PROJECT DESCRIPTION

Statement of Work

Transfort is a municipal department of the City of Fort Collins (the "City") and provides transit services to the Fort Collins community. Fort Collins is located approximately 60 miles north of Denver, 45 miles northeast of Boulder, and 50 miles south of Cheyenne, Wyoming. Transfort service is comprised of 23 fixed routes, including a Bus Rapid Transit (BRT) service called Mason Express (MAX), a campus circulator called Around the Horn, and a regional route, FLEX; as well as complementary paratransit service within ¾ of the fixed route service.

The City applies for FY23 RAISE (Rebuilding American Infrastructure with Sustainability and Equity) to construct a new transit station, Foothills Transit Station, and a roundabout at the station's adjacent intersection. Please see Attachment A. Foothills Station Concept for a rendering of the design concept. The project location, at the intersection of Overland Trail and West Elizabeth in Fort Collins, is a convenient location for bus turnarounds and layovers for multiple existing bus routes. This location is also planned to be the western terminus of the future West Elizabeth BRT. The West Elizabeth BRT is planned to extend from Overland Trail in the west along West Elizabeth Street to Laurel Street on the eastern terminus, connecting to Fort Collins' existing MAX BRT service and providing a direct connection between Colorado State University's (CSU) Main and Foothills campuses. Transfort currently operates out of three other transit centers: one in the downtown area, one in South Fort Collins serving as the southern terminus of MAX, and one on CSU's Main Campus; however, there is a lack of mobility hubs in the area of the proposed project.

Additionally, at Overland Trail and West Elizabeth, the existing east-west STOP configuration intersection will be converted to a single lane roundabout. Traffic patterns and projections have been analyzed for this application to ensure travel time will not be significantly affected by the change. The level of service and queuing analysis completed by engineers suggests that this new roundabout will operate acceptably through 2040.

The Foothills Transit Station will be located at the western end of West Elizabeth, provide a starting point and location for transfers for existing Transfort routes, and seamlessly accommodate the future BRT line. The design of this project, and the full BRT corridor, will accommodate all modes of travel; however, the plan prioritizes transit, cycling, and walking. The station will serve as a mobility hub with bicycle parking, opportunities for bike and scooter shares, micro-transit pick-ups and drop-offs, and nearby parking for commuters. The transit station will include four bus bays, two of which will be sized for 60FT articulated buses. The remaining two bus bays are sized for standard 40FT buses. This will provide enough bays for current service as well as the planned BRT while also providing an additional bay for future expansion of existing bus routes. The transit center is designed to accommodate on-route charging for Battery Electric Buses (BEB), in alignment with Transfort's Zero Emission Bus Transition Plan. Additionally, pullouts are proposed on the west side of the transit center to accommodate maintenance vehicles, rideshare drop-off, and the existing Foothills Campus shuttle buses, also a service of Transfort.

Several constraints were assessed during conceptual layout of the transit station. The field to the west of the station is used for grazing horses, and the adjacent BW Picket Equine center hosts frequent events. A Western Area Power Administration (WAPA) easement runs parallel along the west side of Overland Trail. This easement precludes structures, such as the bus shelters and vehicle electric charging equipment, but does allow for pedestrians, sidewalks, and

vegetation below a height of 3FT. To accommodate these constraints, improvements will be limited to a maximum of 90FT from the WAPA easement. Most of the transit station was designed within that 90FT width, with the exception of the southern entrance to the transit station, which aligns with the southern leg of the intersection.

Design Status

30% design was initially completed for the transit station by CSU in 2017. As the BRT project progressed, 30% design was then completed for the full West Elizabeth project in fall 2022 by Felsburg Holt & Ullevig (FHU), with updates completed to the design of the transit center, including the proposed roundabout. This design phase was completed with FY2020 funding awarded by the State of Colorado's Multimodal Options Fund (MMOF) program with local match provided through a partnership between the City and CSU.

FY2022 MMOF funds were subsequently awarded in the amount of $1,232,248 to fund 100% design of the West Elizabeth project, including 100% design of the Foothills Transit Station and the roundabout at Overland Trail and West Elizabeth. MMOF funds require a 50% match, which will again be contributed equally through a partnership between the City and CSU. This project is anticipated to begin in Summer 2023, with an anticipated end date of December 2024.

The City entered Project Development (PD) in July 2021 under the Federal Transit Administration's (FTA) Small Starts program for the full West Elizabeth BRT project, which includes the Foothills Transit Station and Roundabout. The City is on track and meeting milestones under this program.

Transportation Challenges

This project addresses several transportation challenges that currently exist at the intersection at Overland Trail and West Elizabeth, within the West Elizabeth Corridor.

This project will mitigate several safety issues:

- There is a propensity for broadside accidents due to the nature of the current intersection which will likely be mitigated by a roundabout.
- Limited and/or inaccessible sidewalks leave pedestrians with uncomfortable walking facilities and difficult to navigate crossings at the intersection; cyclists ride in unprotected and narrow bike ways. Facilities for both pedestrians and cyclists will be prioritized in this project and will provide connections to future sidewalk connections and existing multiuse trails.
- Lack of amenities in this area of transit leads to riders waiting at sometimes poorly lit areas with little or no protection from the elements. This project will construct a new transit station with modern amenities such as real-time bus information, emergency call boxes, appropriate lighting, covered shelters, benches, and bicycle parking.
- Non-existent turnarounds suitable for transit buses require that buses utilize residential neighborhoods to complete loops. This project will allow buses to use the roundabout and transit station for safe and appropriate maneuvering.

This project would improve quality of life in several ways:

- Current and future riders, pedestrians, and cyclists will have access to an increased number of universally accessible transit amenities and multimodal options.
- Neighbors will see the removal of transit buses from smaller residential streets off West Elizabeth.
- Citizens will have improved access to direct transit service to and from the University area and outlying population clusters, many of which are designated as Areas of Persistent Poverty (APP).

This project will mitigate environmental concerns:

- Fort Collins is located in an area designated as an ozone non-attainment area and has been making strides toward reducing dangerous greenhouse gas (GHG) emissions.
- Single Occupancy Vehicle (SOV) trips can be common between CSU's two campuses, adding to GHG emissions. This project will allow for higher frequency and bidirectional service, making it more convenient for drivers to make the switch to transit.
- The City's transit fleet is comprised of mostly Compressed Natural Gas (CNG) vehicles and is limited to the number of routes where BEBs can be deployed due to current block lengths, in miles or hours, including in the West Elizabeth Corridor. This transit station was designed with fleet electrification at the forefront, with two on-route charging stations planned to accommodate current routes and the future BRT.

This project will allow for improved service planning:

- Current service planning in this corridor is not ideal due to the lack of sufficient turnaround locations — this has led to routes designed as loops instead of more ideal bidirectional service, which could be accomplished with the completion of this project.
- Transit buses have unpredictable and sometimes long wait times at the intersection at Overland and West Elizabeth due to the stop configuration and level of passenger vehicle traffic. A roundabout will reduce wait times for east and west-bound traffic at this intersection.
- A transit station will enhance transit service locally along the West Elizabeth corridor by allowing for realignments to current routes 2, 3, 31, and Foothills Campus Shuttle. These realignments will lead to advantageous service changes such as more frequent service, fewer loop-style routes, and added capacity.

City of Fort Collins Transportation Infrastructure Investments

In 2019, the City adopted an updated Transit Master Plan (TMP), which established a vision for mobility in Fort Collins, to be achieved through a safe and reliable multimodal transportation network for all residents, visitors, and employees. The City recognized that current travel patterns where a majority of travelers drive alone are unsustainable. This pattern results in congested roads, poor air quality, high energy use, climate change impacts, and high costs to expand and maintain streets. The TMP seeks to upend this existing travel pattern by creating a better balance among modes to reduce driving alone. To achieve this outcome, the plan outlines a bold vision to improve the accessibility, mobility, reliability, and safety of the transportation system for all modes and users.

The TMP was developed using a layered network framework, which focuses on how the City's transportation network can function to meet the needs of all users. This layered network concept envisions streets as systems; each street type is designed to create a high-quality experience

for intended users. The TMP also identified specific corridors in the City where transit service will operate in the future and/or at higher frequencies. The transit network layer is planned to provide a balance of coverage and productivity. This plan will be achieved by expanding BRT and high-frequency service. There are four (4) BRTs outlined in the TMP, to provide coverage of the City north to south (MAX and North College BRT), east of College Avenue (West Elizabeth BRT), and west of College Avenue (Harmony BRT).

The West Elizabeth corridor was identified as one of several Enhanced Travel Corridors (ETC) in the City's 2011 Transportation Master Plan. The West Elizabeth ETC plan was developed over the course of 2015 to 2016 through a combination of community engagement and rigorous technical analysis to inform decision making. The vision established in the plan is to construct an easily accessible and reliable multimodal corridor on West Elizabeth Street, with BRT at its core, and included a direct connection with MAX. This plan was adopted by Fort Collins City Council in 2016 and shared with the FTA at that time. Over the years, many opportunities to fund the design and construction of the Foothills Station have been explored.

The Foothills Transit Station, including the roundabout, and is the first significant step in realizing the overall West Elizabeth vision. This project addresses several major transit issues on the west side of Fort Collins and throughout the identified corridor. A transit station at West Overland and Elizabeth will provide a multimodal hub in this area of town, where there currently is none. It will connect drivers who utilize parking at the CSU Foothills Campus with a transit connection to not only access the future West Elizabeth BRT but existing local transit and regional connections including Greeley, Loveland, Longmont, Boulder, Denver, and beyond.

Project Location

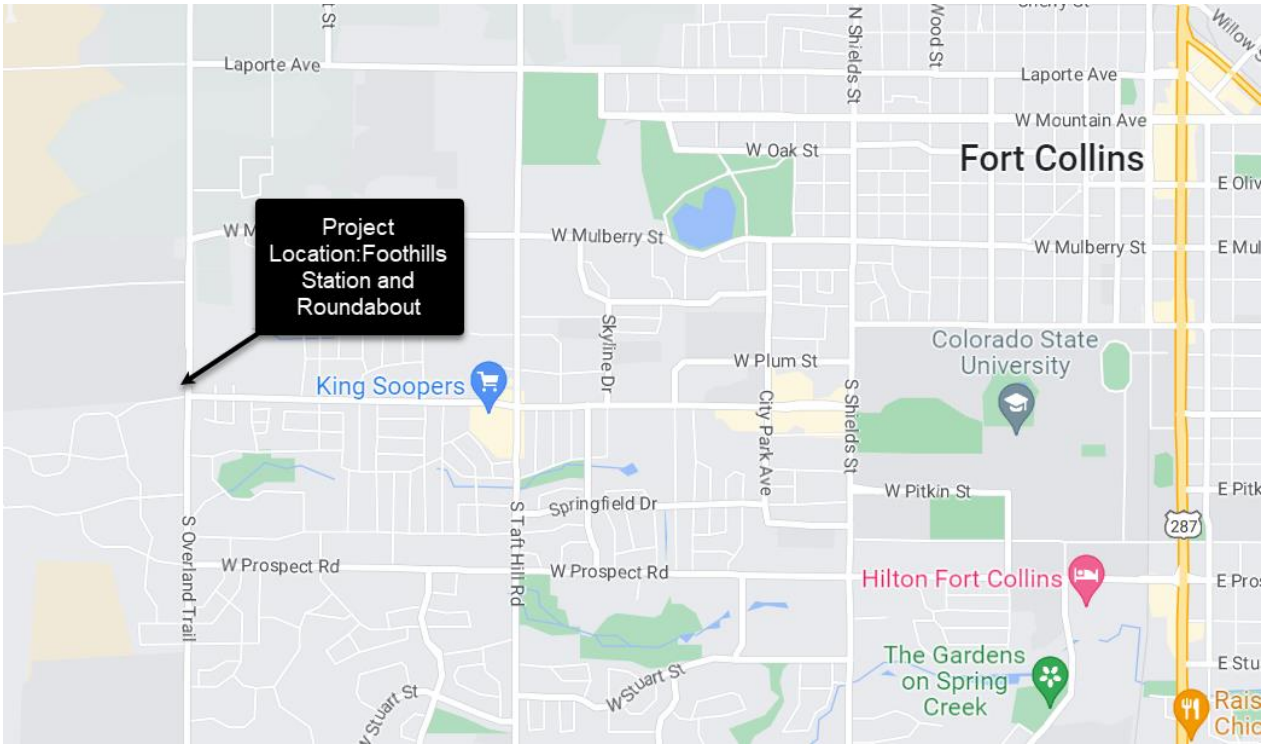
The Foothills Transit Station will be constructed on the northwest corner of Overland Trail and West Elizabeth in Fort Collins, Colorado, located in census tract 23. The single-lane roundabout will replace the current traditional STOP intersection at Overland Trail and West Elizabeth, at the intersection of census tracts 23, 5.05, and 5.06. The project will take place entirely within the designated Fort Collins Urbanized Area, in Larimer County.

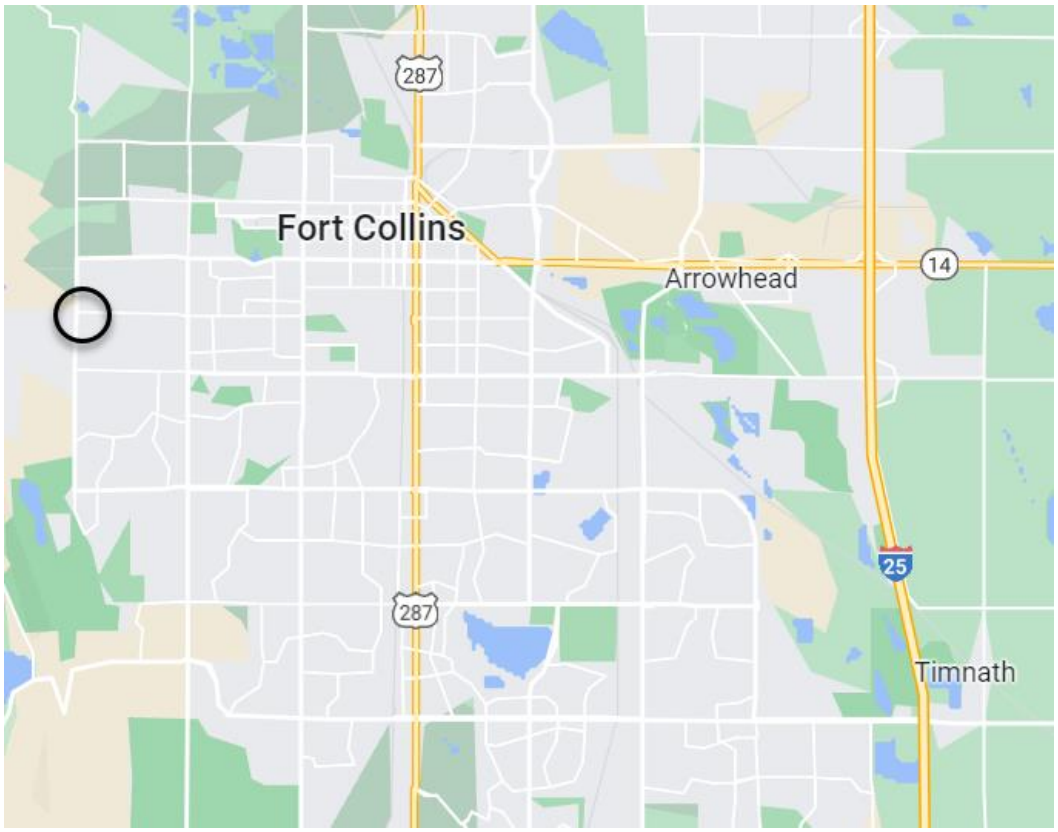
Project Latitude & Longitude: 40.575034, -105.133801

Census tracts 5.05 and 5.06 in Larimer County are designated as Areas of Persistent Poverty (APP). Moreover, the construction of a transit station is projected to improve transit availability to citizens along the West Elizabeth corridor, which overlays with census tracts 5.05, 5.06, 5.03, 5.04, and 6, all of which are designated as APPs.

The project is not in any areas designated as a Historically Disadvantaged Community (HDC).

The screenshots below show the general location of the proposed project in the broader context of Fort Collins. The station will be located on the west side of Fort Collins on CSU's Foothills Station. This location is several miles west of Colorado State University and State Highway 287.


Project Location:Foothills Station and Roundabout
Laporte Ave
W Mountain Ave
Fort Collins
W Oak St
W Mulberry St
King Soopers
Skyline Dr
W Plum St
City Park Ave
S Shields St
Colorado State University
W Pitkin St
Springfield Dr
S Overland Trail
W Prospect Rd
S Taft Hill Rd
Hilton Fort Collins
The Gardens on Spring Creek
W Stuart St
287


287
Fort Collins
Arrowhead
14
25
Timnath

PROJECT READINESS

Environmental Risk

Milestones and Project Schedule

The following milestone progress dates have been set for this project:

Milestone	Estimated Completion Date
100% Design Agreement Executed	06/30/2023
Award Notification	08/28/2023
TIP/STIP	12/31/2023
Appropriation of Funds by City Council & Obligation of funds in TrAMS	12/31/2023
Complete 100% Design	12/31/2024
Completion of NEPA and Other Environmental Reviews	12/31/2024
Permitting	06/30/2025
Specifications and Estimates	12/31/2024
Public Involvement – Design Feedback	12/31/2024
ROW Acquisition	06/30/2025
Procurement (executed contract)	04/30/2025
Construction Begins	06/30/2025
Construction Completed	12/31/2026

The City of Fort Collins (City) is confident that all necessary activities will be complete to allow for RAISE funds, if awarded, to be obligated sufficiently in advance of, and to be fully expended by, the applicable deadlines, as outlined in the Notice of Funding Opportunity.

National Environmental Protection Act (NEPA)

NEPA is underway for this project as part of the scope of work for 30% design by Felsburg Holt & Ullevig (FHU) and will be completed through the 100% design process. A Categorical Exclusion Worksheet (Catex) was submitted to FTA Region 8 in Fall 2022 and can be found in Attachment E. West Elizabeth Catex. The overall environmental assessment was completed encompassing the entire West Elizabeth Corridor project, including analysis for the Foothills Station and Roundabout project. FTA accepted and concurred with the recommendation for a Categorical Exclusion in the “other” category, as evidenced by the letter in Attachment E, pages 38-39, dated 11/28/2022. As part of the overall NEPA study, the following analyses were completed: Noise Analysis, Phase 1 Environmental Site Assessment, Wetland Delineation Report, and Biological Report. Summaries of these environmental studies can be found in the Catex worksheet submitted in Attachment E. These plans may also be found online at https://www.fcgov.com/westelizabeth/.

The City of Fort Collins has been meeting with the Federal Transit Administration (FTA) at least quarterly since being accepted into Project Development under the Small Starts program for this project and regular conversations have taken place at those meetings to ensure compliance with NEPA. FHU has also consulted Colorado Department of Transportation (CDOT); however, as Fort Collins is a direct recipient of federal funds through FTA, CDOT’s oversight was determined to be limited.

Reviews and Approvals

No permits have been submitted for this project at this date; applications for permits will be submitted once final design is complete and vendor contracts are executed. Permits will be applied for in accordance with all federal, state, and local rules, including with all Agencies Having Jurisdiction (AHJ). Plan reviews have been completed throughout the 30% design project and will continue regularly through the final design stage. The City and its design consultants have met with FTA quarterly since the City was admitted to into the Small Starts Project Development Phase. Reviews have also been completed by internal City departments who are stakeholders in this project, including: Engineering, Transfort, Utilities, Streets, and Traffic. Other outside stakeholders who have been part of the review process include the applicable ditch companies, Colorado State University (CSU), and CDOT. It is possible that additional stakeholders will be identified as the design process progresses, and additional reviews would be completed at that time.

Public Involvement

Extensive Public Involvement has been conducted throughout the West Elizabeth Corridor planning process, beginning in 2015 with the development of the West Elizabeth Enhanced Travel Corridor (ETC) Plan and up through and including through the most recent 30% design phase. More information about public involvement can be found in Attachment F.

West Elizabeth ETC Plan: Community engagement took place over about 18 months in 2015 and 2016. Stakeholders were prioritized from the start through a community driven process that engaged residents, property owners, business owners, students, and other stakeholders. These stakeholders were engaged through a variety of communication methods and events, including:

Stakeholder Committee, Community open houses (August 2015, December 2015, June 2016); surveys, listening sessions, focus groups, online WikiMap, neighborhood tours (walking, cycling, transit), Open Streets event (June 2015).

Several key themes were identified through those public outreach events. Transit riders identified the following: overcrowded buses, lack of bus stop amenities, and insufficient service. Cyclists identified the following concerns: high number of crashes and inconsistent facilities. Pedestrians, including people using mobility devices, identified the following: inconsistent and uncomfortable pedestrian facilities that are largely not ADA compliant and difficulty crossing West Elizabeth at key intersections.

West Elizabeth 30% Design Phase: Public and stakeholder outreach for the West Elizabeth Corridor Concept Design reached a broad cross-section of current and projected future users of the corridor. The goals for community outreach included: creating public awareness and interest in the project; building on the community outreach first completed in 2015 when the West Elizabeth ETC Plan was completed; collecting feedback to clearly connect study recommendations; engaging with residents in a way that was inclusive and transparent; providing necessary context, systematic view, and project understanding to the public in order to create avenues for meaningful input; and facilitating the sharing of views in order to create empathy and a broader understanding of the systematic nature of the corridor and tradeoffs.

Public involvement was done proactively to ensure the appropriate stakeholders were engaged early on. Target audiences for public outreach included the entire West Elizabeth corridor area, reaching a broad audience of employers, employees, residents, students, visitors, and recreational cyclists. Groups that were specifically targeted included: populations experiencing persistent poverty, such as students, CSU faculty and staff, Transfort riders, Advocacy groups,

Poudre School District, Businesses, Residents, Employees, City Council and other governing bodies, and the general community.

Key takeaways from the public during the 30% design phase include the following: Currently there is a lot of crowding of buses and riders must wait for multiple buses. There is public support for the roundabout at Overland Trail and support for the Foothills Transit Station in its current design.

Per FHU, public comments that were gathered during the conceptual design phase were incorporated as the design advanced. Public outreach will continue to be proactive and ongoing throughout the 100% design phase.

ROW Acquisition Planning

Right of Way (ROW) was studied in the 30% design, and several parcels were identified that may need to be acquired to complete the construction of the transit station and roundabout. However, ROW acquisitions are expected to be minor, considering the scope of this project. A detailed acquisition plan would be finalized through the 100% design phase. Once a ROW acquisition plan is finalized, the City's Real Estate services department will begin negotiations with landholders. The City would also likely engage a consultant for these activities to ensure compliance with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970.

State and Local Planning Approvals

CDOT has been an invaluable partner through the design process, reviewing plans at every level of development. CDOT will continue to be involved throughout the 100% design phase as funding was awarded through the State's Multi Modal Options Fund (MMOF). The City of Fort Collins has been likewise heavily involved in the planning and design phases, with representation from multiple departments, including Purchasing, Engineering, Utilities, Transfort, and Planning. Final local approvals will be sought when the design is complete; however, due to the continued involvement at every step of the planning process, local approvals are anticipated to be streamlined.

State and local planning agencies are aware of this project and are committed to ensuring timely inclusion of the project in planning documents. Please see the letter of support in Attachment D. Letters of Support from North Front Range Metropolitan Planning Organization (NFRMPO). Transfort and NFRMPO will work collaboratively and expeditiously to amend the Transportation Improvement Plan (TIP) and State Transportation Improvement Plan (STIP) if and when RAISE funds are awarded. The full West Elizabeth project, which encompasses the transit center and roundabout, is included in the 2045 Regional Transportation Plan (RTP). However, the budget reflected in the RTP is outdated and will be updated with the next RTP revision.

Risk Assessment and Mitigation

The City has seen an increase in procurement delays and cost increases since the beginning of the COVID-19 Pandemic; however, according to consultation with the City's Purchasing department, delays and costs have begun to stabilize, especially when considering construction projects similar to this proposed project. To mitigate risk in this area, liquidated damages for significant delays are typically included in construction contracts. To mitigate the risk of cost overruns, FHU has included contingencies (estimating, construction, and owner contingency) and allowance for escalation over three years. FHU has reviewed the cost estimation as

recently as February 2023 and is confident that responsible and conservative contingency estimates will mitigate the inherent risk of cost escalations.

FHU has conducted a thorough analysis of environmental considerations and expects minimal issues to arise with the implementation of this project. A Categorical Exclusion worksheet was submitted to and approved by the FTA in the 30% design phase, as part of the progress required in the Small Starts Project Development Phase. Due to the extensive work that has already been completed, environmental uncertainties are not considered to be a high risk for this project. Please see Attachment E for documentation of FTA's concurrence.

The City has seen consistent and robust increases in the real estate market over the last several years. CSU owns the land where the transit station will be built and has committed to donating this property to be used as an in-kind local match, see letter of support from CSU included in Attachment D. Therefore, there are no concerns with obtaining the real property necessary for the construction of this project. There are minimal ROW acquisitions that will be required for this project, and preliminary planning has already begun for these parcels. Estimates put ROW acquisition at approximately $18,500 (2021 $). Real estate costs can be expected to increase some over the next two years; however, with such minimal ROW acquisitions expected, this risk is considered to be only moderate.

The West Elizabeth Corridor project, including the Foothills Transit Station and roundabout, have been high priorities for the City and CSU for many years. Both entities have shown dedication in funding projects and supplying resources for studies and planning projects. Risk to committing local match is low. The partnership with the City and CSU is strong, and CSU has committed to providing a portion of the local match through a land donation. Moreover, the City is in a strong financial position. Difficulty in obtaining local match is not considered a high risk to this project as it has such widespread support within the City and the broader community, see Attachment D. Letters of Support.

Transfort has a successful track record of meeting federal purchasing requirements in all procurements, including those of transit vehicles. Transfort has received zero findings in the Procurement area over at least its last three FTA Triennial Reviews. The City has strong and thorough purchasing policies in place and several levels of review and oversight of procurement for federally funded projects. Based on previous experience meeting federal procurement requirements, the City does not anticipate high risk in this area. Unavailability of vehicles is not an applicable risk for this project.

The City's Purchasing department was consulted and has experienced no recent significant project delays in similarly scoped projects due to delays in or unavailability of domestically manufactured equipment. Transfort has recently completed projects to install Heavy Duty Charging (HDC) equipment at its maintenance facility and experienced no delays due to the requirement to procure domestically manufactured equipment. There is some current evidence of delays in obtaining electrical equipment; however, construction for this project will not begin for at least 18 months, based on timing for final design. Therefore, there will be adequate time for the utility provider to obtain necessary electrical equipment. Based on the experience of recent similar projects, and the risk mitigation of electrical equipment delays inherent to the critical path of this project, delays in obtaining domestically manufactured equipment is not considered a high risk. The City does not anticipate needing to apply for a waiver for any domestic preference laws.

Legislative support at multiple levels of government has been obtained for this project, including local, state, and national support. Please see the letters of support in Attachment D as evidence of the strong legislative support of this project. CSU has also been an active and supportive

partner of this project from the very beginning and throughout the planning stages, as evidenced by their letter of support. The City does not anticipate lack of legislative approval to be a high risk.

Public outreach has been and will be completed with diverse community members through a lens of equity and inclusion. Public comment was sought in a variety of mediums, and to reach a variety of audiences, and feedback was incorporated throughout the design process. See Attachment F. Public Outreach Summary for more information on public involvement activities. Due to the extensive outreach and public engagement completed and planned, public disapproval of this project is not considered to be a high risk.

Benefit Cost Analysis

A Benefit Cost Analysis (BCA) was conducted and overall Benefit Cost Ratio for this project was found to be 2.08:1. BCA Calculations and Narrative can be found as attachments with this application: Foothills Station BCA Calculations.xlsm and Foothills Station BCA Narrative.pdf.

Technical Capacity

Federal Award Experience

The City has been the designated recipient for the Fort Collins Urbanized Area for many years. Over this period the City has maintained an excellent relationship with FTA's Region VIII office. The City currently receives federal formula funds through 5307, 5310, 5337, and 5339 programs in the amount of approximately $7M annually. In addition to formula funding, the City is experienced in successfully managing discretionary grants and emergency funding programs, as well as previous Capital Investment Grant (CIG) funding for the MAX Bus Rapid Transit (BRT) project.

The City remains in good standing with all Federal Civil Rights programs, including Americans with Disabilities (ADA), Title VI, and Disadvantaged Business Enterprise (DBE). Creating a culture of equity and inclusion is a priority for the City of Fort Collins. The City's Equity and Inclusion Office oversees compliance with Civil Rights programs in conjunction with Transfort's Senior Compliance Specialist. The City had a recent (2022) FTA Triennial Review in which there were no findings, indicating that the award management and compliance oversight programs are functioning properly.

Experience with Similar Scoped Projects

The MAX BRT project was very similar in scope to the planned full West Elizabeth corridor project. Transfort's South Transit Center was built as part of the MAX project, and was a much more significant structure than what is proposed for the Foothills Transit Station. Transfort and the Engineering department collaborated, along with contractors, to implement and oversee the construction of the MAX project. The City's Engineering department has overseen many complex road and bridge projects, including upgrading intersections to roundabouts. The following are examples of previous successful projects where traditional intersections were converted to roundabouts: Kechter & Ziegler (2007); Horsetooth & Ziegler (2008); Vine & Shields (2016)

The City will utilize contracted services for the planning and oversight work required for this project, ensuring that there are adequate resources with the required expertise to successfully execute a project of this magnitude. The City's centralized Purchasing department oversees all procurements to ensure compliance with federal requirements, including Buy America, DBE, and all other applicable Federal clauses.

MERIT CRITERIA

This project addresses several transportation challenges that currently exist in the West Elizabeth Corridor, specifically the intersection at Overland Trail and West Elizabeth, and lack of a transit station/mobility hub in this area. The Fort Collins Transit Master Plan (TMP) defines the key elements and primary purposes that drove the TMP planning process including the following:

- Innovative strategies to capitalize on emerging technologies and shifting travel behavior;
- Integration with other plans, including regional plans;
- Capital and operating improvements to speed, reliability, comfort, safety, and frequency of service; and
- Strategies to improve equity, first/last mile access and integration with other modes.

The following pages will specifically examine each of the merit criteria, how they relate to the primary purposes outlined in the TMP, and how funding this project will address the serious transportation challenges outlined below.

Transportation Challenges

This project will mitigate several safety issues:

- There is a propensity for broadside accidents due to the nature of the current intersection.
- Limited and inaccessible sidewalks leave pedestrians with uncomfortable walking facilities and difficult to navigate crossings at the intersection and cyclists ride in unprotected and narrow bike ways.
- Lack of amenities in this area of transit leads to riders waiting at sometimes poorly lit areas with no protection from the elements.
- Non-existent turnarounds suitable for transit buses necessitate buses utilizing residential neighborhoods to complete their loops.

This project would improve quality of life in several ways:

- Current and future riders will have access to an increased number of universally accessible transit amenities.
- Neighbors will see the removal of transit buses from smaller residential streets.
- Citizens will have improved access to direct transit service to and from the University area to outlying population clusters, many of which are designated as Areas of Persistent Poverty (APP).

This project will mitigate environmental concerns:

- Fort Collins is located in an area designated as an ozone non-attainment area.
- Single Occupancy Vehicle (SOV) trips can be common between CSU's two campuses, adding to GHG emissions.
- The City's transit fleet is comprised of mostly Compressed Natural Gas (CNG) vehicles and is limited to the number of routes where BEBs can be deployed due to the length, in miles or hours, of the current block, including in the West Elizabeth Corridor.

This project will allow for improved service planning:

- Current service planning in this corridor is not ideal due to the lack of sufficient turnaround locations — this has led to routes designed as loops instead of more ideal bidirectional service.
- Transit buses have unpredictable and sometimes long wait times at the intersection at Overland and West Elizabeth due to the stop configuration and level of passenger vehicle traffic.
- A transit center will enhance transit service locally along the West Elizabeth corridor by allowing for realignments to current routes 2, 3, 31, and Foothills Campus Shuttle.

Safety

Safety is a primary purpose of this project, in alignment with the TMP which calls for capital and operating improvements that increase safety. At Overland Trail and West Elizabeth, the existing east-west STOP configuration intersection will be converted to a single lane roundabout. At this intersection broadside, failed to yield right-of-way crashes are a common profile and often involve westbound left turning or right turning vehicles. These crashes would be mitigated by the proposed roundabout.

Fehr & Peers completed a crash analysis for the entire West Elizabeth Street corridor from Overland Trail to Shields Street for the period covering January 1, 2017 to December 31, 2020. There were 214 total crashes, with 1 fatal crash, 14 bicycle-involved crashes, and 2 pedestrian-involved crashes.

West Elizabeth & Overland Trail Crash Data January 2017 – December 2020:

		All	KSI	Fatal	Southbound	Northbound	Eastbound	Westbound
	Total Crashes	20	1	1	15%	10%	10%	65%
Most Harmful Event	Rear End	10%	0%	0%	50%	0%	0%	50%
	Broadside	50%	0%	0%	0%	0%	20%	80%
	Sideswipe	10%	0%	0%	0%	0%	0%	100%
	Non-Collision	5%	100%	100%	0%	0%	0%	100%
	Bicycle	10%	0%	0%	50%	0%	0%	50%
Driver Action	Followed Too Closely	10%	0%	0%	50%	0%	0%	50%
	Exceeded Safe/Posted Speed	5%	100%	100%	0%	0%	0%	100%
	Failed to Yield ROW	55%	0%	0%	0%	0%	18%	82%
	Lane Violation	5%	0%	0%	0%	0%	0%	100%
	Careless Driving	15%	0%	0%	67%	33%	0%	0%
Movement	Right Turn	10%	0%	0%	50%	0%	0%	50%
	Left Turn	55%	0%	0%	10%	0%	10%	80%

The fatal crash occurred at the proposed project location (West Elizabeth Street and Overland Trail) when a WB motorcycle traveling straight through the intersection exceeded the posted speed and collided with the curb. No other vehicles were involved. Two (2) bicycle-involved crashes also occurred at this intersection; in both instances the driver of the vehicle was at fault.

Per guidance from the Crash Modification Factor Clearinghouse's CMF 206 – Conversion of Stop-Controlled Intersection Into Single Lane Roundabout, converting a stop-controlled intersection to a roundabout can be expected to reduce crashes of all severities by 72%. Therefore, the City anticipates that this intersection improvement will increase overall safety in this area. This benefit will extend to crashes that resulted in injuries (both fatal and non-

fatal) and property damage only (PDO). The table below quantifies the expected reduction of crashes over the lifetime of the project.

Reduction in Injuries, Fatal and PDO Vehicle Crashes (Select Years in 2026-2045; Total for ALL Years)

	2026	2030	2035	2040	2045	TOTAL
Fatalities	0.18	0.18	0.18	0.18	0.18	**3.6**
Injuries	0.52	0.52	0.52	0.52	0.52	**10.37**
PDO Crashes	3.06	3.06	3.06	3.06	3.06	**61.2**

The project addresses Vulnerable Road Users (VRU) in the area of the intersection of Overland Trail and West Elizabeth by constructing a roundabout in place of the traditional east/west intersection, reducing road speeds at this particular location. The current speed limit on Overland Trail is 45mph, preliminary design calls for a reduction in the speed limit to 25mph in the location of the roundabout. This reduction in speed will add layers of protection for cyclists and pedestrians in this area. This project includes the construction of 10FT-wide sidewalks that will be universally accessible as well as improvements to bicycle lane infrastructure throughout the roundabout and at the transit station itself. Furthermore, sidewalk improvements in most areas include a buffer between the road and the sidewalk, increasing safety for pedestrians in the area, as seen in the concept design:

Installation of amenities such as emergency call boxes and lighting at the new transit station will also increase safety of pedestrians and transit riders. According to the FHWA, "Adequate lighting can also provide benefits in terms of personal security for pedestrians,

wheelchair and other mobility device users, bicyclists, and transit users as they travel along and across roadways."

Project design includes safety countermeasures as outlined in DOT's National Roadway Safety Strategy including crosswalk striping and enhancements, roundabouts, detached multi-use paths and raised medians with refuge spaces. Specific signage, striping and lighting improvements will be considered during final design.

Environmental Sustainability

The TMP calls for innovative strategies to capitalize on emerging technology. This project will capitalize on the emerging technology of on-route charging as a significant design feature of the transit center. The TMP also looks to strategies that will improve equity in the Fort Collins community, a primary purpose of this project.

Greenhouse Gas Emissions

In November 2007, the U.S. EPA designated much of the entire Front Range regions, including Fort Collins, as "non-attainment" for the federal health standard for 8-Hour Ozone. Currently, Fort Collins remains part of this non-attainment region. The City is committed to supporting attainment of federal standards for ozone by implementing programs and policies that reduce local emissions of ozone-causing pollutants. The construction of the Foothills Transit Station will include 450kW pantograph style charging stations to allow for on-route, opportunity, charging of battery electric buses (BEB). These charging stations will primarily service the future West Elizabeth BRT project and its 60FT articulated BEBs; however, other Transfort BEBs could also access on route charging at this station. Transfort will have 11 BEBs in service by the time the transit station is completed, nine (9) of which will be outfitted with overhead rails for on-route charging.

The construction of a roundabout at the intersection of Overland Trail and West Elizabeth will reduce transportation related pollution and GHG emissions by reducing overall vehicle miles traveled (VMT) by allowing the realignment of several Transfort routes. According to the Benefit Cost Analysis (BCA) completed for this application, the construction of the transit station and roundabout will reduce VMT traveled by 24,616 annually, leading to decreases in GHGs and particulate emissions. The following table summarizes the decrease in emissions, in both short tons and monetized value as found in *Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (February 2021)*.

Vehicular Avoided Emissions (Select Years in 2026-2045; Total for ALL Years)

	2026	2030	2035	2040	2045	TOTAL
NOx (short tons)	0.13	0.12	0.12	0.11	0.11	**2.35**
SOx (short tons)	0.00	0.00	0.00	0.00	0.00	**0.00**
PM 2.5 (short tons)	0.00	0.00	0.00	0.00	0.00	**0.02**
CO_2 (metric tons)	45	44	43	41	40	**850**
Total Benefit Value						**$117,790**
Total Present Benefit Value						**$63,556**

Installing heavy duty vehicle charging infrastructure at the Foothills Transit Station will allow for more opportunities to deploy BEBs on existing Transfort routes. On-route charging is essential for many routes that are too long, in either miles or hours, for deployment of depot-charged buses. Deployment of BEBs will further reduce GHG and particulate matter emissions in the West Elizabeth Corridor, and specifically the intersection at Overland Trail and West Elizabeth, where transit vehicles would be more likely to idle. Transfort has engaged with a consultant, Center for Transportation and the Environment (CTE), beginning in 2021 to develop a Zero Emission Fleet Transition and Implementation Plan. The Phase 1 report can be found online on Transfort's website. In addition to the planning the City has completed with CTE, Transfort has already deployed two BEBs in the fleet and is well prepared to incorporate additional BEBs at this new transit center. CTE has completed modeling of BEBs charging in the West Elizabeth corridor and has determined that there is sufficient layover time for successful on-route charging.

Alignment with Decarbonization Plans

This project is well aligned with state, regional, county, and city carbon reduction plans.

City of Fort Collins: The City's Climate Action Plan (CAP) calls for a reduction of carbon emissions of 80% below 2005 baseline levels by 2030 and carbon neutrality by 2050. This project aligns with the CAP by implementing a roundabout at the intersection of Overland Trail and West Elizabeth, reducing VMT and subsequently reducing carbon emission from vehicles. The construction of the transit center is also part of Transfort's Zero Emission Bus Transition Plan, which directly affects the climate action plan by providing a path forward for converting 100% of Transfort's bus fleet to Zero Emission Vehicles by 2040.

Larimer County: The 2020 Climate Smart Larimer County Framework identifies transportation goals including "explore transportation alternatives, including… interconnected bus systems…enhanced bike lanes, electrical vehicle infrastructure." This project aligns with these goals by improving the transit bus network with the construction of a new multimodal mobility hub, and by implementing heavy duty electric vehicle charging infrastructure.

Colorado State University (CSU): CSU first adopted a Climate Action Plan in 2010 and was the first university in the world to reach a platinum STARS (Sustainability, Tracking and Rating Systems) rating in 2015. The April 2022 update of the climate action plan moved the University's target date for carbon neutrality up ten years from 2050 to 2040. This plan identifies that 4% of its overall emissions are due to Single Occupancy Vehicle (SOV) trips by students and faculty. One strategy CSU identifies to combat emissions is to reduce these SOV trips to campus, a goal that this transit center will help accomplish.

North Front Range Metropolitan Planning Organization (NFRMPO): The NFRMPO is responsible for long range transportation planning and oversight of two air quality maintenance areas for carbon monoxide, including Fort Collins. This project aligns with the NFRMPO's 2045 Regional Transportation Plan (RTP). The RTP's Goals, Objectives, Performance Measures, and Targets specifically identifies increases in non-SOV and air quality improvements as two important regional and national performance measures.

State of Colorado: In 2019 the State of Colorado Legislature passed House Bill 19-1261, the Climate Action Plan to Reduce Pollution ("Climate Action Plan"), which includes science-based targets of reducing statewide GHG pollution 26% by 2025, 50% by 2030 and

90% by 2050. Moreover, the State's Transportation Commission voted in 2021 to approve a new GHG Pollution Reduction Planning Standard, which requires MPOs to achieve individually set GHG reduction levels at four set periods (2025, 2030, 2040 and 2050).

Environmental Impacts and Underserved Communities

The City of Fort Collins is an organization that support equity for all, leading with race. This ethos guides project implementation, along with guidance from the NFRMPO's Environmental Justice (EJ) program. This EJ plan was created in order to inform decision making processes across the regional, identify partnerships and engagement strategies, clearly define benefits and burdens within the local and regional context, take into consideration additional EJ populations above and beyond minority and low-income populations, and to recommend actions to improve EJ and equity considerations in transportation planning. NFRMPO identifies that there are two EJ populations adjacent to the Foothills Transit Station project – higher than average Low-Income population located directly SW of the project location and higher than average Minority populations located directly NW of the project location. These census tracts have also been designated as Areas of Persistent Poverty (APP).

In addition to the air quality benefits discussed above, BEBs also reduce noise pollution as they are significantly quieter than CNG and diesel transit vehicles. According to researchers (S Misanovic et al 2022 IOP Conf. Ser.: Mater. Sci. Eng. 1271 012018), "the introduction of electric buses is one of the best possible ways to reduce noise". The researchers found that at a speed of 30mpk the measured noise levels of BEBs were 8.6% lower than CNGs and at 40mpk BEB noise levels were 2.1% lower than CNGs. According to the City of Spokane, WA, they expect battery electric buses to be about 24 decibels quieter inside the bus and 25 decibels quieter outside the bus as compared to diesel transit buses.

A Noise Analysis was completed by FHU as part of the 30% design for the overall West Elizabeth project. The project will make changes to a corridor with existing traffic and transit noise already in the community. Therefore, the FTA cumulative noise process was selected for the analysis. The results of the analysis found that none of the sensitive land uses examined through the assessment were found to be impacted by noise from the West Elizabeth project. Consequently, it was determined that no noise abatement actions are needed for this project.

According to studies completed by FHU, there are no significant floodplain concerns within the vicinity of this project, therefore the preliminary design does not specifically incorporate any floodplain upgrades. However, this will be further investigated through the course of the final design. This project will avoid adverse impacts to air and water quality as well as to wetlands and endangered species.

Quality of Life

A primary purpose of this project is to increase quality of life for citizens residing in and near the identified project location. This aligns with the TMP's vision of capital and operating improvements to speed, reliability, comfort, frequency of service, and strategies to improve equity in transit.

The Foothills Transit Station will increase quality of life for citizens in several ways. Specifically, by increasing transit access and multimodal transportation options with a mobility hub in this area of Fort Collins and eliminating the need for buses to utilize

neighborhood streets as a turnaround. Citizens in this area will have convenient access to future micro transit services, bike storage, scooter and bike shares, and universally accessible pedestrian facilities. The consolidation and realignment of existing transit service will allow for more frequent service to riders in the project area. The transit station will also allow for the turnaround of larger, 60FT articulated buses, which would increase capacity in the corridor. Currently, high ridership is resulting in the need for trailer buses to ensure riders are not left behind at stops due to full buses. The addition of multimodal options, additional first mile/last mile options for utilizing transit and increase in frequency times by consolidating transit service will reduce vehicle dependence.

There are approximately 2,216 people living within one-half mile of the project intersection and according to BCA calculations, this project is likely to induce approximately 24,000 new walking trips and over 15,000 new cycling trips annually. The increase in pedestrian and cycling trips will promote overall increases in health, quality, and longevity of life.

There are two city parks within walking distance of the proposed transit station. There is also a busy grocery store located one mile east of the transit station. Improved transit in this corridor, facilitated by the new station, would improve reliable access to daily destinations like parks and grocery stores.

The West Elizabeth corridor is currently one of the highest areas of demand for transit service in Fort Collins. Additionally, there are a high number of new residential and commercial developments taking place in the Elizabeth Corridor which will only increase the need for public transportation. The Foothills Transit Station will create a hub for riders on the west side of Fort Collins to access existing transit service. The City has experienced this anticipated growth of ridership firsthand with the implementation of its first BRT, MAX. After MAX launched, along with a brand-new transit center at the south end of town, annual Transfort ridership grew from about 2.5 million in 2014 to 4.4 million in 2018.

This corridor serves a high number of CSU students (many of whom may not have vehicles), low-income households, households with limited English proficiency, non-white households and those cost-burdened by mortgages. Census data maps show that the area surrounding the West Elizabeth Corridor has high levels of population density compared with other areas in Fort Collins, with population densities of 7,501 or greater persons per square mile. This corridor also contains some of the highest areas (10-15%) of reported zero vehicle households, which leads to a higher need and propensity for transit. Building a new transit station to serve the West Elizabeth corridor will provide improved accessibility and more opportunities for those who rely on public transportation.

As currently aligned, Route 3 completes its turnaround through a residential neighborhood, an impractical solution. The need for buses to turnaround through this neighborhood will be eliminated with the construction of the Foothills Transit Station as Route 3 will be consolidated with other routes and will complete its route on Elizabeth to the station. This will contribute to the City's Neighborhood Livability and Social Health Strategic Objective to "protect and preserve quality of life in neighborhoods."

Mobility and Community Connectivity

A primary purpose of this project is to increase connectivity with multimodal modes of transportation, in alignment with the TMP, which calls for strategies to improve first/last mile access and integration with other modes.

The design for the full West Elizabeth corridor was completed with multi-modal users in mind, including universally accessible sidewalks and crosswalks, crosswalks and street crossings redesigned with safety of all users at the forefront. This specific project to build a transit station and roundabout will also improve accessibility and safety for non-motorized travelers by including accessible sidewalks and crosswalks, safer cycling facilities, connections to shared-use trails, and bike storage at the transit station. Foothills Transit Station will also accommodate parking for ride shares, bike storage, scooter and bike shares.

The City recognizes that everyone is a pedestrian at some point during their transit trips and therefore strives to ensure that every street in the City should contain a sidewalk and curb ramps that are Americans with Disabilities Act (ADA) accessible. The new Foothills Transit Center will meet all applicable ADA requirements, and in some cases will go above and beyond current ADA regulations. For example, 10FT sidewalks will be added adjacent to the transit center. Existing sidewalks near roundabout are currently 6FT and will also be widened to 10FT.

The transit station will address the gap that exists due to having no mobility hubs in this area of Fort Collins. Cyclists and pedestrians will have better and more convenient access to local transit as well as regional transit. Scooters and bike shares are already popular throughout the rest of Fort Collins, and there will be space at the transit center for these amenities as well, allowing easy and convenient choices for first mile/last mile connections to transit. Parking at the CSU Foothills Campus adjacent to the Foothills Transit Station will allow for drivers from other communities to easily access transit service to CSU and beyond for shopping, employment, education, and special events.

According to the Transit Cooperative Research Program (TCRP), “research shows that amenities promote transit ridership” in one survey, riders “indicated they would increase transit use if amenities were provided.” Another quasi-experimental study of improvements made at King County Metro between 2012 and 2014 found that added amenities increased boardings by up to 200% at some stops. The BCA completed for this funding application assumed that increased amenities at a new transit station would lead to increased ridership.

The City suspended transit fares at the onset of the COVID-19 pandemic and has not yet reinstated a fare. Prior to the pandemic fares were very affordable, at $1.25 with free transfers, one of the lowest fare prices in Northern Colorado (other nearby agency fares range from $1.50 to $5.00 for a single ride). Transfort is currently undergoing a Funding and Fare Study to determine the feasibility of remaining a fare-free system. Transfort has also historically offered a number of affordable fare passes, such as monthly and annual passes and affordable passes available to employees of qualified employers. Transfort also has a strong history of working with local human services agencies on fare passes to ensure financially disadvantaged populations had access to transit prior to 2020 when the system went fare-free.

In 2019, the TMP identified West Elizabeth as a priority project to address transit shortfalls in the community. Extensive public outreach has been completed throughout the planning of the West Elizabeth Corridor. Several key themes were identified through those public outreach events. Transit riders identified the following: overcrowded buses, lack of bus stop amenities, and insufficient service. Cyclists identified the following concerns: high number of crashes and inconsistent facilities. Pedestrians, including people using mobility devices,

identified the following: inconsistent and uncomfortable pedestrian facilities that are largely not ADA compliant and difficulty crossing West Elizabeth at key intersections.

Currently the four existing Transfort routes that circulate in the proposed project location are required to run in loops in the absence of a transit station and a convenient turn around location. During peak ridership, these loops tend to front load early in the route from riders seeking to ensure a seat. This project will allow for the immediate realignment and consolidation of routes and an increase in service frequency that will service to improve travel time reliability for riders in the corridor.

The current schedule includes several routes that overlap along West Elizabeth Street and West Prospect Road. West Elizabeth is served by Routes 2, 3, 31, and 32. West Prospect Road is served by Routes 2, 32, and 7. Routes 2 and 32 are reverse circulators that serve the two corridors, with Route 2 providing eastbound service along West Elizabeth and westbound service along West Prospect Road, and Route 32 vice-versa. Both routes operate with 30-minute frequency. From Ponderosa Drive to City Park Avenue, West Elizabeth is also served by Route 3, an out and back route with 15-minute frequency. Route 31, a loop route, provides 10-minute frequency in the EB direction from Constitution Avenue to City Park Avenue. The segment of West Prospect Road between Shields Street and Meridian Avenue is also covered by Route 7, an out and back route with 30-minute frequency.

Routes 2, 3, 31 and 32, are currently served by one to two eastbound “trailer buses” (extra off schedule buses deployed to increase capacity) per hour in the AM peak period between 7AM and 12PM to meet heavy passenger demand by students traveling to campus along West Elizabeth. The addition of trailer buses was necessary in order to reduce passenger leave-behinds during the AM peak. See table and map below for representation of current transit service in this corridor.

Figure 1: Current Routes Along West Elizabeth Street and West Prospect Road (source: Transfort)

Route	Street	Span & Frequency		
		Weekday	**Saturday**	**Sunday**
2	West Elizabeth & Prospect Rd	6:23 AM - 8:09 PM at 30 min headways	6:23 AM - 8:09 PM at 30 min headways	No service
3	West Elizabeth	7:05 AM - 6:15 PM at 15 min headways (when CSU in session, otherwise 30)	7:05 AM - 6:15 PM at 30 min headways	No service
32	West Elizabeth Prospect Rd	6:50 AM - 10:40 PM at 30 min headways	No service	No service

While the addition of the transit station would not immediately allow for the full BRT style service envisioned for the West Elizabeth Corridor, it would lead to realignment of several routes in the area and increased efficiencies. A new transit station and roundabout in this project location would allow for Route 3 to extend along the length of West Elizabeth to the station, the future BRT route. Route 2 will become a bi-directional route from the transit station serving Prospect Road to the CSU campus and allow for convenient transfers to MAX. This service plan builds on the 2016 West Elizabeth ETC but adjusts the service levels and east side configuration slightly. See map and table below showing the preferred scenario, assuming construction of the transit center and roundabout is funded through this program.

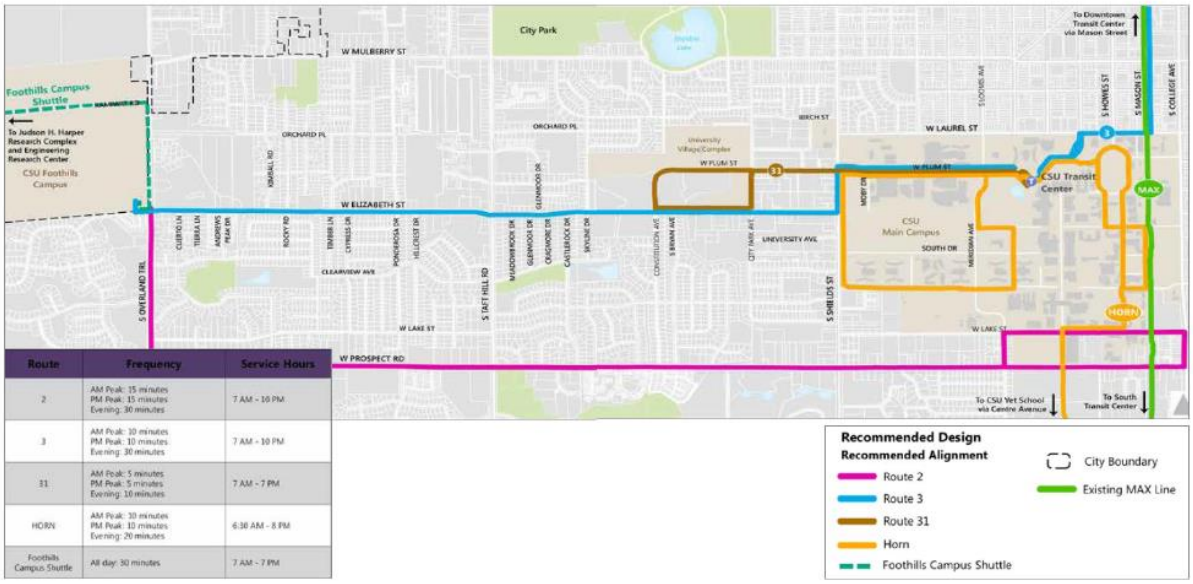


Figure 2: Future Service Concept (source: 2016 West Elizabeth Enhanced Travel Corridor Plan)

Route	Street	Span & Frequency		
		Weekday	**Saturday**	**Sunday**
2	Prospect Rd	6:30 AM - 10:00 PM at 30 min headways	6:30 AM - 10:00 PM at 30 min headways	6:30 AM - 10:00 PM at 30 min headways
3	West Elizabeth	7 AM - 7 PM at 15 min headways 7 PM - 10 PM at 30 min headways	7 AM - 7 PM at 15 min headways 7 PM - 10 PM at 30 min headways	7 AM - 7 PM at 15 min headways 7 PM - 10 PM at 30 min headways

While again, this project alone will not lead to full BRT service along West Elizabeth, it will allow Transfort to make significant strides toward the realization of that project. Per the analysis completed by Fehr & Peers as part of the 30% design project, the addition of a transit station at the western terminus of West Elizabeth will allow for significant increases in capacity and travel time reliability. By consolidating Route 3 and 32, West Elizabeth Street will experience significant service improvements, with increased service frequency and additional evening and weekend service. Routes 7 and 31 will remain the same. The new Route 2 along West Prospect Road would also experience service improvements in the form of reduced headways and extended weekend service.

Economic Competitiveness and Opportunity

A primary purpose of this project is to increase economic benefits for the citizens of Fort Collins, especially those who live in or visit the area for recreation or work. The Foothills Transit Station is expected to be a significant regional connector and mobility hub, facilitating tourism in the area. Routes that utilize the transit station will connect not only CSU students, employees, and visitors, but visitors to and from other communities along the Front Range with the additional of a convenient regional mobility hub. This hub will allow connections to other interregional routes such as FLEX to Loveland/Longmont/Boulder, Poudre Express to Greeley and Bustang to Denver. CSU has plans to upgrade nearby parking which would serve as a park and ride to connect regional commuters with Transfort local bus service, and the regional routes cited above.

In accordance with the City's existing Disadvantaged Business Enterprise (DBE) program, a DBE goal would be set ahead of bidding this project. Transfort's current DBE goal is 3%. Every effort will be made to engage with DBE contractors to ensure that DBEs are utilized to their fullest extent.

Over 24,000 residents and 20,000 jobs exist within the West Elizabeth corridor. The transit station would assist in connecting residents who live in the corridor with jobs both within and outside of the corridor. It would also assist in connecting residents outside of the corridor with jobs located within. These improved connections would be made possible through increased frequencies, larger capacity buses, and increased multimodal options, and safer pedestrian and bike facilities.

CSU is one of the largest employers in Northern Colorado. This new station will provide better access to jobs and schools through connections between the CSU Main and Foothills

Campus. Moreover, CSU has plans to further develop the Foothills campus, including a new Center for Vector-borne Infectious Diseases and Temple Grandin Center for Equine Assisted Therapy. These planned programs are anticipated to bring a high number of additional faculty and students to the campus. CSU anticipates that constructing a transit center at this location that will more readily connect the Main and Foothills campuses will significantly reduce single occupancy vehicle trips.

This project would provide many opportunities for good paying jobs: Construction of a new transit station includes concrete work, construction, electrical work, plumbing, and many other aspects, including utility relocations, that will provide the opportunity for local businesses to bid on the work. The City ensures all federally funded projects conform with federal regulations, including Davis Bacon Related Acts and other labor standard regulations. All covered workers and work classifications would be paid prevailing wages.

State of Good Repair

If funded, this project will take place and affect routes within the existing footprint of Transfort's service area; a corridor that sees a high level of ridership. System vulnerabilities have long been identified with current route planning, which is necessary due to the lack of a turnaround location. Moreover, these routes are primarily located in census tracts designated as APP and therefore affect EJ populations. A primary purpose of this project is to mitigate these existing shortfalls by creating opportunities for bidirectional and safe service in one of the most heavily ridden corridors in the service area.

Funding this project will create a safe turnaround location for standard and 60FT articulated buses, removing the need for current standard size transit buses to use a local neighborhood as a turnaround location. In addition to quality of life benefits, the City anticipates this will result in less wear and tear to those streets and a decrease in ongoing streets maintenance. Regarding maintenance in the overall corridor, the BCA completed in conjunction with this application estimates a reduction in VMT by 24,616 miles annually and commensurate decrease in Operational costs, including maintenance, due to the reduction in miles.

This project will create new infrastructure such as sidewalks, dedicated bike lanes and transit stations. This will ensure safe and universal access for pedestrians and cycling. Funding this project would modernize an existing intersection by upgrading to a roundabout, which will also increase safety for motorists and VRU utilizing the intersection and adjacent areas. Underground utilities have been identified to be relocated and would also be updated/modernized if needed throughout the course of construction.

The City has consistently prioritized the improvement of existing infrastructure and assets by implementing Asset Management programs. If funded, the City will create an ongoing maintenance and operation plan for the roundabout and transit station as has been completed in the past for similar projects. For example, the MAX BRT project resulted in several Memos of Understandings (MOU) with City Departments such as Utilities, Streets, Engineering, and IT, with each responsible for their aspects of maintaining the BRT guideway and systems. Similarly, the construction of the transit center at CSU resulted in a maintenance agreement and cost sharing arrangement between the University and the City.

If funded, the Transit Station and roundabout assets will be maintained in a state of good repair by ensuring that ongoing preventive maintenance is conducted as scheduled, existing

MOUs with internal departments and outside agencies are enacted, and that proper budgets are in place to maintain and replace assets as needed.

The City promptly established State of Good Repair (SGR) goals when the Transit Asset Management (TAM) rule was established and has been successful in making progress to meet those goals. Targets and performances from 2021 and 2022 National Transit Database (NTD) reporting are as follows:

Applicable Asset Class	2021 Target %	2021 Performance %	2022 Target %
Articulated Buses	0%	0.00%	0%
Buses	11%	2.27%	5.6%
Automobiles	4%	7.14%	7.10%
Passenger/Parking Facilities	0%	0%	0%
Administrative/Maintenance Facilities	0%	0%	0%

Currently, 0% of the fleet is at or past Transfort's adjusted Useful Life Benchmark (ULB) as defined in Transfort's TAM plan. The average age of the revenue fleet is 7 years.

Currently 10% of service vehicles are at or past Transfort's adjusted ULB as defined in Transfort's TAM plan. The City currently has two vehicles on order to replace vehicles past their useful life and has identified funding to replace two more, which would decrease the amount of service vehicles at or past Transfort's adjusted ULB to 0%.

Transfort has no equipment items valued at over $50,000 or facilities that are rated below a 3.0 on FTA's TERM scale.

Partnership and Collaboration

CSU: This project has been a collaboration between the City and CSU since its inception, to the extent that partnership could be considered a primary purpose of this project. The two organizations worked closely together to develop the West Elizabeth Enhanced Travel Corridor (ETC) plan in 2016 and have continued to work collaboratively on subsequent West Elizabeth planning, including the recently completed 30% design. CSU has also contributed 50% of the local match required to fund the 100% design of the full corridor, the scope of which includes final design of the transit station and roundabout.

Xcel: While the City owns its own utility and supplies energy to most of Fort Collins, the location of the Foothills Transit Station is outside the municipal utility service area. Xcel Energy is the utility provider in this area. The City has engaged with Xcel to ensure a seamless partnership, including a preliminary design of the electrical infrastructure necessary for on-route charging at the transit station. Xcel has estimated that $380,249 worth of costs to upgrade electrical service at the transit center will be covered under their Commercial EV Program.

CTE: Transfort has partnered with CTE to develop a Zero Emission Vehicle Fleet Transition Plan. As part of this planning project, CTE evaluated the feasibility of deploying battery

electric buses (BEB) on the West Elizabeth Corridor and determined that the BEBs with on-route charging at the Foothills Transit Station would be successful for several routes.

Throughout the lifecycle of planning for the West Elizabeth Corridor, extensive outreach has been completed to ensure local business' voices are heard. Local businesses were one of the specific audiences that were targeted during public outreach of both phases of the planning projects to ensure their feedback was incorporated in the final design. It will be a priority to work with and collaborate with these local businesses throughout the remainder of the design and construction phases.

Legislative support at multiple levels of government has been obtained for this project, including local, state, and national support. Please see the letters of support in Attachment D. Letters of Support as evidence of the strong legislative support for this project.

The City has made every effort to engage residents and community-based organizations to ensure equity considerations and build strong collaborative partnerships throughout the life of this project.

Innovation

Aligned with the key elements outlined in the TMP, a primary purpose of this project is to explore innovative strategies to capitalize on emerging technologies and innovative project delivery, as well as shifting travel behaviors, and to focus on increasing safety.

The City plans to deploy battery electric transit buses on West Elizabeth, its first deployment of 60ft articulated transit buses. These buses will require on-route, opportunity, charging to take place at the Foothills Transit Station. Therefore, two (2) overhead pantograph style chargers will be installed at the station. While this technology is not necessarily new, it will be innovative technology for the City, as it has not yet been deployed here. The City is confident in the ability to successfully deploy this new technology as extensive planning work as already been completed with CTE related to deployment of both depot charged and opportunity charged BEBs.

Transfort currently utilizes Clever Devices CleverCAD solution for Computer Aided Dispatch/Automatic Vehicle Locator (CAD/AVL) as one of its core operating technologies. This Intelligent Transportation System (ITS) will continue to be operated to support vehicle monitoring and dispatching throughout the West Elizabeth BRT Corridor, including at the Foothills Transit Center. Real time bus information will be accessible to passengers waiting at the transit station via electronic screens and automated annunciators located at both BRT style stations and the entrance and exit.

Several central IT systems will also be utilized to assist in wayfinding and to increase safety, to be installed throughout the corridor as well as at the transit station. Design specifications include the following, all of which the City has experience in operating, as similar technologies exist along the MAX corridor:

- Variable Message Boards (VMB) to alert waiting passengers of bus arrival information.
- Emergency Call Boxes (ECB) that integrate with law enforcement reporting to mitigate safety risks to passengers.
- Remote controlled gate access will also be installed at entrances and exits to deter passenger vehicles from entering the transit station without authorization.

- PTZ (Pan, Tilt, Zoom) cameras will also be installed through the transit station to deter unwanted behavior and to aid in investigations.

All of the City's recent constructions, including Transfort's South and CSU transit centers have been LEED certified. This project will similarly strive to incorporate environmental sustainability and innovative building materials will be used to the extent possible. The City also requires waste management plans for projects of this size to ensure demolition materials are diverted from the landfill.

Xcel Energy, the energy provider for the project location, provides funding for electric vehicle charging. This unique program offered by Xcel will provide electrical infrastructure upgrades to the site in the amount of approximately $380,249, with no anticipated cost to the City. They City has receive these estimates directly from Xcel as part of planning work done for their Commercial EV Program. CSU has committed to providing the land upon which the transit station will be constructed. This land was, as recently as 2021, was estimated at a land value of approximately $732,000.

PROJECT BUDGET

Design Status

30% design was initially completed for the transit station itself by CSU in 2017. As the full BRT project progressed, 30% design was then completed for the overall West Elizabeth project in fall 2022 by Felsburg Holt & Ullevig (FHU), with updates completed to the design of the transit center, including the proposed roundabout. This design phase was completed in with FY2020 funding awarded under the State of Colorado's Multimodal Options Fund (MMOF) program with local match provided through a partnership between the City and CSU.

FY2022 MMOF funds were subsequently awarded in the amount of $1,232,248 to fund 100% design of the West Elizabeth project, including 100% design of the Foothills Transit Station and the roundabout at Overland Trail and West Elizabeth. MMOF funds require a 50% match, which will again be contributed equally through a partnership between the City and CSU. This project is anticipated to begin in Summer 2023, with an anticipated end date of December 2024.

The City entered Project Development (PD) in July 2021 under the Federal Transit Administration's (FTA) Small Starts program for the full West Elizabeth BRT project, which includes the Foothills Transit Station and Roundabout. The City is on track and meeting milestones under Project Development; however, this project has not yet been submitted for a project rating and therefore, no funds have been awarded under the Small Starts program at this time.

The City has seen an increase in procurement delays and cost increases since the beginning of the COVID-19 Pandemic; however, according to consultation with the City's Purchasing department, delays and costs have begun to stabilize, especially with construction projects similar to this proposed project. To mitigate risk in this area, liquidated damages for significant delays are typically included in construction contracts. To mitigate the risk of cost overruns, FHU has included contingency, including estimating, construction, and owner contingency, and allowance for escalation over three years. FHU has reviewed and updated the cost estimation as recently as February 2023 and is confident that responsible and conservative contingency estimates will mitigate the inherent risk of cost escalations.

Source of Funds

Please see Attachment B. Estimate and Budget Breakdown for detailed information on how project funds will be spent, broken down by construction category, such as mobilization, demolition, sitework, utility relocation work, landscaping, specialties, power infrastructure, indirect and contingency costs. This attachment also shows how each project category is further broken down by census tract. This request for funding does not break the transit station and roundabout down into separate components as the City feels they do not have a significant level of independent utility without each other. The transit station will not function to its fullest potential without the roundabout and the

roundabout does not provide the level of transit utility needed to realize significant benefits.

All project funds will be used toward the construction of the Foothills Transit Station and Roundabout, including all demolition; sidewalk and road improvements; utility relocations, transit amenities such as shelters and benches, driver relief station, real time bus information, emergency call boxes, lighting, and bicycle parking; and heavy vehicle charger (HVC) stations with overhead pantographs to accommodate on-route charging of battery electric buses.

The City recognizes that if awarded, at least two independent appraisals are required in order to confirm the valuation of the land match and that this source of funds will not be available until after FTA concurrence. The City also recognizes that the estimate provided by Xcel for construction allowance under their EV Infrastructure program is only an estimate. Therefore, if the final amounts of those non-federal funding sources change, the total amount of additional local funds the City must bring to the project will change. The City recognizes and accepts this and is also willing to increase the local match share if the Department of Transportation (DOT) does not agree that the portions of the project identified in census tracts 5.05 and 5.06 qualify for reduced match rates under the provision for Areas of Persistent Poverty (APP). There are no other identified restrictions on the timing or use of funding sources.

Table 1 below shows the total project costs along with all funding sources, including RAISE grant funding request, other federal funding sources and all non-federal funding sources.

TABLE 1: Total Project Costs and Funding Sources

Funding Source	Component 1 Funding Amount (Transit Station + Roundabout)	Total Funding Amount
TOTAL PROJECT COST	$ 12,921,555	$ 12,921,555
FEDERAL FUNDING SOURCES		
RAISE funds	$ 10,713,570	$ 10,713,570
Other Federal Funds (MMOF)	$ 282,605	$ 282,605
OTHER FUNDING SOURCES		
Other Federal Funds (MMOF) Match	$ 282,605	$ 282,605
CSU Land Match	$ 732,371	$ 732,371
Xcel Commercial EV Program	$ 380,249	$ 380,249
Additional Local Funds (Transit Reserves)	$ 530,155	$ 530,155
TOTAL FUNDING	$ 12,921,555	$ 12,921,555

The City of Fort Collins was awarded federal funds through the State of Colorado Multimodal Options Fund (MMOF) for the completion of 100% design. MMOF funds have been indicated as a small portion of the match for this project. These funds have been awarded for 100% design of the project but have not yet been encumbered and no expenses under this project have been incurred. According to the MMOF call for projects, in accordance with the final ARPA/SLFRF rule, Federal Recovery Funds administered under the MMOF program can be used to satisfy the matching requirements of other federal programs. Before awarding MMOF funds, Colorado Department of Transportation (CDOT) obtained approval for use of MMOF funds as a match to FHWA and FTA funding programs.

Documentation of funding commitments can be found in Attachments B, C, and D. Documentation may also be found in the Attachment labeled Foothills Station Funding Documentation. Attachment B. Estimate and Budget Breakdown, referenced above, includes information related to CSU land match valuation and estimate from Xcel of construction allowance for power infrastructure improvements under their Commercial EV Program. Please see Attachment C. MMOF Funding for documentation of this funding source, including the language stated above regarding allowability of MMOF funds to be used as a match for other federal funds. Please see letter of support from CSU in Attachment D.Letters of Support committing to the land donation.

If awarded RAISE funds, Fort Collins City Council will need to appropriate additional Transit Reserve funds in the approximate amount of $530,155. If awarded RAISE funds, the additional local funds will be appropriated for this project, they are available and City Council commitment this project is very high, as evidenced by the Mayor’s Letter of Support, which can be found in Attachment D. Letters of Support.

Depending on the timing of notification for RAISE awards, 100% design work for this project may begin prior to the time that RAISE funds could be obligated. The City recognizes that expenses incurred between the time of award and the time of obligation may not be eligible for reimbursement, but also does not want to risk falling behind on design work for the transit center.

Table 2 on the next page shows how project funds are broken down by funding source, including match percentages for RAISE funds. The City requests a higher match rate for the portion of the project that takes place in census tracts 5.05 and 5.06 as they are designated APP. Table 3 shows the total of ‘other’ (non-RAISE) funding sources.

TABLE 2: RAISE Grant Funding Request and Match Percentages by Census Tract

	Census Tract 23	% Match	Census Tract 5.05 (APP)	% Match2	Census Tract 5.06 (APP)	% Match3	TOTALS
Total Project Cost by Census Tract	$ 9,626,900		$ 2,119,396		$ 1,175,258		$ 12,921,555
RAISE Request	$ 7,701,520	80%	$ 1,935,543	91%	$ 1,076,506	92%	$ 10,713,570
Total Other Funds	$ 1,925,380	20%	$ 183,853	9%	$ 98,752	8%	$ 2,207,985

TABLE 3: Detailed Breakdown of Other Funding Sources (Non-RAISE funds)

Other Funding Sources	Amount
MMOF Project (Design Costs)	$ 565,210
Commercial EV Program (Xcel)	$ 380,249
Land Match (CSU)	$ 732,371
Additional Local Funds (Transit Reserves)	$ 530,155
Total Other Funds	$ 2,207,985

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MEMORANDUM

TO: Annabelle Phillips, Transfort

FROM: Matthew Downey & Holly Buck, FHU

DATE: February 27, 2023

SUBJECT: Foothills Transit Center & Overland/Elizabeth Roundabout BCA Narrative

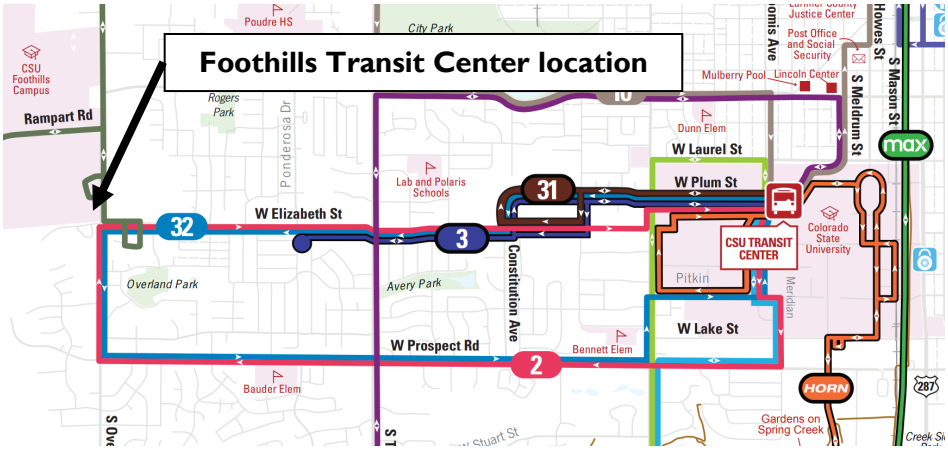
A benefit-cost assessment (BCA) was conducted for the Foothills Transit Center and Overland Trail/West Elizabeth Street roundabout project as part of the City of Fort Collins application to the US Department of Transportation's (USDOT) Fiscal Year 2023 RAISE grants program. This analysis was conducted in accordance with the USDOT's *Benefit-Cost Analysis Guidance for Discretionary Grant Programs* (BCA Guidance, January 2023).

The BCA evaluates the costs and benefits of the Preferred scenario of constructing the proposed transit center and roundabout against a Baseline scenario under which the project does not occur. This memorandum summarizes the analysis and assumptions associated with the BCA. The analysis has been conducted in an Excel spreadsheet with multiple tabs quantifying the various types of benefits and costs associated with the project. The spreadsheet also identifies and cites sources for factors, assumptions, and data used in the analysis. Many of the factors/assumptions used in the analysis come directly from Appendix A of the January 2023 guidance document.

General Assumptions

Project Description

West Elizabeth Street is a key roadway connection to Colorado State University (CSU) on the east end and CSU's Foothills Campus on the west end. The intersection of Overland Trail and West Elizabeth Street currently has stop signs for east-west traffic along West Elizabeth Street and no stop control for north-south traffic along Overland Trail. There are also no crosswalks on the north and south legs of the intersection. Local bus stops exist near the intersection on both West Elizabeth Street and Overland Trail, all served by two local Transfort routes which operate as one-way loops: Route 2, running east along West Elizabeth Street and then west along Prospect Road, and Route 32 running in the opposite direction.



There are inefficiencies with this one-way loop pair, but there are currently no locations for buses to easily turn around near the intersection of Overland Trail and West Elizabeth Street. The proposed project would construct a roundabout at that intersection and a new transit center in the northwest quadrant of the intersection to provide a turn-around point so that a single route can run east and west along West Elizabeth Street. The transit center will also provide additional amenities for transit users, space for other shared mobility services, charging facilities for electric buses, and a restroom for transit operators. The roundabout will improve safety at the intersection, facilitate safe bus access to the transit center, and better facilitate crossings of Overland Trail for active transportation modes.

Preliminary design was completed in 2022 as part of a larger multimodal corridor project along West Elizabeth Street/ between Overland Trail and Mason Street. The City of Fort Collins anticipates final design of the project will take place between Year 2023 and Year 2024, with construction taking place in Year 2025, culminating with the new roundabout and transit center being fully functional by the beginning of Year 2026.

Baseline & Alternatives

The analysis conducted for the BCA compares the Baseline scenario (without the RAISE grant) to the Preferred scenario (with the RAISE grant).

The Baseline scenario assumes that the existing intersection configuration at Overland Trail and West Elizabeth Street (i.e., stop control only for east-west traffic on West Elizabeth Street) remains in place, a transit center is not built near the intersection, and existing transit service through the intersection and along West Elizabeth Street remains as is.

The Preferred scenario assumes that a roundabout and a new transit center are a constructed at the intersection of Overland Trail and West Elizabeth Street.

Transit Operations

The Baseline scenario assumes that service spans and frequencies for routes operating along West Elizabeth Street remains as shown in the **Table 1**. Route 2 is a one-way loop which runs east along West Elizabeth Street and west along Prospect Road, and Route 32 is a one-way loop which runs west along West Elizabeth Street and east along Prospect Road.

Table 1

Route	Street	Span & Frequency		
		Weekday	**Saturday**	**Sunday**
2	West Elizabeth & Prospect Rd	6:23 AM - 8:09 PM at 30 min headways	6:23 AM - 8:09 PM at 30 min headways	No service
3	West Elizabeth	7:05 AM - 6:15 PM at 15 min headways (when CSU in session, otherwise 30)	7:05 AM - 6:15 PM at 30 min headways	No service
32	West Elizabeth Prospect Rd	6:50 AM - 10:40 PM at 30 min headways	No service	No service

The Preferred scenario assumes existing Transfort routes 2, 3, and 32 are consolidated into two routes: Route 2 running east and west along Prospect Road, and Route 3 running east and west along West Elizabeth Street. Both routes would connect to the Foothills Transit Center and have the spans and frequencies shown in **Table 2**.

Table 2

Route	Street	Span & Frequency		
		Weekday	**Saturday**	**Sunday**
2	Prospect Rd	6:30 AM - 10:00 PM at 30 min headways	6:30 AM - 10:00 PM at 30 min headways	6:30 AM - 10:00 PM at 30 min headways
3	West Elizabeth	7 AM - 7 PM at 15 min headways 7 PM - 10 PM at 30 min headways	7 AM - 7 PM at 15 min headways 7 PM - 10 PM at 30 min headways	7 AM - 7 PM at 15 min headways 7 PM - 10 PM at 30 min headways

Demand Forecasting

The analysis incorporates traffic counts conducted in 2022 and Synchro analysis. A calibrated VISSIM microsimulation model was developed for the analysis. Model outputs for present-day and 2040 were calibrated using available daily and peak hour count data recorded in support of the project. The North Front Range MPO (NFRMPO) model was used to determine annual growth rates (applied with compounding) and calculate estimated 2040 traffic volumes, then extrapolated to 2045. Peak hour approach volumes for 2022 and 2020 are presented in **Table 3**. The northbound and southbound intersection approaches carry substantially more traffic than the eastbound and westbound approaches.

The roundabout and transit center are not expected to impact overall traffic volumes at the intersection of West Elizabeth Street and Overland Trail.

Table 3. AM and PM Peak Hour Approach Volumes

Intersection	Approach	2020		2040	
		AM	PM	AM	PM
Overland & Elizabeth	WB	102	152	110	163
	EB	33	33	44	36
	NB	353	464	382	509
	SB	272	429	296	466

Inflation Adjustments

Project investments and benefits have been expressed in 2021 dollars, as outlined in the USDOT's Benefit-Cost Analysis Guidance for Discretionary Grant Programs. The Bureau of Economic Analysis, National Income and Products Accounts, Table 1.1.9, "Implicit Price Deflators for Gross Domestic Product" has been used to bring all values to 2021 dollars.

Discount Rates

Consistent with the USDOT's *Benefit-Cost Analysis Guidance for Discretionary Grant Programs* and OMB Circular A-94, a real annual discount rate of 7 percent has been applied to discount the benefits and costs to report net

present value for the BCA analysis. Consistent with Section 4.3 of the 2023 BCA Guidance, carbon dioxide emissions have been discounted using a 3 percent discount rate.

Analysis Period

The evaluation period included in the overall assessment includes 25 years, extending from 2020 to 2045. The evaluation period begins in year 2020 to include all previously incurred costs that have been converted to 2021 dollars and extends to 2045 to include 20 years of project operation following construction completion. The analysis has is based on the current projected project schedule (with RAISE funding) which projects that the construction of the project will start in 2025 and is complete by 2025. All benefits and costs are assumed to occur at the end of the year, with benefits beginning in 2026.

Benefits

Value of Travel Time Savings

Constructing a roundabout at the intersection of West Elizabeth Street and Overland Trail will reduce intersection delay for approach traffic on West Elizabeth Street and increase intersection delay for approach traffic on Overland Trail (which currently has no stop control).

Travel time savings were estimated for each of the following categories:

- Passenger Vehicle Travel
- Truck Travel

Changes in total projected vehicle delay between the Baseline and Preferred Scenarios was used to estimate vehicular travel time savings.

Vehicle Travel Time Savings

Vehicular delay associated with the project was evaluated as part of the West Elizabeth Corridor BRT Preliminary Design Project. The West Elizabeth Corridor BRT Preliminary Design Project evaluated 2022 and 2040 AM and PM peak hour conditions for the Baseline and Preferred Scenarios.

Synchro and a VISSIM model served as the foundation for operational analyses of 2022 and 2040 AM and PM peak hour vehicular delay (in seconds per vehicle) under the Baseline and Preferred Scenarios; see **Table 4 and Table 5,** respectively.

Table 4 AM and PM Peak Hour Approach LOS and Delay (sec/vehicle) – Baseline Scenario

Intersection	Approach	2022		2040	
		AM	PM	AM	PM
Overland & Elizabeth	NB	0	0	0	0
	SB	0	0	0	0
	EB	15	24	16	28
	WB	15	24	16	30

Table 5 AM and PM Peak Hour Approach LOS and Delay (sec/vehicle) – Preferred Scenario

Intersection	Approach	2022		2040	
		AM	PM	AM	PM
Overland & Elizabeth	NB	6	7	6	8
	SB	5	7	5	8
	EB	4	5	5	6
	WB	5	7	6	7

Like the peak hour volumes, AM and PM peak hour average approach vehicular delay for years 2020-2039 and for years 2041-2045 were estimated using straight line interpolation.

The combined AM and PM peak hour intersection stop delay, together, was assumed to reflect approximately 40 percent of the total daily delay, so a factor of 2.5 was applied to the sum of the two AM and PM peak hour delays to estimate daily delay. These two hours in combination generally only represent 15 to 20 percent of the daily traffic, but because delay increases exponentially as traffic increases, a 40 percent assumption was used for daily delay calculations.

Stopped delay for each year within 2020–2039 and from 2041–2045 was estimated using straight line interpolation. The annual stop-delay for the Baseline and Preferred Scenarios has been calculated using a standard annualization factor of 300, with a standard assumed truck percentage of 2%.

Travel Time Savings

The project is projected to result in overall intersection delay increases from conversion to a roundabout from minor-street stop-control; this impact has been captured in this BCA through the delay change resulting from the roundabout construction.

The weighted average value of travel time savings for all trip purposes reflects the typical distribution of local travel by surface modes (88.2 percent personal, 11.8 percent business) per the 2023 BCA guidance in the absence of local information. At the time of this analysis, there was no local information available to inform the distribution of local travel by service modes.

Average vehicle occupancy allows for the estimation of total travel time savings in person-hours. Passenger vehicle delay has been converted to person-hour delay using the average vehicle occupancy of 1.67 for passenger vehicles (all travel) found in Table A-4 of the USDOT's *Benefit-Cost Analysis Guidance for Discretionary Grant Programs*. Travel time savings for passenger vehicles have been calculated by multiplying the total annual passenger vehicle volumes by annual stopped delay for both the Baseline and Preferred Scenarios. The change in stopped delay has been calculated by subtracting the Preferred Scenario delay from the Baseline Scenario delay.

Similarly, truck travel time savings have been calculated by multiplying the total annual truck volumes by the corresponding scenario annual stopped delay and quantifying the difference between the Baseline and Preferred Scenarios.

Travel Time Savings Overview

The project is projected to result in overall intersection delay increases from conversion to a roundabout from minor-street stop-control; this impact has been captured in this BCA through calculating the vehicle delay change resulting from the roundabout construction. The values in **Table 6** are negative because the project will result in an overall increase in vehicle delay at the intersection.

Table 6 Hours of Travel Time Savings by Mode (Select years in 2026-2045; Total for ALL Years)

	2026	2030	2035	2040	2045	TOTAL
Passenger Vehicles	-1,063	-1,077	-1,094	-1,112	-1,130	-21,923
Trucks	-22	-22	-22	-23	-23	-447
TOTAL	**-1,085**	**-1099**	**-1,116**	**-1,135**	**-1,153**	**-22,370**

Travel time savings have been converted from hours to dollars using the USDOT's *Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis*. Passenger vehicle travel has been monetized using the 2011$ per person-hour value of $18.80 (cited in the 2023 BCA Guidance) for all-purpose travel. Truck travel time savings have been monetized using the recommended hourly value of travel time savings for commercial truck operators of $32.40 per person-hour (cited in the 2023 BCA Guidance). Monetized values of the travel time impacts of the project are presented in **Table 7**.

Table 7 Monetized Value of Travel Time Savings (Select Years in 2026-2045; Total for ALL Years)

	2026	2030	2035	2040	2045	TOTAL
Passenger Vehicles	-$33,360	-$33,804	-$34,360	-$34,915	-$35,471	-$688,308
Trucks	-$703	-$712	-$724	-$735	-$747	-$14,496
Total Value						**-$702,804**
Total Present Value (Year 2021, discounted at 7% per year)						**-$282,005**

Operating Cost Savings

The project would allow Transfort to condense three bus routes currently traveling along the West Elizabeth Street and Prospect Road corridors into two routes, both serving the Foothills Transit Center. Operating cost savings from this routing change were calculated by evaluating the impact on bus vehicle miles traveled.

Table 8 summarizes the operating statistics for the three existing bus routes, based on Transfort scheduling at the time of this analysis (see **Table 1** for the existing service plan). The length and daily trip values represent round-trips. Route 3 operates on a reduced schedule on weekdays when Colorado State University is not in session (approximately one-third of a calendar year).

Table 8

Route Pattern	Length (miles)	Daily Trips	Daily VMT	Annual VMT
Route 2 – Weekday	6.63	28	185.6	48,266
Route 2 – Saturday	6.63	28	185.6	9,653
Route 3 – Weekday (CSU IN)	4.17	45	187.6	32,463
Route 3 – Weekday (CSU OUT)	4.17	23	95.9	4,987
Route 3 – Saturday	4.17	23	95.9	8,344
Route 32 – Weekend	6.44	32	206	53,580
Total Annual VMT				**157,295**

In the Preferred Scenario, the three existing bus routes described above will be condensed into two routes: Route 2, running east and west along Prospect Road, and Route 3, running east and west along West Elizabeth Street. The planned operating statistics for these two routes are shown in **Table 9**. Route 3 would still operate on a reduced schedule on weekdays when Colorado State University in not in session (see **Table 2** for the proposed service plan). The monetized value of the VMT reduction was calculated using per-mile operating costs of Transfort bus service, obtained from the 2021 Operating Expenses table compiled by the National Transit Database.

Table 9

Route Pattern	Length (miles)	Daily Trips	Daily VMT	Annual VMT
Route 2 – Weekday	7.2	28	201.6	68,299
Route 2 – Saturday	7.2	28	201.6	52,416
Route 3 – Weekday (CSU IN)	5.3	52	275.6	47,467
Route 3 – Weekday (CSU OUT)	5.3	30	159	13,833
Route 3 – Saturday	5.3	30	159	8,268
Total Annual VMT				**132,679**
Total Annual Change in VMT				**24,616**
Total Benefit Value				**$2,633,497**
Total Present Benefit Value (Year 2021, discounted at 7% per year)				**$1,076,335**

Safety Benefits

The project is projected to result in a reduction in the number of crashes, injuries and fatalities within the project area due to the reduction in overall crashes at the intersection of West Elizabeth Street and Overland Trail.

The most recent available historic four-year crash data from January 1, 2017 through December 31, 2020 was sourced from the City of Fort Collins. **Table 10** summarizes the crash data.

Table 10 Crash History

Location	Fatal Crashes	Fatalities	Injury Crashes	PDO Crashes	TOTAL
W Elizabeth Street & Overland Trail	1	1	2	17	**20**

Fatal and injury crashes have been monetized using Guidance on Treatment of the Economic Value of a Statistical Life in US Department of Transportation Analyses (2022) and consistent with (2021$) unit values found in Tables A-1 and A-2 of the USDOT Benefit-Cost Analysis Guidance for Discretionary Grant Programs (2023).

- PDO Crashes: $4,800
- Injuries: $213,750
- Fatalities: $11,969,541

The historic injury crash data did include information on the number of injured persons. The estimate of 1.44 injuries per injury crash provided in the BCA guidance was as used in the determination of projected number of injuries.

A crash reduction factor of 72% was obtained from the Crash Modification Factor Clearinghouse's CMF 206 – Conversion of Stop-Controlled Intersection Into Single Lane Roundabout, which shows that such conversions in urban settings can be expected to reduce the overall frequency of crashes by 72%.

The comparison (crash reduction) to the Baseline scenario is shown in **Table 11** and includes annual crash reduction projections for select years.

Table 11 Reduction in Injuries, Fatal and PDO Vehicle Crashes (Select Years in 2026-2045; Total for ALL Years)

	2026	2030	2035	2040	2045	TOTAL
Fatalities	0.18	0.18	0.18	0.18	0.18	**3.6**
Injuries	0.52	0.52	0.52	0.52	0.52	**10.37**
PDO Crashes	3.06	3.06	3.06	3.06	3.06	**61.2**

The monetized value of the reduction in fatalities, injuries and PDO crashes has been calculated using the assumptions outlined and are summarized in **Table 12**.

Table 12 Monetized Value of Injuries, Fatal and PDO Vehicle Crashes (Select Years in 2026-2045; Total for ALL Years)

	2025	2030	2035	2040	2045	TOTAL
Fatalities	$2,154,517	$2,154,517	$2,154,517	$2,154,517	$2,154,517	**$43,090,349**
Injuries	$110,808	$110,808	$110,808	$110,808	$110,808	**$2,216,160**
PDO	$14,688	$14,688	$14,688	$14,688	$14,688	**$293,760**
Total Value						**$45,600,269**
Total Present Value (Year 2021, discounted at 7% per year)						**$18,427,348**

Emissions Reduction Benefits

This BCA captures the projected change in idling emissions associated with transportation activities with and without the project.

Tailpipe emission factors for idling and running emissions were calculated using MOVES3 modeling completed in February 2023 by Felsburg, Holt & Ullevig for Colorado. Emission factors for 2020 and 2050 were developed. Straight line interpolation was used to forecast emission factors for interim years. All emissions calculations have been converted to short tons. It is important to note that emission factors decrease year over year reflecting improvements in vehicle fuel efficiency.

The change in vehicular (from passenger vehicles and commercial trucks) idling emissions have been calculated using the projected reduction in stopped delay between the Baseline and Preferred Scenarios. The change in transit bus running emissions have been calculated using the projected reduction in bus vehicle miles traveled (see Table 13) between the Baseline and Preferred Scenarios. **Table 13** summarizes the avoided emissions. The emissions reductions associated with this project have been monetized according to the recommended monetized values as found in the *Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (February 2021),* as cited in the 2023 BCA guidance.

Table 13 Vehicular Avoided Emissions (Select Years in 2026-2045; Total for ALL Years)

	2026	2030	2035	2040	2045	TOTAL
NOx (short tons)	0.13	0.12	0.12	0.11	0.11	**2.35**
SOx (short tons)	0.00	0.00	0.00	0.00	0.00	**0.00**
PM 2.5 (short tons)	0.00	0.00	0.00	0.00	0.00	**0.02**
CO_2 (metric tons)	45	44	43	41	40	**850**
Total Benefit Value						**$117,790**
Total Present Benefit Value						**$63,556**

Facility Amenity Benefits

Transit Amenities

The Foothills Transit Center will provide additional amenities to transit users which do not currently exist at the existing bus stops at the intersection of West Elizabeth Street and Overland Trail. The new amenities will include:

- Clocks
- Electronic Real-Time Information Displays
- Information/Emergency Button
- Platform/Stop Seating
- Platform/Stop Weather Protection
- Step-Free Access to Station/Stop
- Step-Free Access to Vehicle
- Surveillance Cameras
- Ticket Machines

Stop-level ridership data provided from Transfort shows the existing bus stops serving the intersection of West Elizabeth Street and Overland Trail (located on West Elizabeth Street east of the intersection) serve approximately 200 users per day. It is assumed that all of those users will transition to accessing transit service

at the Foothills Transit Center once it is operational; and further, it was conservatively estimated that overall daily activity at Foothills Transit Center would increase 20% over the existing daily stop (up to 240 daily users) activity due to the substantially improved accommodations for transit users, bike parking availability, and connectivity to the Foothills Shuttle and other micromobility services.

Transit facility amenity benefits were monetized in this analysis using the per-user trip values provided in Table A-10 of the BCA guidance for various transit facility attributes. Applying these factors to the estimated 240 daily user trips results in an overall transit amenity benefit of $5,575.

Pedestrian Facilities

The project will add new pedestrian facilities and improve existing pedestrian facilities at the intersection of West Elizabeth Street and Overland Trail. A new 10' sidewalk will be built in the northwest corner (adjacent to the Foothills Transit Center), and existing 6' sidewalks in the other three corners will be widened to 10'; and crosswalks will be added to the north, south, and east intersection legs. The benefit from these improvements was calculated using an estimate of the number of pedestrians expected to access the Foothills Transit Center and the values provided in Table A-8: Pedestrian Facility Improvements Revealed Preference Values of the BCA guidance.

Per US Census data, there are 2,216 people living within ½ mile of the project intersection; and per Fort Collins data, the combined city-wide commute mode share of walking and public transit is 6%. It is assumed that the current walking and public transit mode shares for people in this ½ mile radius are less than the city-wide values due to the lack of walkable destinations and transit amenities, and that the project will result in walking and public transit mode shares for the project area increasing to the city-wide values by providing improved sidewalks, crossings of Overland Trail, and a transit center with improved amenities and micromobility services.

For consistency with the Health Benefits calculation described in the following section of this narrative, the total population within ½ mile of the project area was factored by 0.68 to estimate the proportion of induced pedestrian trips made by people between the ages of 20 and 74 (Table A-13: Mortality Reduction Benefits of Induced Active Transportation Values of the BCA guidance), resulting in an estimated commuting population of 1,507 people. The 6% mode shore for public transit and walking was then applied to the commuting population to estimate the number of pedestrians expected to walk through the project area in the Preferred Scenario, with a conservative assumption that only half of that 6% of the population would be walking to and from the Foothills Transit Center – 45 people per day, 90 trips per day (two per person). This methodology does not account for likely population growth over the analysis period, and thus is conservative.

It was assumed that all those 90 trips would involve the northwest corner of the intersection where the Foothills Transit Center would be located, and that only 1/3 of those 90 trips would involve each other intersection corner. An annualization factor of 300 was used to translate the daily pedestrian trip estimate to an annual trip estimate. The sidewalk expansion measurements shown in **Table 14** are derived from preliminary design files for the project, and monetized value of person-miles is from Table A-8 of the BCA guidance.

Table 14 Sidewalk Expansion Width and Person Trips

Intersection Corner	Widening Width (ft)	Length of Widening (ft)	Annual Pedestrian Trips	Annual Person-Miles
Northeast	4	180	8,046	1,097
Northwest	10	500	24,140	22,860
Southeast	4	180	8,046	1,097
Southwest	4	210	8,046	1,097
Total Person-Miles				**525,696**
Total Benefit Value				**$880,898**
Total Present Benefit Value (Year 2021, discounted at 7% per year)				**$355,976**

Health Benefits

Induced Walking Trips

The project will add new pedestrian facilities and improve existing pedestrian facilities at the intersection of West Elizabeth Street and Overland Trail. A new 10' sidewalk will be built in the northwest corner (adjacent to the Foothills Transit Center), and existing 6' sidewalks in the other three corners will be widened to 10'; and crosswalks will be added to the north, south, and east intersection legs. These improvements are expected to induce additional pedestrian trips by providing improved pedestrian facilities and transit user amenities and facilitating pedestrian crossings of Overland Trail (which currently lacks crosswalks). The mortality reduction benefit from these improvements was calculated using an estimate of the number of pedestrians expected to access the Foothills Transit Center and the values provided in Table A-13: Mortality Reduction Benefits of Induced Active Transportation Values of the BCA guidance.

The methodology for estimating the number of induced pedestrian trips is described in the previous Facility Amenity Benefits section. **Table 15** presents the calculated benefit from induced walking trips.

Table 15 Induced Walking Trips

	2026	2030	2035	2040	2045	TOTAL
Induced Walking Trips	24,140	24,140	24,140	24,140	24,140	**482,804**
Total Value						**$3,476,191**
Total Present Value (Year 2021, discounted at 7% per year)						**$1,404,750**

Induced Cycling Trips

The project is expected to induce additional bicycling trips by facilitating bicycle crossings of Overland Trail (which currently lacks crosswalks). The mortality reduction benefit from these improvements was calculated using an estimate of the number of bicyclists expected to use the intersection and the values provided in Table A-13: Mortality Reduction Benefits of Induced Active Transportation Values of the BCA guidance.

Per US Census data, there are 9,982 people living within 1 mile of the project intersection (a larger radius was used for the bicycling evaluation since bike trips are generally longer than walking trips); and per Fort Collins data, the city-wide commute mode share of bicycling is 5%. It is assumed that the current bicycling mode share

for people in this 1 mile radius is less than the city-wide values due to the lack of a safe crossing of Overland Trail, and that the project will result in the biking mode share for the project area increasing to the city-wide values by providing a crossing with the roundabout.

The total population within 1 mile of the project area was factored by 0.59 to estimate the proportion of induced pedestrian trips made by people between the ages of 20 and 64 (Table A-13: Mortality Reduction Benefits of Induced Active Transportation Values of the BCA guidance), resulting in an estimated commuting population of 5,889 people. The 5% bicycling mode was then applied to the commuting population to estimate the number of bicycle commuters in the Preferred Scenario, with a conservative assumption that only 10% of that portion of the population would be bicycling across Overland Trail – 26 people per day, 52 trips per day (two per person). This methodology does not account for likely population growth over the analysis period, and thus is conservative. An annualization factor of 300 was used to translate the daily pedestrian trip estimate to an annual trip estimate. **Table 16** presents the calculated benefit from induced walking trips.

Table 16 Induced Cycling Trips

	2026	2030	2035	2040	2045	TOTAL
Induced Cycling Trips	15,725	15,725	15,725	15,725	15,725	**314,493**
Total Value						**$2,019,044**
Total Present Value (Year 2021, discounted at 7% per year)						**$815,908**

Other Benefits

Agglomeration Economies and Land Use

The proposed Foothills Transit Center and roundabout is expected to provide benefits that will improve access to Colorado State University's expanding Foothills Campus and thus support its continued growth, though other substantial future development and/or redevelopment in the project's proximity is not likely given spatial constraints and established existing residential land uses.

Noise Pollution

The analysis did not include an evaluation of noise pollution associated with the project.

Temporary Loss of Emergency Services

The analysis does not include these benefits as it was determined that there was insufficient information available to quantify these benefits.

Stormwater Runoff

The analysis did not include an evaluation of stormwater runoff associated with the project. Hydrology will be a focus of the project's final design effort.

Wildlife Impacts

The project is not expected to have a substantial impact on wildlife.

Repurposed Right-of-Way

The project is not expected to free up land currently occupied by a transportation facility for other uses.

Other Issues in Benefits Estimation

Benefits to Existing and Additional Users

The benefits to existing and additional users have been captured in the analysis by quantifying the benefits of improved pedestrian facilities and induced active transportation trips, the benefits of new user amenities at the Foothill Transit Center, and the benefits of improved intersection safety.

Modal Diversions

The analysis did not include an evaluation of modal diversion.

Work Zone Impacts

The analysis did not include an evaluation of work zone impacts associated with the project. At the time of the analysis, there was insufficient information available for the project phasing and construction traffic management plan to complete an analysis of work zone impacts. At the time of the analysis, the general approach was to maintain connectivity of all routes during construction.

State of Good Repair

The project is not expected to result in State of Good Repair benefits beyond what is already capture in the main BCA analysis.

Resilience

The analysis did not include an evaluation of resiliency associated with the project.

Geographic Extent

The analysis did not include an evaluation of broader regional benefits associated with the project.

Property Value Increase

Transportation projects can increase accessibility and improve attractiveness of adjacent land parcels that can often result in increased property values. There was insufficient information available to quantify potential property value impacts independent of the benefits already captured in the analysis. Therefore, the analysis did not include an evaluation of benefits from property value increases associated with the project

Costs

Capital Expenditures

The analysis includes the following capital expenditures:

- Consultant preliminary design
- NEPA costs
- ROW acquisition
- Consultant final design
- Construction cost
- Indirect design and construction costs

A consultant (Felsburg, Holt & Ullevig) was hired for preliminary design and NEPA work for the full proposed West Elizabeth BRT corridor, including the Foothills Transit Center and West Elizabeth/Overland roundabout, in 2020. **Table 17** displays a summary of costs incurred for the project thus far and all future anticipated costs.

Table 17 Expended and Projected Project Costs (2021$)

	2020	2021	2022	2023	2024	2025	Total
Preliminary Design/NEPA	$74,958	$74,958	$74,958				**$224,873**
ROW				$9,238	$9,238		**$18,475**
Final Design				$282,605	$282,605		**$565,210**
Construction					$6,178,173	$6,178,173	**$12,356,345**
Total Cost							**$13,164,904**
Total Present Cost (Year 2021, discounted at 7% per year)							**$10,689,077**

Operating & Maintenance Expenditures

Additional annual operations and maintenance (O&M) costs which would be incurred after construction of the project have been estimated for the Preferred scenario using information provided by the City of Fort Collins.

City of Fort Collins staff provided $3/square yard of surface area as an estimated unit cost for ongoing maintenance of a concrete-surface roundabout. This value was multiplied by the anticipated footprint of the roundabout per preliminary design plans to arrive at an annual maintenance cost of $13,605.

City of Fort Collins staff provided $50,000 as an estimate for annual landscaping and snow removal costs for the Foothills Transit Center, and $3,100 as an estimate for annual maintenance of the planned restroom facility, for a total annual O&M cost for the Foothills Transit Center of $53,100.

Residual Value & Remaining Service Life

The residual value calculations have been conducted based on an assumed useful life of 30 years for the project. Since a 20-year analysis was used for the project after construction was assumed to be completed, there would be a residual service life of 11 years at Year 2046, or about 37% of the design life of the project. The remaining residual value was discounted appropriately with a 7% reduction per year. The residual value of the land acquired for the project was assumed to remain constant throughout the analysis period. **Table 18** displays a summary of the anticipated residual value of the project at the end of the analysis period (Year 2041).

Table 18 Valuation of State of Good Repair – Residual Value

	Total Costs (less ROW)	Useful Life	Post-Analysis Maintenance	Residual Value
Foothills Transit Center & Roundabout	$13,146,429	30	$149,655	$4,670,702
			Total Value Remaining at End of Analysis	**$4,689,177**
			Present Value at 7% Discount Rate	**$924,455**

Benefit Cost Analysis Results

Net Present Value

All benefits and costs for the life cycle of the project have been discounted to the present, with the costs subtracted from the benefits to yield a net present value of $11.6 million.

Benefit-Cost Ratio (BCR)

Over the assessment period, the project generates approximately $22.3 million in total benefits at the 7 percent discount rate. The project has a BCR of 2.08:1 at the 7 percent discount rate.

Table 19 summarizes the project benefit generated under the 7 percent discount rate.

Table 19 Benefit Cost Summary

	Discounted at 7%
Total Project Costs	
Present Value of Total Costs	$10,689,077
TOTAL Costs	**$10,689,077**
Total Project Benefits	
Operating, Maintenance & Residual Value	
Operating & Maintenance	$(539,118)
Residual Value	$924,455
Travel Time Savings	
Travel Time Savings – Private Vehicle Travel	$(276,188)
Travel Time Savings – Commercial Vehicle Travel	$(5,817)
	$(282,005)
Operating Costs	
Reduction in Bus VMT	$1,076,335
Facility & Amenity	
Transit Amenity Improvements	$5,575
Pedestrian Facility Improvements	$388,709
	$394,284
Health	
Mortality Reduction – Walking	$1,404,750
Mortality Reduction – Cycling	$815,908
	$2,220,658
Sustainability	
Emissions Reductions	$63,556
Safety	
Reduction in Property Damage Only Accidents	$118,710
Reduction in Injury Accidents	$895,564
Reduction in Fatal Accidents	$17,413,074
TOTAL Benefits	**$22,285,514**
Benefit Cost Ratio	**2.08 : 1**
Net Present Value of Entire Project	**$11,596,437**