Benefit-Cost Analysis
Supplementary Documentation

2021 RAISE Grant Program

CR 419 Widening and Complete Streets Improvements

Seminole County, FL

July 7, 2021

Benefit-Cost Analysis: Supplementary Documentation

1. Introduction

This document provides technical information on the economic analysis conducted in support of the grant application for the CR 419 (Phase 3) widening and complete streets safety project in Seminole County, Florida.

Section 2, Methodological Framework, introduces the conceptual framework used in the Benefit-Cost Analysis (BCA). Section 3, Project Overview, provides an overview of the project, including a summary of cost estimates and schedule; and a description of the types of effects that the proposed CR 419 widening and safety project is expected to generate. Section 4, General Assumptions, discusses the general assumptions used in the estimation of project costs and benefits, while estimates of travel demand/traffic growth can be found in Section 5, Travel Demand Projections. Specific data elements and assumptions pertaining to the merit selection criteria are presented in Section 6, Benefits Measurement, Data and Assumptions, along with associated benefit estimates. Estimates of the project's Net Present Value (NPV), its Benefit-Cost Ratio (BCR) and other project evaluation metrics are presented in Section 7, Summary of BCA Findings. Next, additional data tables are provided in Section 8, Aggregate Annual Benefits and Costs, including annual projections of benefits and costs to assist US DOT in its review of the application.[1]

2. Methodological Framework

The BCA conducted for this project focuses on monetized benefits and costs measured consistent with the pertinent US DOT guidance[2]. Some of the merits of the project could not be quantified. They are outlined qualitatively where applicable.

A BCA provides projections of the benefits that are expected to accrue from a project over a specified period, and compares them to the anticipated costs of the project. Costs include both the resources required to develop the project and the costs of maintaining the new or improved asset over time. Benefits are based on the forecasted impacts of the project on both users and non-users of the facility, valued in monetary terms.

[1] While the calculations/models themselves do not accompany this document, they are provided separately in MS Excel as part of the application.

[2] US DOT, Benefit-Cost Analysis Guidance for Discretionary Grant Programs, February 2021.

The specific methodology used for this application was developed in alignment with the BCA guidance prepared by US DOT, and is consistent with the RAISE program guidelines. In particular, the methodology involves:

- Establishing existing and future conditions under the Build and No-Build scenarios;
- Assessing benefits with respect to each of the key long-term merit criteria identified in the Notice of Funding Opportunity (NOFO);
- Measuring benefits in dollar terms, whenever possible, and expressing benefits and costs in a common unit of measurement;
- Using US DOT guidance for the valuation of travel time savings, vehicle operating costs savings, safety benefits, and reductions in air emissions, while relying on industry best practice for the valuation of other effects; and
- Discounting future benefits and costs with the real discount rate as instructed by US DOT BCA Guidance (7 percent); and
- All monetary values in this Appendix are expressed in 2019 dollars, unless stated otherwise.

3. Project Overview

This project will result in the widening of the existing CR 419 roadway (two-lane configuration, No-Build) to four-lane configuration – Build – on an approximately 1.2-mile segment from Avenue B on its western end to Bishop Avenue, just west of Lockwood Boulevard, on its eastern end. The project is located in Seminole County, Florida, which is part of the larger Orlando-Kissimmee-Sanford metropolitan area. A more detailed description of the project is provided in the main body/narrative of this application.

3.1 Types of Benefits

The proposed CR 419 widening is expected to result in primarily mobility and safety benefits to the regional population. These are broadly summarized in Table 1.

Table 1: Summary of the Transportation Improvements and Associated Impacts and Benefits

Current Status or Baseline & Problems to Be Addressed	Changes to Baseline / Alternatives	Type of Impacts	Population Affected by Impacts	Benefits
The existing CR 419 segment area is congested, which will be exacerbated by the expected population growth.	Widening of CR 419 from two to four lanes.	Congestion relief and changes in vehicle hours traveled and vehicle miles traveled in the region.	Area residents and businesses, freight carriers, and travelers passing through the area.	Travel time savings, and vehicle operating cost savings.
Growing traffic volumes across the area road network generate accidents on the 2-lane road segment.	Widening (to 4-lanes) and safety features of the improved roadway to result in safer travel.	Lowered vehicle crash rate.	Area residents and businesses, freight carriers, and travelers passing through the area.	Reduced accident costs.

3.2 Project Cost[3] and Schedule

The proposed widening project is forecasted to cost $20.8 million (in 2019 dollars, or $22.1 million in 2021-dollar terms) in total upfront investment. This amount is scheduled to be expended over a five-year timeframe, with the three four years (2022-2024) allocated to design activities, then right-of-way (RoW) acquisition activities (2023-2024), and also construction from 2024-2026. Table 2 below shows the projected costs and annual schedule related to the project.

Table 2: Summary of the Project's Forecasted Investment Costs (in millions of 2019$)

	2022	2023	2024	2025	2026	5 year Total
Annual Cost	$0.4	$2.0	$2.9	$9.3	$6.2	**$20.8**

Starting from the first year of the improved operations in 2026[4], there will also be an increase in the operating and maintenance (O&M) costs for the improved facility relative to the No-Build scenario. The change in O&M costs was computed based on the difference between the current O&M costs (two-lane configuration), and the Build configuration (four lanes), over the length of about 1.2 miles. This incremental O&M cost is projected to be $51.6 thousand per full year, for a 20-year total of $1 million. As per the latest US DOT BCA guidance

[3] All cost estimates in this section are in expressed in 2019 constant dollar terms, unless otherwise noted.

[4] 2026 is projected to be the first partial year of operations – opening in September, with four months of operations in that year. The first full year of operations is scheduled for 2027.

documents, O&M costs are included (as a negative value in this case) in the numerator of the benefit-cost ratio.

3.3 Disruptions Due to Construction

The proposed widening of CR 419 (Phase 3) is not expected to cause any significant disruption to existing traffic during construction. Maintenance of traffic (MOT) plans will follow Florida Department of Transportation (FDOT) standards and at least one lane in each direction will always be open. Pedestrian traffic circulation will also be accommodated in the MOT. As most of the construction is envisioned to take place in the lightly-traveled hours, and will be combined with various mitigating measures (such as appropriate safety signage), the impact on traffic flow is expected to be minimal. Hence, it is assumed to be $0 in the BCA.

3.4 Effects on Key Selection Criteria

The main benefit categories associated with the project are mapped into the key selection criteria set forth by US DOT in Table 3.

Table 3: Benefit Categories and Expected Effects on US DOT Primary Selection Criteria

Key Selection Criteria	Benefit or Impact Categories	Description	Monetized	Quantified	Qualitative
Safety	Safety benefits	Change in the number of accidents, resulting in injuries, and property damage savings.	Yes	Yes	No
Economic Competitiveness	Change in travel time costs	Change in travel time in the region stemming from the widening.	Yes	Yes	No
	Change in vehicle operating costs	Change in vehicle operating cost due to changes in vehicle miles traveled in the region.	Yes	Yes	No
	Job creation	Construction jobs.	No	No	Yes
	Improved land access	Improved access to various educational, residential, recreational, and commercial properties/land uses around the improved roadway	No	No	Yes
Environmental Sustainability	Change in emissions	Change in emission volumes due to changes in vehicle miles traveled in the region	Yes	Yes	No
State of Good Repair	Residual value of investment	Residual value of the project at the end of the analysis period	Yes	Yes	No
Quality of Life	Improved access to jobs	Improved access to jobs in locations around the area	No	No	Yes

4. General Assumptions

The BCA measures, on a discounted basis, benefits against costs throughout the 25-year period of analysis beginning at the start of the investment in year 2022, and including 20 full years of operations from 2027 through 2046 (plus four months in 2026).

The monetized benefits and costs are shown in constant dollars of 2019 with future dollars discounted in compliance with RAISE requirements using a seven percent real rate, consistent with the US DOT BCA Guidance. The methodology makes several important

assumptions, and seeks to avoid overestimation of benefits and underestimation of costs. Specifically:

- Input prices are expressed in 2019 dollars;
- The period of analysis begins in 2018 and ends in 2044. It includes project development and construction years (2022 - 2026), and 20 full years of operations (2027 - 2046);
- A constant seven percent real discount rate is assumed throughout the period of analysis; and
- Opening year demand is an input to the BCA, and is assumed to be fully realized in Year 1 (no ramp-up).

5. Travel Demand Projections

Travel demand projections serve as an important input to forecasting the key benefits included in this BCA. The travel demand model used in this analysis was the Central Florida Regional Planning Model (CFRPM). This model was developed for the planning activities of the Central Florida area, and is the official model used by the area MPO – METROPLAN Orlando – jurisdiction which includes Seminole County where the CR 419 Corridor is located. The coverage area for the CFRPM corresponds with the jurisdiction of FDOT District 5 and includes Seminole as well as Brevard, Flagler, Marion, Orange, Osceola, Sumter, and Volusia Counties. Additionally, the model includes Polk County, and part of Indian River County.

CFRPM (latest) version 7 was used to develop the vehicle hours traveled (VHT), and vehicle miles traveled (VMT) forecast with (Build) and without (No-Build) the project. The regional VMT and VHT values were estimated for the base year 2015 without (No-Build) the proposed CR 419 widening. The future year 2045 forecasts were produced for both No-Build and Build conditions only, so the difference for the future is due to the effects of the project only. While the model is regional in nature, the great majority of the trips in the Corridor are much more local serving the needs of the traveling public in the vicinity of the Corridor connecting the already congested parts of Oviedo with Orlando and the rest of Central Florida. This Corridor vicinity is forecast to become even more congested as the projected additional population and business activities occur over time. This is reflected in the modeled travel demand projections, and the resulting benefits of capacity expansion as shown in the descriptions that follow below.

5.1 Demand Projections Summary

The resulting projections for VHT and VMT by vehicle type for the Build and No-Build scenarios are presented in Table 4.

Table 4: Travel Demand Projections, Average Daily VMT and VHT (in millions)

Year/Scenario	VMT Auto	VMT Truck	VHT Auto	VHT Truck
2015 Base	131.282	11.041	3.376	0.257
2045 No-Build	201.148	18.526	8.393	0.718
2045 Build	201.138	16.524	8.391	0.718

6. Benefits Measurement, Data and Assumptions

The proposed widening project will yield various benefits for the traveling public and the larger economy. These are based most heavily on the reductions of times traveled by motorists in the area. The following subsections describe the measurement approach used for each benefit or impact category identified in Table 3 above, and provides an overview of the associated methodology, assumptions, and projections.

6.1 State of Good Repair

To quantify the benefits associated with maintaining the existing transportation network in a state of good repair, the residual value of the project's initial investment in the roadway was estimated. The proposed roadway widening is expected to retain some value beyond the 2046-time horizon for which the various benefits described in this document are computed. The residual value of the proposed project was estimated based on the assumption of a useful life of 25 years.

Based on the initial construction value of $17.7 million, and assuming straight-line depreciation, the combined residual value of the widening in place in year 2046 is projected to be $5.4 million (including $1.9 in land/ROW, which is assumed not to depreciate over time), with a present discounted value of $1.0 million.

6.2 Economic Competitiveness

The proposed project will contribute to enhancing the economic competitiveness of the area and potentially beyond through improvements in the mobility of people and goods within and across the region. In this analysis, two measures of mobility are presented: travel time savings, and vehicle operating cost savings.

6.2.1 Travel Time Savings

Travel time savings are a function of vehicle hours traveled. The analysis of the reduction in VHT was based on the data from the CFRPM, as described in Section 5 above.

A summary of the VHT saved with the project (Build), relative to the without the project (No-Build) scenario, by major vehicle class for the first full year of operations (2027) and the horizon year (2046) is presented in Table 5. These changes are based on an annualization factor of 300 days.

Table 5: Projected VHT Savings (annualized, in millions)

Year	Auto	Truck	Total
2027	0.12	0.01	0.13
2046	0.54	0.04	0.58

As can be seen in Table 5, VHT reductions are projected to amount to about 0.1 million in year 2027, increasing to 0.6 million in 2046, with the great majority (i.e., 93 percent) of the savings captured by automobile users.

The hours saved in the Build scenario were monetized with the motorists' value of travel time (VOTT). This analysis recognizes that the economic VOTT varies by vehicle class. For each of the two (auto and truck) vehicle classes, the travel time benefits were derived by multiplying VHT savings by the appropriate VOTT (using the latest BCA Guidance for Discretionary Grants), and applicable vehicle occupancy rates. It should be noted that there is no induced demand in the travel demand model used as the number of regional trips under the Build and No-Build scenarios is the same.

Travel time savings are expected to be about $3.7 million in the first full year of operations (2027), increasing to $17.3 million in year 2046, for a 20-year total of $192 million (before discounting), and $61.5 million in discounted terms, as summarized in Table 6.

Table 6: Projected Total Travel Time Savings (in millions of 2019$)

	2027	2046	20 year Total Before Discounting	20 year Total Discounted at 7%
Automobiles	$3.5	$16.1	$178.7	$57.3
Trucks	$0.2	$1.2	$13.2	$4.2
Total	**$3.7**	**$17.3**	**$192.0**	**$61.5**

6.2.2 Vehicle Operating Cost Savings

Vehicle operating costs are a function of vehicle miles traveled. The widening of CR 419 is expected to result in reduction in vehicle miles traveled in the area, as per the results from the CFRPM. As shown in Table 7, savings in VMT are expected to reach about 1.0 million in 2027 rising to 3.5 million in 2046, with most of these reductions accrued to passenger vehicle users.

Table 7: Projected VMT Savings (annualized, in millions)

Year	Auto	Truck	Total
2027	0.94	0.10	1.03
2046	3.17	0.35	3.52

The vehicle operating cost savings related to this project were derived based on the reductions in VMT, and the average operating costs per mile for passenger and commercial vehicles, as per the latest US DOT BCA Guidance. The resulting annualized vehicle operating cost savings are projected to amount to about $0.5 million in year 2027, rising to about $1.7 million by 2046. The corresponding 20-year operations period total is $21 million, and $7 million in discounted terms, as summarized in Table 8.

Table 8: Projected Vehicle Operating Cost Savings (in millions of 2019$)

	2027	2046	20 year Total Before Discounting	20 year Total Discounted at 7%
Automobiles	$0.4	$1.4	$17.1	$5.7
Trucks	$0.1	$0.3	$4.0	$1.3
Total	**$0.5**	**$1.7**	**$21.0**	**$7.0**

6.2.3 Job Creation

Injection of capital infrastructure spending, such as that related to the proposed CR 419 widening and safety improvements, into the area economy will lead to direct construction and related professional services jobs, as well as indirect jobs supporting the suppliers of materials and equipment. In turn, these direct and indirect jobs support, through re-spending of earnings, additional jobs within the economy (induced impacts).

Additionally, the widening is expected to aid further business attraction and retention (with the related jobs) that would not otherwise occur. However, these impacts were not quantified as part of this application.

6.2.4 Land Access

The widening CR 419 will also improve access to the nearby land that is slated for development. The roadway connects to various educational, recreational, and commercial establishments. These will become more accessible with the widened roadway and enhanced pedestrian circulation connecting to the area network, and may be better positioned to realize their full potential. This land access benefit was not quantified, and hence, is not incorporated in the BCA results.

6.3 Quality of Life

The project would contribute to enhancing the quality of life in the study area through improved access to job opportunities. With the widened roadway option that provides generalized cost (time and money) and accident savings, residents of Seminole County will have improved access to the larger job market within the County as well as elsewhere in the Central Florida region. This may result in associated productivity and income gains, improving the overall quality of life in the area. This effect, however, is not included in the quantification of project outcomes.

6.4 Environmental Protection

The environmental effects were calculated as the product of changes in tons of emissions by pollutant and their unit value per ton. The unit values for NOx, PM, SO_2, and CO_2 reflect the US DOT recommendations from the latest BCA Guidance. Changes in tons of emissions by pollutant are a function of emissions rates and changes in VMT by vehicle type and speed. The emission rates were based on the EPA's MOVES (Motor Vehicles Emission Simulator) model specific to the District Five region in Florida, while changes in total VMT[5] were obtained from the CFRPM.

The resulting emission cost changes are summarized in Table 9. These savings are projected to increase from a relatively small annual value of about $0.04 million in 2027 to $0.2 million in 2046, totaling 1.8 million over the 20-year operations timeframe (before discounting), or $0.9 million in present value terms (discounted at seven percent, except for CO_2 – discounted at 3%). They include savings related to carbon dioxide and the other three pollutants.

Table 9: Projected Total Air Emissions Savings (in millions of 2019$)

Pollutant	2027	2046	20 year Total Before Discounting	20 year Total Discounted at 7%*
NO_X	$0.0	$0.0	$0.2	$0.1
CO_2	$0.0	$0.1	$1.2	$0.7
PM	$0.0	$0.0	$0.4	$0.1
SO_2	$0.0	$0.0	$0.0	$0.0
Total	**$0.04**	**$0.2**	**$1.8**	**$0.9**

* CO_2 emission savings are discounted at the annual rate of 3%.

6.5 Safety

The monetized safety benefits of the project were derived based on projection of future accidents savings, and unit values of accidents by type. Projected accidents were based on the recent five-year historical annual average of occurrences of fatalities, injuries, and damaged vehicles in the corridor section, as per the University of Florida's Signal Four Analytics database. The recent annual average of accidents was conservatively assumed to re-occur under the No-Build scenario. The Build scenario assumes that the No-Build crashes are reduced as per the (two- to four-lane corresponding) crash modification factor (CMF ID 7566) of 0.341 from the FHWA's Crash Modification Factors Clearinghouse. The unit cost of fatalities, injuries, and damaged vehicles are based on the dollar values from the latest BCA Guidance for Discretionary Grants.

The findings from the safety analysis projected future benefits from the CR 419 widening to total about $0.5 million per year. Table 10 summarizes the resulting safety benefits, which

[5] Changes by speed were not available.

are projected to be valued at $9.7 million (before discounting) over the 20-year operating timeframe, or $3.7 million after discounting.

Table 10: Projected Accident Cost Savings by Severity (in millions of 2019$)

Type	2027	2046	20 year Total Before Discounting	20 year Total Discounted at 7%
Fatalities	$0.0	$0.0	$0.0	$0.0
Injuries	$0.4	$0.4	$8.5	$3.2
Damaged Vehicles	$0.1	$0.1	$1.3	$0.5
Total	**$0.5**	**$0.5**	**$9.7**	**$3.7**

7. Summary of BCA Findings

The tables below summarize the BCA findings. Annual costs and benefits are computed over the full period of analysis (25 years). As stated earlier, the initial five-year investment is expected to be completed in 2026, with the benefits accruing during the 20-year period of operations, from September 2026 through end of 2046.

Total benefits and costs, expressed in 2019 dollars, for the analysis period are shown in Table 11. This table reflects a summation of the annualized benefits and costs for each year between 2022 and 2046. In accordance with the US DOT guidance for benefit-cost analysis, the annualized benefits and costs were discounted to reflect the time value of money. Consistent with the OMB Circulars A-94, a real discount rate of seven percent[6] was used in the discounting of the benefits and costs.

[6] Except for CO_2 emissions, for which a real discount rate of three percent was applied.

Table 11: Benefit-Cost Analysis Results (in millions of 2019$)*

Benefit and Cost Metrics	2022 2046 Totals	
	Discounted at 7%[7]	Before Discounting
Project Benefits		
Travel Time Savings	$61.5	$192.0
Vehicle Operating Cost Savings	$7.0	$21.0
Emission Savings (Carbon)	$0.7	$1.2
Emission Savings (non-Carbon)	$0.2	$0.5
Safety	$3.7	$9.7
Residual Value	$1.0	$5.4
Total Benefits	$74.1	$230.0
Project Costs		
Capital	$16.0	$20.8
O&M Costs	$0.4	$1.0
Total Project Costs	$16.4	$21.8
Key BCA Metrics		
Total Benefits less Total Costs	**$57.7 (NPV)**	$208.2
Benefit-Cost Ratio**	**4.6**	
Internal Rate of Return	**26%**	
Breakeven Year	**2031**	

** Unless specified otherwise. The numbers are rounded. **Note that the Benefit-Cost Ratio was calculated as: (Benefits – O&M Costs) / Capital Costs, in compliance with the latest BCA Guidance for Discretionary Grant Programs*

Considering all monetized benefits and costs, the estimated internal rate of return of the project is 26 percent. Applying a seven percent real discount rate, the investment in the proposed widening can be expected to yield a **net present value of $57.7 million**, and a **Benefit-Cost ratio of 4.6**, indicating that the project returns $4.6 in benefits for every dollar of capital costs. The breakeven year for this investment is 2031.

Among the project benefits totaling $74.1 million (in present value terms), the by travel time savings (at $61.5 million) are projected to be the largest category, followed by vehicle operating cost savings ($7 million), safety benefits ($3.7 million), residual value ($1 million), and emissions ($0.9 million overall).

8. Aggregate Annual Benefits and Costs

This section reports the aggregate benefits and costs associated with the proposed CR 419 widening project in annual terms. Table 12 shows total benefits and costs before discounting

[7] This discount rate (including the 3% for CO_2 emissions) is in accordance with the US DOT BCA Guidance, February 2021.

(2019$), as well as net benefits (the difference between total benefits and total costs) both in undiscounted and discounted terms. As can be seen in the table, the net discounted benefits start in the minus $0.4 million to minus $7.1 million range in the initial five years of investment before the benefits begin accruing. The net benefits then increase to a positive range of $3.1 million to $3.7 million per year from 2027 to 2045, and with the $4.6 million value in 2046, including the residual value. The resulting 25-year total (NPV) amounts to $57.7 million.

Table 13 presents the aggregate monetized annual benefits, before discounting, in terms of the key monetized outcome criteria (State of Good Repair, Economic Competitiveness, Environmental Sustainability, and Safety). As noted earlier in this document, some of the expected benefits, such as those pertaining to improved jobs access under the quality of life category are not monetized, and hence not included in the following tables.

User benefits for travelers in the region (combined travel time savings and vehicle operating cost savings), amounting to $213 million (over a 20-year period, undiscounted), account for the largest category of the monetized merits, and are included in the economic competitiveness category. Safety benefits, at $9.7 million (undiscounted), are projected to be the second largest category of benefits generated by this project, with State-of-Good-Repair benefits, at $5.4 million, are the third largest, followed by the Environmental Sustainability merit category, at $1.8 million, that the project is expected to yield.

Table 12: Annual Projections of Total Project Benefits and Costs (in millions of 2019$)

Calendar Year	Project Year	Total Benefits	Total Costs	Net Benefits Before Discounting	Net Benefits Discounted at 7%
2022	1	$0.0	$0.4	($0.4)	($0.4)
2023	2	$0.0	$2.0	($2.0)	($1.8)
2024	3	$0.0	$2.9	($2.9)	($2.4)
2025	4	$0.0	$9.3	($9.3)	($7.1)
2026	5	$1.4	$6.2	($4.8)	($3.4)
2027	6	$4.8	$0.1	$4.7	$3.1
2028	7	$5.2	$0.1	$5.2	$3.2
2029	8	$5.8	$0.1	$5.7	$3.3
2030	9	$6.3	$0.1	$6.3	$3.4
2031	10	$6.9	$0.1	$6.8	$3.5
2032	11	$7.5	$0.1	$7.4	$3.5
2033	12	$8.1	$0.1	$8.0	$3.6
2034	13	$8.8	$0.1	$8.7	$3.6
2035	14	$9.5	$0.1	$9.4	$3.7
2036	15	$10.2	$0.1	$10.1	$3.7
2037	16	$10.9	$0.1	$10.9	$3.7
2038	17	$11.7	$0.1	$11.7	$3.7
2039	18	$12.6	$0.1	$12.5	$3.7
2040	19	$13.4	$0.1	$13.4	$3.7
2041	20	$14.4	$0.1	$14.3	$3.7
2042	21	$15.3	$0.1	$15.3	$3.7
2043	22	$16.3	$0.1	$16.3	$3.7
2044	23	$17.4	$0.1	$17.3	$3.7
2045	24	$18.5	$0.1	$18.4	$3.7
2046	25	$25.1	$0.1	$25.0	$4.6
Totals (2022 2046)		**$230.0**	**$21.8**	**$208.2**	**$57.7**

Table 13: Annual Projections of Total Project Monetized Benefits by Major Outcome Category (before discounting, in millions of 2019$)

Calendar Year	Project Year	State of Good Repair	Economic Competitiveness	Environmental Sustainability	Safety	Total Monetized Benefits
2022	1	$0.0	$0.0	$0.0	$0.0	$0.0
2023	2	$0.0	$0.0	$0.0	$0.0	$0.0
2024	3	$0.0	$0.0	$0.0	$0.0	$0.0
2025	4	$0.0	$0.0	$0.0	$0.0	$0.0
2026	5	$0.0	$1.3	$0.0	$0.2	$1.4
2027	6	$0.0	$4.2	$0.0	$0.5	$4.8
2028	7	$0.0	$4.7	$0.0	$0.5	$5.2
2029	8	$0.0	$5.2	$0.0	$0.5	$5.8
2030	9	$0.0	$5.8	$0.0	$0.5	$6.3
2031	10	$0.0	$6.3	$0.1	$0.5	$6.9
2032	11	$0.0	$6.9	$0.1	$0.5	$7.5
2033	12	$0.0	$7.6	$0.1	$0.5	$8.1
2034	13	$0.0	$8.2	$0.1	$0.5	$8.8
2035	14	$0.0	$8.9	$0.1	$0.5	$9.5
2036	15	$0.0	$9.6	$0.1	$0.5	$10.2
2037	16	$0.0	$10.4	$0.1	$0.5	$10.9
2038	17	$0.0	$11.2	$0.1	$0.5	$11.7
2039	18	$0.0	$12.0	$0.1	$0.5	$12.6
2040	19	$0.0	$12.9	$0.1	$0.5	$13.4
2041	20	$0.0	$13.8	$0.1	$0.5	$14.4
2042	21	$0.0	$14.7	$0.1	$0.5	$15.3
2043	22	$0.0	$15.7	$0.1	$0.5	$16.3
2044	23	$0.0	$16.8	$0.1	$0.5	$17.4
2045	24	$0.0	$17.9	$0.1	$0.5	$18.5
2046	25	$5.4	$19.0	$0.2	$0.5	$25.1
Totals (2022 2046)		**$5.4**	**$213.0**	**$1.8**	**$9.7**	**$230.0**

Overall, these results indicate that this widening and complete streets safety project looks promising from an economic feasibility standpoint as the projected benefits outweigh the projected costs by about 4.6 to 1, yielding about $57.7 million in discounted net benefits.