTIP Outreach and Participation

RTIP Development and Approval Schedule

Action	Date
CTC adopts Fund Estimate and Guidelines	August 16-17, 2023
Caltrans identifies State Highway Needs	September 15, 2023
Caltrans submits draft ITIP	October 15, 2023
CTC ITIP Hearing, South	November 1, 2023
CTC ITIP Hearing, North	November 8, 2023
MCTC adopts 2024 RTIP	November 29, 2023
Regions submit RTIP to CTC	December 15, 2023
Caltrans submits ITIP to CTC	December 15, 2023
CTC STIP Hearing, North	January 25, 2024
CTC STIP Hearing, South	February 1, 2024
CTC publishes staff recommendations	March 1, 2024
CTC Adopts 2024 STIP	March 21-22, 2024

A. Community Engagement

MCTC has an adopted Public Participation process. MCTC consults with State, local agencies, and the public during the project selection process. The RTIP is one part of the planning, programming, and monitoring process that occurs in cooperation with local, State and Federal agencies to achieve the ultimate goal of implementing or constructing transportation projects that reflect a well-based and long-term plan. The MCTC 2024 RTIP cycle begins with the preparation of the RTP. In the RTIP, Madera County nominates projects under the RIP. In the ITIP, Caltrans nominates highway construction projects under the IIP. In the past, projects from the regional and interregional programs in a county competed for the same pool of funding, then known as the county minimum. Now this pool is called the county share, and it is allocated only to the region. The interregional program is now separate, with funds allocated on a statewide basis, and no requirement that any minimum amount be spent in each county.

There is currently one new project requesting ITIP in the 2024 RTIP. Caltrans has requested ITIP funding for the North Madera 6 Lane project (SR 99 Avenue 17 to Avenue 21). In addition to the above community engagement, Caltrans conducted outreach as part of their PBID preparation process.

Planning, Programming, and Monitoring funds are also being requested at this time.

B. Consultation with Caltrans District (Required per Section 20)

Caltrans District: 6

Per Section 17 of the STIP Guidelines, MCTC consults with Caltrans District 6 staff regarding the projects in the RTIP. Caltrans and MCTC staff meet on a quarterly basis to discuss the status of STIP projects and other regional projects for which Caltrans is either the lead agency or provides direct oversight. It should be noted that Caltrans is the lead agency for all current projects in the MCTC 2024 RTIP.

B. 2024 STIP Regional Funding Request

Section 6. 2024 STIP Regional Share and Request for Programming

A. 2024 Regional Fund Share Per 2024 STIP Fund Estimate

According to the adopted Fund Estimate, the Madera Region has $1.7 million in additional programming capacity in the 2024 STIP through Fiscal Year 2028/29. In addition, $0 of Advanced Project Development Element shares are available to the Madera Region.

Summary of Requested Programming

Project Name and Location	Project Description	Requested RIP Amount
Planning, Programming and Monitoring (PPM) – Madera County Transportation Commission	Planning, Programming and Monitoring	$525,000

Section 7. Overview of Other Funding Included With Delivery of Regional Improvement Program (RIP) Projects

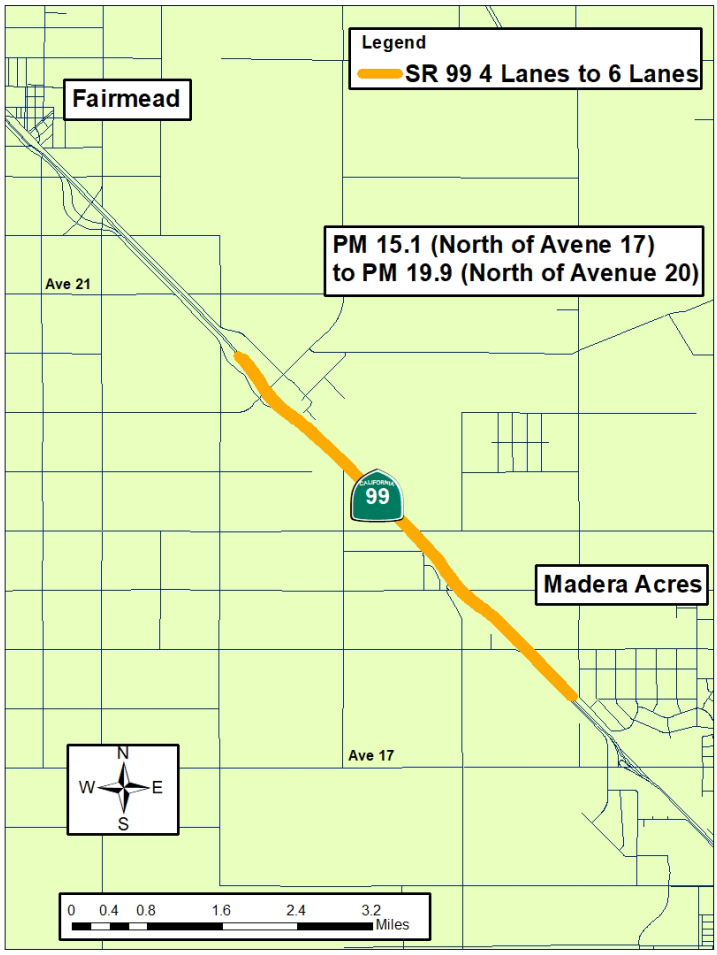
The existing RIP Project (South Madera 6 Lane) has numerous funding sources that were previously allocated to the SR 99 Avenue 7 to Avenue 12 project. Existing funding sources include Local Measure (Measure T), SB1 Trade Corridor Enhancement Program (TCEP), Proposition 1B Bond Savings, Interregional Improvement Program (IIP), 2020 Mid-Cycle STIP COVID Relief Funds (RIP), State Highway and Operation Protection (SHOPP) and 2022 Interregional Transportation Improvement Program (ITIP) funds. All of these existing funding sources are being utilized for PE, ROW and CON phases. Additional Construction and Construction Support funds are being requested by Caltrans from the 2024 ITIP in the amount of $5,500,000. The requested construction funding will allow the completion of this important project interregional project.

		OTHER FUNDING								
Proposed 2020 RTIP	Total RTIP	2024 ITIP Request	2022 ITIP (IIP)	Existing IIP	SHOPP	Prop 1B Bond Savings	SB 1 TCEP	RIP COVID Relief	Measure T	Total Project Cost
State Route 99 – Avenue 7 to Avenue 12 - 6 Lanes PPNO: 6297	**$112,073,000**	$5,500,000	$33,500,000	$9,813,000	$54,700,000	$3,060,000	$4,659,000	$832,000	$9,000	**$112,073,000**
Totals	**$112,073,000**	**$5,500,000**	**$33,500,000**	**$9,813,000**	**$54,700,000**	**$3,060,000**	**$4,659,000**	**$832,000**	**$9,000**	**$112,073,000**

Section 8. Interregional Transportation Improvement Program (ITIP) Funding and Needs

The purpose of the Interregional Transportation Improvement Program (ITIP) is to improve interregional mobility for people and goods in the State of California. As an interregional program, the ITIP is focused on increasing the throughput for highway and rail corridors of strategic importance outside the urbanized areas of the state. A sound transportation network between and connecting urbanized areas ports and borders is vital to the state's economic vitality. The ITIP is prepared in accordance with Government Code Section 14526, Streets and Highways Code Section 164 and the STIP Guidelines. The ITIP is a five-year program managed by Caltrans and funded with 25% of new STIP revenues in each cycle. Developed in cooperation with regional transportation planning agencies to ensure an integrated transportation program, the ITIP promotes the goal of improving interregional mobility and connectivity across California.

North Madera 6 Lane



The North Madera SR 99 6 Lane Project will enhance freight mobility and relieve traffic congestion by increasing traffic capacity on State Route (SR) 99 from Avenue 17 Overcrossing to south of the Avenue 21½ Overcrossing. Alternative 1 proposes to construct one additional lane in each direction using the existing median. Alternative 2 consists of partial realignment of the SR 99 centerline to the west, before construction of additional lanes.

This segment of SR 99 is essential to the economy of San Joaquin Valley and is critical to the agricultural and commercial transportation in this region. Almonds are the top commodity in both Fresno and Madera counties producing 533,000 tons, valued at $2 billion. Milk is the second highest leading commodity in Madera County, valued at approximately $330 million dollars.

SR 99 is also used by interregional travelers and commuters in Madera and Fresno Counties. The 2021 AADT ranges from 70,000 to 73,000. The 2021 average daily truck traffic within the project limits is approximately 20%. SR 99 is part of the National Highway System as a STRAHNET and a STAA truck route serving San Joaquin Valley.

The continuous six-lane cross section that this project extends will enable the implementation of managed-lane strategies with Vehicle Miles Traveled (VMT) reducing benefits on the SR 99 corridor. Caltrans District 6, in collaboration with the Headquarters (HQ) Sustainability Division,

has developed a potential phased approach for the opportunity to implement a managed-lane facility on SR 99. This project would be part of Phase 2 of the approach to implement the managed-lane strategies, estimated to be implemented in 2030. Phase 2 will be one of the last phases needed to complete 325.8 miles of managed lanes on SR 99 within District 6. Managed-lane strategies with VMT reducing benefits will be identified in an interim deliverable (to be completed no later than December of 2023) in the development of the SR 99 Comprehensive Multimodal Corridor Plan (CMCP) currently in progress. This project is part of the "Finishing SR 99" effort.

Caltrans is requesting a total of $4,300,000 in 2024 ITIP funding for E&P (PA&ED).

South Madera 6 Lane

The South Madera 6 Lane Project is on SR 99 in Madera County from south of Avenue 7 to north of Avenue 12. It is consistent with the CFMP, SR 99 Business Plan, SR 99 Corridor System Management Plan (CSMP) and the Madera County Transportation Commission RTP. This project will eliminate the 5.8-mile, four lane bottleneck on SR 99 in the southbound and northbound directions, between Fresno and Madera by providing an additional lane in each direction in the median. The scope of work includes increasing vertical clearance at one of the overcrossing structures.

SR 99 in this vicinity is at the upper end of the spectrum for projects with a very high interregional value – with 21 percent truck traffic volume and a relatively high Average Annual Daily Traffic (AADT). This project improves operational efficiency on a critical goods movement corridor, providing greater travel-time reliability, throughput, and velocity of freight movement.

This project accomplishes the goals of the 2021 ITSP by balancing local community and interregional needs and improving safety for all users. The project benefits the surrounding disadvantaged communities by increasing connectivity to employment and production centers, education, services, and other opportunities in the region. The project also meets the needs of the SR 99 Business Corridor Plan.

Madera County's Mid-Cycle RIP funds and SHOPP funds are also programmed for this project. Combining this project with the planned SHOPP project in FY 2025-26 achieves significant efficiencies and substantial savings. This project is part of the "Finishing SR 99" effort.

A total of $5,500,000 in 2024 ITIP funding is being requested for CON and CON Support.

Madera High-Speed Rail Station Project (Not a part of this RTIP – for informational purposes only)

The project will construct a new station in Madera County for California's Interim High-Speed Rail (HSR) Service between Merced and Bakersfield. Located along Avenue 12, the station will provide Madera County with direct access to HSR service and better connect it with Fresno, the larger Central Valley region, and the rest of California. Future transit-oriented development along the Avenue 12 Corridor, together with improved transit connectivity, will ensure that Madera County can capture the full economic and environmental benefits of HSR and sustainable growth patterns.

SJJPA completed environmental review for the improvements needed for the Madera HSR Station for Interim Service in accordance with the California Environmental Quality Act (CEQA)

on January 22, 2021. SJJPA manages the San Joaquins rail service and is expected to be the Operating Agency for HSR Interim Service. SJJPA is responsible for implementing the improvements needed for the Madera HSR Station. SJJPA is working in partnership with the Madera County Transportation Commission, Madera County, City of Madera, Caltrans, the California State Transportation Agency (CalSTA), and the California High-Speed Rail Authority (CHSRA).

The SJJPA is requesting $80,000,000 in 2024 ITIP funding.

The most significant intercity rail needs in the Madera Region involves the Amtrak station relocation project and the proposed HSR station on Avenue 12, between SR 99 and SR 41. Future transit-oriented development along the Avenue 12 Corridor, together with improved transit connectivity, will ensure that Madera County can capture the full economic and environmental benefits of HSR and sustainable growth patterns. Please see specific project information above.

Additionally, enhancing freight mobility, increasing safety, and relieving traffic congestion by increasing traffic capacity on SR 99 is a significant interregional highway need in the Madera Region and the entire San Joaquin Valley. Please see specific project information on projects above.

Section 9. Projects Planned Within Multi-Modal Corridors

The following projects previously programmed in prior RTIPs will have an impact within the SR 99 corridor.

State Route 99 - Avenue 12 to Avenue 17 - 4 to 6 Lanes

Adding additional lanes of this section of SR 99 within the city limits of the City of Madera was needed to close existing gaps/pinch points, improve safety, reduce congestion, increase connectivity of the highway system, and preserve acceptable facility operation.

State Route 99 - Avenue 7 to Avenue 12 - 4 to 6 Lanes

Adding additional lanes of this section of SR 99 is needed to close existing gaps/pinch points, improve safety, reduce congestion and increase connectivity of the highway system, and preserve acceptable facility operation of SR 99.

Section 10. Highways to Boulevards Conversion Pilot Program

The cities in the Madera Region will need to be consulted on their desire to participate in a Highways to Boulevards Conversion Pilot Program. SR 152 through the City of Chowchilla and SR 145 through the City of Madera could potentially be candidates for a highways to boulevards conversion pilot program. The cities will need to be involved in any of these discussions.

11. Complete Streets Consideration (per Section 26)

Complete Streets elements will be considered by Caltrans during the development of the SR 99 Avenue 17 to 21 project.

C. Relationship of RTIP to RTP/SCS/APS and Benefits of RTIP

Section 12. Regional Level Performance Evaluation (per Section 22A of the guidelines)

The 2024 RTIP furthers the goals and objectives of MCTC's adopted 2022 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

The 2022 RTP/SCS contains four primary goals supported by seven objects which offer varying methods and tactics to ultimately achieve progress towards the goals. The goals and objectives share several common themes based on positive outreach feedback and state and federal mandates: creating a safer transportation system, raising economic vitality, maintenance and rehabilitation of existing infrastructure, finding ways to reduce vehicle miles traveled and the harmful emission they generate, and providing better access to more modal options.

The following four goals guide the RTP/SCS as it ventures to achieve its vision and improve the overall quality of life in Madera County through an integrated multimodal transportation system and supportive land use footprint:

- Improve Quality of Life - MCTC's plans, programs, and policies will work to improve the quality of life in the Madera County region by integrating transportation systems that promote access to affordable housing, education resources, jobs, and recreational facilities.
- Raise Economic Prosperity - MCTC's plans, programs, and policies will facilitate enhanced economic viability of the region by increasing access to education and new job opportunities. A more educated population combined with a low cost of living can attract new investment in the Madera region.
- Cultural Diversity - MCTC's plans, programs, and policies will respect the region's wide variety of cultures and subcultures (each having unique needs and perspectives) by facilitating a range of transportation modes and housing choices designed to benefit the County's diverse population.
- Promote Public Health and a Cleaner Environment - MCTC's plans, programs, and policies will give preference to new development and economic prosperity in ways that ensure the health of its citizens, maintain and enhance the surrounding environment (cultural and socioeconomic resources), and those ways that enhance the regions financial stability over time.

These goals are supported by objectives reflective of necessary steps to guide improvements to Madera County's transportation system, development and economic growth, and wellbeing through the next 24 years. The objectives below most directly related to the projects in this RTIP include:

- Provide equitable access to transportation options for all, regardless of race, income, national origin, age, location, physical ability, or any other factor.

- Develop a transportation network able to support the safe and efficient movement of people and goods and increase economic vitality.
- Improve environmental conditions through integrated planning of transportation and land uses and achieve state and federal air quality improvement mandates.
- Improve mobility for all travelers through a variety of accessible modal options.
- Foster growth with a mix of land use types able to facilitate mixed uses, infill and compact development, and preserve agricultural land and natural resources.

As shown in Table B1, by the horizon year of 2046 in the 2022 RTP/SCS, the 2024 RTIP assists in the reduction of daily vehicle miles traveled (VMT) and CO2 emissions per capita.

MCTC's 2024 RTIP will assist the Madera region's ability to achieve its goals and objectives. The projects contained in this RTIP are consistent with and help implement the region's transportation projects contained in MCTC's 2022 RTP/SCS. Furthermore, the programming of MCTC's 2024 RTIP is consistent with the policies, procedures, and funding capacity established in the 2024 STIP Guidelines and STIP Fund Estimate. The North Madera 6 Lane, South Madera 6 Lane, and the Madera High-Speed Rail Station Project will assist the region's ability to improve safety, reduce congestion and increase connectivity of the highway system, increase multi-modal connectivity, enhance interregional commuter rail and preserve acceptable facility operation of SR 99.

A. Regional Level Performance Indicators and Measures (per Appendix B of the STIP Guidelines).

2022 RTP/SCS Housing			
	Scenario 1	Scenario 2	Preferred Scenario
2020 Housing			
2020 Single-family housing	42,078.0	42,064.0	42,048.0
2020 Multi-family/attached housing	7,702.0	7,716.0	7,730.0
2020 Percent single-family housing	84.53%	84.50%	84.47%
2020 Percent multi-family/attached housing	15.47%	15.50%	15.53%
Future Housing			
2035 Single-family housing	48,958.0	48,846.0	48,783.0
2035 Multi-family/attached housing	9,844.0	9,977.0	10,053.0
2035 Percent single-family housing	83.26%	83.04%	82.91%
2035 Percent multi-family/attached housing	16.74%	16.96%	17.09%
2046 Single-family housing	53,591.0	53,382.0	53,266.5
2046 Multi-family/attached housing	11,231.0	11,443.0	11,555.5
2046 Percent single-family housing	82.67%	82.35%	82.17%
2046 Percent multi-family/attached housing	17.33%	17.65%	17.83%
Housing Growth from 2020			
2035 New single-family housing	6,880.0	6,782.0	6,735.0
2035 New multi-family/attached housing	2,142.0	2,261.0	2,323.0
2035 Percent single-family housing growth	76.26%	75.00%	74.35%
2035 Percent multi-family/attached housing growth	23.74%	25.00%	25.65%
2046 New single-family housing	11,513.0	11,318.0	11,218.5
2046 New multi-family/attached housing	3,529.0	3,727.0	3,825.5
2046 Percent single-family housing growth	76.54%	75.23%	74.57%
2046 Percent multi-family/attached housing growth	23.46%	24.77%	25.43%

2022 RTP/SCS Travel Metrics			
Mode Share	Scenario 1	Scenario 2	Preferred Scenario
2020 Mode Share			
Drive alone	297,804	297,804	297,804
Two-person shared ride	128,958	128,958	128,958
Three-plus person shared ride	172,383	172,383	172,383
Transit	2,411	2,411	2,411
Walk	6,250	6,250	6,250
Bike	87,117	87,117	87,117
Other			
Home to work average trip distance (miles)	9.37	9.37	9.37
Home to work trip average time (minutes)	15.24	15.24	15.24
2035 Mode Share			
Drive alone	339,106	339,770	339,988
Two-person shared ride	149,693	149,964	150,052
Three-plus person shared ride	202,921	203,082	203,168
Transit	2,782	2,789	2,791
Walk	7,893	7,924	7,933
Bike	106,888	107,468	107,502
Other			
Home to work average trip distance (miles)	8.76	8.72	8.67
Home to work trip average time (minutes)	14.69	14.62	14.56
2046 Mode Share			
Drive alone	366,306	367,463	367,699
Two-person shared ride	163,926	164,365	164,429
Three-plus person shared ride	224,654	224,917	224,931
Transit	3,036	3,043	3,059
Walk	9,047	9,096	9,118
Bike	120,580	121,516	121,703
Other			
Home to work average trip distance (miles)	8.42	8.36	8.26
Home to work trip average time (minutes)	14.42	14.32	14.20

2022 RTP/SCS Environmental Quality			
Metric	Scenario 1	Scenario 2	Preferred Scenario
Farmland Acres Consumed	4,642	3,835	3,664
% Housing Within 0.25 Miles of Transit	2.71%	2.98%	3.10%
% Employment Within 0.25 Miles of Transit	24.92%	25.81%	26.40%
Reduction in CO2 per capita from 2005 to 2035	-21.60%	-22.05%	-22.12%
Reduction in VMT2 per capita from 2005 to 2035	-18.22%	-18.73%	-18.78%

Section 13. Regional and Statewide Benefits of RTIP

The existing projects programmed in the RTIP are intended toward advancing the region and State by finishing the SR 99 gap closure segments and increasing ridership on commuter rail.

SR 99 is one of the most important north-south highways on the National Highway System and on the National Highway Freight Network. SR 99 is crucial to the economic vitality of the State of California and the Central Valley and is heavily used by international shippers, commuters, and recreational travelers. Approximately half of the State's goods movement passes through the Valley with destinations at ports, major urban centers in California, other states, and other countries.

The North Madera 6 Lane and South Madera 6 Lane projects are located near the geographic center of both California and the San Joaquin Valley, the breadbasket of the nation and the source of much of the nation's agricultural export income.

The projects represent a major lynchpin for goods movement and passenger travel along SR 99 to and through the City of Madera.

Completing these gaps on sections of SR 99 within and adjacent to the City of Madera is needed to improve safety, reduce congestion, increase connectivity for goods movement and general traffic on the national highway system, and to preserve acceptable facility operation.

The Madera High-Speed Rail Station project is located on Avenue 12, Madera County's busiest east/west corridor connecting SR 99 and SR 41.

The project will provide service connection with the San Joaquins Amtrak and transfer to High Speed Rail service when the initial operating segments between Merced and Bakersfield commence in 2030.

The project is located in a more regionally accessible area then the existing Madera Amtrak station. The project is in close proximity to the SR 99/Avenue 12 interchange and provides a more direct route for access for residents from the City of Madera, City of Chowchilla, and residents in the mountains and foothills of eastern Madera County. The location has ridership capture potential for north City of Fresno and City of Clovis residents. The project is on the property adjacent to the Madera Community College and currently served by Madera County and City of Madera fixed route transit services.

The project is on the property adjacent to the Madera Community College and currently served by Madera County and City of Madera fixed route transit services.

The project location site is identified as an interregional commuter rail hub in the Madera College Specific Area Plan. The County of Madera in coordination with the City of Madera, MCTC, Madera Community College, Caltrans, CalSTA, CHSRA and SJJPA is currently utilizing a Caltrans Sustainable Planning Grant to complete a Madera Station Transit Orientated Development (TOD)Master Plan for the project. The station will kick-off new TOD, mixed land uses and affordable housing in the Madera Community College and Station area.

D. Performance and Effectiveness of RTIP

Section 14. Evaluation of Cost Effectiveness of RTIP (Required per Section 22B)

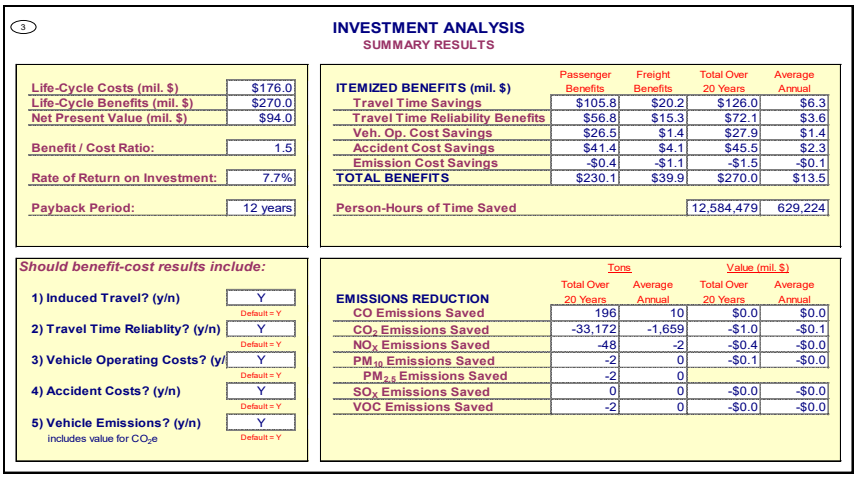
2022 RTP/SCS Housing			
	Scenario 1	Scenario 2	Preferred Scenario
2020 Housing			
2020 Single-family housing	42,078.0	42,064.0	42,048.0
2020 Multi-family/attached housing	7,702.0	7,716.0	7,730.0
2020 Percent single-family housing	84.53%	84.50%	84.47%
2020 Percent multi-family/attached housing	15.47%	15.50%	15.53%
Future Housing			
2035 Single-family housing	48,958.0	48,846.0	48,783.0
2035 Multi-family/attached housing	9,844.0	9,977.0	10,053.0
2035 Percent single-family housing	83.26%	83.04%	82.91%
2035 Percent multi-family/attached housing	16.74%	16.96%	17.09%
2046 Single-family housing	53,591.0	53,382.0	53,266.5
2046 Multi-family/attached housing	11,231.0	11,443.0	11,555.5
2046 Percent single-family housing	82.67%	82.35%	82.17%
2046 Percent multi-family/attached housing	17.33%	17.65%	17.83%
Housing Growth from 2020			
2035 New single-family housing	6,880.0	6,782.0	6,735.0
2035 New multi-family/attached housing	2,142.0	2,261.0	2,323.0
2035 Percent single-family housing growth	76.26%	75.00%	74.35%
2035 Percent multi-family/attached housing growth	23.74%	25.00%	25.65%
2046 New single-family housing	11,513.0	11,318.0	11,218.5
2046 New multi-family/attached housing	3,529.0	3,727.0	3,825.5
2046 Percent single-family housing growth	76.54%	75.23%	74.57%
2046 Percent multi-family/attached housing growth	23.46%	24.77%	25.43%

2022 RTP/SCS Travel Metrics			
Mode Share	Scenario 1	Scenario 2	Preferred Scenario
2020 Mode Share			
Drive alone	297,804	297,804	297,804
Two-person shared ride	128,958	128,958	128,958
Three-plus person shared ride	172,383	172,383	172,383
Transit	2,411	2,411	2,411
Walk	6,250	6,250	6,250
Bike	87,117	87,117	87,117
Other			
Home to work average trip distance (miles)	9.37	9.37	9.37
Home to work trip average time (minutes)	15.24	15.24	15.24
2035 Mode Share			
Drive alone	339,106	339,770	339,988
Two-person shared ride	149,693	149,964	150,052
Three-plus person shared ride	202,921	203,082	203,168
Transit	2,782	2,789	2,791
Walk	7,893	7,924	7,933
Bike	106,888	107,468	107,502
Other			
Home to work average trip distance (miles)	8.76	8.72	8.67
Home to work trip average time (minutes)	14.69	14.62	14.56
2046 Mode Share			
Drive alone	366,306	367,463	367,699
Two-person shared ride	163,926	164,365	164,429
Three-plus person shared ride	224,654	224,917	224,931
Transit	3,036	3,043	3,059
Walk	9,047	9,096	9,118
Bike	120,580	121,516	121,703
Other			
Home to work average trip distance (miles)	8.42	8.36	8.26
Home to work trip average time (minutes)	14.42	14.32	14.20

2022 RTP/SCS Environmental Quality			
Metric	Scenario 1	Scenario 2	Preferred Scenario
Farmland Acres Consumed	4,642	3,835	3,664
% Housing Within 0.25 Miles of Transit	2.71%	2.98%	3.10%
% Employment Within 0.25 Miles of Transit	24.92%	25.81%	26.40%
Reduction in CO2 per capita from 2005 to 2035	-21.60%	-22.05%	-22.12%
Reduction in VMT2 per capita from 2005 to 2035	-18.22%	-18.73%	-18.78%

Section 15. Project Specific Evaluation (Required per Section 22D)

Caltrans Generated Benefit/Cost Estimates
North Madera 6 Lane (SR 99 Avenue 17-21)



INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$176.0
Life-Cycle Benefits (mil. $)	$270.0
Net Present Value (mil. $)	$94.0
Benefit / Cost Ratio:	1.5
Rate of Return on Investment:	7.7%
Payback Period:	12 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$105.8	$20.2	$126.0	$6.3
Travel Time Reliability Benefits	$56.8	$15.3	$72.1	$3.6
Veh. Op. Cost Savings	$26.5	$1.4	$27.9	$1.4
Accident Cost Savings	$41.4	$4.1	$45.5	$2.3
Emission Cost Savings	-$0.4	-$1.1	-$1.5	-$0.1
TOTAL BENEFITS	$230.1	$39.9	$270.0	$13.5
Person-Hours of Time Saved			12,584,479	629,224

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y (Default = Y)
2) Travel Time Reliablity? (y/n)	Y (Default = Y)
3) Vehicle Operating Costs? (y/	Y (Default = Y)
4) Accident Costs? (y/n)	Y (Default = Y)
5) Vehicle Emissions? (y/n) includes value for CO_2e	Y (Default = Y)

EMISSIONS REDUCTION	Tons: Total Over 20 Years	Tons: Average Annual	Value (mil. $): Total Over 20 Years	Value (mil. $): Average Annual
CO Emissions Saved	196	10	$0.0	$0.0
CO_2 Emissions Saved	-33,172	-1,659	-$1.0	-$0.1
NO_X Emissions Saved	-48	-2	-$0.4	-$0.0
PM_{10} Emissions Saved	-2	0	-$0.1	-$0.0
$PM_{2.5}$ Emissions Saved	-2	0		
SO_X Emissions Saved	0	0	-$0.0	-$0.0
VOC Emissions Saved	-2	0	-$0.0	-$0.0

Please see PPR in Section 17 for additional analysis.

E. Detailed Project Information

Section 16. Overview of Projects Programmed with RIP Funding

There are no new projects proposed to use RIP funding in the 2024 RTIP.

F. Appendices

Section 17. Projects Programming Request Forms

Section 18. Board Resolution or Documentation of 2024 RTIP Approval

Section 19. Fact Sheet

Section 20. Documentation on Coordination with Caltrans District (Optional)

Section 21. Detailed Project Programming Summary Table (Optional)

Section 22. Alternative Delivery Methods (Optional)

Section 23. Additional Appendices (Optional)

APPENDICES

SECTION 17

PROJECTS PROGRAMMING REQUEST FORMS

NORTH MADERA 6 LANE

STATE ROUTE 99 – AVENUE 17 TO 21

Project Programming Request

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-D06-2024-0001 v0

Amendment (Existing Project) ☐ YES ☒ NO | Date 07/14/2023 16:12:09

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
06	0Y360	0619000052	7004	Caltrans District 6	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Madera County	99	15.100	19.900	Madera County Transportation Commission	
				MPO	**Element**
				MCTC	Capital Outlay
Project Manager/Contact			**Phone**	**Email Address**	
Mike Day			559-383-5247	mike.day@dot.ca.gov	

Project Title

North Madera 99 6-lane

Location (Project Limits), Description (Scope of Work)

In Madera County from 0.5 miles north of Avenue 17 Overcrossing to 1.0 south of Avenue 21 1/2 Overcrossing.

Component	Implementing Agency
PA&ED	Caltrans District 6
PS&E	Caltrans District 6
Right of Way	Caltrans District 6
Construction	Caltrans District 6

Legislative Districts

Assembly:	8,27	Senate:	14	Congressional:	13

Project Milestone	Existing	Proposed
Project Study Report Approved	06/14/2019	
Begin Environmental (PA&ED) Phase		10/01/2024
Circulate Draft Environmental Document Document Type (ND/MND)/CE		05/01/2026
Draft Project Report		08/01/2026
End Environmental Phase (PA&ED Milestone)		12/01/2026
Begin Design (PS&E) Phase		12/15/2026
End Design Phase (Ready to List for Advertisement Milestone)		08/07/2029
Begin Right of Way Phase		07/15/2027
End Right of Way Phase (Right of Way Certification Milestone)		08/01/2029
Begin Construction Phase (Contract Award Milestone)		02/02/2030
End Construction Phase (Construction Contract Acceptance Milestone)		02/17/2032
Begin Closeout Phase		12/17/2032
End Closeout Phase (Closeout Report)		12/17/2033

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-D06-2024-0001 v0

Date 07/14/2023 16:12:09

Purpose and Need

Improvements to this section of SR 99 will add one lane in each direction of travel. This improvement is needed to enhance freight mobility, preserve acceptable facility operation, improve safety, and reduce congestion. The proposed 6-lane freeway would also improve the flow and travel-time reliability along this segment of SR 99 for current volumes of traffic and provide enough capacity to manage the projected passenger and freight vehicle volumes. SR 99 serves as a major freight corridor through the Central Valley and improvements are needed to ensure reliable delivery of time sensitive agricultural goods. The North Madera 99 6-lane project is one of the last portions of 6-lane needed to facilitate the SR 99 Corridor Plan, which is a comprehensive plan addressing managed lanes through the central valley. The 6-lane segment immediately south of this project was completed in August 2022. The North Madera 99 6-lane project will transition and tie into the existing 6 lane segment constructed in 2006.

NHS Improvements ☒ YES ☐ NO	Roadway Class 1	Reversible Lane Analysis ☒ YES ☐ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

Project Outputs

Category	Outputs	Unit	Total
Pavement (lane-miles)	Roadway lane miles	Miles	28.8
Pavement (lane-miles)	Ramps and Connectors constructed	Miles	2

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-D06-2024-0001 v0

Date 07/14/2023 16:12:09

Additional Information

PPR ID
ePPR-D06-2024-0001 v0

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-D06-2024-0001 v0

District	County	Route	EA	Project ID	PPNO
06	Madera County	99	0Y360	0619000052	7004

Project Title

North Madera 99 6-lane

Existing Total Project Cost ($1,000s)								
Component	Prior	24-25	25-26	26-27	27-28	28-29	29-30+	Total	Implementing Agency
E&P (PA&ED)									Caltrans District 6
PS&E									Caltrans District 6
R/W SUP (CT)									Caltrans District 6
CON SUP (CT)									Caltrans District 6
R/W									Caltrans District 6
CON									Caltrans District 6
TOTAL									
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)		4,300						4,300	
PS&E					8,400			8,400	
R/W SUP (CT)					3,000			3,000	
CON SUP (CT)							6,600	6,600	
R/W					16,800			16,800	
CON							187,000	187,000	
TOTAL		4,300			28,200		193,600	226,100	

Fund #1:	IIP - National Hwy System (Uncommitted)								Program Code
Existing Funding ($1,000s)									
Component	Prior	24-25	25-26	26-27	27-28	28-29	29-30+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)		4,300						4,300	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL		4,300						4,300	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-D06-2024-0001 v0

Fund #2:	Future Need - Future Funds (Uncommitted)								Program Code
	Existing Funding ($1,000s)								
Component	Prior	24-25	25-26	26-27	27-28	28-29	29-30+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)									
PS&E					8,400			8,400	
R/W SUP (CT)					3,000			3,000	
CON SUP (CT)							6,600	6,600	
R/W					16,800			16,800	
CON							187,000	187,000	
TOTAL					28,200		193,600	221,800	

PLANNING, PROGRAMMING, AND MONITORING

Project Programming Request

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

Amendment (Existing Project) ☐ YES ☒ NO | Date 01/12/2024 06:11:20

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
06		0623000208	6L05	Madera County Transportation Commission	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Madera County					
				MPO	**Element**
				MCTC	Local Assistance
Project Manager/Contact			**Phone**	**Email Address**	
Patricia Taylor			559-675-0721	patricia@maderactc.org	

Project Title

Planning, Programming and Monitoring

Location (Project Limits), Description (Scope of Work)

Planning, Programming and Monitoring.

Component	Implementing Agency
PA&ED	
PS&E	
Right of Way	
Construction	Madera County Transportation Commission

Legislative Districts					
Assembly:	8,27	Senate:	14	Congressional:	5,13

Project Milestone		Existing	Proposed
Project Study Report Approved			
Begin Environmental (PA&ED) Phase			
Circulate Draft Environmental Document	Document Type		
Draft Project Report			
End Environmental Phase (PA&ED Milestone)			
Begin Design (PS&E) Phase			
End Design Phase (Ready to List for Advertisement Milestone)			
Begin Right of Way Phase			
End Right of Way Phase (Right of Way Certification Milestone)			
Begin Construction Phase (Contract Award Milestone)		07/01/2020	07/01/2024
End Construction Phase (Construction Contract Acceptance Milestone)		06/30/2025	06/30/2029
Begin Closeout Phase		07/01/2025	07/01/2029
End Closeout Phase (Closeout Report)		12/31/2025	12/31/2029

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

Date 01/12/2024 06:11:20

Purpose and Need

The Planning, Programming and Monitoring program ensures that MCTC continues to fulfill its Federally mandated functions as the MPO for the Madera region, including: (1) Oversight and monitoring of projects receiving Federal-aid and those identified in the State Transportation Improvement Program (STIP), (2) Ensuring that all projects and recipients of Federal/State funding are in compliance with all State and Federal regulations; and (3) Ensuring that all projects are consistent with MCTC's adopted planning documents.

NHS Improvements ☐ YES ☒ NO	Roadway Class NA	Reversible Lane Analysis ☐ YES ☒ NO
Inc. Sustainable Communities Strategy Goals ☐ YES ☒ NO	Reduce Greenhouse Gas Emissions ☐ YES ☒ NO	

Project Outputs

Category	Outputs	Unit	Total

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

Date 01/12/2024 06:11:20

Additional Information

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

District	County	Route	EA	Project ID	PPNO
06	Madera County			0623000208	6L05

Project Title

Planning, Programming and Monitoring

Existing Total Project Cost ($1,000s)								
Component	Prior	24-25	25-26	26-27	27-28	28-29	29-30+	Total	Implementing Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									Madera County Transportation Comm
R/W									
CON	2,506	73	72	72				2,723	Madera County Transportation Comm
TOTAL	2,506	73	72	72				2,723	
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON	2,501	107	107	107	107	97		3,026	
TOTAL	2,501	107	107	107	107	97		3,026	

Fund #1:	RIP - National Hwy System (Committed)								Program Code
Existing Funding ($1,000s)									20.30.600.670
Component	Prior	24-25	25-26	26-27	27-28	28-29	29-30+	Total	Funding Agency
E&P (PA&ED)									Madera County Transportation Comm
PS&E									$37 CON voted 07/16/98
R/W SUP (CT)									$56 CON voted 08/24/99
CON SUP (CT)									$56 CON voted 07/01/00
R/W									$85 CON voted 06/27/01
CON	2,462	73	72	72				2,679	$150 CON voted 07/01/02
TOTAL	2,462	73	72	72				2,679	$100 CON voted 02/26/04
Proposed Funding ($1,000s)									$27 CON voted 08/18/05
E&P (PA&ED)									$27 CON voted 07/20/06
PS&E									Notes
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON	2,457	107	107	107	107	97		2,982	
TOTAL	2,457	107	107	107	107	97		2,982	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

Fund #2:	RIP - COVID Relief Funds - STIP (Committed)								Program Code
Existing Funding ($1,000s)									20.30.010.817
Component	Prior	24-25	25-26	26-27	27-28	28-29	29-30+	Total	Funding Agency
E&P (PA&ED)									Madera County Transportation Comm
PS&E									$44 CON voted 06/29/22
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON	**44**							**44**	
TOTAL	**44**							**44**	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON	44							**44**	
TOTAL	**44**							**44**	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6138-2024-0003 v0

Complete this page for amendments only Date 01/12/2024 06:11:20

District	County	Route	EA	Project ID	PPNO
06	Madera County			0623000208	6L05

SECTION 1 - All Projects

Project Background

No Amendment - 2024 STIP PPM

Programming Change Requested

No Amendment - 2024 STIP PPM

Reason for Proposed Change

No Amendment - 2024 STIP PPM

If proposed change will delay one or more components, clearly explain 1) reason for the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Other Significant Information

SECTION 2 - For SB1 Project Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

No Amendment - 2024 STIP PPM

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.

Name (Print or Type)	Signature	Title	Date

SECTION 3 - All Projects

Attachments

1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

APPENDICES

SECTION 18

BOARD RESOLUTION OR BOARD DOCUMENTATION OF APPROVAL OF THE 2024 RTIP

BEFORE
THE COMMISSIONERS OF THE
MADERA COUNTY TRANSPORTATION COMMISSION
COUNTY OF MADERA, STATE OF CALIFORNIA

In the matter of THE 2024 MADERA COUNTY REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM	Resolution No.: **23-12**

WHEREAS, the Madera County Transportation Commission (MCTC) is the Regional Transportation Planning Agency for Madera County pursuant to state law; and

WHEREAS, pursuant to State law, every two years the MCTC is required to develop and submit to the California Transportation Commission (CTC) a Regional Transportation Improvement Plan (RTIP) that identifies projects to be included in the State Transportation Improvement Program (STIP); and

WHEREAS, the MCTC prepared the 2024 RTIP in compliance with the CTC adopted 2024 Guidelines and STIP Fund estimate; and

WHEREAS, the projects contained in the 2024 RTIP are consistent with the MCTC's adopted 2022 Regional Transportation Plan (RTP), 2023 Federal Transportation Improvement Program (FTIP); and

WHEREAS, the proposed 2024 Regional Transportation Improvement Program (or Interregional Transportation Improvement Program) is consistent with MCTC's current approved Regional Transportation Plan and Sustainable Communities Strategies, if applicable; and

WHEREAS, pursuant to adopted CTC, STIP Guidelines, the MCTC is authorized to develop and submit the Regional Transportation Improvement Program by December 15, 2023; and

WHEREAS, the 2024 Madera County Regional Transportation Improvement Program has been prepared by the Madera County Transportation Commission in cooperation with its member agencies and Caltrans in accordance with CTC programming policies and guidelines; and

WHEREAS, the Madera County Transportation Commission Policy Board considered the 2024 RTIP at its November 29, 2023 meeting.

NOW, THEREFORE, BE IT RESOLVED, the Madera County Transportation Commission does hereby adopt the 2024 Madera County Regional Transportation Improvement Program

and directs staff to submit the program to the Department of Transportation and CTC by December 15, 2023.

BE IT FURTHER RESOLVED, that the Madera County Transportation Commission Policy Board authorizes the MCTC Executive Director to negotiate with the CTC and Caltrans and to submit any additional amendments or revisions to the 2024 RTIP.

The foregoing resolution was adopted this 29th day of November 2023 by the following vote:

Commissioner Waseem Ahmed	YES
Commissioner Leticia Gonzalez	ABSENT
Commissioner Robert Poythress	YES
Commissioner Jose Rodriguez	YES
Commissioner Cecelia Gallegos	YES
Commissioner David Rogers	YES

Chair, Madera County Transportation Commission

Executive Director, Madera County Transportation Commission

APPENDICES

SECTION 19

FACT SHEET

2024 State Transportation Improvement Program (STIP)

Madera County Transportation Commission Fact Sheet

Executive Summary

The 2024 Regional Transportation Improvement Program (RTIP) for Madera County is prepared by the Madera County Transportation Commission (MCTC) and proposes how regional discretionary transportation dollars should be programmed. The RTIP is updated every two years and submitted to the CTC. This RTIP covers the period from July 1, 2024, through June 30, 2029 (State Fiscal Years 2024/25 – 2028/29). The existing projects programmed in the RTIP are intended toward advancing the region and State by eliminating gap closure/pinch point segments of SR 99 and increasing ridership on commuter rail. The new North Madera 6 Lane and existing South Madera 6 Lane projects are located near the geographic center of both California and the San Joaquin Valley, the breadbasket of the nation and the source of much of the nation's agricultural export income. The projects represent a major lynchpin for goods movement and passenger travel along SR 99 to and through the City of Madera. Expansion of these sections of SR 99 within and adjacent to the City of Madera is needed to improve safety, reduce congestion, increase connectivity for goods movement and general traffic on the national highway system, and to preserve acceptable facility operation. The Madera High-Speed Rail Station project is located on Avenue 12, Madera County's busiest east/west corridor connecting SR 99 and SR 41. The project will provide service connection with the San Joaquins Amtrak and transfer to High Speed Rail service when the initial operating segments between Merced and Bakersfield commence in 2030.

Benefits

The new North Madera 6 Lane, existing South Madera 6 Lane, and the Madera High-Speed Rail Station Project will assist the region's ability to improve safety, reduce congestion and increase connectivity of the highway system, increase multi-modal connectivity, enhance interregional commuter rail and preserve acceptable facility operation of SR 99. The projects in the RTIP benefits the surrounding disadvantaged communities by increasing connectivity to employment and production centers, education, services, and other opportunities in the region.

Goals and Objectives

The 2024 RTIP furthers the goals and objectives of MCTC's adopted 2022 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). The 2022 RTP/SCS contains four primary goals supported by seven objects which offer varying methods and tactics to ultimately achieve progress towards the goals. The goals and objectives share several common themes based on positive outreach feedback and state and federal mandates: creating a safer transportation system, raising economic vitality, maintenance and rehabilitation of existing infrastructure, finding ways to reduce vehicle miles traveled and the harmful emission they generate, and providing better access to more modal options.

The following four goals guide the RTP/SCS as it ventures to achieve its vision and improve the overall quality of life in Madera County through an integrated multimodal transportation system and supportive land use footprint:

- Improve Quality of Life - MCTC's plans, programs, and policies will work to improve the quality of life in the Madera County region by integrating transportation systems that promote access to affordable housing, education resources, jobs, and recreational facilities.
- Raise Economic Prosperity - MCTC's plans, programs, and policies will facilitate enhanced economic viability of the region by increasing access to education and new job opportunities. A more educated population combined with a low cost of living can attract new investment in the Madera region.
- Cultural Diversity - MCTC's plans, programs, and policies will respect the region's wide variety of cultures and subcultures (each having unique needs and perspectives) by facilitating a range of transportation modes and housing choices designed to benefit the County's diverse population.
- Promote Public Health and a Cleaner Environment - MCTC's plans, programs, and policies will give preference to new development and economic prosperity in ways that ensure the health of its citizens, maintain and enhance the surrounding environment (cultural and socioeconomic resources), and those ways that enhance the regions financial stability over time.

The objectives identified below are a combined set of goals, policies, actions, and performance measures that are reflective of necessary steps to guide improvements to Madera County's transportation system, development and economic growth, and wellbeing through the next 24 years:

- Objective 1 - Provide equitable access to transportation options for all, regardless of race, income, national origin, age, location, physical ability, or any other factor.
- Objective 2 - Develop a transportation network able to support the safe and efficient movement of people and goods and increase economic vitality.
- Objective 3 - Improve environmental conditions through integrated planning of transportation and land uses and achieve state and federal air quality improvement mandates.
- Objective 4 - Support the development and implementation of innovative and emerging transportation technologies.
- Objective 5 - Improve mobility for all travelers through a variety of accessible modal options.
- Objective 6 - Foster growth with a mix of land use types able to facilitate mixed uses, infill and compact development, and preserve agricultural land and natural resources.
- Objective 7 - Develop funding and financing strategies to implement the projects and strategies in the RTP/SCS.

MCTC's 2024 RTIP will assist the Madera region's ability to achieve its goals and objectives. The projects contained in this RTIP are consistent with and help implement the region's transportation projects contained in MCTC's 2022 RTP/SCS. Furthermore, the programming of MCTC's 2024 RTIP is consistent with the policies, procedures, and funding capacity established in the 2022 STIP Guidelines and STIP Fund Estimate. The North Madera 6 Lane, South Madera 6 Lane, and the Madera High-Speed Rail Station Project will assist the region's ability to improve safety,

reduce congestion and increase connectivity of the highway system, increase multi-modal connectivity, enhance interregional commuter rail and preserve acceptable facility operation of SR 99.

The MCTC 2024 RTIP aligns with State, regional and local goals. The RTIP supports the goals by balancing local community and interregional needs and improving safety for all users. The RTIP is also consistent with the California Freight Mobility Plan, SR 99 Business Plan, SR 99 Corridor System Management Plan and the MCTC RTP.

APPENDICES

SECTION 20

DOCUMENTATION OF COORDNATION WITH CALTRANS DISTRICT

Not Applicable for the 2024 RTIP

APPENDICES

SECTION 21

DETAILED PROJECT PROGRAMMING SUMMARY TABLE

Madera 2024 RTIP

				Project Totals by Fiscal Year ($1,000)										
County	**Agency**	**Project**	**Total**	**24/25**	**25/26**	**26/27**	**27/28**	**28/29**			**PA&ED**	**PS&E**	**Const**
Madera	MCTC	Planning, Programming and Monitoring	$525	$107	$107	$107	$107	$97					$525
			Total	$525									

APPENDICES

SECTION 22

ALTERNATIVE DELIVERY METHODS

Not Applicable for the 2024 RTIP

APPENDICES

SECTION 23

CALTRANS B/C CALCULATIONS

NORTH MADERA 6 LANE

STATE ROUTE 99 – AVENUE 17 TO 21

Caltrans B/C Calculations

Project Information

District: 6

PROJECT: North Madera 99 Widenning

EA: 06-0Y360
PPNO:

1A PROJECT DATA

Type of Project		
Select project type from list	General Highway	
Project Location (enter 1 for So. Cal., 2 for No. Cal., or 3 for rural)	3	
Length of Construction Period	3	years
One- or Two-Way Data	2	enter 1 or 2
	Current	
Length of Peak Period(s) (up to 24 hrs)	5	hours

1B HIGHWAY DESIGN AND TRAFFIC DATA

Highway Design		No Build	Build
Roadway Type (Fwy, Exp, Conv Hwy)		F	F
Number of General Traffic Lanes		4	6
Number of HOV/HOT Lanes		0	0
HOV Restriction (2 or 3)		0	
Exclusive ROW for Buses (y/n)		N	
Highway Free-Flow Speed		68	70
Ramp Design Speed (if aux. lane/off-ramp proj.)		35	35
Length (in miles)	Highway Segment	4.8	4.8
	Impacted Length	5.0	4.8

Average Daily Traffic			
	Current	71,594	
		No Build	Build
	Base (Year 1)	77,372	77,372
	Forecast (Year 20)	113,965	113,965
Average Hourly HOV/HOT Lane Traffic			0
Percent of Induced Trips in HOV (if HOT or 2-to-3 conv.)			100%
Percent Traffic in Weave			0.0%
Percent Trucks (include RVs, if applicable)		9%	9%
Truck Speed			

On-Ramp Volume	Peak	Non-Peak
Hourly Ramp Volume (if aux. lane/on-ramp proj.)	0	0
Metering Strategy (1, 2, 3, or D, if on-ramp proj.)		

Queue Formation (if queuing or grade crossing project)	Year 1	Year 20
Arrival Rate (in vehicles per hour)	0	0
Departure Rate (in vehicles per hour)	0	0

Pavement Condition (if pavement project)		No Build	Build
IRI (inches/mile)	Base (Year 1)		
	Forecast (Year 20)		

Average Vehicle Occupancy (AVO)		No Build	Build
General Traffic	Non-Peak	1.30	1.30
	Peak	1.15	1.15
High Occupancy Vehicle (if HOV/HOT lanes)		2.15	2.15

1C HIGHWAY CRASH DATA

Actual 3-Year Crash Data (from Table B)	Count (No.)	Rate
Total Crashes (Tot)	209	0.56
Fatal Crashes (Fat)	3	0.008
Injury Crashes (Inj)	46	0.12
Property Damage Only (PDO) Crashes	160	0.43

Statewide Basic Average Crash Rate	No Build	Build
Rate Group	H 63	H 64
Crash Rate (per million vehicle-miles)	1.08	1.24
Percent Fatal Crashes (Pct Fat)	0.7%	0.5%
Percent Injury Crashes (Pct Inj)	33.4%	32.5%

1D RAIL AND TRANSIT DATA

Annual Person-Trips		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Percent Trips during Peak Period		40%	
Percent New Trips from Parallel Highway			100%

Annual Vehicle-Miles		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Average Vehicles/Train (if rail project)			

Reduction in Transit Accidents	
Percent Reduction (if safety project)	

Average Transit Travel Time		No Build	Build
In-Vehicle	Non-Peak (in minutes)		0.0
	Peak (in minutes)		0.0
Out-of-Vehicle	Non-Peak (in minutes)	0.0	0.0
	Peak (in minutes)	0.0	0.0

Highway Grade Crossing	Current	Year 1	Year 20
Annual Number of Trains		0	
Avg. Gate Down Time (in min.)		0.0	

Transit Agency Costs (if TMS project)	No Build	Build
Annual Capital Expenditure		$0
Annual Ops. and Maintenance Expenditure		$0

Model should be run for both roads for intersection or bypass highway projects, and may be run twice for connectors. Press button below to prepare model to enter data for second road. After data are entered, results reflect total project benefits.

Prepare Model for Second Road

Enter all project costs (in today's dollars) in columns 1 to 7. Costs during construction should be entered in the first eight rows.
Project costs (including maintenance and operating costs) should be net of costs without project.

1E

PROJECT COSTS (enter costs in thousands of dollars)

Col. no.	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
Year	DIRECT PROJECT COSTS					Mitigation	Transit Agency Cost Savings	TOTAL COSTS (in dollars)	
	INITIAL COSTS			SUBSEQUENT COSTS					
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
1	$16,143	$12,000	$50,000					$78,143,333	$78,143,333
2	1,833		50,000					51,833,333	49,839,744
3	1,833		50,000					51,833,333	47,922,830
4								0	0
5								0	0
6								0	0
7								0	0
8								0	0
Project Open									
1				$10				$10,000	$8,890
2				10				10,000	8,548
3				10				10,000	8,219
4				10				10,000	7,903
5				10				10,000	7,599
6				10				10,000	7,307
7				10				10,000	7,026
8				10				10,000	6,756
9				10				10,000	6,496
10				10				10,000	6,246
11				10				10,000	6,006
12				10				10,000	5,775
13				10				10,000	5,553
14				10				10,000	5,339
15				10				10,000	5,134
16				10				10,000	4,936
17				10				10,000	4,746
18				10				10,000	4,564
19				10				10,000	4,388
20				10				10,000	4,220
Total	$19,810	$12,000	$150,000	$200	$0	$0	$0	$182,010,000	$176,031,558

$$\text{Present Value} = \frac{\text{Future Value (in Constant Dollars)}}{(1 + \text{Real Discount Rate})^{\text{Year}}}$$

Model Inputs

2A

HIGHWAY SPEED AND VOLUME INPUTS

	Calculated by Model	Changed by User	Used for Proj. Eval.	Reason for Change
No Build				
Year 1				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	28,375		28,375	
Weaving Volume	0		0	
Truck Volume	2,806		2,806	
HOV Speed	55.0		55.0	
Non-HOV Speed	66.9		66.9	
Weaving Speed	55.0		55.0	
Truck Speed	66.9		66.9	
Non-Peak Period				
Non-HOV Volume	42,034		42,034	
Weaving Volume	0		0	
Truck Volume	4,157		4,157	
Non-HOV Speed	68.0		68.0	
Weaving Speed	55.0		55.0	
Truck Speed	68.0		68.0	
Year 20				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	41,794		41,794	
Weaving Volume	0		0	
Truck Volume	4,134		4,134	
HOV Speed	55.0		55.0	
Non-HOV Speed	37.9		37.9	
Weaving Speed	55.0		55.0	
Truck Speed	37.9		37.9	
Non-Peak Period				
Non-HOV Volume	61,914		61,914	
Weaving Volume	0		0	
Truck Volume	6,123		6,123	
Non-HOV Speed	68.0		68.0	
Weaving Speed	55.0		55.0	
Truck Speed	68.0		68.0	
Build				
Year 1				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	28,375		28,375	
Weaving Volume	0		0	
Truck Volume	2,806		2,806	
HOV Speed	55.0		55.0	
Non-HOV Speed	70.0		70.0	
Weaving Speed	55.0		55.0	
Truck Speed	70.0		70.0	
Non-Peak Period				
Non-HOV Volume	42,034		42,034	
Weaving Volume	0		0	
Truck Volume	4,157		4,157	
Non-HOV Speed	70.0		70.0	
Weaving Speed	55.0		55.0	
Truck Speed	70.0		70.0	
Year 20				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	41,794		41,794	
Weaving Volume	0		0	
Truck Volume	4,134		4,134	
HOV Speed	55.0		55.0	
Non-HOV Speed	69.0		69.0	
Weaving Speed	55.0		55.0	
Truck Speed	69.0		69.0	
Non-Peak Period				
Non-HOV Volume	61,914		61,914	
Weaving Volume	0		0	
Truck Volume	6,123		6,123	
Non-HOV Speed	70.0		70.0	
Weaving Speed	55.0		55.0	
Truck Speed	70.0		70.0	

Model speed estimates based on Highway Capacity Manual, pavement research, and research on weaving impacts

2B

HIGHWAY CRASH RATES

	Calculated by Model	Changed by User	Used for Proj. Eval.	Reason for Change
No Build				
Fatal Crashes	0.008		0.008	
Injury Crashes	0.12		0.12	
PDO Crashes	0.43		0.43	
Total Crashes	0.558			
Hwy Safety or Weaving Improvement		0%	collision reduction factor (per HSIP Guidelines)	
Adjustment Factor (Actual/Statewide Avg. Existing)				
Fatal Crashes	1.0582		1.0582	
Injury Crashes	0.3327		0.3327	
PDO Crashes	0.6042		0.6042	
Build				
Fatal Crashes	0.007		0.007	
Injury Crashes	0.13		0.13	
PDO Crashes	0.50		0.50	
Total Crashes	0.641			

2C

RAMP AND ARTERIAL INPUTS

(if detailed information is available for a TMS or an arterial signal management project)

Detailed Information Available? (y/n) N

Aggregate Segment Length (estimate as VMT/total volume)

All Ramps		miles
Arterials		miles

	Entered by User	Used for Proj. Eval.	Source/Notes
No Build (Peak Period Only)			
Year 1			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	
Year 20			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	
Build (Peak Period Only)			
Year 1			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	
Year 20			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	

2D

ANNUAL PERSON-TRIPS

(for HOV and HOT lane projects that affect average vehicle occupancy)

	No Build	Build	Induced
Year 1			
Peak Period			
HOV Trips	0	0	
Non-HOV Trips	11,910,231	11,910,231	0
Truck Trips	1,024,291	1,024,291	0
Non-Peak Period			
Non-HOV Trips	19,945,044	19,945,044	0
Truck Trips	1,517,374	1,517,374	0
Total Trips	34,396,941	34,396,941	0
Year 20			
Peak Period			
HOV Trips	0	0	
Non-HOV Trips	17,543,193	17,543,193	0
Truck Trips	1,508,731	1,508,731	0
Non-Peak Period			
Non-HOV Trips	29,378,082	29,378,082	0
Truck Trips	2,235,019	2,235,019	0
Total Trips	50,665,025	50,665,025	0

2E

TRAVEL TIME RELIABILITY

(for adjustments to Reliability Calculations, standard deviation of travel time in seconds/vehicle)

	Calculated by Model	Changed by User	Used for Proj. Eval.	Reason for Change
No Build				
Peak Period				
HOV	101.20		101.20	
Non-HOV	34.40		34.40	
Weaving	101.20		101.20	
Truck	34.40		34.40	
Non-Peak Period				
Non-HOV	25.07		25.07	
Weaving	101.20		101.20	
Truck	25.07		25.07	
Adjustment Factor				
Peak Period				
HOV	1.00		1.00	
Non-HOV	1.00		1.00	
Weaving	1.00		1.00	
Truck	1.00		1.00	
Non-Peak Period				
Non-HOV	1.00		1.00	
Weaving	1.00		1.00	
Truck	1.00		1.00	

Results

District: 6

PROJECT: North Madera 99 Widenning

EA: 06-0Y360
PPNO:

3

INVESTMENT ANALYSIS

SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$176.0
Life-Cycle Benefits (mil. $)	$270.0
Net Present Value (mil. $)	$94.0
Benefit / Cost Ratio:	1.5
Rate of Return on Investment:	7.7%
Payback Period:	12 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$105.8	$20.2	$126.0	$6.3
Travel Time Reliability Benefits	$56.8	$15.3	$72.1	$3.6
Veh. Op. Cost Savings	$26.5	$1.4	$27.9	$1.4
Accident Cost Savings	$41.4	$4.1	$45.5	$2.3
Emission Cost Savings	-$0.4	-$1.1	-$1.5	-$0.1
TOTAL BENEFITS	$230.1	$39.9	$270.0	$13.5
Person-Hours of Time Saved			12,584,479	629,224

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y (Default = Y)
2) Travel Time Reliablity? (y/n)	Y (Default = Y)
3) Vehicle Operating Costs? (y/n)	Y (Default = Y)
4) Accident Costs? (y/n)	Y (Default = Y)
5) Vehicle Emissions? (y/n) includes value for CO_2e	Y (Default = Y)

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	196	10	$0.0	$0.0
CO_2 Emissions Saved	-33,172	-1,659	-$1.0	-$0.1
NO_X Emissions Saved	-48	-2	-$0.4	-$0.0
PM_{10} Emissions Saved	-2	0	-$0.1	-$0.0
$PM_{2.5}$ Emissions Saved	-2	0		
SO_X Emissions Saved	0	0	-$0.0	-$0.0
VOC Emissions Saved	-2	0	-$0.0	-$0.0

Travel Time

C

SUMMARY OF TRAVEL TIME BENEFITS

Year	HIGHWAY								
	Peak HOV	Peak Non-HOV	Peak Weaving	Peak Truck	Peak Ramp	Peak Arterial	Non-Peak Non-HOV	Non-Peak Weaving	Non-Peak Truck
1	$0	$1,074,136	$0	$210,866	$0	$0	$1,446,125	$0	$251,135
20	$0	$7,593,701	$0	$1,490,736	$0	$0	$1,011,023	$0	$175,575
2	$0	$1,349,189	$0	$264,862	$0	$0	$1,425,118	$0	$247,487
3	$0	$1,629,162	$0	$319,824	$0	$0	$1,403,587	$0	$243,748
4	$0	$1,914,189	$0	$375,779	$0	$0	$1,381,604	$0	$239,931
5	$0	$2,204,466	$0	$432,764	$0	$0	$1,359,236	$0	$236,046
6	$0	$2,500,257	$0	$490,831	$0	$0	$1,336,545	$0	$232,105
7	$0	$2,801,895	$0	$550,046	$0	$0	$1,313,589	$0	$228,119
8	$0	$3,109,792	$0	$610,490	$0	$0	$1,290,421	$0	$224,096
9	$0	$3,424,441	$0	$672,260	$0	$0	$1,267,092	$0	$220,044
10	$0	$3,746,429	$0	$735,470	$0	$0	$1,243,649	$0	$215,973
11	$0	$4,076,445	$0	$800,256	$0	$0	$1,220,135	$0	$211,890
12	$0	$4,415,293	$0	$866,776	$0	$0	$1,196,590	$0	$207,801
13	$0	$4,763,906	$0	$935,213	$0	$0	$1,173,051	$0	$203,713
14	$0	$5,123,365	$0	$1,005,779	$0	$0	$1,149,552	$0	$199,632
15	$0	$5,494,921	$0	$1,078,720	$0	$0	$1,126,126	$0	$195,564
16	$0	$5,880,021	$0	$1,154,320	$0	$0	$1,102,802	$0	$191,513
17	$0	$6,280,339	$0	$1,232,907	$0	$0	$1,079,605	$0	$187,485
18	$0	$6,697,821	$0	$1,314,864	$0	$0	$1,056,562	$0	$183,483
19	$0	$7,134,727	$0	$1,400,634	$0	$0	$1,033,694	$0	$179,512
Total	**$0**	**$81,214,493**	**$0**	**$15,943,397**	**$0**	**$0**	**$24,616,106**	**$0**	**$4,274,853**

C

SUMMARY OF TRAVEL TIME BENEFITS (continued)

Year	TRANSIT				Present Value of Travel Time Benefits	Constant Dollars	Total Per-Hrs of Time Saved
	Peak In-Vehicle	Peak Out-of-Veh	Non-Peak In-Vehicle	Non-Peak Out-of-Veh			
1	$0	$0	$0	$0	$2,982,262	$3,354,639	186,177
20	$0	$0	$0	$0	$10,271,035	$24,341,518	1,344,832
2	$0	$0	$0	$0	$3,286,656	$3,844,923	213,260
3	$0	$0	$0	$0	$3,596,322	$4,375,475	242,564
4	$0	$0	$0	$0	$3,911,502	$4,949,298	274,257
5	$0	$0	$0	$0	$4,232,512	$5,569,697	308,520
6	$0	$0	$0	$0	$4,559,739	$6,240,317	345,554
7	$0	$0	$0	$0	$4,893,649	$6,965,189	385,582
8	$0	$0	$0	$0	$5,234,798	$7,748,780	428,851
9	$0	$0	$0	$0	$5,583,837	$8,596,060	475,634
10	$0	$0	$0	$0	$5,941,521	$9,512,566	526,237
11	$0	$0	$0	$0	$6,308,725	$10,504,491	581,003
12	$0	$0	$0	$0	$6,686,459	$11,578,783	640,313
13	$0	$0	$0	$0	$7,075,882	$12,743,264	704,601
14	$0	$0	$0	$0	$7,478,329	$14,006,769	774,354
15	$0	$0	$0	$0	$7,895,331	$15,379,320	850,124
16	$0	$0	$0	$0	$8,328,656	$16,872,329	932,542
17	$0	$0	$0	$0	$8,780,337	$18,498,846	1,022,327
18	$0	$0	$0	$0	$9,252,730	$20,273,872	1,120,308
19	$0	$0	$0	$0	$9,748,568	$22,214,725	1,227,440
Total	**$0**	**$0**	**$0**	**$0**	**$126,048,849**	**$227,570,861**	**12,584,479**

Reliability

Travel Time Reliability Benefits

This sheet calculates total travel time reliability benefits on highway.

Formulas:

Recurring Delay Rate = 1 / Est. Act. Speed - 1 / FF Speed
hours/mi mph mph

Recurring TTI Mean = 1 + Recurring Delay Rate x FF Speed
hours/mi mph

TTI Mean = 1.0274 x Recurring TTI Mean ^ 1.2204

Std. Dev. Of TTI = (0.71 x (TTI Mean - 1) ^ 0.56) x Impacted Length / FF Speed
hours/vehicle mi mph

Reliability Savings = Change in Std. Dev. Of TTI x Avg. Value of Reliability
$/yr hrs/yr $/hr

Avg. Value of Reliability = Avg. Value of Time x Reliability Ratio
$/hr $/hr

Induced = Change in Trips x Change in Std. Dev. of TTI x 0.5

A

HIGHWAY BENEFITS

Peak Period HOV

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hours/vehicle)		RELIABILITY BENEFIT (person-hours/yr)		
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)	
1	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
20	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
2	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
3	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
4	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
5	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
6	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
7	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
8	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
9	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
10	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
11	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
12	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
13	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
14	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
15	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
16	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
17	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
18	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	
19	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	

Total	

Peak Period Non-HOV

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hrs/veh)		RELIABILITY BENEFIT (person-hours/yr)		Constant Dollars	Present Value
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)		
1	28,375	28,375	66.9	70.0	0.000	0.000	0.010	0.007	35,900	0	$472,449	$420,005
20	41,794	41,794	37.9	69.0	0.012	0.000	0.055	0.009	816,192	0	$10,741,093	$4,532,262
2	29,081	29,081	65.4	69.9	0.001	0.000	0.013	0.007	71,674	0	$943,224	$806,271
3	29,787	29,787	63.8	69.9	0.001	0.000	0.015	0.007	104,766	0	$1,378,726	$1,133,212

4	30,493	30,493	62.3	69.8	0.001	0.000	0.018	0.007	136,830	0	$1,800,684	$1,423,107
5	31,200	31,200	60.8	69.8	0.002	0.000	0.020	0.007	168,686	0	$2,219,904	$1,686,945
6	31,906	31,906	59.2	69.7	0.002	0.000	0.022	0.007	200,830	0	$2,642,929	$1,931,162
7	32,612	32,612	57.7	69.7	0.003	0.000	0.024	0.007	233,609	0	$3,074,291	$2,159,956
8	33,319	33,319	56.2	69.6	0.003	0.000	0.026	0.007	267,285	0	$3,517,473	$2,376,279
9	34,025	34,025	54.7	69.6	0.004	0.000	0.029	0.007	302,081	0	$3,975,387	$2,582,336
10	34,731	34,731	53.1	69.5	0.004	0.000	0.031	0.008	338,195	0	$4,450,641	$2,779,857
11	35,438	35,438	51.6	69.5	0.005	0.000	0.033	0.008	375,813	0	$4,945,700	$2,970,259
12	36,144	36,144	50.1	69.4	0.005	0.000	0.035	0.008	415,121	0	$5,462,998	$3,154,746
13	36,850	36,850	48.6	69.4	0.006	0.000	0.037	0.008	456,309	0	$6,005,022	$3,334,376
14	37,557	37,557	47.0	69.3	0.007	0.000	0.040	0.008	499,573	0	$6,574,376	$3,510,113
15	38,263	38,263	45.5	69.3	0.007	0.000	0.042	0.008	545,125	0	$7,173,845	$3,682,860
16	38,969	38,969	44.0	69.2	0.008	0.000	0.044	0.008	593,196	0	$7,806,457	$3,853,487
17	39,675	39,675	42.4	69.2	0.009	0.000	0.047	0.008	644,038	0	$8,475,543	$4,022,852
18	40,382	40,382	40.9	69.1	0.010	0.000	0.050	0.008	697,934	0	$9,184,810	$4,191,827
19	41,088	41,088	39.4	69.1	0.011	0.000	0.052	0.008	755,199	0	$9,938,421	$4,361,313

Total	**$54,913,225**

Peak Period Weaving

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hrs/veh)		RELIABILITY BENEFIT (person-hours/yr)		Constant Dollars	Present Value
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)		
1	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
20	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
2	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
3	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
4	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
5	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
6	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
7	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
8	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
9	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
10	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
11	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
12	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
13	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
14	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
15	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
16	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
17	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
18	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
19	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0

Total	**$0**

Peak Period Truck

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hrs/veh)		RELIABILITY BENEFIT (person-hours/yr)		Constant Dollars	Present Value
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)		
1	2,806	2,806	66.9	70.0	0.000	0.000	0.010	0.007	3,087	0	$127,528	$113,372
20	4,134	4,134	37.9	69.0	0.012	0.000	0.055	0.009	70,193	0	$2,899,336	$1,223,390
2	2,876	2,876	65.4	69.9	0.001	0.000	0.013	0.007	6,164	0	$254,604	$217,636
3	2,946	2,946	63.8	69.9	0.001	0.000	0.015	0.007	9,010	0	$372,159	$305,887
4	3,016	3,016	62.3	69.8	0.001	0.000	0.018	0.007	11,768	0	$486,057	$384,138

5	3,086	3,086	60.8	69.8	0.002	0.000	0.020	0.007	14,507	0	$599,217	$455,356
6	3,156	3,156	59.2	69.7	0.002	0.000	0.022	0.007	17,272	0	$713,404	$521,277
7	3,225	3,225	57.7	69.7	0.003	0.000	0.024	0.007	20,091	0	$829,841	$583,035
8	3,295	3,295	56.2	69.6	0.003	0.000	0.026	0.007	22,987	0	$949,469	$641,427
9	3,365	3,365	54.7	69.6	0.004	0.000	0.029	0.007	25,979	0	$1,073,073	$697,048
10	3,435	3,435	53.1	69.5	0.004	0.000	0.031	0.008	29,085	0	$1,201,358	$750,365
11	3,505	3,505	51.6	69.5	0.005	0.000	0.033	0.008	32,320	0	$1,334,989	$801,760
12	3,575	3,575	50.1	69.4	0.005	0.000	0.035	0.008	35,701	0	$1,474,623	$851,558
13	3,645	3,645	48.6	69.4	0.006	0.000	0.037	0.008	39,243	0	$1,620,931	$900,046
14	3,714	3,714	47.0	69.3	0.007	0.000	0.040	0.008	42,964	0	$1,774,617	$947,482
15	3,784	3,784	45.5	69.3	0.007	0.000	0.042	0.008	46,881	0	$1,936,431	$994,112
16	3,854	3,854	44.0	69.2	0.008	0.000	0.044	0.008	51,015	0	$2,107,191	$1,040,169
17	3,924	3,924	42.4	69.2	0.009	0.000	0.047	0.008	55,388	0	$2,287,797	$1,085,886
18	3,994	3,994	40.9	69.1	0.010	0.000	0.050	0.008	60,023	0	$2,479,249	$1,131,497
19	4,064	4,064	39.4	69.1	0.011	0.000	0.052	0.008	64,948	0	$2,682,671	$1,177,246

Total	**$14,822,688**

Non-Peak Period Non-HOV

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hrs/veh)		RELIABILITY BENEFIT (person-hours/yr)		Constant Dollars	Present Value
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)		
1	42,034	42,034	68.0	70.0	0.000	0.000	0.007	0.006	9,370	0	$123,314	$109,626
20	61,914	61,914	68.0	70.0	0.000	0.000	0.007	0.006	14,128	0	$185,925	$78,452
2	43,080	43,080	68.0	70.0	0.000	0.000	0.007	0.006	9,616	0	$126,541	$108,168
3	44,126	44,126	68.0	70.0	0.000	0.000	0.007	0.006	9,861	0	$129,775	$106,666
4	45,173	45,173	68.0	70.0	0.000	0.000	0.007	0.006	10,108	0	$133,017	$105,125
5	46,219	46,219	68.0	70.0	0.000	0.000	0.007	0.006	10,355	0	$136,267	$103,551
6	47,265	47,265	68.0	70.0	0.000	0.000	0.007	0.006	10,602	0	$139,524	$101,949
7	48,312	48,312	68.0	70.0	0.000	0.000	0.007	0.006	10,850	0	$142,789	$100,321
8	49,358	49,358	68.0	70.0	0.000	0.000	0.007	0.006	11,099	0	$146,061	$98,674
9	50,404	50,404	68.0	70.0	0.000	0.000	0.007	0.006	11,348	0	$149,341	$97,009
10	51,451	51,451	68.0	70.0	0.000	0.000	0.007	0.006	11,598	0	$152,629	$95,332
11	52,497	52,497	68.0	70.0	0.000	0.000	0.007	0.006	11,848	0	$155,924	$93,644
12	53,543	53,543	68.0	70.0	0.000	0.000	0.007	0.006	12,099	0	$159,227	$91,950
13	54,590	54,590	68.0	70.0	0.000	0.000	0.007	0.006	12,351	0	$162,538	$90,251
14	55,636	55,636	68.0	70.0	0.000	0.000	0.007	0.006	12,603	0	$165,856	$88,552
15	56,682	56,682	68.0	70.0	0.000	0.000	0.007	0.006	12,856	0	$169,182	$86,853
16	57,729	57,729	68.0	70.0	0.000	0.000	0.007	0.006	13,109	0	$172,515	$85,158
17	58,775	58,775	68.0	70.0	0.000	0.000	0.007	0.006	13,363	0	$175,856	$83,469
18	59,821	59,821	68.0	70.0	0.000	0.000	0.007	0.006	13,617	0	$179,205	$81,787
19	60,867	60,867	68.0	70.0	0.000	0.000	0.007	0.006	13,872	0	$182,561	$80,114

Total	**$1,886,651**

Non-Peak Period Weaving

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hrs/veh)		RELIABILITY BENEFIT (person-hours/yr)		Constant Dollars	Present Value
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)		
1	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
20	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
2	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
3	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
4	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
5	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0

6	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
7	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
8	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
9	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
10	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
11	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
12	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
13	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
14	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
15	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
16	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
17	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
18	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0
19	0	0	55.0	55.0	0.003	0.004	0.028	0.028	0	0	$0	$0

Total	**$0**

Non-Peak Period Truck

Year	AVERAGE VOLUME (vehicles/day)		AVERAGE SPEED (mph)		RECURRING DELAY RATE (hrs/mi)		STANDARD DEVIATION OF TRAVEL TIME INDEX (hrs/veh)		RELIABILITY BENEFIT (person-hours/yr)			
	No Build	Build	No Build	Build	No Build	Build	No Build	Build	Existing Users	New (Induced)	Constant Dollars	Present Value
1	4,157	4,157	68.0	70.0	0.000	0.000	0.007	0.006	713	0	$29,445	$26,177
20	6,123	6,123	68.0	70.0	0.000	0.000	0.007	0.006	1,075	0	$44,396	$18,733
2	4,261	4,261	68.0	70.0	0.000	0.000	0.007	0.006	732	0	$30,216	$25,829
3	4,364	4,364	68.0	70.0	0.000	0.000	0.007	0.006	750	0	$30,988	$25,470
4	4,468	4,468	68.0	70.0	0.000	0.000	0.007	0.006	769	0	$31,762	$25,102
5	4,571	4,571	68.0	70.0	0.000	0.000	0.007	0.006	788	0	$32,538	$24,726
6	4,675	4,675	68.0	70.0	0.000	0.000	0.007	0.006	807	0	$33,316	$24,344
7	4,778	4,778	68.0	70.0	0.000	0.000	0.007	0.006	825	0	$34,096	$23,955
8	4,882	4,882	68.0	70.0	0.000	0.000	0.007	0.006	844	0	$34,877	$23,562
9	4,985	4,985	68.0	70.0	0.000	0.000	0.007	0.006	863	0	$35,660	$23,164
10	5,089	5,089	68.0	70.0	0.000	0.000	0.007	0.006	882	0	$36,445	$22,764
11	5,192	5,192	68.0	70.0	0.000	0.000	0.007	0.006	901	0	$37,232	$22,361
12	5,295	5,295	68.0	70.0	0.000	0.000	0.007	0.006	920	0	$38,021	$21,956
13	5,399	5,399	68.0	70.0	0.000	0.000	0.007	0.006	940	0	$38,811	$21,551
14	5,502	5,502	68.0	70.0	0.000	0.000	0.007	0.006	959	0	$39,604	$21,145
15	5,606	5,606	68.0	70.0	0.000	0.000	0.007	0.006	978	0	$40,398	$20,739
16	5,709	5,709	68.0	70.0	0.000	0.000	0.007	0.006	997	0	$41,194	$20,334
17	5,813	5,813	68.0	70.0	0.000	0.000	0.007	0.006	1,017	0	$41,992	$19,931
18	5,916	5,916	68.0	70.0	0.000	0.000	0.007	0.006	1,036	0	$42,791	$19,529
19	6,020	6,020	68.0	70.0	0.000	0.000	0.007	0.006	1,055	0	$43,593	$19,130

Total	**$450,501**

Present Value = Future Value (in Constant Dollars) / (1 + Real Discount Rate) ^ Year

B

TRANSIT BENEFITS

Peak Period In-Vehicle Transit

Year	ANNUAL PERSON-TRIPS (trips/yr)			STANDARD DEVIATION (hours/trip)			RELIABILITY COST (person-hours/yr)				
	No Build	Build	Mode Shifts	No Build	Build	Existing Highway	Existing Users	Mode Shifts	New (Induced)	Constant Dollars	Present Value
1	0	0	0	0.000	0.000	0.010	0	0	0	$0	$0
20	0	0	0	0.000	0.000	0.055	0	0	0	$0	$0
2	0	0	0	0.000	0.000	0.013	0	0	0	$0	$0
3	0	0	0	0.000	0.000	0.015	0	0	0	$0	$0
4	0	0	0	0.000	0.000	0.018	0	0	0	$0	$0
5	0	0	0	0.000	0.000	0.020	0	0	0	$0	$0
6	0	0	0	0.000	0.000	0.022	0	0	0	$0	$0
7	0	0	0	0.000	0.000	0.024	0	0	0	$0	$0
8	0	0	0	0.000	0.000	0.026	0	0	0	$0	$0
9	0	0	0	0.000	0.000	0.029	0	0	0	$0	$0
10	0	0	0	0.000	0.000	0.031	0	0	0	$0	$0
11	0	0	0	0.000	0.000	0.033	0	0	0	$0	$0
12	0	0	0	0.000	0.000	0.035	0	0	0	$0	$0
13	0	0	0	0.000	0.000	0.037	0	0	0	$0	$0
14	0	0	0	0.000	0.000	0.040	0	0	0	$0	$0
15	0	0	0	0.000	0.000	0.042	0	0	0	$0	$0
16	0	0	0	0.000	0.000	0.044	0	0	0	$0	$0
17	0	0	0	0.000	0.000	0.047	0	0	0	$0	$0
18	0	0	0	0.000	0.000	0.050	0	0	0	$0	$0
19	0	0	0	0.000	0.000	0.052	0	0	0	$0	$0
Total											**$0**

Non-Peak Period In-Vehicle Transit

Year	ANNUAL PERSON-TRIPS (trips/yr)			STANDARD DEVIATION (hours/trip)			RELIABILITY COST (person-hours/yr)				
	No Build	Build	Mode Shifts	No Build	Build	Existing Highway	Existing Users	Mode Shifts	New (Induced)	Constant Dollars	Present Value
1	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
20	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
2	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
3	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0

4	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
5	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
6	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
7	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
8	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
9	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
10	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
11	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
12	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
13	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
14	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
15	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
16	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
17	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
18	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0
19	0	0	0	0.000	0.000	0.007	0	0	0	$0	$0

Total	**$0**

C

SUMMARY OF TRAVEL TIME RELIABILITY BENEFITS

Year	HIGHWAY							TRANSIT		Present Value of Reliability Benefits	Constant Dollars
	Peak HOV	Peak Non-HOV	Peak Weaving	Peak Truck	Non-Peak Non-HOV	Non-Peak Weaving	Non-Peak Truck	Peak In-Vehicle	Non-Peak In-Vehicle		
1	$0	$420,005	$0	$113,372	$109,626	$0	$26,177	$0	$0	$669,180	$752,736
20	$0	$4,532,262	$0	$1,223,390	$78,452	$0	$18,733	$0	$0	$5,852,837	$13,870,749
2	$0	$806,271	$0	$217,636	$108,168	$0	$25,829	$0	$0	$1,157,904	$1,354,584
3	$0	$1,133,212	$0	$305,887	$106,666	$0	$25,470	$0	$0	$1,571,235	$1,911,648
4	$0	$1,423,107	$0	$384,138	$105,125	$0	$25,102	$0	$0	$1,937,472	$2,451,521
5	$0	$1,686,945	$0	$455,356	$103,551	$0	$24,726	$0	$0	$2,270,578	$2,987,926
6	$0	$1,931,162	$0	$521,277	$101,949	$0	$24,344	$0	$0	$2,578,732	$3,529,173
7	$0	$2,159,956	$0	$583,035	$100,321	$0	$23,955	$0	$0	$2,867,268	$4,081,016
8	$0	$2,376,279	$0	$641,427	$98,674	$0	$23,562	$0	$0	$3,139,941	$4,647,880
9	$0	$2,582,336	$0	$697,048	$97,009	$0	$23,164	$0	$0	$3,399,557	$5,233,462
10	$0	$2,779,857	$0	$750,365	$95,332	$0	$22,764	$0	$0	$3,648,317	$5,841,074
11	$0	$2,970,259	$0	$801,760	$93,644	$0	$22,361	$0	$0	$3,888,024	$6,473,846
12	$0	$3,154,746	$0	$851,558	$91,950	$0	$21,956	$0	$0	$4,120,210	$7,134,870
13	$0	$3,334,376	$0	$900,046	$90,251	$0	$21,551	$0	$0	$4,346,223	$7,827,302
14	$0	$3,510,113	$0	$947,482	$88,552	$0	$21,145	$0	$0	$4,567,292	$8,554,452
15	$0	$3,682,860	$0	$994,112	$86,853	$0	$20,739	$0	$0	$4,784,564	$9,319,856
16	$0	$3,853,487	$0	$1,040,169	$85,158	$0	$20,334	$0	$0	$4,999,148	$10,127,357
17	$0	$4,022,852	$0	$1,085,886	$83,469	$0	$19,931	$0	$0	$5,212,138	$10,981,188
18	$0	$4,191,827	$0	$1,131,497	$81,787	$0	$19,529	$0	$0	$5,424,640	$11,886,055
19	$0	$4,361,313	$0	$1,177,246	$80,114	$0	$19,130	$0	$0	$5,637,803	$12,847,246
Total	**$0**	**$54,913,225**	**$0**	**$14,822,688**	**$1,886,651**	**$0**	**$450,501**	**$0**	**$0**	**$72,073,065**	**$131,813,939**

Vehicle Operating Costs

C

SUMMARY OF VEHICLE OPERATING COST BENEFITS

Year	HIGHWAY								TRANSIT		Present Value of Veh Op Cost Benefits	Constant Dollars
	Peak HOV	Peak Non-HOV	Peak Weaving	Peak Truck	Peak Arterial	Non-Peak Non-HOV	Non-Peak Weaving	Non-Peak Truck	Peak Period	Non-Peak Period		
1	$0	$801,937	$0	$176,101	$0	$1,228,900	$0	$232,547	-	-	$2,439,485	$2,744,088
20	$0	($48,019)	$0	($185,867)	$0	$859,155	$0	$162,579	-	-	$787,848	$1,867,135
2	$0	$803,354	$0	$173,945	$0	$1,211,048	$0	$229,168	-	-	$2,417,515	$2,828,150
3	$0	$724,194	$0	$119,349	$0	$1,192,751	$0	$225,706	-	-	$2,262,001	$2,752,070
4	$0	$673,269	$0	$91,903	$0	$1,174,070	$0	$222,171	-	-	$2,161,413	$2,734,878
5	$0	$597,465	$0	$42,486	$0	$1,155,062	$0	$218,574	-	-	$2,013,587	$2,649,743
6	$0	$549,198	$0	($14,778)	$0	$1,135,780	$0	$214,925	-	-	$1,885,125	$2,579,923
7	$0	$477,041	$0	($116,428)	$0	$1,116,272	$0	$211,234	-	-	$1,688,118	$2,402,719
8	$0	$431,656	$0	($162,152)	$0	$1,096,584	$0	$207,508	-	-	$1,573,596	$2,329,307
9	$0	$339,146	$0	($238,528)	$0	$1,076,759	$0	$203,757	-	-	$1,381,135	$2,126,194
10	$0	$273,487	$0	($267,005)	$0	$1,056,838	$0	$199,987	-	-	$1,263,307	$2,022,595
11	$0	$163,444	$0	($323,266)	$0	$1,036,856	$0	$196,206	-	-	$1,073,240	$1,787,023
12	$0	$114,580	$0	($345,509)	$0	$1,016,847	$0	$192,420	-	-	$978,338	$1,694,165
13	$0	$33,907	$0	($285,973)	$0	$996,844	$0	$188,634	-	-	$933,413	$1,681,023
14	$0	$293	$0	($252,883)	$0	$976,876	$0	$184,856	-	-	$909,141	$1,702,804
15	$0	($74,995)	$0	($192,136)	$0	$956,968	$0	$181,089	-	-	$870,925	$1,696,475
16	$0	($73,442)	$0	($188,157)	$0	$937,147	$0	$177,338	-	-	$852,886	$1,727,791
17	$0	($82,208)	$0	($185,151)	$0	$917,436	$0	$173,608	-	-	$823,685	$1,735,379
18	$0	($90,543)	$0	($182,130)	$0	$897,854	$0	$169,902	-	-	$795,082	$1,742,123
19	$0	($68,840)	$0	($181,834)	$0	$878,421	$0	$166,225	-	-	$793,972	$1,809,279
Total	**$0**	**$5,544,923**	**$0**	**($2,518,012)**	**$0**	**$20,918,467**	**$0**	**$3,958,433**	**-**	**-**	**$27,903,811**	**$42,612,865**

Accident Costs

C

SUMMARY OF ACCIDENT REDUCTION BENEFITS

Year	HIGHWAY								TRANSIT	Present Value of Accident Benefits	Constant Dollars
	Peak HOV	Peak Non-HOV	Peak Weaving	Peak Truck	Peak Arterial	Non-Peak Non-HOV	Non-Peak Weaving	Non-Peak Truck	All Periods		
1	$0	$980,231	$0	$96,946	$0	$1,452,103	$0	$143,615	$0	$2,672,895	$3,006,643
20	$0	$685,304	$0	$67,777	$0	$1,015,202	$0	$100,405	$0	$1,868,688	$4,428,639
2	$0	$965,991	$0	$95,538	$0	$1,431,009	$0	$141,528	$0	$2,634,066	$3,081,485
3	$0	$951,397	$0	$94,094	$0	$1,409,389	$0	$139,390	$0	$2,594,271	$3,156,327
4	$0	$936,496	$0	$92,621	$0	$1,387,316	$0	$137,207	$0	$2,553,640	$3,231,169
5	$0	$921,334	$0	$91,121	$0	$1,364,855	$0	$134,986	$0	$2,512,296	$3,306,011
6	$0	$905,954	$0	$89,600	$0	$1,342,070	$0	$132,732	$0	$2,470,356	$3,380,853
7	$0	$890,393	$0	$88,061	$0	$1,319,019	$0	$130,452	$0	$2,427,925	$3,455,694
8	$0	$874,689	$0	$86,508	$0	$1,295,755	$0	$128,152	$0	$2,385,104	$3,530,536
9	$0	$858,876	$0	$84,944	$0	$1,272,330	$0	$125,835	$0	$2,341,985	$3,605,378
10	$0	$842,986	$0	$83,372	$0	$1,248,790	$0	$123,507	$0	$2,298,655	$3,680,220
11	$0	$827,047	$0	$81,796	$0	$1,225,179	$0	$121,172	$0	$2,255,193	$3,755,062
12	$0	$811,087	$0	$80,217	$0	$1,201,536	$0	$118,833	$0	$2,211,674	$3,829,904
13	$0	$795,132	$0	$78,639	$0	$1,177,900	$0	$116,496	$0	$2,168,167	$3,904,746
14	$0	$779,204	$0	$77,064	$0	$1,154,304	$0	$114,162	$0	$2,124,734	$3,979,588
15	$0	$763,325	$0	$75,494	$0	$1,130,782	$0	$111,836	$0	$2,081,436	$4,054,430
16	$0	$747,515	$0	$73,930	$0	$1,107,361	$0	$109,519	$0	$2,038,325	$4,129,272
17	$0	$731,792	$0	$72,375	$0	$1,084,068	$0	$107,216	$0	$1,995,451	$4,204,113
18	$0	$716,172	$0	$70,830	$0	$1,060,930	$0	$104,927	$0	$1,952,859	$4,278,955
19	$0	$700,672	$0	$69,297	$0	$1,037,968	$0	$102,656	$0	$1,910,593	$4,353,797
Total	**$0**	**$16,685,596**	**$0**	**$1,650,224**	**$0**	**$24,717,867**	**$0**	**$2,444,624**	**$0**	**$45,498,311**	**$74,352,822**

Emissions

C

SUMMARY OF EMISSION REDUCTION BENEFITS

Year	HIGHWAY								
	Peak HOV	Peak Non-HOV	Peak Weaving	Peak Truck	Peak Ramp	Peak Arterial	Non-Peak Non-HOV	Non-Peak Weaving	Non-Peak Truck
1	$0	$31,122	$0	$31,018	$0	$0	$51,548	$0	$36,322
20	$0	($129,691)	$0	($109,825)	$0	$0	$39,639	$0	$15,676
2	$0	$30,237	$0	$31,501	$0	$0	$51,742	$0	$36,400
3	$0	$15,545	$0	$7,649	$0	$0	$51,908	$0	$36,458
4	$0	$7,726	$0	($3,503)	$0	$0	$52,046	$0	$36,498
5	$0	($6,894)	$0	($24,860)	$0	$0	$52,158	$0	$36,521
6	$0	($12,591)	$0	($40,247)	$0	$0	$52,245	$0	$36,526
7	$0	($24,514)	$0	($69,324)	$0	$0	$52,307	$0	$36,515
8	$0	($31,761)	$0	($90,810)	$0	$0	$40,187	$0	$16,259
9	$0	($50,242)	$0	($111,090)	$0	$0	$40,222	$0	$16,240
10	$0	($61,208)	$0	($119,352)	$0	$0	$40,241	$0	$16,214
11	$0	($82,845)	$0	($135,091)	$0	$0	$40,243	$0	$16,182
12	$0	($93,267)	$0	($141,931)	$0	$0	$40,230	$0	$16,145
13	$0	($109,591)	$0	($127,973)	$0	$0	$40,202	$0	$16,102
14	$0	($117,403)	$0	($120,165)	$0	$0	$40,160	$0	$16,055
15	$0	($132,943)	$0	($104,530)	$0	$0	$40,104	$0	$16,002
16	$0	($133,919)	$0	($105,033)	$0	$0	$40,035	$0	$15,945
17	$0	($135,912)	$0	($106,675)	$0	$0	$39,954	$0	$15,884
18	$0	($137,904)	$0	($108,191)	$0	$0	$39,860	$0	$15,818
19	$0	($135,091)	$0	($108,461)	$0	$0	$39,755	$0	$15,749
Total	**$0**	**($1,311,145)**	**$0**	**($1,556,893)**	**$0**	**$0**	**$884,785**	**$0**	**$463,512**

C

SUMMARY OF EMISSION REDUCTION BENEFITS (continued)

Year	TRANSIT				Present Value of Emission Benefits	Constant Dollars
	Peak Bus	Non-Peak Bus	Passenger Rail	Light Rail		
1	$0	$0	$0	$0	$150,010	$168,741
20	$0	$0	$0	$0	($184,201)	($436,542)
2	$0	$0	$0	$0	$149,880	$175,339
3	$0	$0	$0	$0	$111,561	$135,730
4	$0	$0	$0	$0	$92,768	$117,380
5	$0	$0	$0	$0	$56,924	$74,909
6	$0	$0	$0	$0	$35,933	$49,176
7	$0	$0	$0	$0	($5,015)	($7,139)
8	$0	$0	$0	$0	($66,125)	($97,882)
9	$0	$0	$0	$0	($104,870)	($161,442)
10	$0	$0	$0	$0	($124,105)	($198,697)
11	$0	$0	$0	$0	($161,510)	($268,926)
12	$0	$0	$0	$0	($178,823)	($309,664)
13	$0	$0	$0	$0	($181,260)	($326,439)
14	$0	$0	$0	$0	($181,354)	($339,673)
15	$0	$0	$0	$0	($181,367)	($353,285)
16	$0	$0	$0	$0	($182,972)	($370,667)
17	$0	$0	$0	$0	($186,749)	($393,453)
18	$0	$0	$0	$0	($190,416)	($417,225)
19	$0	$0	$0	$0	($188,048)	($428,518)
Total	**$0**	**$0**	**$0**	**$0**	**($1,519,741)**	**($3,388,275)**

C

SUMMARY OF EMISSION REDUCTION BENEFITS (continued)

Year	TONS EMISSIONS SAVED (tons/yr)						
	CO	CO_2	NO_X	PM_{10}	SO_X	VOC	$PM_{2.5}$
1	5	3,011	1	0	0	0	0
20	17	(4,937)	(3)	(0)	(0)	(0)	(0)
2	5	3,093	1	0	0	0	0
3	6	2,566	(0)	(0)	0	(0)	(0)
4	6	2,325	(0)	(0)	0	(0)	(0)
5	7	1,774	(1)	(0)	0	(0)	(0)
6	8	1,299	(1)	(0)	0	(0)	(0)
7	10	331	(1)	(0)	0	(0)	(0)
8	7	(815)	(3)	(0)	(0)	(0)	(0)
9	8	(1,713)	(3)	(0)	(0)	(0)	(0)
10	9	(2,223)	(3)	(0)	(0)	(0)	(0)
11	9	(3,196)	(4)	(0)	(0)	(0)	(0)
12	9	(3,714)	(4)	(0)	(0)	(0)	(0)
13	10	(3,926)	(4)	(0)	(0)	(0)	(0)
14	11	(4,059)	(4)	(0)	(0)	(0)	(0)
15	11	(4,224)	(4)	(0)	(0)	(0)	(0)
16	12	(4,379)	(4)	(0)	(0)	(0)	(0)
17	13	(4,616)	(4)	(0)	(0)	(0)	(0)
18	15	(4,856)	(3)	(0)	(0)	(0)	(0)
19	16	(4,913)	(3)	(0)	(0)	(0)	(0)
Total	**196**	**(33,172)**	**(48)**	**(2)**	**(0)**	**(2)**	**(2)**

C

SUMMARY OF EMISSION REDUCTION BENEFITS (continued)

Year	DOLLARS EMISSIONS SAVED (PV $/yr)					
	CO	CO_2	NO_X	PM_{10}	SO_X	VOC
1	$366	$136,372	$10,186	$1,466	$1,605	$16
20	$580	($154,584)	($21,541)	($7,432)	($1,207)	($18)
2	$361	$137,354	$9,945	$912	$1,288	$21
3	$386	$111,779	($826)	($864)	$1,124	($39)
4	$395	$99,336	($5,754)	($2,200)	$1,050	($59)
5	$418	$74,319	($14,719)	($3,595)	$613	($111)
6	$472	$53,386	($14,212)	($4,077)	$466	($102)
7	$587	$13,344	($13,449)	($5,609)	$189	($77)
8	$396	($32,225)	($28,015)	($5,984)	($234)	($64)
9	$424	($66,414)	($31,368)	($6,799)	($648)	($64)
10	$425	($84,510)	($32,191)	($7,076)	($687)	($67)
11	$435	($119,187)	($34,104)	($7,536)	($1,052)	($67)
12	$436	($135,847)	($34,582)	($7,681)	($1,080)	($68)
13	$449	($140,841)	($31,967)	($7,625)	($1,206)	($70)
14	$450	($142,802)	($30,279)	($7,519)	($1,135)	($70)
15	$461	($145,735)	($27,314)	($7,457)	($1,252)	($70)
16	$475	($148,205)	($26,448)	($7,481)	($1,249)	($64)
17	$510	($153,206)	($25,166)	($7,586)	($1,245)	($57)
18	$545	($158,084)	($23,953)	($7,638)	($1,240)	($46)
19	$553	($156,845)	($22,990)	($7,515)	($1,213)	($39)
Total	**$9,124**	**($1,012,596)**	**($398,747)**	**($109,295)**	**($7,115)**	**($1,113)**

Final Calculations

Final Calculations

This sheet performs the final calculations before presenting the summary results.
Both net present value and internal rate of return on investment are calculated.

A

NET PRESENT VALUE CALCULATION

Year	PRESENT VALUE OF USER BENEFITS: Travel Time Savings	Travel Time Reliability	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	PRESENT VALUE OF USER BENEFITS (road 2): Travel Time Savings	Travel Time Reliability	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	PRESENT VALUE OF USER BENEFITS (road 3): Travel Time Savings	Travel Time Reliability	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Present Value of Total User Benefits	Present Value of Total Project Costs	NET PRESENT VALUE
Construction Period																		
1																$0	$78,143,333	($78,143,333)
2																$0	$49,839,744	($49,839,744)
3																$0	$47,922,830	($47,922,830)
4																$0	$0	$0
5																$0	$0	$0
6																$0	$0	$0
7																$0	$0	$0
8																$0	$0	$0
Project Open																		
1	$2,982,262	$669,180	$2,439,485	$2,672,895	$150,010											$8,913,831	$8,890	$8,904,941
2	$3,286,656	$1,157,904	$2,417,515	$2,634,066	$149,880											$9,646,021	$8,548	$9,637,473
3	$3,596,322	$1,571,235	$2,262,001	$2,594,271	$111,561											$10,135,389	$8,219	$10,127,170
4	$3,911,502	$1,937,472	$2,161,413	$2,553,640	$92,768											$10,656,795	$7,903	$10,648,892
5	$4,232,512	$2,270,578	$2,013,587	$2,512,296	$56,924											$11,085,898	$7,599	$11,078,299
6	$4,559,739	$2,578,732	$1,885,125	$2,470,356	$35,933											$11,529,884	$7,307	$11,522,577
7	$4,893,649	$2,867,268	$1,688,118	$2,427,925	($5,015)											$11,871,945	$7,026	$11,864,919
8	$5,234,798	$3,139,941	$1,573,596	$2,385,104	($66,125)											$12,267,314	$6,756	$12,260,559
9	$5,583,837	$3,399,557	$1,381,135	$2,341,985	($104,870)											$12,601,644	$6,496	$12,595,148
10	$5,941,521	$3,648,317	$1,263,307	$2,298,655	($124,105)											$13,027,694	$6,246	$13,021,448
11	$6,308,725	$3,888,024	$1,073,240	$2,255,193	($161,510)											$13,363,672	$6,006	$13,357,666
12	$6,686,459	$4,120,210	$978,338	$2,211,674	($178,823)											$13,817,858	$5,775	$13,812,083
13	$7,075,882	$4,346,223	$933,413	$2,168,167	($181,260)											$14,342,424	$5,553	$14,336,872
14	$7,478,329	$4,567,292	$909,141	$2,124,734	($181,354)											$14,898,142	$5,339	$14,892,803
15	$7,895,331	$4,784,564	$870,925	$2,081,436	($181,367)											$15,450,890	$5,134	$15,445,756
16	$8,328,656	$4,999,148	$852,886	$2,038,325	($182,972)											$16,036,043	$4,936	$16,031,107
17	$8,780,337	$5,212,138	$823,685	$1,995,451	($186,749)											$16,624,861	$4,746	$16,620,114
18	$9,252,730	$5,424,640	$795,082	$1,952,859	($190,416)											$17,234,896	$4,564	$17,230,332
19	$9,748,568	$5,637,803	$793,972	$1,910,593	($188,048)											$17,902,888	$4,388	$17,898,499
20	$10,271,035	$5,852,837	$787,848	$1,868,688	($184,201)											$18,596,206	$4,220	$18,591,987
Total	$126,048,849	$72,073,065	$27,903,811	$45,498,311	($1,519,741)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$270,004,295**	**$176,031,558**	**$93,972,737**

12,584,479	Person-Hours of Time Saved	
tons	$ PV	
196	$9,124	CO Saved
(33,172)	($1,012,596)	CO_2 Saved
(48)	($398,747)	NO_X Saved
(2)	($109,295)	PM_{10} Saved
(2)		$PM_{2.5}$ Saved
(0)	($7,115)	SO_X Saved
(2)	($1,113)	VOC Saved
$20,218,250	$15,273,189	$1,440,421	$4,094,848	($1,093,382)

	Person-Hours of Time Saved	
tons	$ PV	
		CO Saved
		CO_2 Saved
		NO_X Saved
		PM_{10} Saved
		$PM_{2.5}$ Saved
		SO_X Saved
		VOC Saved

	Person-Hours of Time Saved	
tons	$ PV	
		CO Saved
		CO_2 Saved
		NO_X Saved
		PM_{10} Saved
		$PM_{2.5}$ Saved
		SO_X Saved
		VOC Saved

Freight Benefits Only

B

INTERNAL RATE OF RETURN ON INVESTMENT AND PAYBACK PERIOD

Year	USER BENEFITS IN CONSTANT DOLLARS: Travel Time Savings	Travel Time Reliability	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	USER BENEFITS IN CONSTANT DOLLARS (road 2): Travel Time Savings	Travel Time Reliability	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	USER BENEFITS IN CONSTANT DOLLARS (road 3): Travel Time Savings	Travel Time Reliability	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Total User Benefits in Constant Dollars	Total Project Costs in Constant Dollars	ANNUAL RETURNS ON INVESTMENT	CUMULATIVE RETURNS AFTER PROJ OPENS
Construction Period																			
1																$0	$78,143,333	($78,143,333)	
2																$0	$51,833,333	($51,833,333)	
3																$0	$51,833,333	($51,833,333)	
4																$0	$0	$0	
5																$0	$0	$0	
6																$0	$0	$0	
7																$0	$0	$0	
8																$0	$0	$0	
Project Open																			
1	$3,354,639	$752,736	$2,744,088	$3,006,643	$168,741											$10,026,847	$10,000	$10,016,847	$10,016,847
2	$3,844,923	$1,354,584	$2,828,150	$3,081,485	$175,339											$11,284,481	$10,000	$11,274,481	$21,291,328
3	$4,375,475	$1,911,648	$2,752,070	$3,156,327	$135,730											$12,331,250	$10,000	$12,321,250	$33,612,578
4	$4,949,298	$2,451,521	$2,734,878	$3,231,169	$117,380											$13,484,246	$10,000	$13,474,246	$47,086,824
5	$5,569,697	$2,987,926	$2,649,743	$3,306,011	$74,909											$14,588,286	$10,000	$14,578,286	$61,665,110
6	$6,240,317	$3,529,173	$2,579,923	$3,380,853	$49,176											$15,779,442	$10,000	$15,769,442	$77,434,552
7	$6,965,189	$4,081,016	$2,402,719	$3,455,694	($7,139)											$16,897,479	$10,000	$16,887,479	$94,322,031
8	$7,748,780	$4,647,880	$2,329,307	$3,530,536	($97,882)											$18,158,622	$10,000	$18,148,622	$112,470,653
9	$8,596,060	$5,233,462	$2,126,194	$3,605,378	($161,442)											$19,399,652	$10,000	$19,389,652	$131,860,304
10	$9,512,566	$5,841,074	$2,022,595	$3,680,220	($198,697)											$20,857,758	$10,000	$20,847,758	$152,708,063
11	$10,504,491	$6,473,846	$1,787,023	$3,755,062	($268,926)											$22,251,496	$10,000	$22,241,496	$174,949,558
12	$11,578,783	$7,134,870	$1,694,165	$3,829,904	($309,664)											$23,928,059	$10,000	$23,918,059	$198,867,617
13	$12,743,264	$7,827,302	$1,681,023	$3,904,746	($326,439)											$25,829,896	$10,000	$25,819,896	$224,687,513
14	$14,006,769	$8,554,452	$1,702,804	$3,979,588	($339,673)											$27,903,940	$10,000	$27,893,940	$252,581,453
15	$15,379,320	$9,319,856	$1,696,475	$4,054,430	($353,285)											$30,096,796	$10,000	$30,086,796	$282,668,249
16	$16,872,329	$10,127,357	$1,727,791	$4,129,272	($370,667)											$32,486,082	$10,000	$32,476,082	$315,144,330
17	$18,498,846	$10,981,188	$1,735,379	$4,204,113	($393,453)											$35,026,074	$10,000	$35,016,074	$350,160,404
18	$20,273,872	$11,886,055	$1,742,123	$4,278,955	($417,225)											$37,763,780	$10,000	$37,753,780	$387,914,184
19	$22,214,725	$12,847,246	$1,809,279	$4,353,797	($428,518)											$40,796,529	$10,000	$40,786,529	$428,700,713
20	$24,341,518	$13,870,749	$1,867,135	$4,428,639	($436,542)											$44,071,499	$10,000	$44,061,499	$472,762,212
Total	$227,570,861	$131,813,939	$42,612,865	$74,352,822	($3,388,275)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$472,962,212**	**$182,010,000**	**$290,952,212**	

Total Construction Costs $181,810,000

Payback Period 12 years

Years After Construction Begins	ANNUAL RETURNS ON INVESTMENT
1	($78,143,333)
2	($51,833,333)
3	($51,833,333)
4	$10,016,847
5	$11,274,481
6	$12,321,250
7	$13,474,246
8	$14,578,286
9	$15,769,442
10	$16,887,479
11	$18,148,622
12	$19,389,652
13	$20,847,758
14	$22,241,496
15	$23,918,059
16	$25,819,896
17	$27,893,940
18	$30,086,796
19	$32,476,082
20	$35,016,074
21	$37,753,780
22	$40,786,529
23	$44,061,499
24	$0
25	$0
26	$0
27	$0
28	$0

Internal Rate of Return 7.69%

The PAYBACK PERIOD is the construction costs. For a projec recovered. The Payback Period