Memorandum

SRF No. 16640

To: Misty Smith, Director, Red Lake Grant Writing
Red Lake Nation

From: Erik Kappelman, Transportation Analyst
Nick Semeja, Team Lead

Date: February 21, 2024

Subject: Build Complete Streets to Serve the Red Lake Reservation and Beyond – 2024 RAISE Grant Application

Introduction

This memorandum summarizes the assumptions, methodology, and results developed for the benefit-cost analysis of the Build Complete Streets to Serve the Red Lake Reservation and Beyond – 2024 RAISE Grant Application. The objective of a benefit-cost analysis (BCA) is to bring all the direct effects of a transportation investment into a common measure (dollars), and to account for the fact that benefits accrue over an extended period while costs are incurred primarily in the initial years.

The primary impacts of this project that can be monetized are travel time, changes in vehicle maintenance and operating costs, vehicle crashes, environmental impacts, quality of life, capital costs, ongoing roadway maintenance costs, land value, and remaining capital value. The benefit-cost analysis can provide an indication of the economic desirability of an alternative, but decision-makers must weigh the results against other considerations, effects, and impacts of the project.

Project Overview

The project includes the reconstruction of Minnesota State Highway 1 (MN 1) from New Beginning to Reservation Highway 41 (RH 41), and the rehabilitation of approximately four miles of existing pavement on Walking Shield Road (WSR) and extending existing WSR approximately 5.6 miles to the east. In addition to these activities, the Red Lake Tribe and MnDOT plan to build nearly eleven miles of shared use paths to address transportation safety and equity issues on the Reservation.

The project is on the Red Lake Indian Reservation, located in Beltrami County in northern Minnesota. Approximately 7,500 of the Tribe's enrolled members currently live on the 840,000 acres of Tribal trust land. The majority of households have incomes below the federal poverty line and the unemployment rate on the Reservation lingers at approximately 50 percent. The chronic lack of high-quality condition roads and communications infrastructure are major barriers to economic development and job opportunities on the Reservation.

According to the Climate and Economic Justice Screening Tool (CJEST) developed by the White House Council on Environmental Quality, the project is located in a Census Tract that has five indicators of disadvantage, including Climate Change, Energy, Health, Transportation, and Workforce Development. Further, because the Red Lake Reservation is a federally recognized tribal reservation in the United States, the census tract automatically qualifies as a historically disadvantaged community.

The Census Tract is also considered by the U.S. Department of Transportation's (USDOT) Equitable Transportation Community (ETC) Explorer Tool to have disadvantage relating to social vulnerability and transportation insecurity. Nearly 15 percent of households within this tract do not own a vehicle. Residents also experience long driving distances to access the economy and nearly 34 percent of households in this tract lack internet access.

Description of Alternatives

For this analysis, a No Build and Build Alternative were considered. The Table below provides an overview of project impacts.

Baseline/Current Status and Problem to be Addressed	**Change to Baseline/Proposed Project to Address Problem**	**Example Impacts**
The Red Lake Reservation road system is underbuilt, and this promotes inefficiencies in travel that increase emissions.	Building the WSR extension to provide shorter travel distances	Shorter travel distances reduce average household emissions around WSR and the broader area.
The Red Lake pedestrian infrastructure is underbuilt, despite that around 15 percent of Red Lake households do not own a vehicle.	Shared use paths constructed along both project sections	A larger pedestrian network and increased walk and bike trips enhancing physical health and recreational opportunities
Unsafe roads due to horizontal curves and poor signing on WSR and high speeds without access control on MN 1 through Redby	Changes to WSR address horizontal curves and expand signage. Traffic calming and access control on MN 1 addresses speed and access crashes.	Improved safety for drivers and pedestrians resulting in fewer crashes, injuries, and deaths
The intersection of RH 18 and RH 40 is a safety hazard due to intersection design.	The intersection at RH 40 and RH 18 will be replaced by a roundabout.	The reduces intersection conflict points and will reduce crash frequency and severity.

Baseline/Current Status and Problem to be Addressed	Change to Baseline/Proposed Project to Address Problem	Example Impacts
East-West travel in this area is only served by MN 1 and there will be long detours if the project section of MN 1 is ever closed.	WSR will be extended 5.6 miles east.	The extension provides numerous north-south connections to various reservation highways, and MN 1 will have a better detour route when necessary.
There is minimal access to areas east of the current terminus of WSR which makes the land hard to develop and less productive.	WSR will be extended 5.6 miles east to provide direct connections to numerous north/south reservation highways	This will allow for new housing developments on the reservation by providing more direct access to the areas east of the existing WSR eastern terminus.
MN 1 has poor surface conditions through the project area, these conditions slow travel speeds and increase maintenance costs to vehicles.	Existing pavement will be replaced with new pavement built with a smooth travel surface.	The new road surface will allow drivers to travel comfortably at reasonable speeds and will decrease the amount spent on vehicle repair.

No Build Alternative

Currently the project area does not provide sidewalks, shared use paths, or safe crossing infrastructure. Figure 1 shows the current conditions on MN 1 in Redby, and the planned expansion of services for vehicles and pedestrians in Figure 2 shows the Build Alternative which addresses these issues.

Figure 1. MN 1 Redby Existing

Figure 2. MN 1 Redby Build

Current pavement conditions in the MN 1 project area indicate a new roadway surface is needed. MN 1 was constructed in 1938 and carries 3,000 vehicles per day. In the roadway's 85-year history, the road endured several treatments to maintain adequate pavement condition, however at this time, full reconstruction will be necessary to avoid the need for increasingly costly maintenance activities. Road conditions will continue to degrade, impacting travel times and vehicle maintenance costs for MN 1 and WSR users.

WSR currently serves residents as a key connection into Redby on the south side of the Red Lake Reservation. Any incidents that occur on MN 1, in the project area, which require traffic to be rerouted will force drivers to follow a detour consisting of Highway 89, Highway 32, and Reservation Highway 18, which adds approximately 11 miles to each trip. In addition to travel time increases for general travel, emergency vehicles would have significantly impacted response times to certain areas during such a closure. Most significantly, if existing safety issues stemming from poor

alignment on WSR and lack of access control and traffic calming on MN 1 remain unaddressed, crashes resulting in property damage, injuries, and fatalities will continue at current rates.

Build Alternative

The Build Alternative includes reconstruction of MN 1 from New Beginnings entrance to eight hundred feet west of Reservation Highway 41 (1.2 miles), rehabilitation of approximately four miles of existing pavement on WSR and extending WSR approximately 5.6 miles to the east.

The Project proposes installing an 8-foot sidewalk along nearly one mile of the north side of MN 1 and a 10-foot shared use path stretching approximately 1.2 miles on the south side of MN 1. Additionally, paved 10-foot shoulders on both sides of MN 1 will provide additional room for pedestrians, bicyclists, and on-street parking.

A new shared use path is proposed on the north side of WSR for the rehabilitated section of the road (approximately four miles) and as part of the new construction (approximately 5.6 miles).

Figure 3. Project Area

The Project will improve these locations and intersections for all users and all modes of transportation and in some cases provide a new intersection footprint, warning signage, and/or updated pavement markings. Figure 3 shows the project area and outlines the proposed changes.

BCA Methodology

The assumptions and individual methodologies for the BCA are discussed in the next sections.

Key Benefit Cost Analysis Assumptions

- **Analysis Years**: This analysis assumed that construction would take place over a two-year period and be completed in 2026. Therefore, 2027 was assumed to be the first full year that

benefits will be accrued from the project. Benefits were estimated for a twenty-year period based on anticipated service life of improvements. The present value of all benefits and costs was calculated using 2022 as the year of constant dollars.

- **Economic Assumptions**: Value of time, vehicle operating costs, emissions costs, crash costs, and other relevant values were obtained from the *Benefit Cost Analysis Guidance for Discretionary Grant Programs*, dated December 2023 (hereafter, BCA Guidance). The analysis used a discount rate of 3.1 percent.
- **Vehicle Types**: The composite cost per mile and cost per hour used in the benefit-cost analysis accounted for the percentage split of autos and trucks in the travel area. The truck percentage used on MN 1 in the analysis was eleven percent and was based on 2018 daily traffic and heavy truck counts provided in the MnDOT Traffic Mapping Application[1]. The truck percentage on WSR was estimated at one percent due to lack of AADT class data.

Benefit Cost Analysis Main Components

- Travel Time
- Air Quality
- Quality of Life Impacts[2]
- Crash Reductions
- Vehicle Operating Costs
- Vehicle Maintenance Costs
- Real Land Value Increase
- Road Maintenance and Operating Costs
- Capital Costs
- Remaining Capital Value

1. **Travel Time**: Travel time savings were derived from increased network efficiency created by the WSR extension, and the smoother surface on MN 1 allowing for faster travel speeds.
    - **Walking Shield Road Extension:** The extension creates a new east-west corridor which shortens trips for existing and future WSR users. Figure 4 shows the relevant trip routes under existing conditions and with the extension. In the Build condition, the trip length was decreased making existing trips faster and more efficient.

[1] https://mndot.maps.arcgis.com/apps/webappviewer/index.html?id=7b3be07daed84e7fa170a91059ce63bb
[2] Estimation discussed in detail in the Quality of Life of section that follows this section.

Figure 4. Walking Shield Road Extension Mobility Impacts

An estimated twelve[3] percent of trips on WSR would benefit from the addition of the extension. The 2023 AADT for WSR was 1020, and twelve percent of that AADT equates to 123 trips per day that will benefit from the extension. These trips were used to estimate the travel time savings and reduced travel distance. Travel distances used to calculate these savings reflect different lengths of the different possible routes by finding averages weighted by observed travel demand.

- **Minnesota 1 Surface Quality Speed Reductions:** The section of MN 1 in Redby, making up the project area, has significant surface quality issues. These include potholing, cracking, and pavement failure. Pavement quality concerns are expected to worsen in the future. By the time of the analysis, in year 2027, it was assumed that this section of MN 1 will have degraded to the point where motorists will slow down in response to the bumpy ride. It was estimated that the rough road will reduce free-flow speeds by about five mph.

2. **Air Quality: E**missions are expected to decrease from the reduction in VMT due to the construction of the WSR extension in the Build Alternative. Average emission rates per vehicle type were obtained from the Environmental Protection Agency's Motor Vehicle Emission Simulator (MOVES) version 3. Emission rates per vehicle type are provided in the

[3] The proportion of the existing WSR travel demand that would benefit was calculated with AADTs on MN 1 and RH 40. A "Current Route" was estimated from the intersection of WSR and RH 12 to either the intersection of RH 40 and RH 18 or the intersection of RH 18 and MN 1. Specifically, the AADT west of the RH 12 and MN 1 intersection was 6,000 and the AADT to the east is 4,050, so it was assumed that 40 percent (4,050/[4,050+6,000]) of trips entering that intersection from the south on RH 12 will turn right and continue to travel towards Redby and the destination intersections. This process was repeated to determine travel through Redby vs. trips that would stop within Redby. AADTs on MN 1 and RH 40 east of Redby were combined and divided by the westerly MN 1 value to approximate 30 percent of trips continuing through Redby from west to east and vice versa (1,212/[4,050+1,212]). Multiplying these proportions calculated the joint probability that WSR users were traveling through Redby to one of the easterly destination intersections at twelve percent (0.4 * 0.3).

attached BCA Workbook. Total change in emissions was valued in accordance with the BCA Guidance.

3. **Crash Reductions:** Safety benefits were projected for 2027 to 2046 using crash cost assumptions and methodologies published in the BCA Guidance. Crash modification factors are referenced in the BCA workbook and include factors related to horizontal realignment, roundabout conversion, and traffic calming.

   The most recent data available on MnDOT crash database MnCMAT was from 2014, however, the Red Lake Police Department (RLPD) provided a web map[4] of crashes having taken place roughly in the last two years on the Red Lake Reservation. RLPD also provided[5] information about a fatal crash that occurred where the WSR extension will end at the current intersection of Reservation Highway 40 (RH 40) and RH 18, which is being converted to a roundabout traffic control as part of this project.

   To avoid overestimating[6] savings, crash rates were derived as if the data from the RLPD web map represented a five-year time frame, and the crash at the intersection of RH 40 and RH 18 was assigned a ten-year time frame. This means the safety savings of the project are likely underestimated in the BCA and would be even greater than those shown in this analysis.

4. **Vehicle Operating Costs:** The variable costs associated with engine fuel and vehicle maintenance were estimated for the Build and No Build Alternatives. Comparisons found that the WSR extension in the Build Alternative resulted in a lower cost relative to the No Build Alternative.

5. **Additional Vehicle Maintenance Costs:** The pavement surface quality on MN 1 has degraded to the point that the daily wear and tear on vehicles will increase. Pot holing, cracks, and crumbling are evident on MN 1 in Redby. The estimated[7] increase in vehicle maintenance costs, as the quality of pavement declines, was calculated based on current road quality and expected future road quality in the Build and No Build Alternatives.

6. **Road Maintenance and Operations Costs:** Maintenance costs for pavement repairs and snow plowing were estimated based on the MnDOT Pavement Preservation Manual and MnDOT Winter Spending Reports. Based on existing levels of pavement quality, it was assumed maintenance will occur more often in the No Build Alternative compared to the

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[4] https://rlne.maps.arcgis.com/apps/webappviewer/index.html?id=3235311b23d946db8f4b914669daac2c
[5] Attachment B
[6] The two years of data contain a fatality, which means if only a two-year time frame was used to calculate rates, the rate would equate to one fatality every two years. A fatality every other year is not unreasonable for this area, but without more data to establish such a trend, more conservative crash frequencies were applied to develop benefits estimates. A specific time frame was not established for the data provide by RLPD, so ten years was used as a conservative estimate.
[7] National Academies of Sciences, Engineering, and Medicine. 2012. Estimating the Effects of Pavement Condition on Vehicle Operating Costs. Washington, DC: The National Academies Press. https://doi.org/10.17226/22808. - page 58 - Table 7-5

Build Alternative. The approximate schedule of the maintenance for the new facilities follows the guidelines in the MnDOT pavement manual.

7. **Real Land Value Increase:** There are housing developments planned adjacent to the proposed location of the WSR extension, but the area to be developed is currently undevelopable due to inaccessibility. By making the planned development possible, the construction of the Walking Shield extension will increase the productivity and real value of the land.

   Tax parcel data from Redby was used to estimate[8] the land value for areas adjacent to the WSR extension because this area did not have data available. Table 1 shows prices per acre for different areas used in the analysis. How these values were used to estimate land value near WSR is explained below.

   Table 1. Average Per Acre Tax Parcel Value

Area	Developed	Undeveloped	Ratio
Redby	$5,644	$2,013	2.80
Beltrami County	$42,444	$8,992	4.72
Average	$24,044	5,502	4.72
Walking Shield Road (est.)	$24,044	$8,575	2.80

   The Redby developed[9] land value, $5,644, was averaged[10] with the Beltrami County developed land value, $42,444, to estimate the per acre value for developed land near WSR, $24,044. To estimate the value of undeveloped land near WSR, $24,044 was divided by the ratio of developed to undeveloped land value in Redby, 2.8, which resulted in an estimated value of $8,575 per acre.

   The total increase in real value was calculated by finding the difference between the value of the 460 impacted acres near WSR as undeveloped ($3.9 million) and developed ($11.1 million) representing the No Build and Build Alternatives, respectively. Finally, to account for decreased willingness to pay and increasing marginal supply costs, the nominal land value increase ($7.1 million) was reduced 50 percent to find the real[11] value increase ($3.6 million).

8. **Capital Costs and Remaining Capital Value**: Because many components of the initial capital costs have a service life well beyond the 20-year analysis period, the remaining capital

[8] Beltrami County tax records have information for Beltrami County areas but no data for the Red Lake Reservation, except the city of Redby.
[9] Developed land was defined as land with a building worth at least $30,000. To avoid unrealistically large per acre prices, parcels sized less 0.4 acre were excluded.
[10] There were significant variations in average land value between Redby and Beltrami County. A value of $30,000 was chosen to ensure that a representative set of parcels in Redby were defined as developed. These steps were taken as part of the valuation in order to correct for suspected depressed land valuation of Redby parcels.
[11] 2023 dollars

value was calculated for the Build Alternative. These values were expressed in terms of 2022 dollars and were added to other project benefits in accordance with BCA Guidance.

9. **Factors Not Quantified**: Several factors were not quantified as part of the analysis that could potentially add to the benefits assumed in the BCA. These factors include the following:
    1. Better access for emergency vehicles to existing and new development due to the WSR extension.
    2. System resilience impacts of an additional east west route in the area that can serve as a detour route for MN 1 when necessary.

Quality of Life

Since the project includes multi-use trails it was important to quantify the societal benefits of these improvements.

Main Components

The main components include:

- Cyclists' Mobility
- Cyclists' Mortality (Health)
- Cyclists' Recreation
- Cyclists' Facility Improvement (Amenity)
- Reduced Auto-Use

Demand Model

Build Alternative cycling demand, in comparison with No Build, was calculated using the methodology published in the National Cooperative Highway Research Program (NCHRP) Report,[12] "Guidelines for Analysis of Investments in Bicycle Facilities" (hereafter, NCHRP Guidance). The models and methodologies were complemented with engineering judgment, locally developed demand models and knowledge to identify the most likely value within the possible range.

Population Near Project Area

GIS buffer analysis using 2022 American Community Survey (ACS) 1-year and 5-year Estimates with 2020 census tracts and census designated places (CDPs) geographies to estimate the population within 0.25-mile, 0.25-0.5 mile and 0.5-1 mile distance from the multi-use trail.

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[12] National Academies of Sciences, Engineering, and Medicine. 2006. Guidelines for Analysis of Investments in Bicycle Facilities. Washington, DC: The National Academies Press. https://doi.org/10.17226/13929. - page 34.

Relevant Population Characteristics

The characteristics were obtained from multiple sources including:

- 2022 ACS 5-Year Estimates (Table S0101) for Beltrami County MN 2020 Census Tract 9400.01 and the Redby, Little Rock, and Red Lake CDPs to determine the portion of the population between 20-65 years old.
- 2022 ACS Minnesota 1-Year Estimates (Table DP03) for MN to determine the percentage of adults who commute.
- 2022 ACS Minnesota 1-Year Estimates (Table S0801) data to determine cycling commuters.
- BCA Guidance to determine the average cycling trip length.

Cycling Demand - New and Existing Daily Cyclists (Commuters and Recreational)

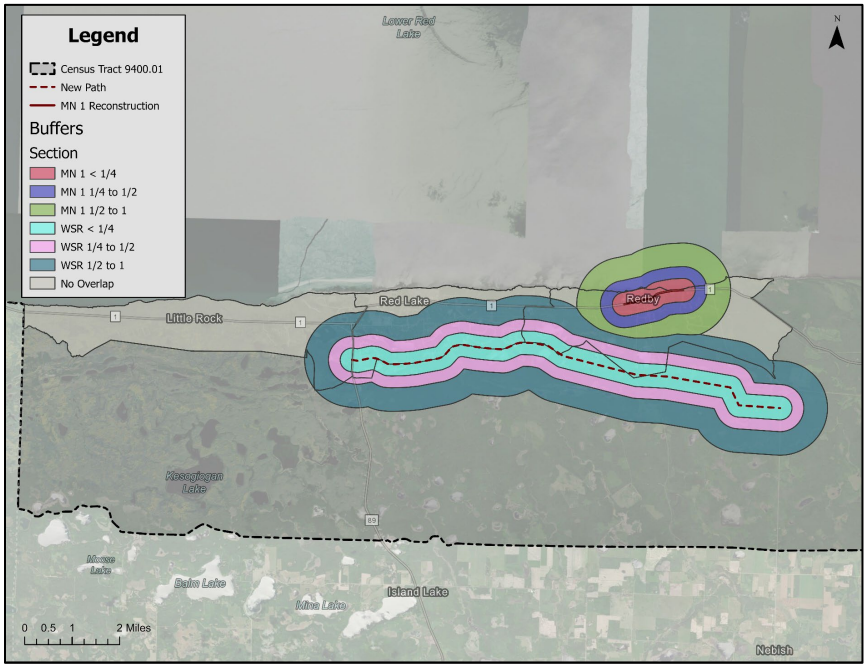
The first step to determine cycling demand was to estimate the population residing near the assumed facilities. Bicycle demand and benefit calculations were based on a methodology described in the NCHRP Guidance. A buffer analysis was performed around the project area using 2018-2022 American Community Survey population estimates with 2020 census tract and CDP geographies. The population data from the tract and places was apportioned by area, meaning if 25 percent of the tract or place geography was in the buffer, then 25 percent of that area's population was included in that buffer's total. Buffers were created at the quarter-mile, half-mile, and one-mile distances from the project, shown in Figure 5. Tract population represents only the population outside of the CDPs so that there was no double counting due to using CDP and tract geographies simultaneously. The population residing within these buffers was assumed to be the travel market for the new facilities, with a likelihood of use based on distance to the facility.

The market for commuting by bicycle within the buffer area was estimated based on the average proportion of Minnesota's adult population who commute and the proportion of commuters who commute by bicycle, 83 percent and 0.5 percent, respectively. The NCHRP Guidance supplied multipliers to estimate new commuters, as well as existing and new total riders, based on current demand conditions. For estimating existing total riders, the report offered three different models, low, moderate, and high, to estimate riders to account for variability in bicycle usage in different areas.

This approach allowed flexibility to choose an estimate from the three estimated demand levels that matched the project context. This choice was based on design details of the facility, land use, how the facility fits into a larger system, existing counts, etc. For the current project, the moderate estimate of total daily cyclists and a 50 percent existing rate was assumed for benefit estimation. The existing rate represents the share of the estimated daily bicycle demand in the project area that was already represented by people traveling by bicycle.

This approach estimated daily cycling demand, so all calculated benefits needed to be annualized. Annual use was determined by type of cyclist, recreational or commuter. Benefits from recreational use were multiplied by 275 days (9 months), while benefits impacting commuters were multiplied by 250 (50 weeks multiplied by 5 days).

Figure 5. Cycling Demand Buffers



Walking Demand

The NCHRP Guidance states that building new walk facilities is not likely to tangibly increase walking demand as opposed to bicycling. Walking is much more common than bicycling and walking facilities are much more widespread than bike facilities, so finding the specific benefits related to walking from a specific project is more difficult compared to the analysis of bicycle demand. To be conservative in the benefit quantification, no new walkers (and consequently no pedestrian benefits) were assumed in the BCA.

Mobility Cost Savings

To estimate the value bicyclists place on mobility, the NCHRP Guidance recommends applying the value of time to the additional travel time bicycle commuters are willing to travel out of their way to get to the facilities. The five facility types are defined as:

A) Off-road facilities,
B) In-traffic facilities with a bike lane and no on-street parking,
C) In-traffic facilities with a bike lane and on-street parking,
D) In-traffic facilities with no bike lane and no on-street parking, and
E) In-traffic facilities with no bike lane but with on-street parking

These facility types were used to conduct a stated preference survey. The resultant logit model suggests that bicyclists were willing to travel an additional 21.6 minutes to use an off-street facility instead of a street with no facility and no on-street parking. Table 1 summarizes some of the NCHRP Guidance suggested mobility benefits that are relevant to the project.

Table 1. Mobility benefits of different bicycle facility improvements

Base facility	Improved facility	Minutes
B	A	5.2
D	A	21.6
E	A	30.5
E	C	16.4

The project area's existing conditions were assumed to be a 'D' facility type and the build scenario was assumed as category A.

After multiplying by the value of time ($19.60/hour), the values were applied to new and existing commuters to calculate the mobility benefit. An adjustment factor was added to the NCHRP Guidance method to account for the existing facilities in the proximity of the segment of interest. The mobility yielded a total nominal benefit, from both shared use paths, of $240,000 over the 20-year evaluation period. Mobility benefits of weekend travel were not included in this estimate.

Mortality (Health) Cost Savings

Exercise helps to keep people healthy, thereby reducing their annual health costs. BCA Guidance that the per-trip savings from the physical activity of cycling, either commuter or recreational, saves each rider $6.80 per trip in future health costs. The first twenty years after project implementation, it was estimated that the nominal savings was approximately $480,000.

Recreation Cost Savings

Examining the value people place on different recreational activities, the NCHRP Guidance estimates that one hour of bicycle recreation was worth $14 in 2022 dollars. The BCA assumed that a "typical" day of bicycling included one hour of activity. Applying this value to the new daily recreational riders yielded a nominal benefit of about $380,000 over the evaluation period.

Cycling Facility Improvement (Amenity) Cost Savings

Various dedicated cycling facility improvements can affect journey preferences among cyclists. The BCA Guidance recommends a benefit of $1.42 per induced cycling mile, either commuter or recreational. The new trails will measure 9.6 miles, adjacent to WSR and 1.2 miles, in Redby, and in keeping with BCA Guidance, cycling trip lengths were capped at 2.38 miles. The analysis assumed an average cycling trip speed of 9.8 miles per hour or, in the case of off-street paths with no at-grade crossings, a free flow cycling speed of 12.1 miles per hour. The estimated nominal savings for cycling facility improvements exceeded $150,000 over the evaluation period.

Reduced Auto (Congestion) Cost Savings

The new bicycle facilities will encourage automobile-to-bicycle mode shift for commuters and this was assumed to benefit the region through reduced congestion. These benefits include lower travel

times through improved traffic flow, reduced emissions, and operational savings for bicyclists. The NCHRP Guidance estimated that the benefit derived per commuter was $0.13 per mile for city centers and $0.08 for suburban areas. For this project the inflated values of $0.18 for MN 1 and $0.11 for Walking Sheild Road were used. Average bicycle trip length, 2.38 miles, was from the BCA Guidance. The project generated roughly $18,000 in nominal benefits over the evaluation period.

Factors Not Quantified

Several factors were not quantified as part of this methodology because review of initial data indicates low potential to yield substantial cost or benefit. These factors include the following:

- Operations costs due to being part of a currently functioning trail network and roadway facility.
- Trips lying outside the specified subarea may accrue benefits that were not accounted for.
- No safety benefit was assumed for the suggested facilities because there is no consensus in the literature that bicycle facilities can necessarily decrease the total number of bicycle crashes and in some cases off-street facilities have been found to be riskier than bike lanes.
- Child cyclists benefits, the official documentation in the NCHRP Guidance does not cover benefits specific to children bicycle users.

BCA RESULTS

The benefit-cost analysis provides an indication of the economic desirability of a scenario, but results must be weighed by decision-makers along with the assessment of other effects and impacts. Projects are considered cost-effective if the benefit-cost ratio is at least 1.0. The larger the ratio number, the greater the benefits per unit cost. Results of the benefit-cost analysis are shown in Table 2. See Attachment A for the complete benefit-cost analysis workbook.

Table 2 – Total Real Costs and Benefits

Initial Capital Cost	Project Benefits	Benefit-Cost Ratio	Net Present Value
$22.1 million	$61.6 million	2.8	$39.5 million

Attachment A

Benefit-Cost Analysis Workbook

Attachment B

Red Lake Police Crash Letter

Red Lake Department of Public Safety
Law Enforcement Services

TO: Paul Chellevold, AICP, GISP
FROM: Captain Dana Joseph Lyons Jr.
DATE: February 6, 2024
Re: Walking Shield Road/ MN 1 FY 24

To whom it may concern

I am submitting this letter to verify that there have been additional accidents that have occurred in this area of possible construction that are not documented in the statistics that the Police Department have provided. These fatalities occurred outside the scope of the information that was provided. I personally know of 2 Accidents resulting in fatalities. One accident occurred at the junction of Indian service 40 & Indian service 18 junction. This incident was a one person, 1 car accident that involved the driver losing control of the vehicle going through the stop sign and struck a tree, this resulted in a fatality. The second accident involved a one person, 1 vehicle accident that occurred on Indian service 18 about a mile away where the driver lost control and rolled his vehicle and was ejected resulting in a fatality.

There could be more fatalities that are not reported in this data, however due to the change in the (CAD). The (CAD) is the Law Enforcement computer systems that record these incidents over the years. The data is unavailable.

Respectfully submitted.

Captain Lyons.