

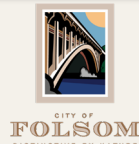
BCA NARRATIVE

US DEPARTMENT OF TRANSPORTATION



CAPITAL | SOUTHEAST
CONNECTOR JPA
Connecting Communities

GRANT LINE ROAD SAFETY IMPROVEMENTS PROJECT



Benefit-Cost Analysis Narrative

The Grant Line Road Safety Improvement Project (Project) will reconstruct 3.6 miles of existing two-lane road and construct a new Class I path adjacent to the roadway. The Project is an important feature of the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS), also known as Blueprint. The Class I path supports the goals of the Sacramento Region Trail Network Action Plan ([link](#)) and is a recipient of the “[Innovative Transportation Solutions](#)” Award.

Methodology

The Benefit-Cost Analysis was conducted utilizing the Caltrans’ Cal-B/C AT v8.1 Model and Benefit-Cost Analysis Guidance for Discretionary Grant Programs, DOT, January 2024. Project benefits were based on User Volumes derived from path count data from regional trails and population growth projections along Grant Line Road within Rancho Cordova and Sacramento County. Detailed information for the different BCA spreadsheets is below.

User Volumes

The organization People for Bikes collects data on ridership and works to support active transportation infrastructure and policy. In 2022, People for Bikes reported that 34% of the American population age 3 and older rode a bike. That percentage would include all bicyclists, e.g., recreational riders, commuters, and the different design user profiles (see Merit Criteria under Safety). Nationwide averages suggest that bicycle mode share is approximately 14% (Alliance for Biking and Walking). The Sacramento Region is bike-friendly and Sacramento County and the City of Rancho Cordova have made major investments to improve their bicycle infrastructure and connectivity leading to a large population that rides bicycles on a regular basis.

Model Inputs (BCA spreadsheet) numbers for bicyclists and pedestrians were based on a three-mile radius of the new Class I path with a conservative estimate that 1,000 trips will occur on the facility a year after construction and grow at a rate of 5% over 20 years. The estimate of pedestrians using the facility is 17% of the number of bicyclists, this was derived from bicycle and pedestrian counts conducted on the multi-use paths in the area (trail counts were conducted for two hours in nine different locations). The population within one-mile of the Class I path is anticipated to be over 75,000 based on over 27,600 new housing units expected to be built over the next twenty years with an average of 2.7 people living in each unit. As stated above, an annual growth rate of 5% was used for a three-mile radius of the Project. The model inputs used in the BCA spreadsheet conservatively assume that 2% of the expected population will use the trail daily.

Safety

The City of Rancho Cordova is well underway building new homes and communities adjacent to the Project. These new developments will increase the need for a new, engineered roadway alignment with sufficient shoulders for commuters and for trucks moving supplies in and out of the area. The urgency of these improvements cannot be overstated with a fatality and two

injuries occurring on February 23, 2024 due to an overturned vehicle near the 25 MPH turn. The Class I path is an essential safety feature as well with new homes being built on both sides of Grant Line Road. Safety Benefits will be realized through intersection improvements and the addition of a new signalized intersection at Raymer Way (where the recent fatality occurred) along with the separated Class I path. Safety Benefits were calculated to be over \$13 million over 20 years.

Journey Quality

Journey quality refers to a greater sense of safety, comfort, and aesthetics cyclists and pedestrians feel on the facility, which, in this case, currently does not exist. Safety improvements at intersections and the perception of safety that induced users will experience improves journey quality. Journey quality benefits are estimated to be \$11.2 million over 20 years.

Health Benefits

Health Benefits are determined from a combination of reduced mortality (see Health - Reduced Mortality spreadsheet), induced walking and cycling commuters, and reduced absenteeism of commuters monetized by higher productivity due to fewer sick days. Additionally, active transportation supports the health of all users of the path and increases mobility and encourages a mode shift. The Health Benefits account for over \$66 million in benefits over 20 years, the largest monetary benefit of the Project.

The table below illustrates the current status, issues to be addressed, and positive impacts of the Project that RAISE Grant funds would be used for.

Table 1: Baseline and Positive Impacts

Baseline / Current Status and Problem to be Addressed	Change to Baseline / Proposed Project to Address the Problem	Example Positive Impacts
Non-existent Class I path	Class I path will be built connecting to Class II facilities on each end advancing the Sacramento Region Trail Network Action Plan	Increased community connectivity and access to amenities due to bicyclists and pedestrians having a safe, separated path
Shoulders along the roadway are insufficient for motorists, let alone bicyclists and pedestrians	Class I path will remove any pedestrians and bicyclists from the road and motorists will have an engineered roadway and turn	Decreased stress for all modes of travel with a greater sense of safety and comfort with motorists having sufficient room

Benefit-Cost Analysis Results

The Cal-B/C model calculates itemized benefits for Journey Quality, Safety Benefits, Health Benefits, and Emission Cost Savings along with several others within the Results table below. The new roadway, improved and new intersections, and addition of a new Class I facility where none currently exists has a large impact on the Health Benefits and Journey Quality dollars. The total benefits for the Project are an average of \$4.6 million annually and \$91.7 million over 20 years. Approximately, 72% and 15% of the total benefits are derived from the Health Benefits and Safety Benefits, respectively, with a total benefit/cost ratio of 1.8.

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INVESTMENT ANALYSIS

SUMMARY RESULTS

Life-Cycle Costs (mil. \$)	\$51.8
Life-Cycle Benefits (mil. \$)	\$91.7
Net Present Value (mil. \$)	\$39.9

Benefit / Cost Ratio: 1.8

Rate of Return on Investment: 8.2%

Payback Period: 10 years

NON-INFRASTRUCTURE IMPLEMENTATION COST

Per Bike Program Impact Score	N/A
Per Ped Program Impact Score	N/A

Factors that Differentiate Benefits and Performance Measures

Safe Route to School

Intersection Improvements on SRTS

Programmatic Initiatives

Recreational Benefits

(enter 1 for Yes, 0 for No)

Yes
Yes
No
1

ITEMIZED BENEFITS (mil. \$)

	Total Over 20 Years	Average Annual
Journey Quality	\$11.2	\$0.6
Additional Delay Savings	\$0.0	\$0.0
Additional Safety Benefits	\$13.9	\$0.7
Health Benefits	\$66.3	\$3.3
Emission Cost Savings	\$0.3	\$0.0
TOTAL BENEFITS	\$91.7	\$4.6

SRTS-SPECIFIC BENEFITS (mil. \$)

Journey Quality	\$0.1	\$0.0
Additional Delay Savings	\$0.0	\$0.0
Additional Safety Benefits	\$13.2	\$0.7
TOTAL SRTS BENEFITS	\$13.4	\$0.7

	Tons		Value (mil. \$)	
	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
EMISSIONS REDUCTION				
CO Emissions Saved	5	0	\$0.0	\$0.0
CO ₂ Emissions Saved	1,751	88	\$0.3	\$0.0
NO _x Emissions Saved	0	0	\$0.0	\$0.0
PM _{2.5} Emissions Saved	0	0	\$0.0	\$0.0
SO _x Emissions Saved	0	0	\$0.0	\$0.0
VOC Emissions Saved	0	0	\$0.0	\$0.0

Table 2: BCA Results