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### MEMORANDUM

TO: Nevada County Transportation Commission  
FROM: Daniel B. Landon, Executive Director   
SUBJECT: Executive Director’s Report for the March 2019 Meeting  
DATE: March 20, 2019

#### NEVADA COUNTY ACTIVE TRANSPORTATION PLAN

As part of the regional transportation planning process, the Nevada County Transportation Commission (NCTC), in coordination with the County of Nevada, City of Grass Valley, City of Nevada City, and Town of Truckee, contracted with the consulting firm Fehr & Peers to prepare an Active Transportation Plan (ATP) covering Nevada County. The Plan combines previous bicycle and pedestrian planning efforts, evaluates needs, identifies projects and recommends prioritization. Completion of the study will provide all necessary information and analysis required by the California Transportation Commission’s state funding guidelines and assist local agency efforts to secure funding for bicycle and pedestrian projects.

Status: Fehr & Peers has prepared the Draft Nevada County Active Transportation Plan, which incorporates previous bicycle and pedestrian planning efforts and the input received through the public participation process. The Draft Nevada County ATP is available for review on the NCTC website at <http://www.nctc.ca.gov/Projects/Active-Transportation-Plan/index.html> and the public comment period runs through April 15, 2019. Any comments received will be considered for incorporation into the final report that will be presented to NCTC for adoption at their May 15, 2019 meeting. Previous public participation efforts included outreach at local farmers markets and street fairs, an online crowd source interactive mapping and comment tool, and public workshops held at the Grass Valley City Hall and Truckee Town Hall.

#### NCTC/CALTRANS INFRASTRUCTURE FOR REBUILDING AMERICA GRANT APPLICATION

On March 4<sup>th</sup>, NCTC staff, in collaboration with Caltrans District 3, submitted a grant application for funding from the Infrastructure for Rebuilding America (INFRA) program. The application is for improvements to a segment of SR 49 from north of La Barr Meadows Road to south of McKnight Way.

The INFRA Grant program provides dedicated, discretionary funding for projects that address critical issues facing our nation's highways and bridges. INFRA grants will support the Administration's commitment to fixing our nation's crumbling infrastructure by creating opportunities for all levels of government and the private sector to fund infrastructure, using innovative approaches to improve the necessary processes for building significant projects, and increasing accountability for the projects that are built.

The Federal Department of Transportation makes awards under the INFRA program to both large and small projects. For a large project, the INFRA grant must be at least \$25 million. For a small project, the grant must be at least \$5 million. For each fiscal year of INFRA funds, 10 percent of available funds are reserved for small projects.

The INFRA Grant program preserves the statutory requirement in the Fixing America's Surface Transportation (FAST) Act to award at least 25 percent of funding for rural projects. The Administration understands that rural needs may well exceed this limit, and the Department of Transportation will consider rural projects to the greatest extent possible. For rural communities in need of funding for highway and multimodal freight projects with national or regional economic significance, INFRA is an opportunity to apply directly for financial assistance from the federal government.

INFRA grants may be used to fund a variety of components of an infrastructure project, however, the Department of Transportation is specifically focused on projects in which the local sponsor is significantly invested and is positioned to proceed rapidly to construction. In Fiscal Year 2017/18, INFRA grants in the amount of nearly \$1.5 billion were awarded to 26 projects. Notice of grant awards is expected by September 2019.

Excerpts from the grant application package are attached.

**FINAL**

# NEVADA 49 CORRIDOR IMPROVEMENT PROJECT



**INFRA GRANT APPLICATION | MARCH 2019  
NEVADA COUNTY TRANSPORTATION COMMISSION**





# 1. PROJECT DESCRIPTION

## 1.A. PROJECT DESCRIPTION

## 1.B. TRANSPORTATION CHALLENGES INTENDED TO ADDRESS

## 1.C. PROJECT HISTORY

### 1.A. Project Description

Improving operations, safety, and multi-modal mobility in the State Route (SR) 49 corridor between the cities of Grass Valley (Nevada County) and Auburn (Placer County) has been a focus of the Nevada County Transportation Commission (NCTC) and Caltrans since the mid 1990's. In 2009, Caltrans in coordination with the NCTC and the SR 49 Stakeholder Committee developed the SR 49 Corridor System Management Plan (CSMP). The development of the 2009 SR 49 CSMP was a unique "first generation CSMP." The two large major capital projects planned for the corridor, were redefined into eight smaller, more fundable projects based on a phasing plan developed by Caltrans and NCTC. The plan also focuses on implanting smaller interim safety and operational improvements on the corridor.

The Nevada 49 Corridor Improvement Project (CIP) is the next phase of several planned long-term capital improvements that are focused on improving safety, operations, connectivity, and mobility within the corridor. This project will address the section of SR 49 that, due to funding limitations, was not able to be addressed as part of the previously constructed (April 2014) SR 49/La Barr Meadows Road signalization, widening, and frontage road system project.

The Nevada 49 CIP begins at the limits of the previous project (Post-Mile 10.8) and ends just south of the McKnight Way Interchange (Post-Mile 13.3), connecting to the four-lane Golden Center Freeway. This portion of SR 49 serves communities adjacent to SR 49 and functions as the gateway to the cities of Grass Valley and Nevada City. The areas adjacent to SR 49 within the project limits, as well as Grass Valley and Nevada City, meet the criteria of disadvantaged communities and have been identified as below 80% of the statewide median income.

The planned project will widen this two-lane segment of State Route (SR) 49 to a four-lane conventional access control highway. This project will address safety concerns through the installation of a continuous median barrier, eight-foot shoulders with rumble strips, Enhanced Wet Night Visibility (EWNV) striping, pavement edge treatments, the removal of numerous ingress/egress to the highway and construction of frontage road segments to direct traffic to two at-grade signalized or roundabout intersections.

Additionally, the project will reduce peak hour congestion by improving capacity, eliminating the merges that currently exist to the north and south of the project to connect to the existing four-lane sections and installation of a section of northbound truck climbing lane. Upgrading the highway will improve safety, traffic operations, peak period level of service, accommodate future traffic increases, enhance goods movement, and provide capacity for emergency detours of Interstate 80 (I-80) passenger and goods movement traffic.

Completion of this project is the top regional priority of the NCTC and there is strong local support for improvements that will improve safety and operations on SR 49. There is also a strong local desire to have the highway improved to four lanes to facilitate and handle the traffic capacity associated with a mass-evacuation in the event of a major wildland fire.

As previously mentioned, SR 49 serves as an I-80 emergency detour route connecting I-80 near Emigrant Gap via SR 20 and SR 49 in Nevada and Placer County back to I-80 in the City of Auburn (Placer County). I-80, both directly and via connections from SR 49, provides interregional access to Sacramento, San Francisco, Reno, and continues eastward outside of California toward the northeastern United States before terminating in New Jersey.

The SR 49 corridor also plays a key role in providing interregional multi-modal connectivity as an interregional public transit corridor, providing Gold Country Stage fixed-route transit connections between Nevada and Placer County and access to the Amtrak Capital Corridor Inner-City Passenger Rail station in Auburn. The planned improvements in these corridors will improve the quality of life by providing mobility options and increasing accessibility to all modes of transportation and enhance connections to local and regional economic centers.



Figure 1. Head-on collision within project limits (June 2017)

The segment of SR 49 that includes the proposed project serves as the gateway to the Grass Valley/ Nevada City area, which serve as the economic hub of western Nevada County. The existing two-lane highway's current Level-of-Service (LOS) is E during peak hours, and cannot accommodate future traffic increases. The volumes of both local traffic and goods movement freight traffic have increased and the State highway facility have become an integral part of the local circulation system in addition to serving tourist, interregional, and interstate traffic. Growth forecasts for the corridor indicate that traffic congestion and delays will only increase if SR 49 in Nevada County is not improved.

It is estimated that 30% of the County workforce is using this route as a primary commute route to major employment centers outside of the County, resulting in over-capacity traffic demand during peak commute periods. Historical and recreational tourism traffic also increases congestion in the project area throughout the year.

## 1.B. Transportation Challenges Intended to Address

The transportation challenges the project is intended to address include:

- The need to improve safety and reduce the number of collisions and fatalities on SR 49 (Figure 1)
- Congestion impacts the traveling public, goods movement, and public transportation (Figure 2)
- Existing project segment is a two-lane highway and highway segments to the north and south of the proposed project are four-lane access control highway segments with standard shoulders
- Existing merges between four-lane and two-lane sections in the project limits create peak hour congestion and increase rear-end and sideswipe accidents and increase potential for conflicts between trucks and automobiles
- Head-on accidents due to lack of median barriers
- Numerous ingress/egress driveway locations and at-grade intersections to SR 49 increase low speed/high speed conflicts and potential for severe accidents
- Congestion impacts interregional transit connections
- Inadequate shoulders act as barriers to multi-modal mobility and leave limited space for disabled vehicles to safely leave the highway
- Segments with elevation gains result in congestion due to slow trucks and automobiles
- Concerns related to lack of capacity to handle a potential mass evacuation due to a major fire
- Improvements are needed on SR 49 to adequately handle the emergency detour of passenger traffic and goods movement traffic when I-80 is closed due to accidents, wildland fires, snow and icy conditions, mudslides, and other events causing closures
- Congestion-related air quality emissions
- Funding limitations as a rural Regional Transportation Planning Agency

The recently updated 2015 Caltrans Interregional Transportation Strategic Plan (ITSP) (see Appendix) identifies I-80, SR 20, and SR 49 between I-80 and SR 20 as "priority interregional highways," therefore considered the most significant interregional highways in the state, that serve interregional travel. However, the plan notes that funding to address the needs of the system is a real and significant challenge. As noted, in the 2014 Bay to Tahoe Basin Recreation and Tourism Travel Impact Study (see Appendix), tourism has more significant impacts, such as congestion on rural roads, yet funding is largely based on lane miles and resident populations. Thus, rural highway projects such as the Nevada County 49 CIP that serve significant tourism traffic, in addition to the resident population, are at a disadvantage in relation to the ability to fund the needed improvements, compared to larger urban areas of the state.



Figure 2. Traffic within project limits

Without INFRA grant funding, the NCTC will not be able to complete the Nevada 49 CIP in the foreseeable future. NCTC receives a formula apportionment share of STIP – RIP, which generates approximately \$2 million annually. For larger capital construction projects, even if the RIP funds are banked over time, it can be challenging to keep pace with increases in construction costs as the project is delayed due to funding constraints. The INFRA grant funding will leverage and be combined with NCTC's regional funding and State SHOPP funding to allow the project to move seamlessly from preliminary design, environmental review, and preliminary engineering directly into the construction of this critical infrastructure project that will improve safety, operations, and mobility.

There were five (5) fatalities in the SR 49 corridor between mid-December 2016 and mid-February 2017. Table 1 contains accident data for the project limits on SR 49 from Post-Mile 10.70 to Post-Mile 13.40 covering the period of January 1, 2010 to December 31, 2017. In 2017, there was an additional head-on collision with two RVs that is not included in the Table 1.

Number of Accidents				Accident Rates - accident per million vehicle miles					
				Actual			Statewide Average		
Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
145	2	50	52	0.010	0.27	0.74	0.013	0.41	1.00

Table 1. Accident data SR 49 vs. Statewide Averages

An analysis of the accident data shows:

- 70% of the accidents involved multiple vehicles
- 49% of the accidents occurred during the August to November timeframe, which coincides with increased tourism attending various special events in the Grass Valley/Nevada City area, such as the Nevada County Fair and the Draft Horse Class, etc.
- 52% of the accidents were rear ends or sideswipes
- 44% of the accidents had a primary collision factor of speeding
- 12% of the accidents were broadsides
- 12% of the accidents involved deer or other animal strikes
- 10% of the accidents occurred at intersections and a similar percentage involved left turn movements

This project will improve safety, traffic operations, goods movement, transit, bicycle, and pedestrian mobility throughout the project limits. The Nevada SR 49 CIP proposes to extend the existing SR 49 four-lane access-controlled freeway section with a concrete median barrier and 8-foot shoulders with rumble strips, EWNV striping, and pavement edge treatments. This improvement will reduce rear-end and sideswipe accidents that, for the existing two-lane configuration, are often due to either congestion or traffic slowing or stopping for vehicles preparing to make turning movements. Rumble strips will alert fatigued or distracted drivers who start to drift out of their lane. Widening shoulders to standard widths will provide additional recovery area for drivers who stray outside the roadway. Pavement edge treatments allow vehicles that leave the roadway a gentler slope to navigate when re-entering the roadway. The median barrier will eliminate the potential for head-on accidents and will reduce broadside accidents in this segment of SR 49.



Figure 3. Narrow shoulders within the project limits

The project will also eliminate numerous access points adjacent to SR 49, which create low speed versus high speed conflicting movements, which have resulted in collisions, serious injuries and fatalities, and many other "near misses" that have occurred at these locations. Frontage road segments will be constructed to collect and funnel access to SR 49 at two at-grade signalized or roundabout intersections. Animal crossing tunnels with fencing at the right-of-way line should reduce the number of deer or other animal strikes.

This project will remove the existing merge points at each end of the project limits, reducing rear-end and sideswipe accidents and improving the highway from two to four travel lanes, connecting to the newly constructed four-lane section to the south and the existing four-lane Golden Center Freeway in Grass Valley to the north. The project will also address the need for adequate continuous shoulders to accommodate pedestrians, bicyclists and disabled vehicles by widening the shoulder to 8 feet. The existing highway has paved and/or gravel shoulders that vary from 0 to 8-foot wide; but more typically, these shoulders are non-existent or are much narrower than 8-foot. The Nevada County Bicycle Master Plan identifies the need for shoulders on this segment of SR 49 (Figure 3) to improve safety, eliminate existing gaps, and provide connectivity. This project will correct roadway deficiencies within the project limits by bringing this segment of SR 49 up to current design standards.

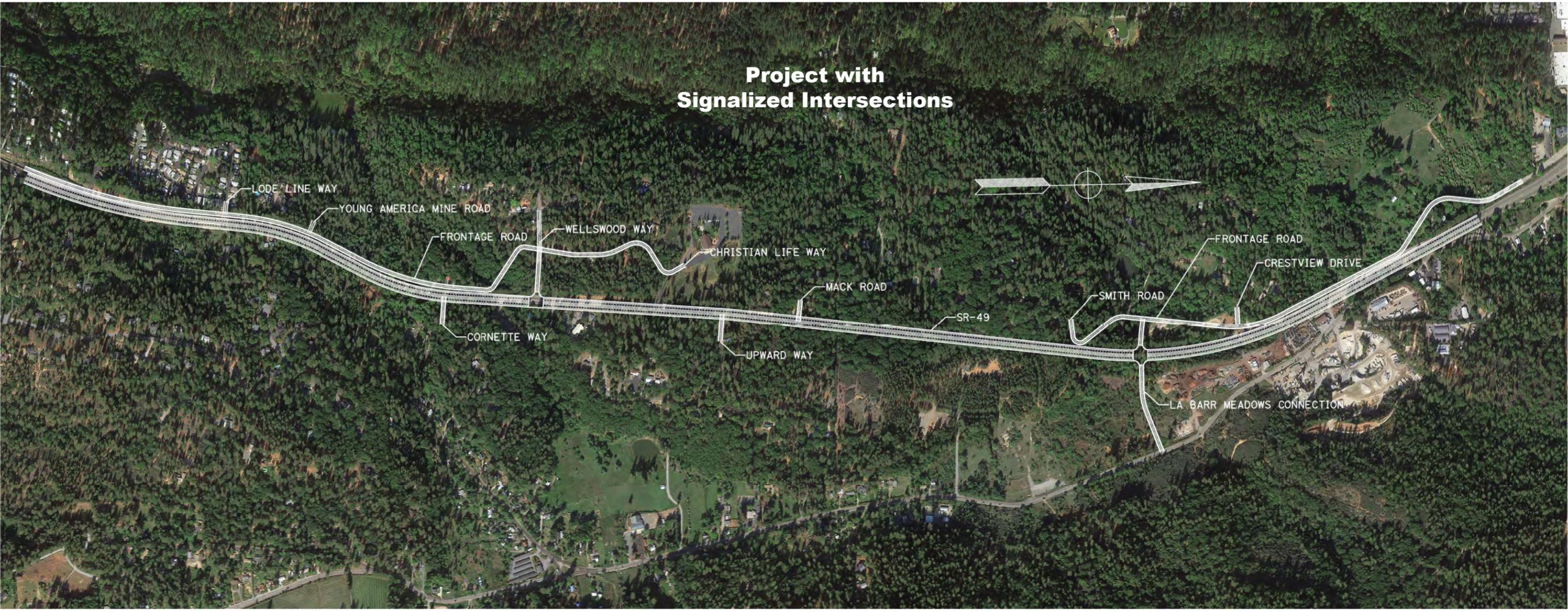
This project will reduce congestion, improve operations, enhance multi-modal options, improve safety and achieve reductions in broadside, rear end, and head-on accidents (Figure 5). The planned improvements will accommodate existing and projected future traffic volumes at LOS D or better through the year 2030. It is anticipated this project will reduce 96 collisions over 20 years.

Completing the planned improvements to interregional state highways such as SR 49 are critical to rural economies, and provides connectivity to metropolitan job centers. SR 49 is utilized for commuting, tourism and recreational travel, goods movement, and providing multi-modal connections for passenger rail, transit, and bicycles. This project will play a key role in improving safety, mobility, and providing for the reliable movement of goods and people.



Figure 5. Severe accident within project limits

# Project with Signalized Intersections



# Project with Roundabout Intersections



# 4. GRANT FUNDS, SOURCES, & USES OF PROJECT FUNDS

## 4.A. PREVIOUSLY INCURRED EXPENSES

## 4.B. FUTURE ELIGIBLE COSTS

### Grant Funds, Sources, & Uses of Project Funds

This funding is important for Nevada County. In the 2014 Bay to Tahoe Basin Recreation and Tourism Travel Impact Study (see Appendix), tourism has more significant impacts, such as congestion, on rural roads, yet funding is largely based on lane miles and resident populations. Rural areas such as Nevada County that serve significant tourism traffic besides resident population are at a disadvantage in relation to funding the needed improvements compared to other areas of the state. The project is leveraging State funds from the SHOPP and STIP as the local match for the project (Table 2).

### Project Funding

Component	Non-Federal		Other-Federal	INFRA	Total Cost	
	(STIP) <sup>1</sup>	(SHOPP) <sup>4</sup>	(SHOPP) <sup>4</sup>			
Preliminary Engineering	\$6,000,000	\$469,000	\$3,621,000	\$ -	\$10,090,000	10%
Right of Way <sup>1</sup>	\$ -	\$1,467,000	\$11,323,000	\$ -	\$12,790,000	12%
Construction <sup>2</sup>	\$24,000,000	\$3,875,000	\$29,905,000	\$25,000,000	\$82,780,000	78%
<b>Total</b>	\$30,000,000	\$5,811,000	\$44,849,000	\$25,000,000	\$105,660,000	100%
	34%		42%	24%	100%	

Table 2. Project funding

<sup>1</sup> Includes right of way acquisition and utility relocation costs.

<sup>2</sup> INFRA Grant funds will be used to address the construction funding shortfall. Escalated 4 years @ 4.2%/yr.

<sup>3</sup> The California State Transportation Improvement Program (STIP) funding will come from the Interregional Improvement Program (IIP) and the Regional Improvement Program (RIP).

<sup>4</sup> This project is listed in the State Highway Operations Protection Program (SHOPP) 10-year Project Book, and planned to be programmed in the 22/23 Fiscal year in the 2020 SHOPP.

Without INFRA grant funding, the NCTC will not be able to complete the SR 49 Corridor Improvement Project in the foreseeable future. NCTC receives a formula apportionment share of State Transportation Improvement Program (STIP) - Regional Improvement Program (RIP) funding, which generates approximately \$2 million annually. For larger capital construction projects even if the RIP funds are banked over time, it can be challenging to keep pace with increases in construction costs as the project is delayed due to funding constraints. The INFRA grant funding will leverage and be combined with NCTC's STIP - RIP funding and Caltrans STIP - Interregional Improvement Program (IIP) and State Highway Operations and Protection Program (SHOPP) funding to allow the project to move from preliminary design, environmental review, preliminary engineering, and right-of-way directly into the construction of this critical infrastructure project that will improve safety, operations, and mobility. The INFRA grant funding will be utilized to address the construction funding shortfall in the amount of \$25 million as depicted in Table 2.

# 5. MERIT CRITERIA

- 5.A. CRITERION 1: SUPPORT FOR NATIONAL/REGIONAL ECONOMIC VITALITY
- 5.B. CRITERION 2: LEVERAGING FEDERAL FUNDING
- 5.C. CRITERION 3: POTENTIAL FOR INNOVATION
- 5.D. CRITERION 4: PERFORMANCE AND ACCOUNTABILITY

## 5.A. Criterion #1: Support for National or Regional Economic Vitality

A Benefit-Cost Analysis (BCA) was conducted to assess the impacts of the Nevada 49 CIP following the U.S. DOT guidance. This section provides a summary of the BCA results, while Benefit Cost Analysis and Methodology provides additional detail regarding inputs, sources, analysis, and results. To arrive at the benefits of the project, all Federal guidance was adhered to. The benefits of the project, similar to the costs, are calculated in 2017 dollars. The BCA considers the opening year for the project is 2023 with a horizon year of 2043 used to estimate the projects impacts before and after project construction.

The resulting Benefit Cost Ratio from the project is 0.8 showing \$84.8 million in Life-Cycle Benefits. Further breakdown of the benefits are described in Table 3 and further BCA details can be seen in Attachment A.

### Investment Analysis: Summary of Results

Itemized Benefits (mil. \$)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	\$76.3	\$6.7	\$83.1	\$4.2
Vehicle Op. Savings	-\$0.6	\$0.0	-\$0.6	-\$0.0
Accident Cost Savings	\$2.0	\$0.1	\$2.1	\$0.1
Emission Cost Savings	\$0.1	\$0.1	\$0.2	\$0.0
<b>TOTAL BENEFITS</b>	<b>\$77.8</b>	<b>\$7.0</b>	<b>\$84.8</b>	<b>\$4.2</b>
Time Saved (Person-Hrs)			13,021,235	651,062

Life-Cycle Costs (mil. \$)	\$105.2
Life-Cycle Benefits (mil. \$)	\$84.8
Net Present Value (mil. \$)	-\$20.4
Benefit/Cost Ratio:	0.8
Ratio of Return on Investment	4.9%
Payback Period:	14 Years

Emission Reduction	Total Over 20 Years*	Average Annual*	Total Over 20 Years**	Average Annual **
CO Emissions Saved	113	6	\$0.0	\$0.0
CO2 Emissions Saved	25,696	1,285	\$0.0	\$0.0
NOX Emissions Saved	35	2	\$0.1	\$0.0
PM10 Emissions Saved	0	0	\$0.1	\$0.0
PM2.5 Emissions Saved	0	0		
SOX Emissions Saved	0	0	\$0.0	\$0.0
VOC Emissions Saved	8	0	\$0.0	\$0.0

Should benefit-cost results include:	Yes/No
1) Induced Travel?	Yes
2) Vehicle Operating Costs?	Yes
3) Accident Costs?	Yes
4) Vehicle Emissions?***	Yes

Table 3. Investment Analysis Summary

\* Tons  
 \*\* Value in millions of dollars  
 \*\*\* Includes value for CO2e

## 5.A.1 Anticipated Project Outcomes

Upgrading the highway to a four-lane facility with a continuous median barrier, eliminating existing merge conflict points, consolidating multiple access points into an access controlled intersection via frontage road segments, the addition of 8-foot shoulders, and horizontal and vertical alignment improvements are anticipated to achieve the following outcomes:

- Improving the reliability of travel times by improving capacity, eliminating merge points and goods movement bottlenecks, reducing accidents, and providing for truck climbing lanes.
- Improve interactions between roadway users, reducing the likelihood of high consequence events.
- Improving safety by eliminating merge conflict points between freight trucks and passenger cars and reducing rear end accidents (achieve reduction in traffic fatalities and serious injuries related to collisions).
- Improving pedestrian and bicycle mobility and safety through the addition of shoulders.
- Improved traffic flow reducing vehicle congestion and associated air quality emissions.
- Support commerce and economic growth by improving traffic operations and travel times. The proposed project improvements will also ensure that SR 49 is able to handle the forecasted growth of goods movement on the corridor, and serve as an Emergency Detour Route when I-80 is closed, due to major accidents, wildland fires, construction, and serve as an evacuation route during wildland fires. When freight and passenger vehicles are re-routed, additional capacity is needed.
- Advances national and regional economic development by improving connections to the nation's transportation network to support the movement of freight and people.
- Reducing corridor traffic congestion to connect peripheral regions to urban centers and job opportunities.

# 6. PROJECT READINESS

## 6.A. TECHNICAL FEASIBILITY

## 6.B. PROJECT SCHEDULE

## 6.C. REQUIRED APPROVALS

## 6.D. ASSESSMENT OF PROJECT RISKS AND MITIGATION STRATEGIES



### 6.A Technical Feasibility

Extensive preliminary designs have been completed within the project limits. AutoCAD Civil 3D software was used to design a preliminary alignment for this project, which conforms with Caltrans' design standards.

Using this design, a cost estimate was prepared using measured quantities and applying a contingency cost to cover risks. A 20% contingency was applied, due to the preliminary nature of the design. As the project progresses, the contingency will reduce as risks are resolved.

### 6.B. Project Schedule

This project is already programmed in STIP and the FTIP. Caltrans is working on Preliminary Design and CEQA/NEPA studies. The project is expected to progress according to the schedule depicted in Figure 10.

Activity	Start	Finish	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CEQA/NEPA	4/12/15	9/6/19	[Bar]										
Complete PS&E	9/6/19	1/7/22					[Bar]	[Bar]					
Obtain Permits	9/6/19	1/7/22					[Bar]	[Bar]					
R/W Acquisition	9/6/19	1/7/22					[Bar]	[Bar]					
Obligate Funds	6/1/21	1/7/22							[Hexagon]				
Advertise/Award	1/7/22	7/7/22							[Bar]				
Construction	7/7/22	11/1/24								[Bar]	[Bar]	[Bar]	
Complete Construction	11/1/24	11/1/24										[Hexagon]	

Figure 10. Project schedule

The Project Schedule fulfills both the requirement that funds be obligated by 9/30/22, and that the project begin construction within 18 months of obligation of funds.