2020–2023 Transportation Improvement Program (TIP)

Subregional Share Project Application Form

SH 119 Bikeway Design

Submitted by: Boulder County

Submitted to: the Boulder County Subregional Forum

February 27, 2018

2020–2023 Transportation Improvement Program (TIP)
Regional Share Project Application Form

APPLICATION OVERVIEW

The **Regional Share Call for Projects** will **open on July 30, 2018**, with applications **due no later than 3 p.m. on September 21, 2018** to Todd Cottrell, DRCOG, at tcottrell@drcog.org.

- To be eligible to submit, at least one person from your agency must have attended one of the two mandatory TIP training workshops (held August 8 and August 16).
- Projects requiring CDOT and/or RTD concurrence must provide their official response with the application submittal. The CDOT/RTD concurrence request is due to CDOT/RTD no later than August 1, with CDOT/RTD providing a response no later than August 29.
- Each Subregional Forum can submit up to three applications from eligible project sponsors. Both CDOT and RTD can submit up to two applications.
    - If CDOT reaffirms they would like to continue to receive $25 million in DRCOG-allocated funding for their Central 70 project, it will count as one of their two possible submittals.
- Data to help the sponsor fill out the application, *especially Part 3*, can be found here.
- If any sponsor wishes to request additional data or calculations from DRCOG staff, please submit your request to tcottrell@drcog.org no later than August 31, 2018.
- The application must be affirmed by either the applicant's City or County Manager, Chief Elected Official (Mayor or County Commission Chair) for local governments, or agency director or equivalent for other applicants.
- Further details on project eligibility, evaluation criteria, and the selection process are defined in the ***Policy on Transportation Improvement Program (TIP) Preparation: Procedures for Preparing the 2020-2023 TIP*****,** which can be found online here.

APPLICATION FORM OUTLINE

The 2020-2023 TIP Regional Share application contains three parts: *base project information* (Part 1), *evaluation questions* (Part 2), and *data calculation estimates* (Part 3). DRCOG staff will review submitted applications for eligibility and provide an initial score to a Project Review Panel. The panel will review and rank eligible applications that request funding. Sponsors with top tier submittals will be invited to make presentations to the Project Review Panel to assist in the final recommendation to the TAC, RTC, and DRCOG Board.

Part 1 | Base Information

Applicants will enter **foundational** information for their *project/program/study* (hereafter referred to as *project*) in Part 1, including a Problem Statement, project description, and concurrence documentation from CDOT and/or RTD, if applicable. Part 1 will not be scored.

Part 2 | Evaluation Criteria, Questions, and Scoring

This part includes four sections (A-D) for the **applicant to provide qualitative and quantitative responses** to use for scoring projects. The outcomes from Part 3 should guide the applicant's responses in Part 2**.**

Scoring Methodology: Each section will be scored using a scale of *High-Medium-Low,* relative to other applications received. The four sections in Part 2 are weighted and scored as follows:

Section A. Regional Significance of Proposed Projects 40%

High	The project will significantly address a clearly demonstrated major regional problem and benefit people and businesses from multiple subregions.
Medium	The project will either moderately address a major problem or significantly address a moderate-level regional problem.
Low	The project will address a minor regional problem.

Section B. Metro Vision TIP Focus Areas 30%

High	The project will **significantly improve** the safety and/or security, **significantly increase** the reliability of the transportation network, and benefit a **large number and variety** of users (including vulnerable populations*).
Medium	The project will **moderately improve** the safety and/or security**, moderately increase** the reliability of the transportation network, and benefit a **moderate number and variety** of users (including vulnerable populations*).
Low	The project will **minimally improve** the safety and/or security, **minimally increase** the reliability of the transportation network, and benefit a **limited number and variety** of users (including vulnerable populations*).

**Vulnerable populations include: Individuals with disabilities, persons over age 65, and low-income, minority, or linguistically-challenged persons.*

Section C. Consistency & Contributions to Transportation-focused Metro Vision Objectives 20%

Metro Vision guides DRCOG's work and establishes shared expectations with our region's many and various planning partners. The plan outlines broad outcomes, objectives, and initiatives established by the DRCOG Board to make life better for the region's residents. The degree to which the outcomes, objectives, and initiatives identified in Metro Vision apply in individual communities will vary. Metro Vision has historically informed other DRCOG planning processes, such as the TIP.

High	The project will **significantly** address Metro Vision transportation-related objectives and is determined to be in the **top third** of applications based on the magnitude of benefits.
Medium	The project will **moderately** address Metro Vision transportation-related objectives and is determined to be in the **middle third** of applications based on the magnitude of benefits.
Low	The project will **slightly or not at all** address Metro Vision transportation-related objectives and is determined to be in the **bottom third** of applications based on the magnitude of benefits.

Section D. Leveraging of non-Regional Share funds ("overmatch") **..... 10%**

Scores are assigned based on the percent of outside funding sources (non-Regional Share).

% of Outside Funding (non-Regional Share)	**High**	80% and above
	Medium	60-79%
	Low	59% and below

Part 3 | Project Data – Calculations and Estimates

Based on the applicant's project elements, sponsors will complete the appropriate sections to estimate usage or benefit values. Part 3 is not scored, and the quantitative responses should be used to back-up the applicant's qualitative narrative.

Part 1 Base Information

1. Project Title	**SH 119 Bikeway Design**
2. Project *Start/End* points or Geographic Area *Provide a map with submittal, as appropriate*	Start: 47th St, Boulder Via: SH 119 End: Airport Rd, Longmont
3. Project Sponsor *(entity that will construct/ complete and be financially responsible for the project)*	Boulder County
4. Project Contact Person, Title, Phone Number, and Email	Scott McCarey, PE, AICP Multimodal Division Manager 720-564-2665 smccarey@bouldercounty.org
5. Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service?	☒ Yes ☐ No *If yes, provide applicable concurrence documentation with submittal*

6. What planning document(s) identifies this project?

☐ DRCOG 2040 Fiscally Constrained Regional Transportation Plan (2040 FCRTP)	
☒ Local plan:	Longmont Enhanced Multi-use Corridor Plan, Adopted March 2018. Boulder County Transportation Master Plan, adopted December 2012. City of Boulder Transportation Master Plan, adopted August 2014.
☒ Other(s):	DRCOG Active Transportation Plan, adopted January 2019.

Provide link to document/s and referenced page number if possible, or provide documentation with submittal

7. Identify the project's **key elements**.

- ☐ Rapid Transit Capacity (2040 FCRTP)
- ☐ Transit Other: Transit Priority Lanes
- ☒ Bicycle Facility
- ☒ Pedestrian Facility
- ☒ Safety Improvements
- ☐ Roadway Capacity or Managed Lanes (2040 FCRTP)
- ☐ Roadway Operational

Grade Separation

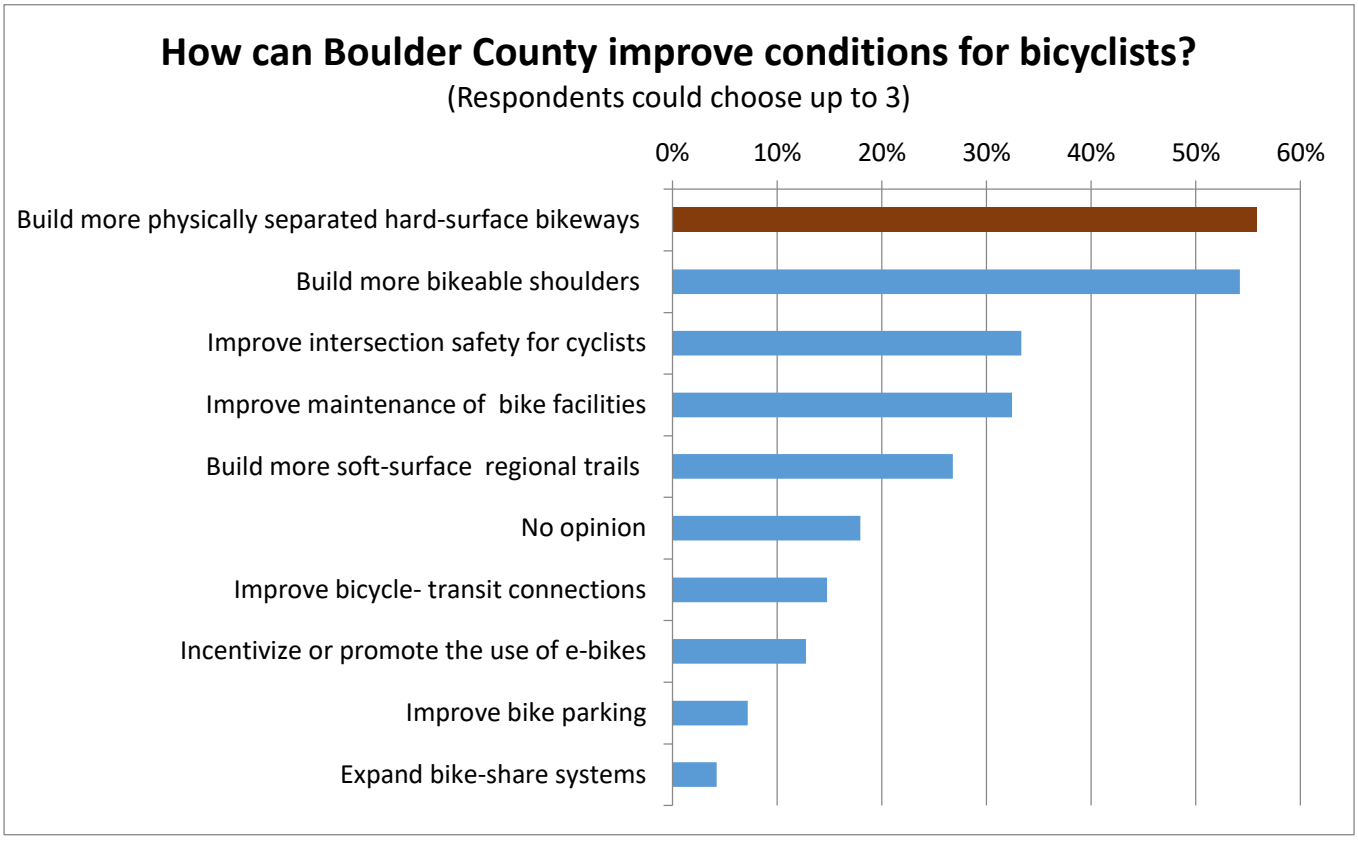
- ☐ Roadway
- ☐ Railway
- ☒ Bicycle
- ☒ Pedestrian

- ☐ Roadway Pavement Reconstruction/Rehab
- ☐ Bridge Replace/Reconstruct/Rehab
- ☐ Study
- ☒ Design
- ☐ Other:

8. **Problem Statement** What specific Metro Vision-related regional problem/issue will the transportation project address?

Regional Connections Multimodal Safety Affordability

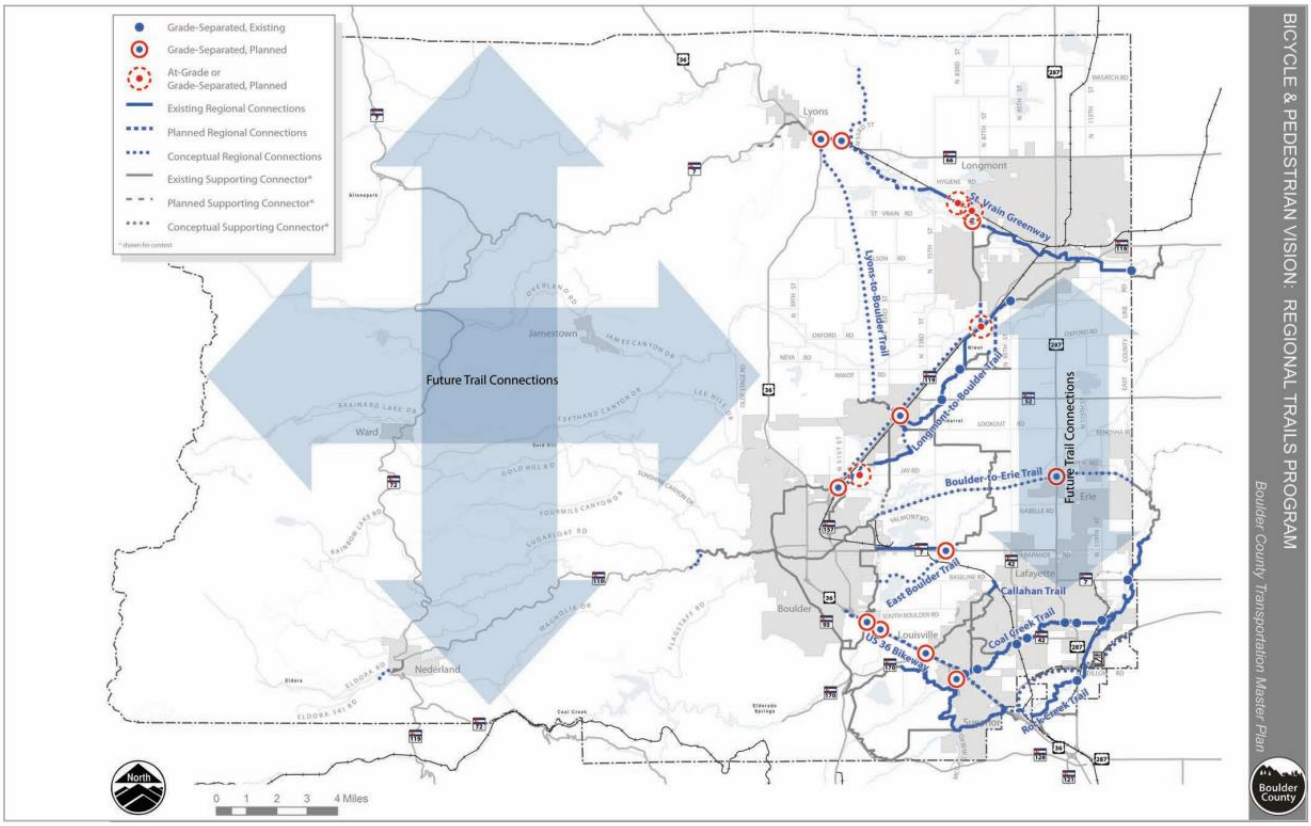
State Highway 119 between Longmont and Boulder is the second most travelled corridor in Boulder County and serves residents, employees and visitors from all across the County. However, no direct, reliable, safe, year-round bicycle facility connects these two cities, which account for two-thirds of Boulder County's population. Recent analysis shows that SH 119 has the second-highest number of severe bicycle and pedestrian traffic crashes out all of corridors in unincorporated Boulder County, and that the majority of the population finds the shoulders of SH 119 too stressful to consider cycling there. In addition to adding several miles to a Boulder to Longmont route, existing soft-surface trail connections in the county do not provide a reliable year-round option, as they cannot be cleared of snow which limits their use in winter and spring. In a recent community survey for the (in-progress) 2019 update of Boulder County's Transportation Master Plan, constructing more physically separated, hard-surface commuter bikeways was the #1 request when the public was asked how to improve conditions for cycling in Boulder County.



Source, Boulder County 2019 TMP update community survey

The purpose of this SH 119 Bikeway project is to optimize regional mobility between Longmont and Boulder by providing multimodal bicycle and pedestrian improvements that result in safer, more reliable, more comfortable and more appealing bicycle and pedestrian travel options. In accordance with the 2012 Boulder County Transportation Master Plan, these multimodal improvements include construction of a regional bikeway connecting Boulder and Longmont.

Strategy 1: Develop a Multimodal Transportation System



Source: 2012 Boulder County TMP, https://assets.bouldercounty.org/wp-content/uploads/2017/03/transportation-master-plan.pdf

This multimodal project addresses the majority of the measurable targets and goals identified in the following local and regional plans:

- 2014 City of Boulder Transportation Master Plan (https://bouldercolorado.gov/transportation/2014-tmp, pages 3-4 to 3-7)
- 2016 Envision Longmont Plan (https://envisionlongmont.com/document/envision-longmont-adopted-062816, page 43)
- 2012 Boulder County Transportation Master Plan (https://assets.bouldercounty.org/wp-content/uploads/2017/03/transportation-master-plan.pdf, page 1)
- 2019 Denver Regional Council of Governments Active Transportation Plan (https://drcog.org/sites/default/files/resources/DRCOG_ATP.pdf, page 87)

The SH 119 Bikeway supports seven out of nine Goals & Measurable Objectives from The City of Boulder TMP:

- Reduce VMT in Boulder Valley by 20% by 2035
- Reduce non-resident SOV travel to 60% of work trips
- Achieve 16% reduction in GHG emissions
- Expand fiscally viable transportation options
- Increase transportation alternatives commensurate with rate of employee growth
- Vision Zero for fatal and serious injury crashes
- Reduce non-residential one-way commute VMT to 11.4 miles per capita

The SH 119 Bikeway supports six out of seven Indicators from Envision Longmont:

- Mode Split: Increase percent of non-SOV trips to work
- Congestion: Decrease Number of Intersections exceeding LOS D
- Greenways, Trails & Bikeways: Increase miles of constructed facilities
- Traffic Injuries: Decrease injury producing traffic crashes
- Connectivity: Increase number of grade separated crossings, including for non-motorized travel
- Vehicle Miles Travelled: Decrease VMT/ capita

The SH 119 Bikeway supports five out of six Goals from the Boulder County TMP:

- Minimize Environmental Impacts
- Ensure Safety for All Modes
- Support a Healthy and Sustainable Economy
- Ensure Equitable Access to the Transportation System
- Enhance County Identity and Community Character

The SH 119 Bikeway supports ten out of seventeen Performance Metrics from the DRCOG Active Transportation Plan:

- Reduce number of pedestrian and bicyclist fatalities and serious injuries
- Reduce number of bicyclist fatalities and serious injuries per 100,000 residents
- Increase percent of population using non-SOV mode to work
- Decrease daily vehicle miles traveled per capita
- Increase miles of existing regional active transportation corridors
- Increase miles of bicycle facilities in DRCOG's Bicycle Facility Inventory
- Increase miles of high-comfort bicycle facilities (shared-use paths, separated bicycle lanes, etc.)
- Increase percentage of arterial and collector streets with bicycle facilities within one mile of transit stations
- Increase percent of the population within .5 miles of an existing regional active transportation corridor
- Increase percent of transportation-disadvantaged population within .5 miles of an existing regional active transportation corridor

In addition to supporting the majority of the goals outlined in the aforementioned local and regional plans, the SH 119 Bikeway project strongly advances four of the five additional criteria adopted by the Boulder County subregional forum: Regional Connections, MultiModal, Safety, and Affordability. The project provides a regional connection between the two largest municipalities in Boulder County, improving healthy access to jobs, educational opportunities, and public lands. It provides a safe alternative to the existing SH 119 shoulders which experience a high number of bicycle and pedestrian crashes and are simply too intimidating for the majority of the public to consider as an option. Finally, as bicycle and pedestrian travel are the two least expensive transportation modes by far, this project advances the region's affordability by providing an extremely cost-effective transportation option for residents, employees and visitors travelling between Boulder, Niwot and Longmont.

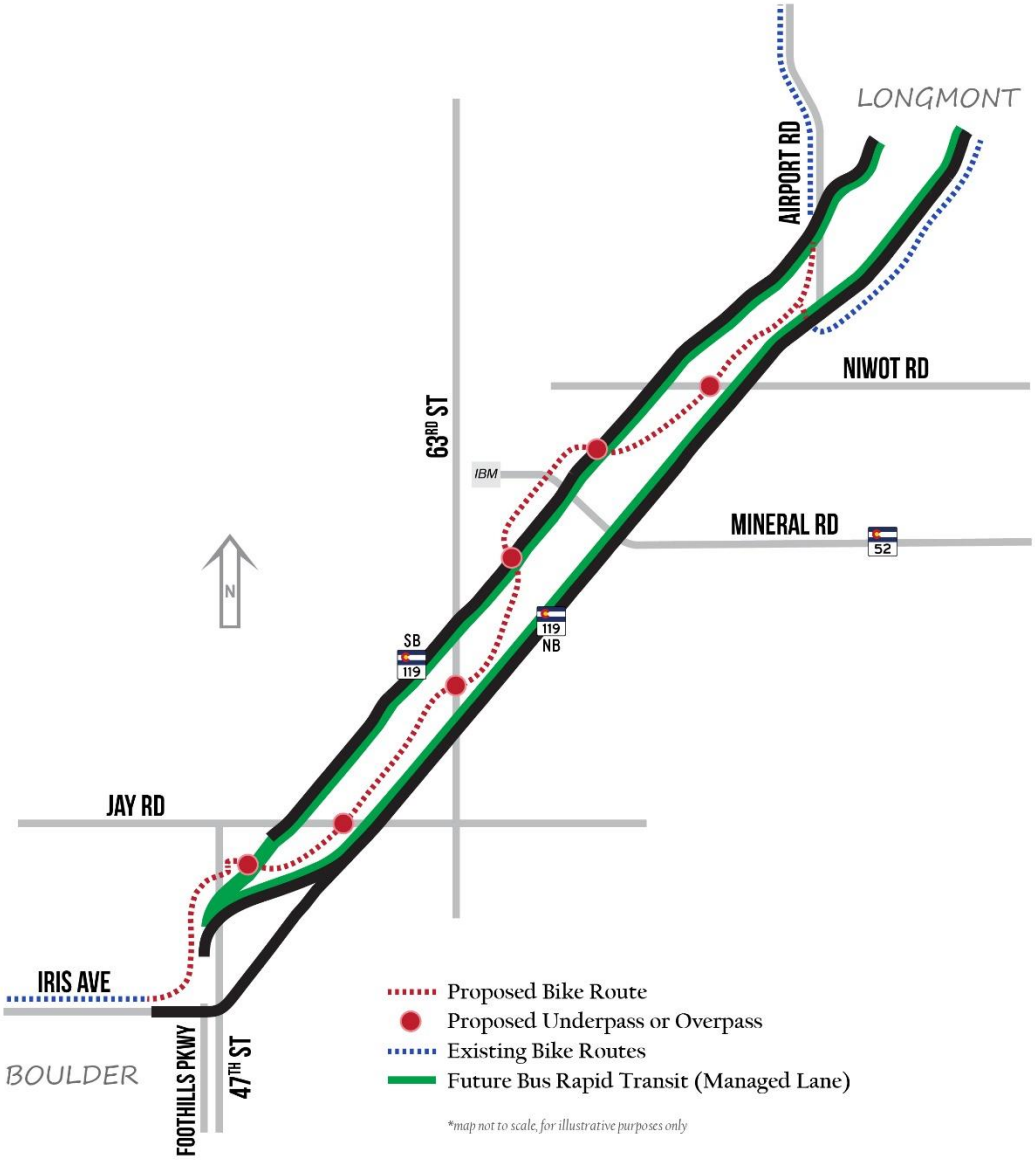
9. Define the **scope** and **specific elements** of the project.

Regional Connections Multimodal Safety

Conceptual rendering of SH 119 Bikeway, Source: Boulder County

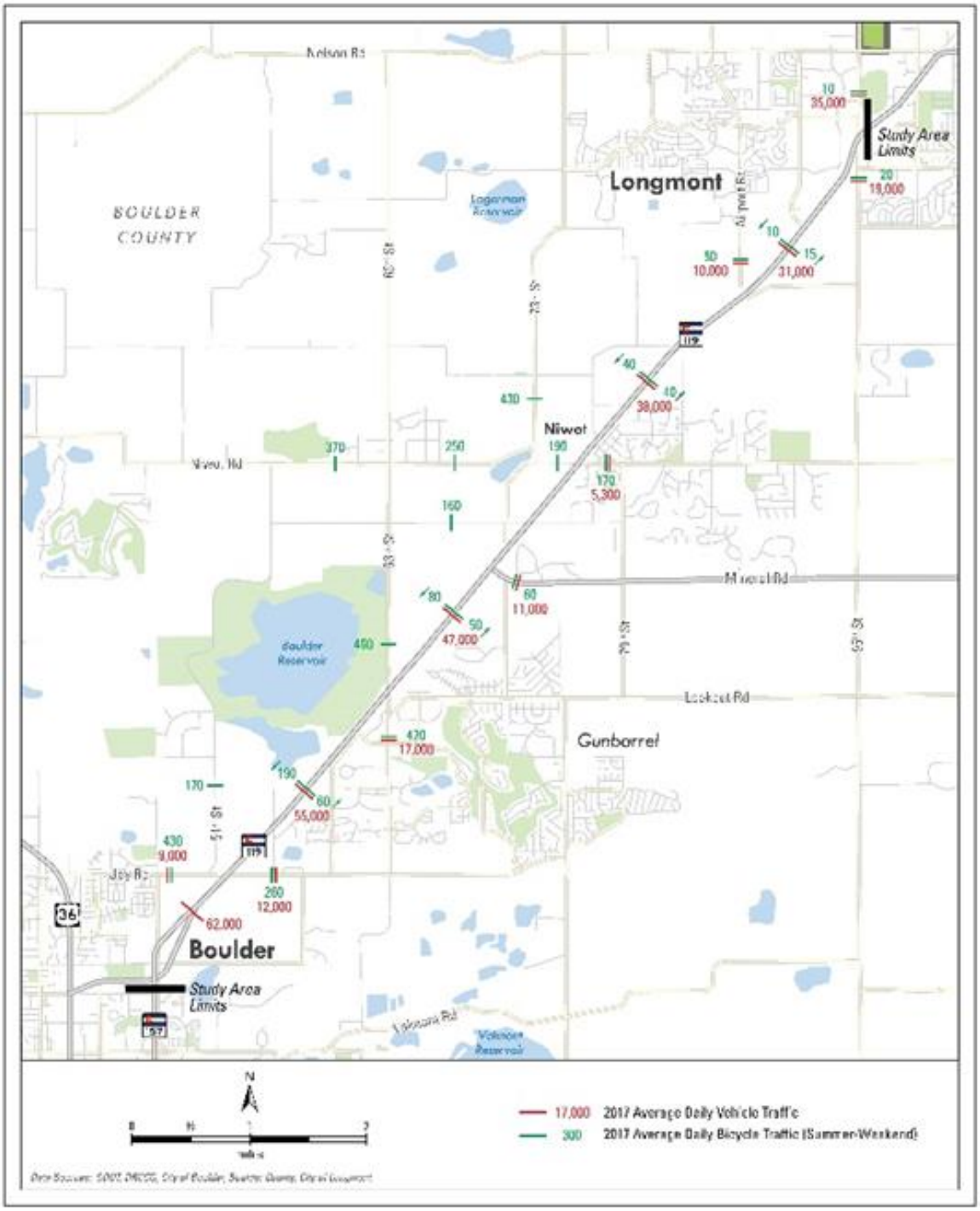
PROJECT DESCRIPTION

The work scope for this project is to provide professional services for design and preparation of construction plans for a new multi-use bikeway along the SH 119 Corridor (Diagonal Highway) from approximately 47th Street (approximately MM 45.0) in Boulder to Airport Road (approximately MM 52.7) in Longmont, a distance of approximately 7.7 miles. The south terminus of the bikeway connects to an existing multi-use path at the Pleasant View Sports Complex in Boulder and the north terminus at Airport Road connects to a multi-use path adjacent to Airport Rd and the Longmont to Boulder (LOBO) Regional Trail. The purpose of the bikeway is to provide a bicycle and pedestrian corridor along SH 119 to complement the vehicular highway corridor and the proposed Bus Rapid Transit improvements along SH 119 between Boulder and Longmont.

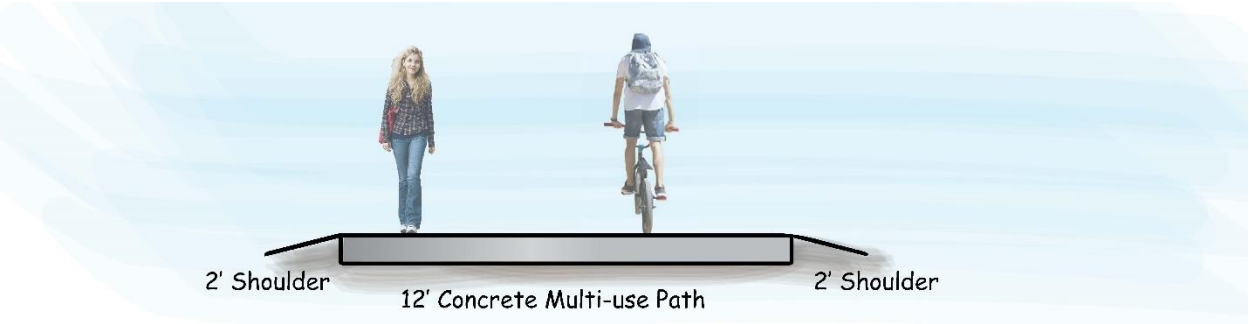


Currently, the average daily traffic (ADT) for vehicular traffic on SH 119 varies from 62,000 vehicles per day (vpd) between 47th Street and Jay Road to 31,000 vpd between Airport Road and Hover Street in Longmont. Bicyclists ride on the shoulders of SH 119, which are typically 10 feet wide but are adjacent to high-speed vehicular traffic traveling at 55 mph and above and also serves as a breakdown lane for highway vehicles. Bicycle traffic (summer-weekend ADT) on the existing SH 119 shoulders varies from 250 bicyclists per day (bpd) northeast of Jay Rd to 25 bpd day northeast of Airport Rd. In addition, there is significant bicyclist cross traffic at Jay Road (260-430 bpd), 63rd Street (460-470 bpd), Monarch Road (160 bpd) and Niwot Road (170-190 bpd).

Bicycle-Vehicle Daily Counts



The Colorado Department of Transportation is in the process of completing the *SH 119 Bicycle and Pedestrian Connectivity Study (Study)* which documents the existing bicycle and pedestrian conditions along SH 119, an analysis of improvements, and a recommended alignment for a shared-use bikeway along the corridor. The new bikeway is proposed to be a hard surface concrete facility, 12 feet wide with two-foot shoulders. Conceptual plans for the recommended alternative will be outlined in the *Study* and include bikeway plans and profiles. Once completed the study will have completed approximately 10-20% of the design. If funded, this project will take these designs to a construction ready planset.



Typical Section of Shared-Use Path between 47th Street and Airport Road

The scope of work includes a validation of the recommended alignment outlined in the Study, including a determination of the final alignment in locations where there are recommended alignment alternatives outlined in the Study.

Bicycle/pedestrian bridges or box culverts are anticipated at the following locations:

- Fourmile Creek
- Boulder and Whiterock Ditch south of Jay Road
- Boulder and Whiterock Ditch between Jay Road and 55th Street
- Boulder and Whiterock Ditch Lateral at 55th Street
- Ditch Lateral between 55th Street and 63rd Street
- Ditch lateral just west of 55th Street
- Ditch at 63rd Street (west)

Bicycle/pedestrian underpasses (using concrete box culverts) are anticipated at the following locations:

- SH 119 southbound lanes between Fourmile Creek Path and Jay Road
- Jay Road
- 63rd Street
- SH 119 southbound Lanes south of IBM Drive/Mineral Road (SH 52)
- SH 119 southbound lanes between IBM Drive and Monarch Road
- Niwot Road

The scope of work includes pedestrian and bicycle improvements at intersections and at BRT Stations along the corridor to make ADA compliant connections to existing bike and pedestrian facilities and modify any traffic signals with ADA compliant pedestrian pushbuttons and traffic signal heads, as appropriate. These locations include:

- Jay Road
- 55th Street
- 63rd Street
- Mineral Road (SH 52)/IBM Drive
- Monarch Road
- Niwot Road
- Airport Road/Ogallala Road

The proposed Scope of Services consists of the following phases of work and work tasks:

TASK 1 - DATA COLLECTION

Engineering Research:

Prepare project design criteria and schedule, attend a scoping/kickoff meeting for the project with Boulder County Transportation and CDOT, along with project stakeholders including City of Boulder, Town of Niwot, City of Longmont, Boulder County Open Space, Regional Transportation District (RTD), and others as appropriate.

- Establish project design criteria.
- Conduct a field inventory and generate a photo log of the existing roadways.
- Attend and document pre-design meeting.
- Prepare/update Project Schedule.

TASK 2 – PRELIMINARY DESIGN

Geotechnical and Pavement Design:

Conduct field sampling of soils along the project corridor by drilling test holes locations where new structures are anticipated for bicycle and pedestrian underpasses and major drainage structures. Data from the test holes will be utilized for bikeway pavement design, excavation conditions, and design of structures.

Preliminary Subsurface Utility Engineering

Develop utility plan sheets and develop a utility conflict matrix based on preliminary plans for the entire corridor to identify opportunities to avoid or minimize utility relocations.

Preliminary Bikeway Plans

Validate and confirm bikeway alignment for the project corridor. Finalize engineering analysis and alignments in areas where the Study shows options for underpasses vs. at-grade options at intersections.

Prepare preliminary bikeway plans including plans, profiles, typical sections and cross sections for the bikeway improvements, including locations of utilities.

Prepare preliminary opinion of probable construction cost.

Preliminary Traffic Engineering

Utilize traffic data gathered for the SH 119 Bus Rapid Transit Enhancements for traffic analysis. Minor supplemental traffic data collection and updates are anticipated.

Review potential impacts of bikeway improvements and connections at the intersections along SH 119.

- Conduct a crossing study to determine crossing treatments at unsignalized intersections at at-grade crossings where bicyclists will be crossing motor vehicle traffic
- Prepare preliminary traffic signal plans for modifications required to accommodate pedestrian and bike traffic.
- Determine required bikeway signing and wayfinding signing to and from the bike route.
- Assess railroad crossing feasibility and safety for bicyclists accessing the bikeway from the east side of the BNSF railroad.

Pavement markings for the project will be shown on the preliminary roadway plans.

Preliminary Drainage Plans:

Conduct field reconnaissance to verify the existing drainage system and basins tributary to the project area. It is anticipated that the existing drainage system will be maintained for this project with new drainage crossings designed according the Colorado Department of Transportation and/or local jurisdiction criteria, whichever is more restrictive

or as agreed to by project stakeholders.

There are two FEMA regulated floodplains in the project area; Fourmile Canyon Creek and Lefthand Creek. The bikeway crosses Fourmile Canyon Creek just north of the Foothills Parkway (SH 157) and SH 119 intersection. The Lefthand Creek floodplain lies just west of SH 119 at Airport Road. The project goal is to create no rise in either floodplain. It may be possible to avoid any conflict with the Lefthand Creek floodplain.

The project will require a preliminary drainage report including hydrology and hydraulics and proposed drainage improvements for the project. Drainage improvement plans will be included in the preliminary plans.

Preliminary Structural Engineering

Structures for the project are anticipated to be pre-engineered pedestrian bridges or concrete box culverts for drainage structures outlined in the Project Description. For bicycle and pedestrian underpasses, structures are anticipated to be concrete box culverts. Preliminary design will include structure selection and a structure layout sheet for each structure.

Preliminary Landscaping Plans

Design minor landscaping improvements along bikeway corridor. Landscaping elements may include occasional plantings in targeted areas, 2-3 “rest areas” (benches and plantings), and minor landscaping treatments at underpasses.

Construction Phasing Plans

Prepare schematic phasing plans for bicycle and pedestrian underpass structures under existing roadways.

TASK 3 - FINAL DESIGN

Final Subsurface Utility Engineering (SUE)

Prepare preliminary test hole plan with input from client. Excavate test holes (Quality Level A). Field verify test hole logs with field markings. Coordinate with project surveyor survey test holes. Update existing utility CAD file with test hole survey data. Prepare test hole table.

Facilitate one-on-one meetings with the utility providers along the corridor. Request easement and franchise agreements, and if utility conflicts cannot be avoided, discuss conflicts and relocation strategies, cost, and timing.

Prepare final utility plans and specifications, utility notes, test hole sheet and utility plan sheets. Develop draft and final utility clearance letters for County and CDOT review

Final Bikeway Plans:

Revise preliminary roadway and signal plans based on preliminary plan review comments and add Summary of Approximate Quantities, quantity tabulations, and detail sheets for various project elements.

Prepare project Special Provisions to augment the Colorado Department of Transportation's Standard Specifications for Road and Bridge Construction, and prepare bid package, including bid forms, contract documents and general conditions of the construction contract. Standard County and CDOT forms and formats will be utilized for contract documents and general conditions.

Prepare final opinions of probable construction cost and document design exceptions – CDOT Form 464

Final Traffic Engineering Plans:

Prepare separate signing and pavement marking plans for bikeway and associated roadway improvements including a tabulation of signs and tabulation of pavement markings.

Prepare final traffic signal plans for modified signals, with tabulation of quantities.

Prepare final construction traffic control plans and quantities.

Final Drainage Plans:

Revise drainage plans and report based on preliminary design review comments. Prepare tabulation of drainage items.

Prepare erosion control plans for construction of the project.

Prepare a Storm Water Management Plan (SWMP).

Final Structural Engineering

Finalize structural design of bicycle and pedestrian structures with details and final quantity tabulations.

Right-of-Way Plans:

With the project being constructed within CDOT right-of-way, and connections to existing trails on public right-of-way (Boulder, Boulder County, Longmont), right-of-way plans are not anticipated for this project.

Final Landscaping Plans:

Finalize minor landscaping improvements along bikeway corridor.

Final 'For Bid' Plans, Specifications and Estimates:

Subsequent to final plan review meeting, prepare final 100% plans to be used for advertisement for bids.

TASK 4 – PROJECT COORDINATION AND CONTINUING REQUIREMENTS

Attend regular progress meetings, preliminary design review meeting and final plan review meeting.

Prepare monthly progress reports to Boulder County.

The public involvement portion of this scope of work includes three (3) public information open-house type meetings held during the preliminary design phase. One meeting will be held in Boulder, one meeting in the central part of the corridor and one meeting in Longmont.

Detailed Project Cost Estimate:

TASK NO.	TASK DESCRIPTION	EXPENSES			TOTALS			
		OUTSIDE SERVICES	TRAVEL / LIVING	REPRODUCTION	TIME (HOURS)	LABOR COST	EXPENSES	SUBTOTAL
	Billing Rate (2019) >>>							
1	**DATA COLLECTION**							
	Engineering Research							
	Pre-Design - Scoping Meeting				32	$ 5,180		$ 5,180
	Field Inventory and Photo Log				28	$ 3,952		$ 3,952
	Design Criteria				14	$ 2,118		$ 2,118
	Project Schedule				8	$ 1,464		$ 1,464
2	**PRELIMINARY DESIGN**							
	Geotechnical	$ 20,000			36	$ 5,404	$ 20,000	$ 25,404
	Preliminary Subsurface Utility Engineering				64	$ 7,572		$ 7,572
	Preliminary Trail Plans				540	$ 63,600		$ 63,600
	Preliminary Traffic Engineering							
	Crossing Study/Designs				300	$ 37,060		$ 37,060
	Bicycle Plan Peer Review	$ 25,000					$ 25,000	$ 25,000
	Traffic Signal Modifications				258	$ 33,754		$ 33,754
	Trail/Way-Finding Signing				84	$ 11,452		$ 11,452
	Lighting Plans	$ 30,000			24	$ 3,800	$ 30,000	$ 33,800
	Drainage Plans				192	$ 22,808		$ 22,808
	Floodplain Conflicts				228	$ 29,184		$ 29,184
	Drainage Report				208	$ 27,024		$ 27,024
	Preliminary Structural Engineering - 12 Structures				1200	$ 152,400		$ 152,400
	Preliminary Landscaping Plans	$ 20,000			20	$ 2,424	$ 20,000	$ 22,424
	Construction Phasing Plans				68	$ 9,712		$ 9,712
3	**FINAL DESIGN**							
	Final Subsurface Utility Engineering							
	Utility Potholing (60)	$ 35,000			10	$ 1,370	$ 35,000	$ 36,370
	Utility Coordination				220	$ 27,240		$ 27,240
	Final Trail Plans				1260	$ 147,940		$ 147,940
	Final Traffic Engineering Plans							
	Signing and Pavement Marking Plans and tabulations				260	$ 33,180		$ 33,180
	Bicycle Plan Peer Review	$ 15,000					$ 15,000	$ 15,000
	Final Traffic Signal Plans				134	$ 17,682		$ 17,682
	Final Construction Traffic Control Plans				164	$ 21,192		$ 21,192
	Lighting Plans	$ 35,000			28	$ 4,384	$ 35,000	$ 39,384
	Final Drainage Plans				192	$ 22,808		$ 22,808
	Erosion Control Plans				100	$ 11,620		$ 11,620
	Stormwater Management Plan				70	$ 10,200		$ 10,200
	Final Structural Engineering				1200	$ 152,400		$ 152,400
	Right-of-Way Plans (Finalize Ownership Map)	$ 5,000					$ 5,000	$ 5,000
	Final Landscaping Plans	$ 30,000			24	$ 2,856	$ 30,000	$ 32,856
	Final "For Bid" Plans, Specifications and Estimates				1100	$ 136,380		$ 136,380
4	**PROJECT COORDINATION AND CONTINUING REQUIREMENTS**							
	Progress Meetings and Plan Review Meetings		$ 1,500		288	$ 44,584	$ 1,500	$ 46,084
	Project Management and Reporting				104	$ 17,652		$ 17,652
	QA/QC				180	$ 32,420		$ 32,420
	Arrange and Attend Public Meetings (3)			$ 1,000	156	$ 21,722	$ 1,000	$ 22,722
	TOTAL HOURS				8794			
	TOTAL LABOR					$ 1,124,538		
	TOTAL EXPENSES	$ 215,000	$ 1,500	$ 1,000			$ 217,500	
	TOTAL FEE							$ 1,342,000

Summary Cost Estimate:

Design Fee Estimate Summary (2019 Dollars)

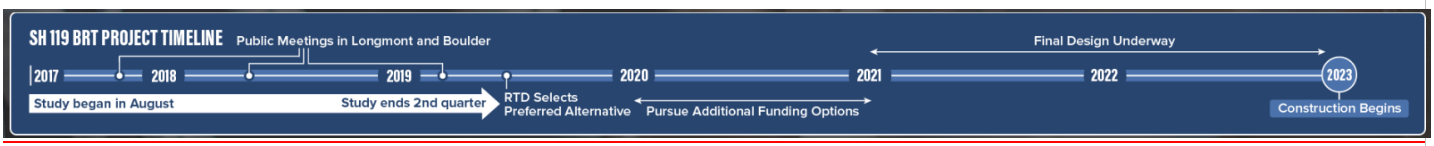
Task #	Task	Hours	Subs/Exp	Total Cost
1	DATA COLLECTION	82	$ -	$ 12,714
2	PRELIMINARY DESIGN	3222	$ 75,000	$ 501,194
3	FINAL DESIGN	4762	$ 120,000	$ 709,252
4	PROJECT COORDINATION AND CONTINUING REQUIREMENTS	728	$ 2,500	$ 118,878
TOTAL		8794	$ 197,500	**$ 1,342,000**

The cost estimate above was prepared using 2019 dollars. To reflect year of expenditure (2020), we inflated this cost estimate by 3%, which gives a total project cost of $1,382,260 in 2020 dollars.

10. What is the status of the proposed project?

The proposed project is identified in Boulder County's 2012 Transportation Master Plan, and is one of the recommended components of the SH 119 BRT package of improvements that has been developed by the SH 119 stakeholder team. As part of the planning for the BRT improvements, CDOT is completing a *SH 119 Bicycle and Pedestrian Connectivity Study* which identifies a median-aligned bikeway as the preferred alignment for such a facility. Through this study, CDOT has presented conceptual plans to Boulder County, City of Boulder, City of Longmont staff and the public at three of RTD's SH 119 public meetings in Boulder, Niwot and Longmont. Materials have also been posted to RTD's SH 119 project website for review by the public.

Completing the design of the SH 119 Bikeway within the next two years is of utmost importance as RTD is currently completing all survey, right-of-way and environmental clearances for the SH 119 BRT components, and the bikeway design could save significant money by leveraging this work instead of repeating it later. Furthermore, RTD, CDOT, the City of Boulder, the City of Longmont and DRCOG have all identified construction funding for initial BRT elements in 2023. By completing the bikeway design within the next two years, this would give the SH 119 stakeholders time to identify construction funding for the bikeway in 2023 as well. Bidding and constructing the BRT components and the bikeway at the same time would result in significant cost savings for both projects, and result in the least disruption for the travelling public.



SH 119 BRT Project Timeline, Source: RTD

11. Would a smaller federal funding amount than requested be acceptable, while maintaining the original intent of the project?

☐ Yes ☒ No

If yes, define smaller meaningful limits, size, service level, phases, or scopes, along with the cost for each.

A. Project Financial Information and Funding Request

1. Total Project Cost		**$1,382,260**
2. Total amount of DRCOG Subregional Share Funding Request	**$1,105,808**	**80% of total project cost**
3. Outside Funding Partners ***(other than DRCOG Subregional Share funds)*** List each funding partner and contribution amount.	**$$ Contribution Amount**	**% of Contribution to Overall Total Project Cost**
Boulder County	$276,452	20%
Total amount of funding provided by other funding partners *(private, local, state, or federal)*	**$276,452**	20%

Funding Breakdown (year by year)*

**The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2018.*

	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds (Subregional)	$1,105,808	$0	$0	$0	**$1,105,808**
Local Funds	$276,452	$0	$0	$0	**$276,452**
Total Funding	$1,382,260	$0	$0	$0	**$1,382,260**
4. Phase to be Initiated *Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other*	Design				

5. By checking this box, the applicant's Chief Elected Official (Mayor or County Commission Chair) or City/County Manager for local governments or Agency Director or equivalent for others, has certified it allows this project request to be submitted for DRCOG-allocated funding and will follow all DRCOG policies and state and federal regulations when completing this project, if funded. ☒

Part 2 Evaluation Criteria, Questions, and Scoring

A. Regional significance of proposed project

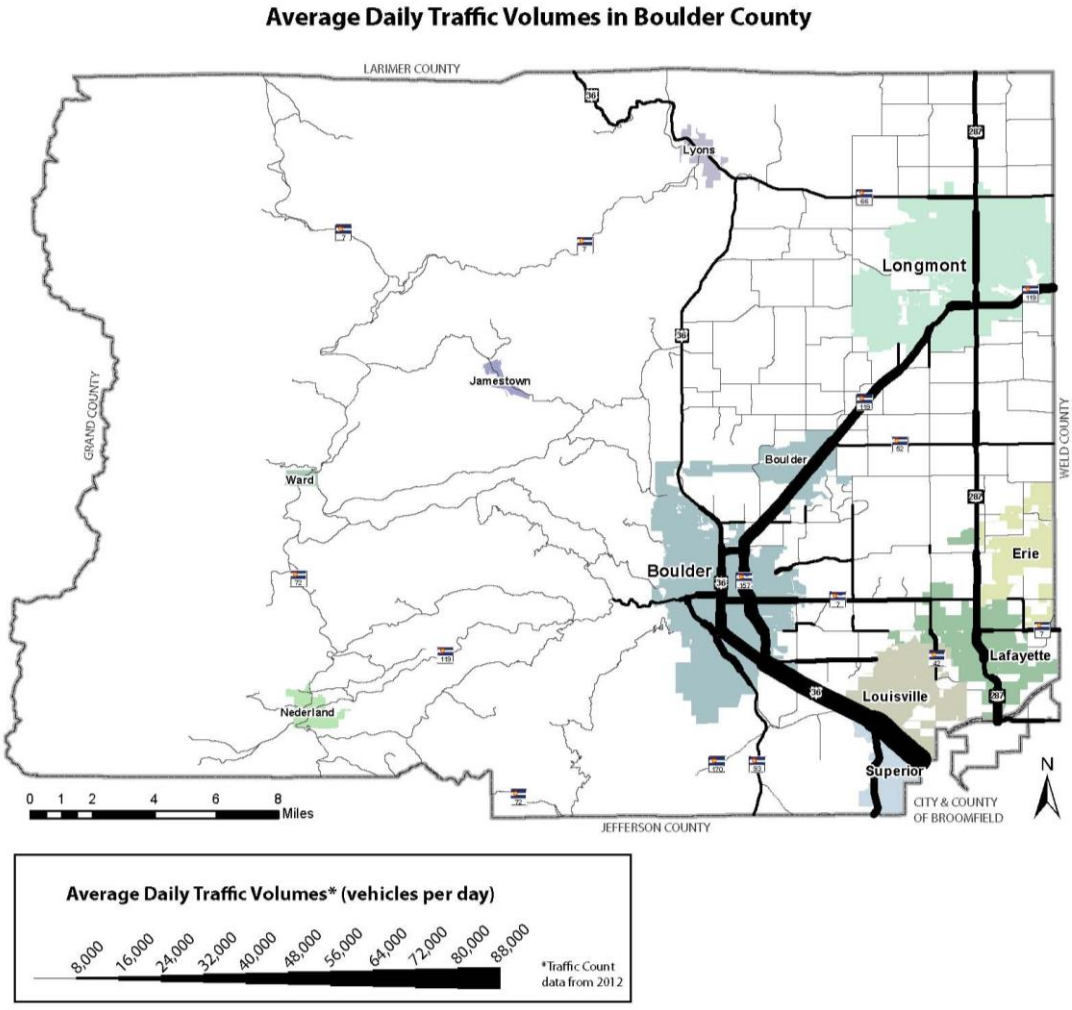
WEIGHT 40%

*Provide **qualitative and quantitative** (derived from Part 3 of the application) responses to the following questions on the regional significance of the proposed project.*

1. Why is this project regionally important?

Regional Connections Multimodal Safety Affordability

State Highway 119 is a vital regional transportation corridor serving the economic health of Boulder County. This corridor is the primary connection between Boulder County's two largest municipalities, Boulder and Longmont, which together make up about 2/3 of the total population of Boulder County. Daily travel volumes demonstrate the importance of the corridor: it has the second highest travel volumes in Boulder County, behind only US36 connecting Boulder to Denver.



Source: Boulder County Transportation, using CDOT and Boulder County Data

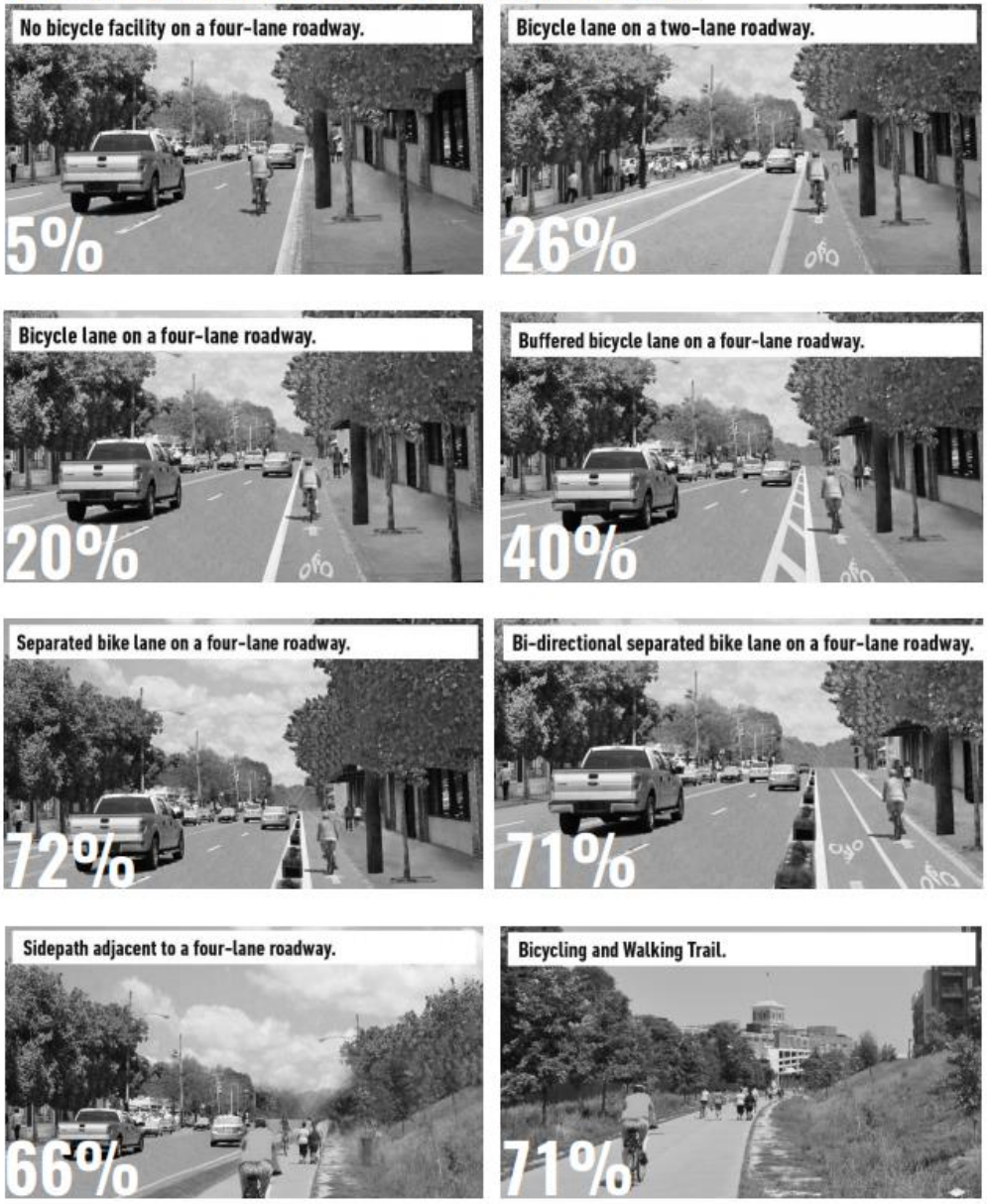
However, this vital link has no safe, direct, comfortable and appealing bicycle connection, which survey data and bicycle count data indicate is severely limiting the number of people who would travel by bicycle on this corridor; intersecting Boulder County roads see 300-500 daily cyclists while the shoulders of SH 119 average only 120.

Furthermore, the growth in popularity of electric assist bicycles, or e-bikes, is likely to further increase the number of people capable of bicycle commuting longer distances but will not do so without low-stress and safe facilities.

As part of the recently adopted Active Transportation Plan, DRCOG surveyed residents in the Denver metro area asking which facility types they would feel comfortable bicycling on. While the survey did not specifically ask about riding on a shoulder on a rural highway, only 20% of respondents said they would feel comfortable riding on a 4 lane road with bike lanes, the closest facility type in the survey to the existing SH 119 shoulders. When asked about their comfort riding on stand-alone multi-use path (such as the proposed SH 119 Bikeway), 71% of respondents indicated they would feel comfortable riding on this type of facility.

drcog Denver Regional Council of Governments

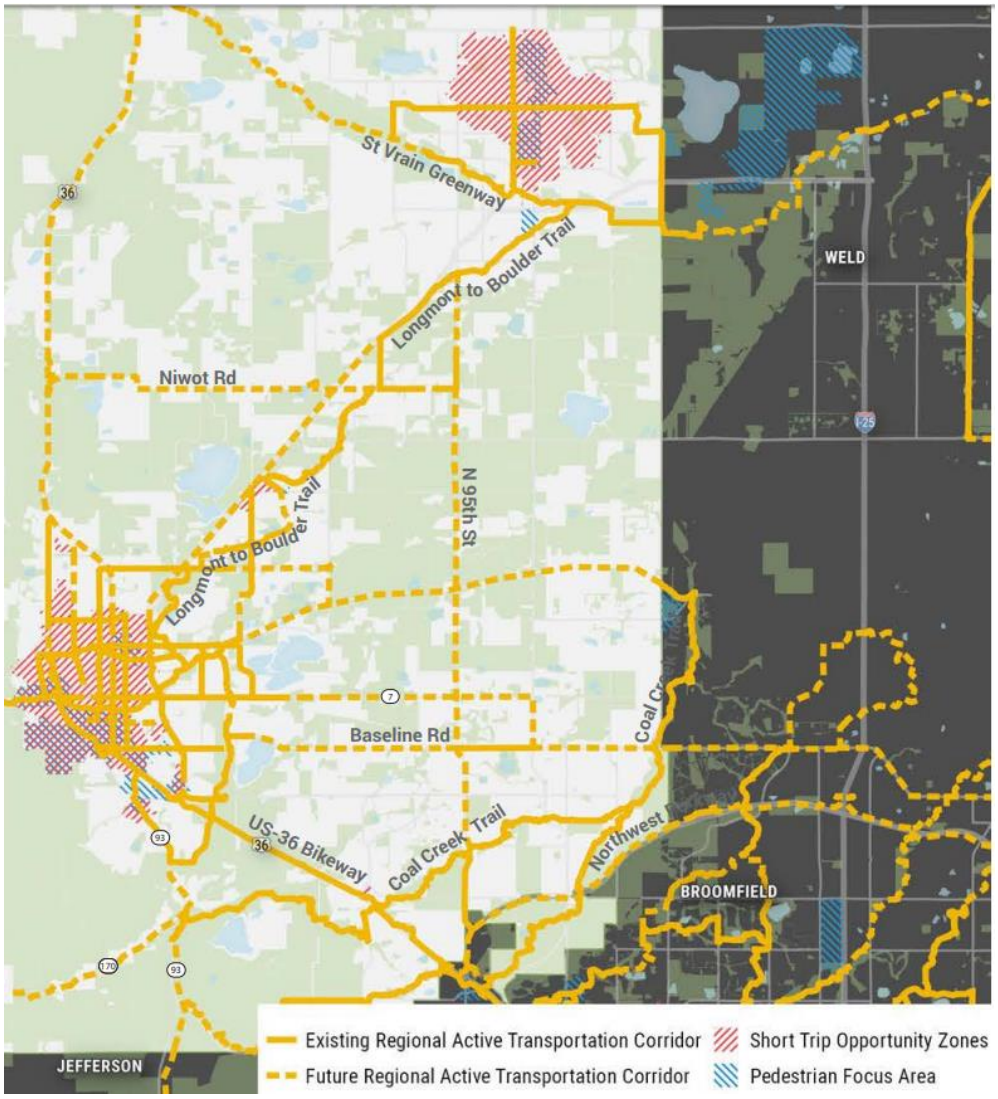
Figure 11. Denver region residents who said they would feel comfortable by bicycle facility type.



Source: National Research Center. Survey of Residents about Active Transportation: Report of Results. 2018;
Image credit: Watkins et al. NCHRP 08-102: Bicyclist Facility Preferences and Effects on Increasing Bicycle Trips (Research in progress).

Source: DRCOG Active Transportation Plan, https://drcog.org/sites/default/files/resources/DRCOG_ATP.pdf, page 8

Completing a safe, reliable, comfortable and appealing bicycle connection between Boulder and Longmont will unlock the numerous benefits of cycling to anyone travelling this key regional corridor: health benefits, greatly reduced transportation costs, increased access to educational and employment opportunities, improved air quality, and fewer vehicles on the road. Confirming the regional significance of this connection, the DRCOG Active Transportation Plan (adopted January 2019) identified the SH 119 corridor as a Future Regional Active Transportation Corridor.

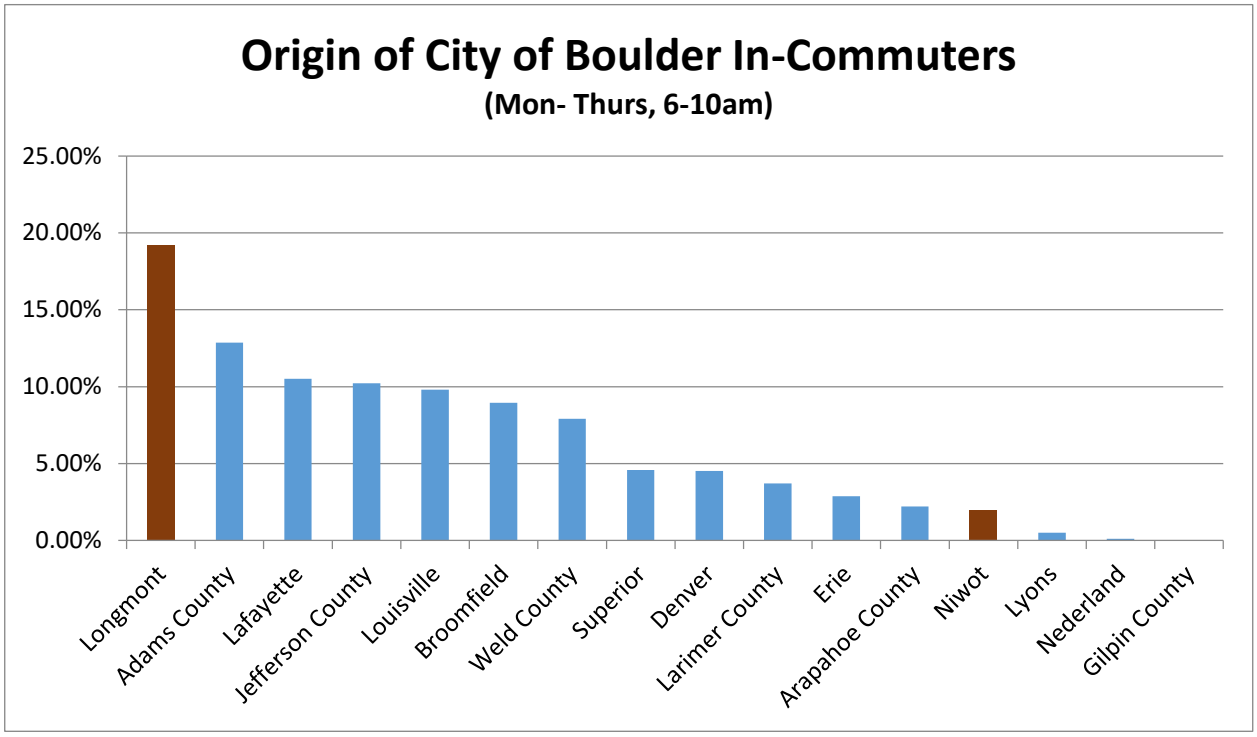


Source DRCOG *Active Transportation Plan*, Appendix 13

2. Does the proposed project cross and/or benefit multiple **municipalities**? If yes, which ones and how?
Regional Connections Multimodal Safety

Geographically the project crosses the Boulder County and the City of Boulder jurisdictions but also provides a connection to the City of Longmont by tying in to existing multi-use paths.

Recent StreetLight (a "big data" company that uses cell phone data to develop travel metrics) data analysis by Boulder County shows that the City of Longmont is the largest source of "in-commuters" to the City of Boulder (people who work in the City of Boulder but live somewhere else). The project will connect to existing networks of bicycle and pedestrian infrastructure in the City of Boulder, unincorporated Boulder County and Longmont, enabling safe and convenient connections between these jurisdictions and the unincorporated community of Niwot.



Source: Boulder County Streetlight data

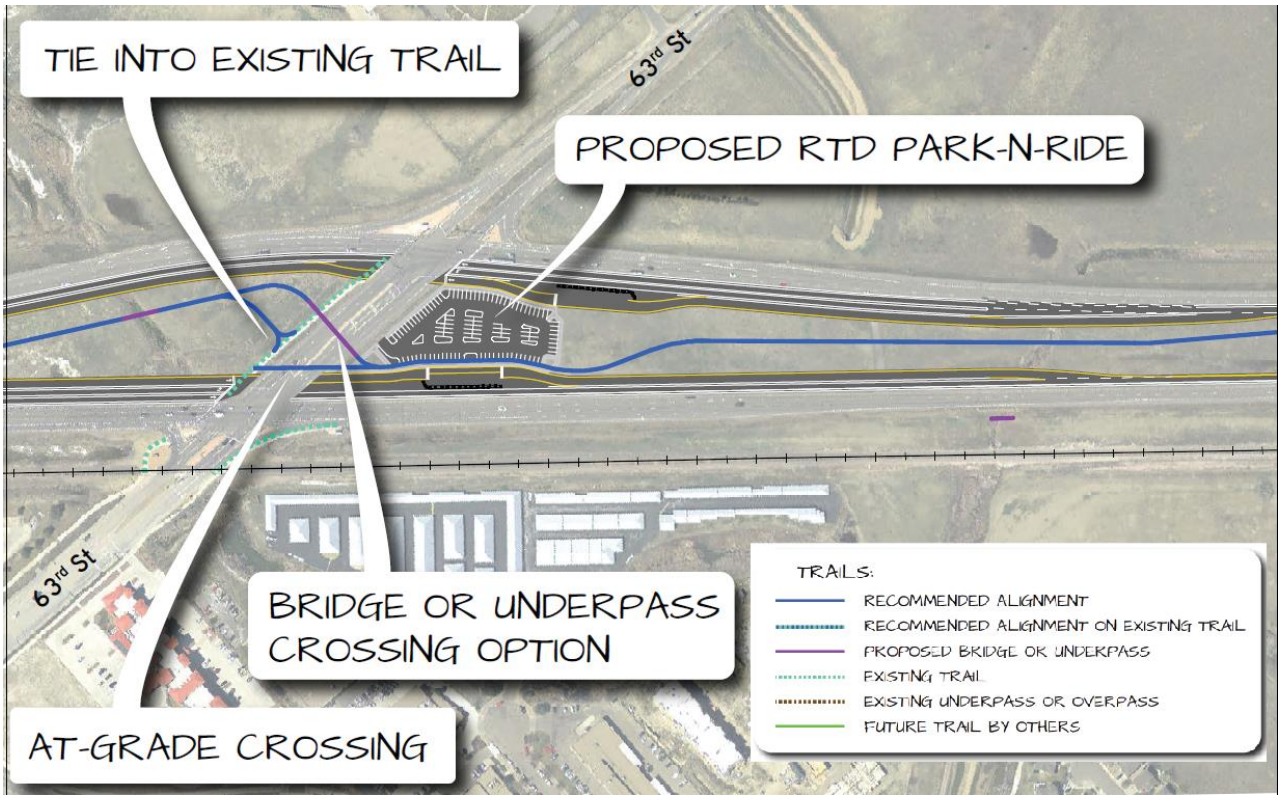
3. Does the proposed project cross and/or benefit another **subregion(s)**? If yes, which ones and how?
Regional Connections Multimodal

While the SH 119 bikeway would benefit a small number of inter-county bicycle commuters from Weld (DRCOG Weld County subregion) and Larimer (NFRMPO) Counties, the primary benefit of this project would be to the Boulder County subregion.

4. How will the proposed project address the specific transportation problem described in the **Problem Statement** *(as submitted in Part 1, #8)*?

Regional Connections Multimodal Safety

Construction of the SH 119 Bikeway will provide a safe, reliable, comfortable and appealing bicycle and pedestrian connection between Boulder and Longmont. The bikeway will be physically separated from the SH 119 roadway, and feature underpasses or protected signal phasing for pedestrians and bicyclists where the bikeway crosses major intersecting roads, greatly reducing if not eliminating conflicts with motor vehicles. Reducing conflicts will reduce bicycle vs motor vehicle and pedestrian vs motor vehicle crashes along this corridor, which currently has the second-most number of such crashes in unincorporated Boulder County. As a hard-surface facility, the SH 119 Bikeway will be plowed, which allows it to be used year-round, even during the snowiest months. The Bikeway will also connect to the SH 119 BRT stations, creating redundancy for commuters who commute by bike, transit or a combination of the two.



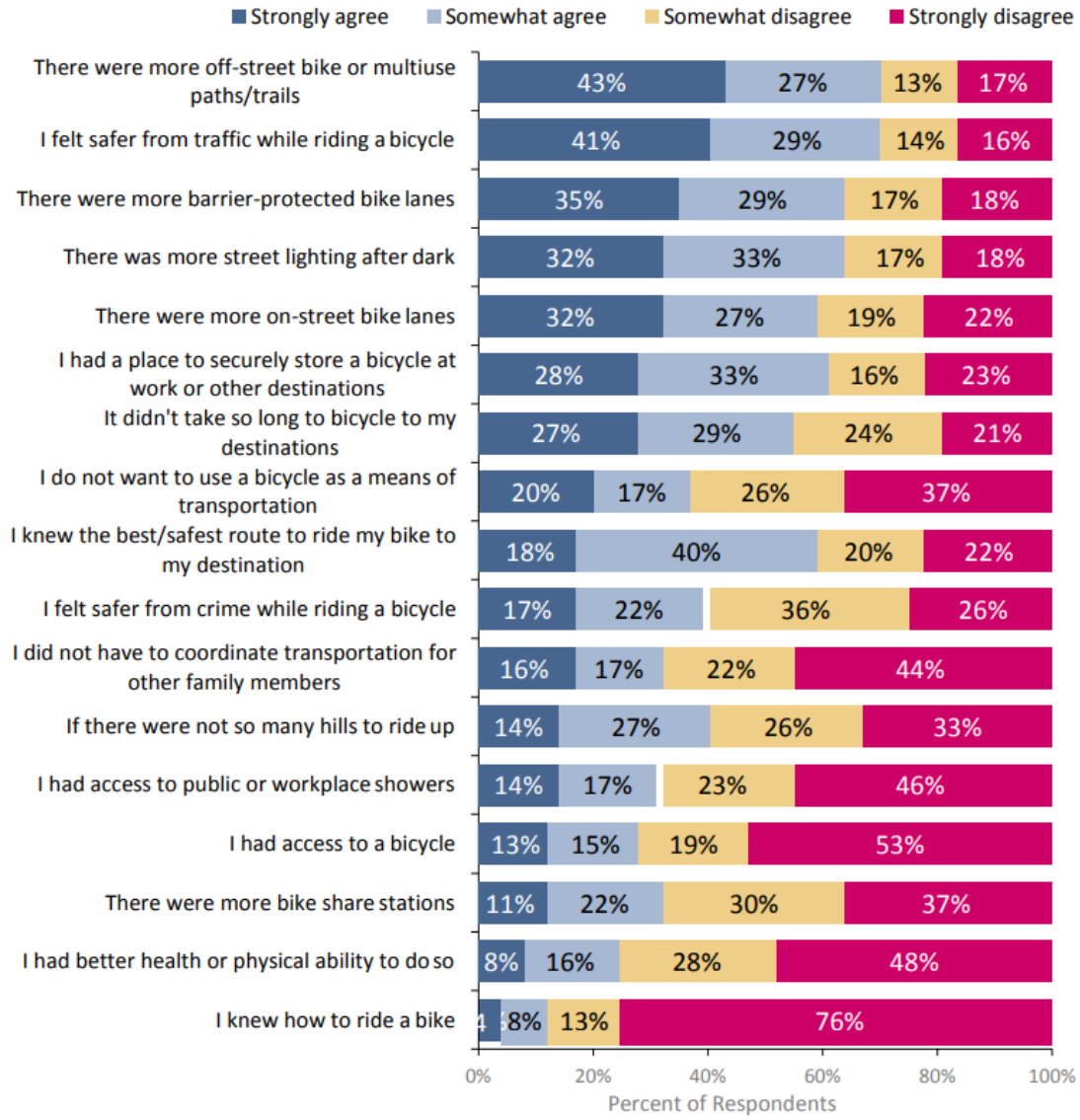
Conceptual SH 119 Bikeway alignment at SH 119/ 63rd St BRT Station. Source: CDOT *SH 119 Bicycle and Pedestrian Connectivity Study*

Physically separating the bikeway from the highway will remove the primary reason people cite for not bike commuting: fear of interacting with much faster moving motor vehicle traffic.

Separate facilities greatly increase the number of people riding by providing a facility that feels comfortable for everyone to use. By following the SH 119 right-of-way, the bikeway will provide an appealing shorter connection between Boulder and Longmont (9.2 miles) than the current low-stress, circuitous soft-surface alternative, which is four miles longer (13.2 miles). All of these improvements will significantly increase bicycle travel on the corridor; from DRCOG's recent Active Transportation Plan, survey respondents by wide margins said they would bike more if there were more off-street paths and they felt safer from traffic while bicycling.

Figure 7: What Might Increase Bicycling for Transportation

To what extent do you agree or disagree that each of the following would increase your use of a bicycle as a means of transportation:



Source: DRCOG Active Transportation Plan. Appendix B, Page 9

Corollary benefits of this project are its potential to increase transit use by providing another means of access to the SH 119 BRT stations, and to reduce traffic congestion on SH 119 by eliminating hundreds of daily vehicle trips.

5. One foundation of a sustainable and resilient economy is physical infrastructure and transportation. How will the **completed** project allow people and businesses to thrive and prosper?

Multimodal Affordability

It is widely recognized that cycling provides numerous economic and financial benefits to both the individuals who ride and to society at large. CDOT has recently estimated the economic impact of bicycling to Colorado's economy at over $1B annually (Source, CDOT: https://www.codot.gov/programs/bikeped/building-a-bike-ped-friendly-community/bike-walk-study/executive-summary/execsum2.pdf/view). The economic impact of bicycling to the City of Boulder alone in 2011 was estimated to exceed $52 million annually, supporting 330 jobs (Source, Bike League: https://bikeleague.org/sites/default/files/ABsept-oct2012-final.pdf).

People for Bikes, a national bicycle non-profit focusing on bicycle policy, outlines the numerous explanations for this economic benefit: people who ride bikes buy and need to maintain bikes, which supports jobs and local bicycle shops. People who bike tend to make more trips to local stores, which supports local businesses. People who bike on vacation buy food, have travel costs, and pay for lodging. Bicycle tourists bring their dollars and their tax revenue with them when they travel. By commuting via bicycle, commuters have more money for other discretionary purchases. Bicyclists save their employers money on health insurance costs. By reducing reliance on personal vehicles, bicycling can allow cities and developers to construct less parking, making cities and neighborhoods more compact, more walkable and more efficient. (Source, People for Bikes: https://bikeleague.org/sites/default/files/Bicycling_and_the_Economy-Econ_Impact_Studies_web.pdf)

When constructing bicycle infrastructure, bicycle projects are more labor-intensive, whereas road projects are more materials-intensive. Per public dollar spent, bicycle infrastructure projects generate more jobs ($11.4 jobs/ $1M) than any type of transportation capital project, including road projects which generate the least (7.8 jobs/ $1M).

(Source: University of Massachusetts, Amherst: http://www.peri.umass.edu/fileadmin/pdf/published_study/PERI_ABikes_June2011.pdf)

6. How will connectivity to different travel modes be improved by the proposed project?

Regional Connections Multimodal

This is a multimodal project with the core intent of improving bicycle and pedestrian facilities along the SH 119 corridor. The bikeway will provide seamless connections between modes at the planned SH 119 BRT Stations at 63rd St, SH 52, and Niwot Rd, including a new Park-n-Ride facility at 63rd St and an expanded Park-n-Ride in Niwot. The bikeway will likely increase transit use on the SH 119 corridor, as it will provide another means of accessing the BRT stations.

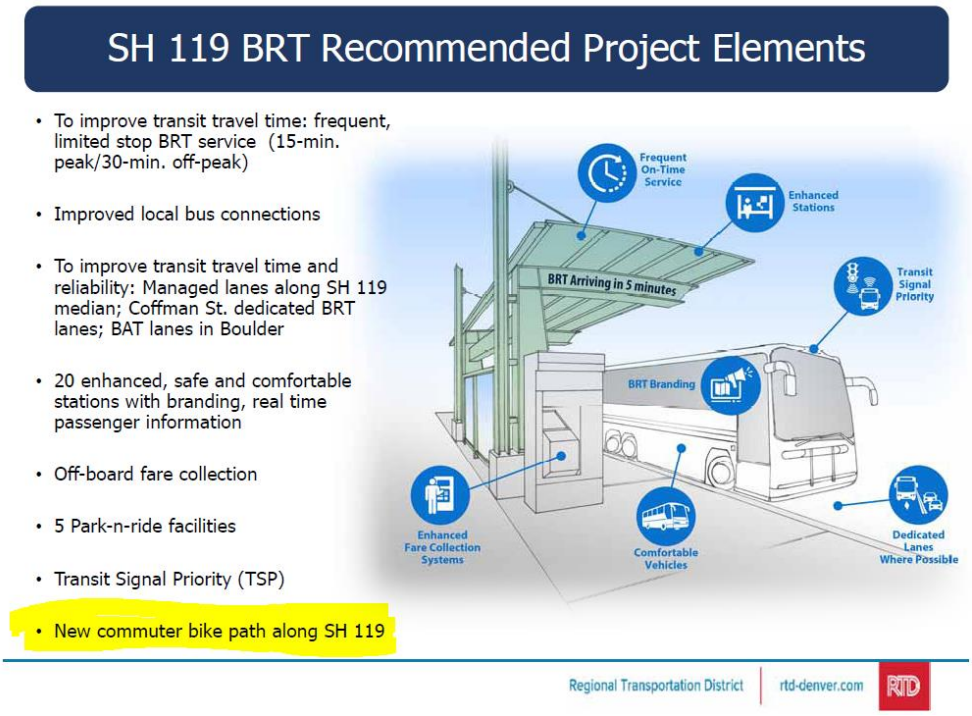
A bicyclist on the US 36 Bikeway passing the WB US 36 & McCaslin BRT platform in Louisville. Source: Boulder County

In order to promote and encourage these bicycle-transit connections, it is also likely that the SH 119 BRT stations will feature secure bicycle parking facilities ("Bike-n-Ride" shelters), as has been successfully pioneered on the US 36 BRT corridor.

SH 119 & Hover multimodal hub: Bicycle/ Pedestrian Underpass, BOLT/J bus stop, Bike-n-Ride Shelter and bike-share station

Source: Boulder County

At either end of the corridor, the SH 119 bikeway will also tie into local transit networks in Boulder and Longmont, where secure bicycle parking facilities already exist.



Source: Regional Transportation District SH 119 Bus Rapid Transit Study

7. Describe funding and/or project partnerships *(other subregions, regional agencies, municipalities, private, etc.)* established in association with this project.

Regional Connections Multimodal

This project is part of the much larger, multi-agency vision for the SH 119 corridor, which includes Bus Rapid Transit, managed lanes, vehicle operational improvements, first and final mile improvements, and expansion of local transit networks. This vision is currently being developed by the SH 119 Stakeholder team as part of RTD's SH 119 BRT Study, and includes RTD, CDOT, the City of Boulder, Boulder County, the City of Longmont, the University of Colorado-Boulder and numerous other partners. The City of Boulder, City of Longmont, RTD and CDOT have collectively allocated $6.2M in local match for the initial components of the Bus Rapid Transit, funded by DRCOG as part of the Regional 2020-23 TIP cycle. Commuting Solutions has just been awarded a DRCOG Station Area Master Planning grant to complete a First and Final Mile Study for the SH 119 corridor. The total project budget is $200,000 with half of that coming from local agencies and the other half from federal funds. This First and Final mile study will dovetail well into the final design of the bikeway as so much of transit station access comes from walking and biking. The project will also help locate Bike-n-Ride shelter location, allowing them to be integrated into the final design, permitting and construction of the SH119 Bikeway.

Source: RTD, https://www.sh119brt.com/

Specific to the bikeway, CDOT has concurred with this application and is in the process of completing a *SH 119 Bicycle and Pedestrian Connectivity Study* (at a cost of $250k) which is laying the groundwork for this project by identifying a preferred alignment for the SH 119 Bikeway and bringing the bikeway to a 10-20% design level.

B. DRCOG Board-approved Metro Vision TIP Focus Areas

WEIGHT **30%**

*Provide **qualitative and quantitative** (derived from Part 3 of the application) responses to the following questions on how the proposed project addresses the three DRCOG Board-approved Focus Areas (in bold).*

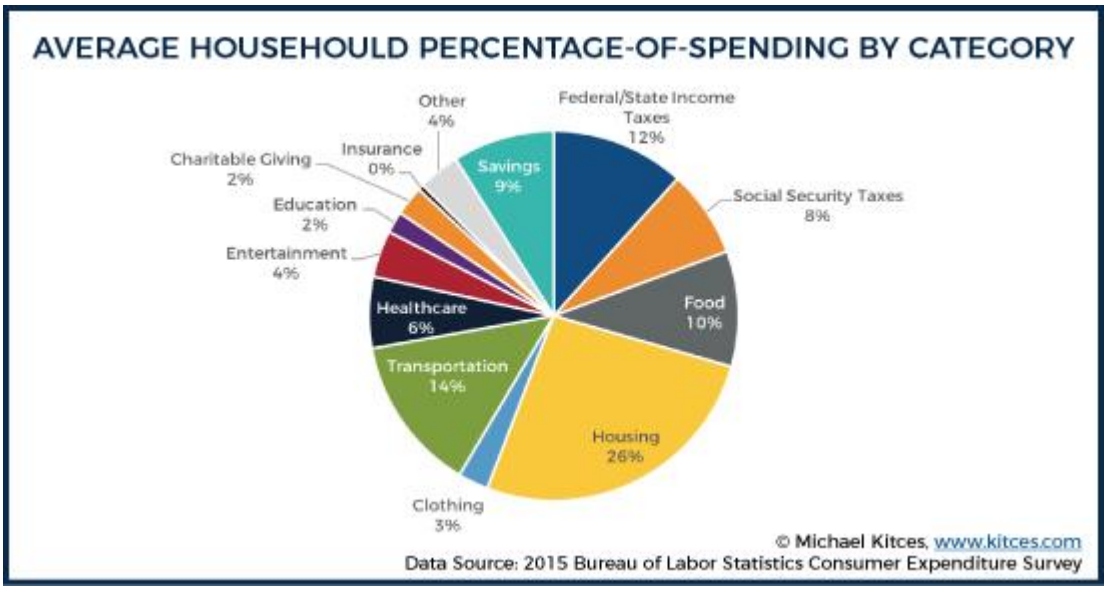
1. Describe how the project will **improve mobility infrastructure and services for vulnerable populations (including improved transportation access to health services).**

Multimodal Affordability

This project will connect two Small Urbanized Areas (Boulder and Longmont) and will contribute to the economic resiliency of the entire region by removing barriers and increasing transportation system capacity for all community members, including some of the most vulnerable populations – older adults, low-income families, and minorities. Vulnerable populations are much less likely to depend on personal vehicles due to the high costs of owning and operating them.

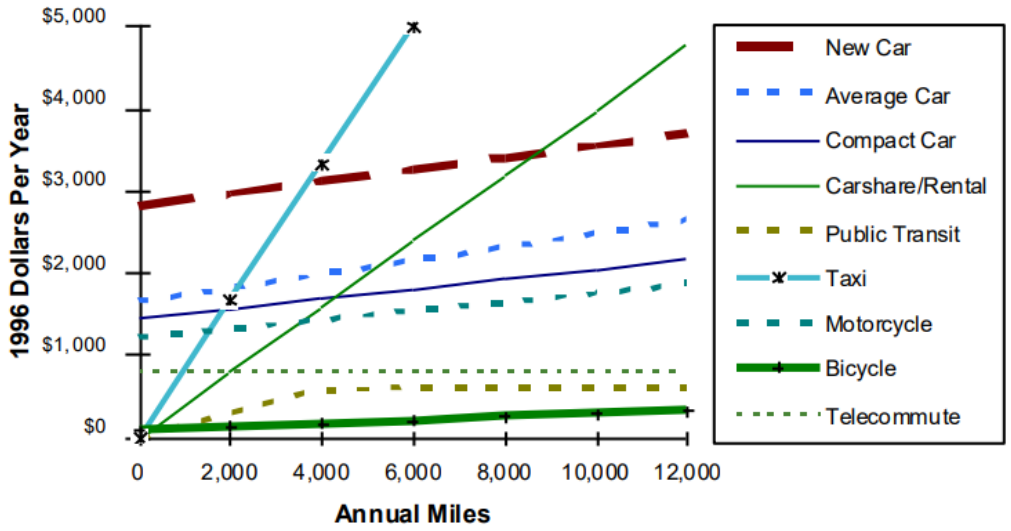
Despite a reputation for affluence, our community remains in an affordable living crisis. There is a continued influx of higher-income residents, rental costs are raising quickly, and wages have flat-lined for lower- and middle-income workers. Affordable Living (defined as spending no more than 15% of a household's income on transportation and no more than 30% on housing) has increasingly become a challenge for many county residents. A Boulder County 2016 Report entitled Building a Community of Hope found that 56% of Boulder area renters are housing cost burdened, meaning that they spend more than 30% of their income on rent and utilities. Affordable, reliable transportation between Longmont and Boulder will help provide relief from our county's high cost of living, freeing up money for other essential household expenses.

Transportation is typically the second-largest household expense, after housing, a result of the high costs of owning, operating and maintaining a personal vehicle.



Numerous sources measure the annual costs of vehicle ownership in the thousands of dollars per year; the IRS vehicle mileage reimbursement rate- which quantifies the true cost of operating an average motor vehicle- is 58¢/ mile. DRCOG estimates per capita daily vehicle miles travelled of 24.2 miles/day in the Denver metro region (Source: DRCOG, https://drcog.org/planning-great-region/metro-vision), while the City of Boulder estimates per capita daily miles travelled of 30 miles/day for its non-resident employees (Source: City of Boulder, https://bouldercolorado.gov/transportation/2018-report-on-progress). Using a 300 day annualization factor, this equates to $4,200- $5,200 annually for transportation costs if travelling by personal vehicle. By contrast, bicycling is the cheapest transportation mode, and has been estimated to cost 5-15¢/mile, or roughly six times cheaper than motor vehicle travel (Source, Victoria Transport Policy Institute: http://www.vtpi.org/tca/tca0501.pdf). (Annual transit costs for commuting between Boulder and Longmont fall in the midrange, at $200/ month for a Regional Pass, or $2,400/ year.)

Figure 5.1.10-1 **User Expenses for Various Modes[23]**



Automobile travel has high fixed costs and low variable costs, taxi and carshare have low fixed costs and high variable costs, while transit and cycling have low financial costs.

Source: Victoria Transport Policy Institute: http://www.vtpi.org/tca/tca0501.pdf

This project will promote equity within Boulder County, a county that is becoming increasingly diverse. Latinos are the largest minority population in the county and currently have lower levels of education and are more likely to live in poverty than the population as a whole. (2017-2019 Community Foundation Boulder County Trends Report) According to the 2015 American Community Survey estimates, 27% Longmont residents identify as Latino, as compared to 21% State of Colorado. Investing in this vital corridor will help connect individuals of all backgrounds with meaningful employment and higher educational opportunities allowing them to increase their ability to realize economic mobility.

2. Describe how the project will **increase reliability of existing multimodal transportation network.**
Regional Connections Multimodal Safety

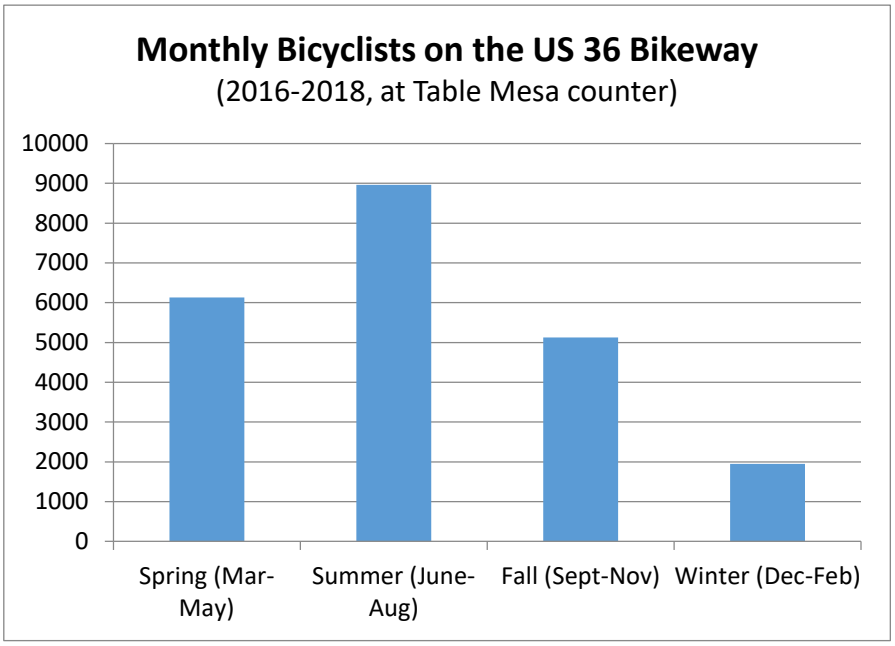
Currently there is no direct, safe, hard-surface bicycle/pedestrian facility connecting the City of Boulder and the City of Longmont. Cyclists today can choose between the shoulders of SH 119 (the second-highest bicycle/pedestrian crash corridor in unincorporated Boulder County) and circuitous, non-contiguous soft-surface routes, which cannot be plowed and in the days and weeks following snow events become unrideable, covered in bumpy layers of ice.

US 36 Bikeway on Winter Bike to Work Day, 2019

Source: CBS Denver

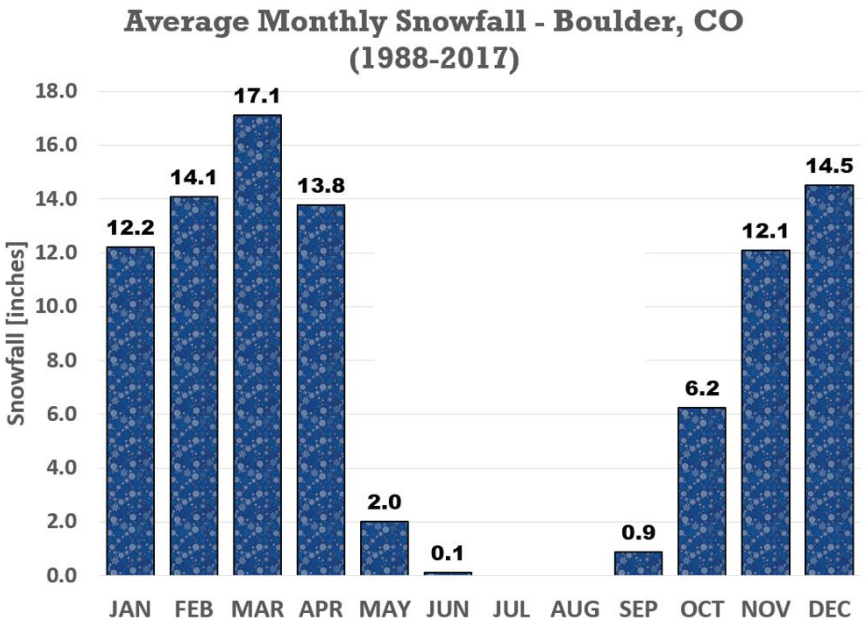
Physically separated, hard-surface facilities (asphalt or concrete) are the most reliable bicycle facilities because they combine the best attributes of on-street facilities (can be plowed, and thus ridden year-round) with the best attributes of off-street trails (separation from motor vehicles).

Data from CDOT's counter on the US 36 Bikeway (near Table Mesa and the western terminus of the bikeway) shows that, on average, spring has the second-highest average monthly usage of the bikeway, trailing only summer.



Source, CDOT

However, spring is also when the plains of Boulder County receive the most snow: historical data from NOAA show that February- April is on average the snowiest three-month period of the year.



Source: NOAA

If people know their bike commute route will become unrideable in the snow, the mere threat of snow can dissuade people from riding. However, if people know that their route will be maintained even in the snow, weather need not be a deterrent to year-round riding. Providing a hard-surface facility that can be plowed increases reliability by allowing people to bike, regardless of the weather.

The bikeway will also increase the reliability of the multimodal transportation network by providing seamless connections to the SH 119 BRT system, which creates redundancy for non-SOV commuting and affords almost unlimited bike/bus commute possibilities, including:

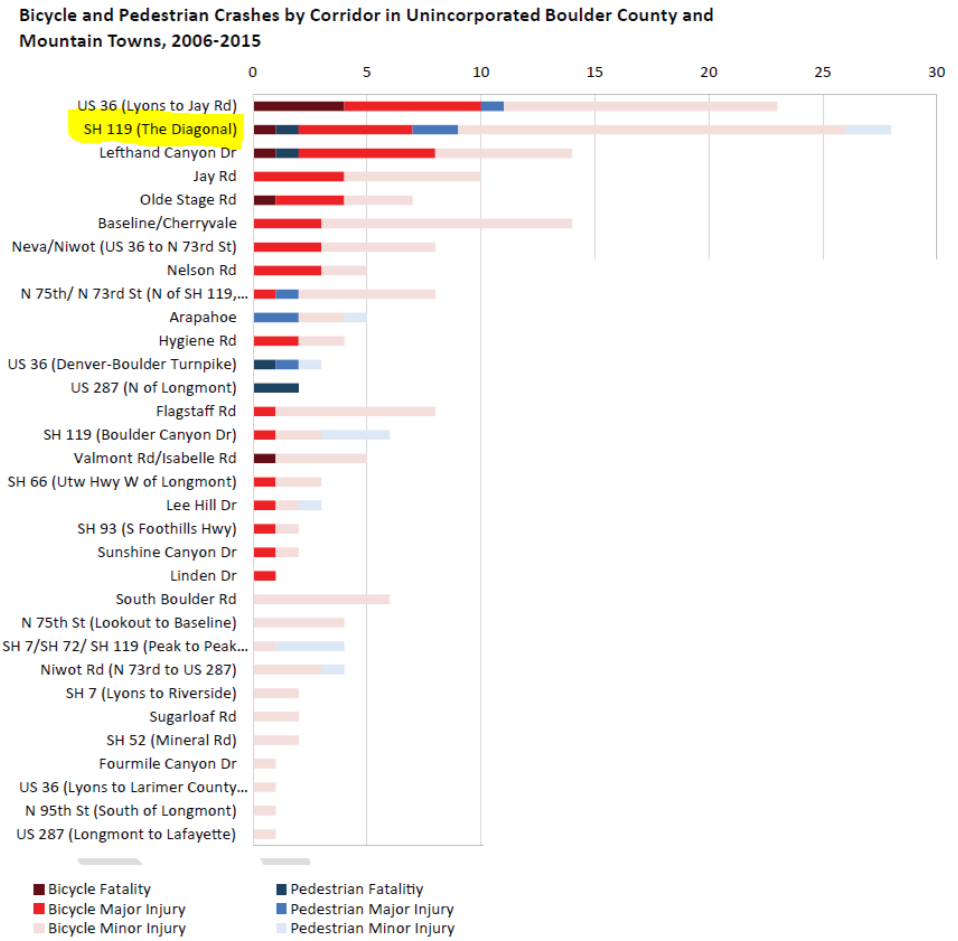
- Biking a short distance to the BRT in the morning, and bringing your bike with you to complete your final mile via bike
- Bike commuting along SH 119, and if you get a flat tire, the ability to "bail" and take the bus

Source: RTD

3. Describe how the project will **improve transportation safety and security.**
Multimodal Safety

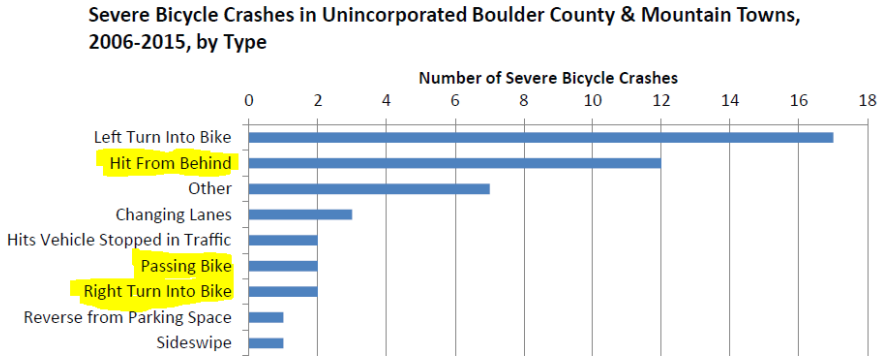
The project will improve transportation safety by creating a facility that will greatly reduce the number of bicycle and pedestrian crashes on the SH 119 corridor, and improve transportation security by creating a facility that feels safe, comfortable and inviting. Boulder County's Traffic Crash Analysis, completed in 2018, looked at all injurious and fatal traffic crashes in unincorporated Boulder County and the mountain towns of Lyons, Jamestown, Ward and Nederland from 2006-2015, the most recent decade of available data.

This analysis found that the SH 119 corridor had the second highest number of severe (severe injury or fatal) bicycle and pedestrian crashes in all of unincorporated Boulder County, and the highest number of bicycle and pedestrian crashes if minor injury crashes are included.



Source: Boulder County Traffic Crash Analysis, 2018

Boulder County's analysis also identified the most common types of bicycle crashes in unincorporated Boulder County; the highlighted crashes in the table below- "Hit From Behind," "Passing Bike," and "Right Turn Into Bike"- are crash types that can occur on the shoulders of SH 119.



Source: Boulder County Traffic Crash Analysis, 2018

By contrast, a separated bikeway virtually eliminates the possibility of "Hit From Behind" and "Passing Bike" crashes. While crashes involving turning vehicles can still occur with a separated bikeway, they can be minimized through the use of underpasses (included in the project at six locations) and protected signal phasing.

Bicycle and Pedestrian Underpass providing a connection from SH 170 Marshall Dr to the US 36 Bikeway under US 36

When people choose whether or not to travel by bike, their perception of safety (security) can be as important as a route's actual crash record: most people do not consult a crash history when deciding whether or not to bike, but rather decide based on a how a route feels. Indeed, a recent DRCOG Active Transportation Plan survey found that 70% of respondents said they would ride more if they *felt* safer from traffic while bicycling (Source, DRCOG, https://drcog.org/sites/default/files/resources/DRCOG_ATP.pdf).

Recent work has attempted to quantify these feelings of safety into objective measures: the Level of Traffic Stress (LTS) rating describes which types of facilities will appeal or be comfortable for which types of riders:

- LTS 1- Suitable for children
- LTS 2- A level of traffic stress that most adults can tolerate, suitable for the "interested but concerned."
- LTS 3- A level of traffic stress acceptable to those classified as "enthused and confident."
- LTS 4- A level of stress acceptable only to those classified as "strong and fearless."

Source: Northeastern University, http://www.northeastern.edu/peter.furth/research/level-of-traffic-stress/

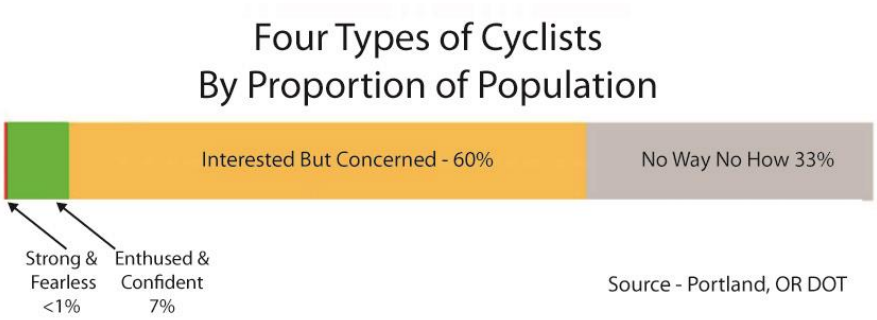
Children bicycling on the US 36 Bikeway

Level of Traffic Stress rating for rural roadways:

Daily Motorized Traffic Volume	Paved Shoulder Width		
	0 ft to < 3 ft	3 ft to < 4 ft	4+ ft
< 400	LTS 2	LTS 2	LTS 2
400 to 1,500	LTS 3	LTS 2	LTS 2
1,500 to 7,000	LTS 4	LTS 3	LTS 3
> 7,000	LTS 4	LTS 4	LTS 4

(In rural areas an LTS rating of 1 can only be achieved with a separate multi-use path or bikeway)

The Level of Traffic Stress rating system can be combined with Portland's established research on the four types of cyclists:



Source: Portland Office of Transportation, https://www.portlandoregon.gov/transportation/article/264746

With traffic volumes ranging from 30,000 to 60,000, the shoulders on SH 119 fall clearly in the LTS 4 category, meaning that only about 1% of the population is willing to ride on them. A separated bikeway would achieve an LTS 1 rating, and would appeal to approximately 60% of the population, a 60x increase in potential riders over the existing shoulders. Furthermore, a bikeway in the SH 119 right-of-way benefits from "eyes on the street." Particularly at night, multi-use paths that are located in greenbelts can often feel uninviting as they are dark with no one around. The SH 119 Bikeway will be near enough to the roadway that it will not feel isolated or unsafe.

C. Consistency & Contributions to Transportation-focused Metro Vision Objectives

WEIGHT **20%**

*Provide **qualitative and quantitative** responses (derived from Part 3 of the application) to the following items on how the proposed project contributes to Transportation-focused Objectives (in bold) in the adopted Metro Vision plan. Refer to the expanded Metro Vision Objective by clicking on links.*

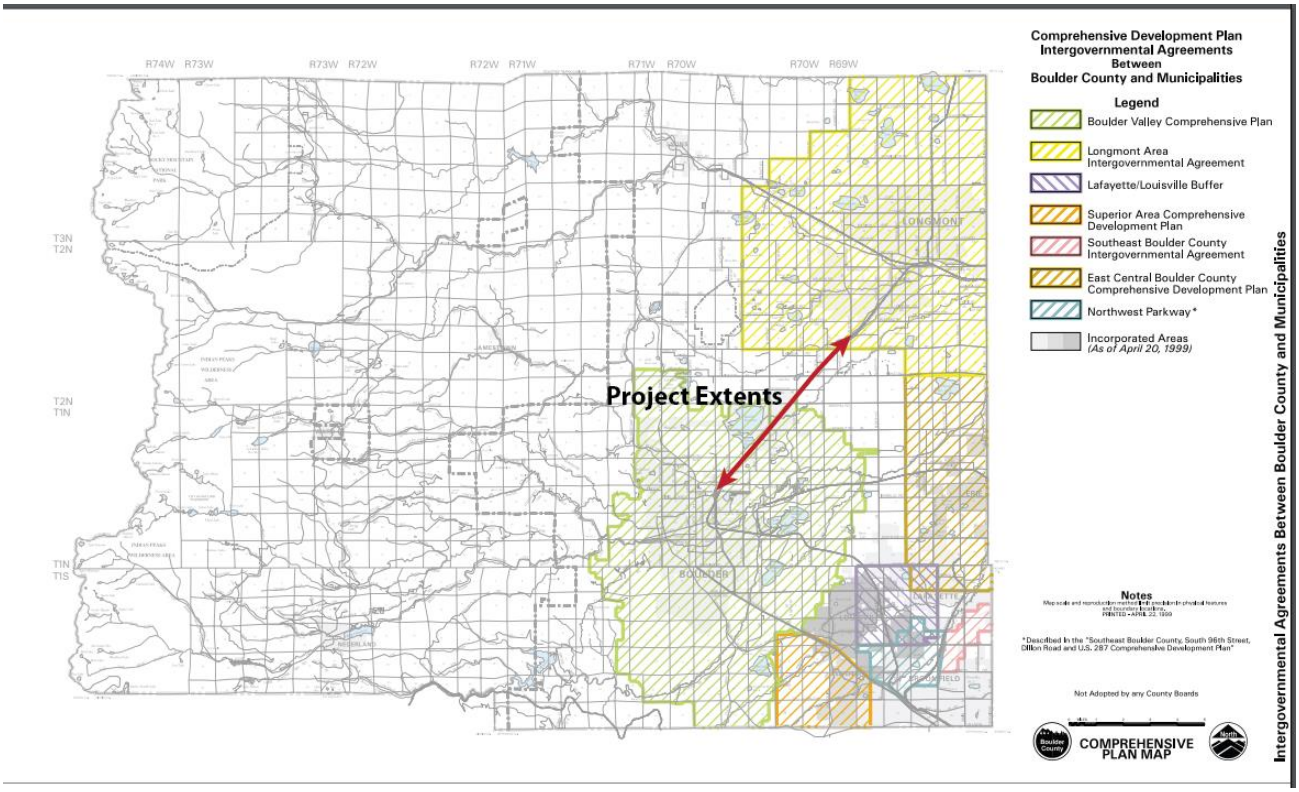
MV objective 2	**Contain urban development in locations designated for urban growth and services**.

1. Will this project help focus and facilitate future growth in locations where urban-level infrastructure already exists or areas where plans for infrastructure and service expansion are in place?

☒ Yes ☐ No

Regional Connections Multimodal Affordability

This project corridor is planned to have the largest infrastructure investment in Boulder County for the next two decades. The RTD SH 119 BRT study is planning for capital investments in the corridor totaling $130M-220M. The components of the SH 119 BRT project include a SH 119 Bikeway. This capital investment is designed to concentrate growth and development in Boulder and Longmont at either end of the corridor. Through the Boulder County Comprehensive Plan, Boulder County has intergovernmental agreements with Boulder and Longmont to ensure development is focused in existing urbanized areas, preserving the rural character of unincorporated Boulder County.



Source: Boulder County Land Use Dept.

MV objective 3	**Increase housing and employment in urban centers**.

2. Will this project help establish a network of clear and direct multimodal connections within and between urban centers, or other key destinations? ☒ Yes ☐ No

Regional Connections Multimodal

By connecting existing bicycle and pedestrian networks within Boulder and Longmont to each other, this project provides a clear bicycle and pedestrian connection between the four highest density employment and housing locations in Boulder County: Downtown Longmont, Boulder Junction, University of Colorado and Downtown Boulder. It connects the following six Urban Centers in Boulder County: Longmont CBD, Ken Pratt Extension, Twin Peaks Activity Center, Gunbarrel Activity Center, 28th/30th Streets, Downtown Boulder, and University Hill.

Using the latest 2017 DRCOG datasets, within a 1-mile buffer of the project the total population and employment is 25,815 and 27,048 respectively, growing to 29,915 and 35,186 by 2040.

It is worth noting that the primary benefit is not to jobs and employment within a 1 mile buffer of the project, but to cities at either end of the corridor just beyond the project buffer (which combined represent 2/3 of Boulder County's population).

MV objective 4	**Improve or expand the region's multimodal transportation system, services, and connections**.

3. Will this project help increase mobility choices within and beyond the region for people, goods, or services? ☒ Yes ☐ No

Regional Connections Multimodal Safety

This project increases mobility choice for the Boulder County subregion by providing a new facility for walking and biking on SH 119. For the "interested but concerned" segment of the population, the 60% of adults who are interested in bicycling but concerned about riding in/near traffic, the shoulders on SH 119 may as well not exist- these commuters will simply never ride there because they are not comfortable being separated from high speed traffic by only a white stripe. The SH 119 will provide a viable and reliable bicycle connection between Boulder and Longmont for the majority of the population where none exists now.

MV objective 6a	**Improve air quality and reduce greenhouse gas emissions**.

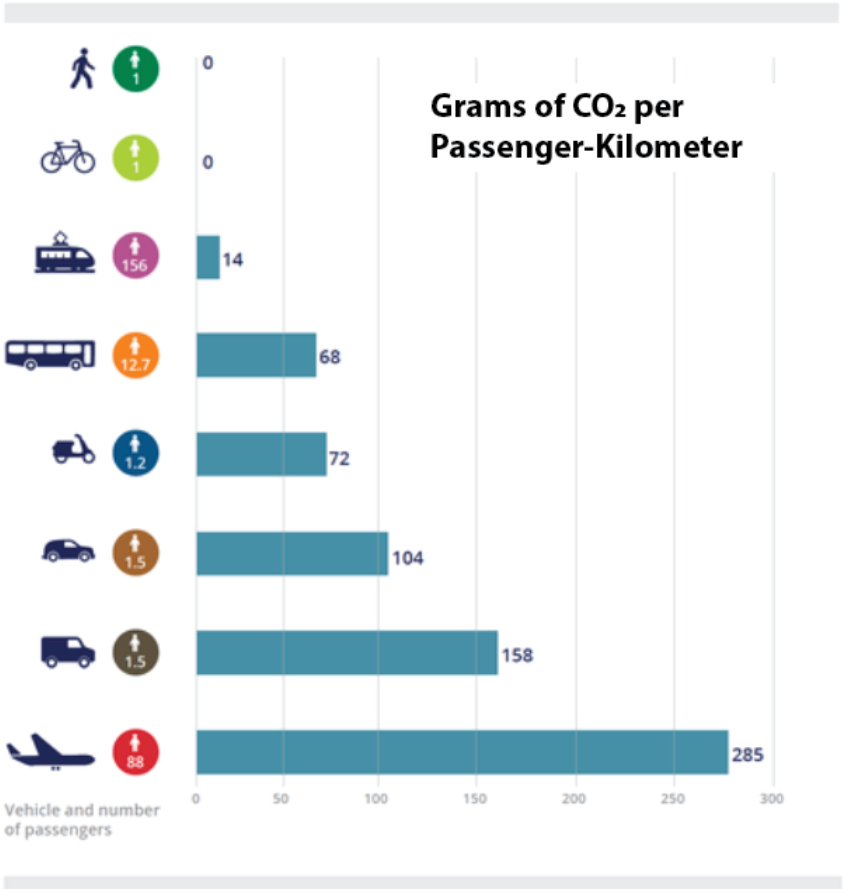
4. Will this project help reduce ground-level ozone, greenhouse gas emissions, carbon monoxide, particulate matter, or other air pollutants? ☒ Yes ☐ No

Regional Connections Multimodal

This project improves air quality by converting heavily polluting single occupant vehicle trips into bicycle trips, which produce no ground-level ozone, greenhouse gas emissions, carbon monoxide, particulate matter, or other air pollutants. Due to the regional nature of the project, each Longmont to Boulder trip converted from a vehicle trip to a bicycle trip saves roughly 16 miles. There will also be shorter bicycle trips on the 119 Bikeway, for example, between Gunbarrel and Boulder is an 8 mile trip, so an average trip length of 12 miles was used.

While some bicycle trips may be trips that are currently being made via carpool or transit, in general bicycling tends to reinforce, rather than compete with, other non-SOV modes, so this impact is anticipated to be negligible.

As calculated in Part 3, this project is estimated to have an initial net increase of 300 daily bicycle trips. It is estimated that there will be savings of 2,400 VMT saved every day. This is equal to over 2,300 lbs of greenhouse gases reduced every day.



Source: European Environment Agency

https://www.eea.europa.eu/media/infographics/carbon-dioxide-emissions-from-passenger-transport/view

MV objective 7b	**Connect people to natural resource or recreational areas**.

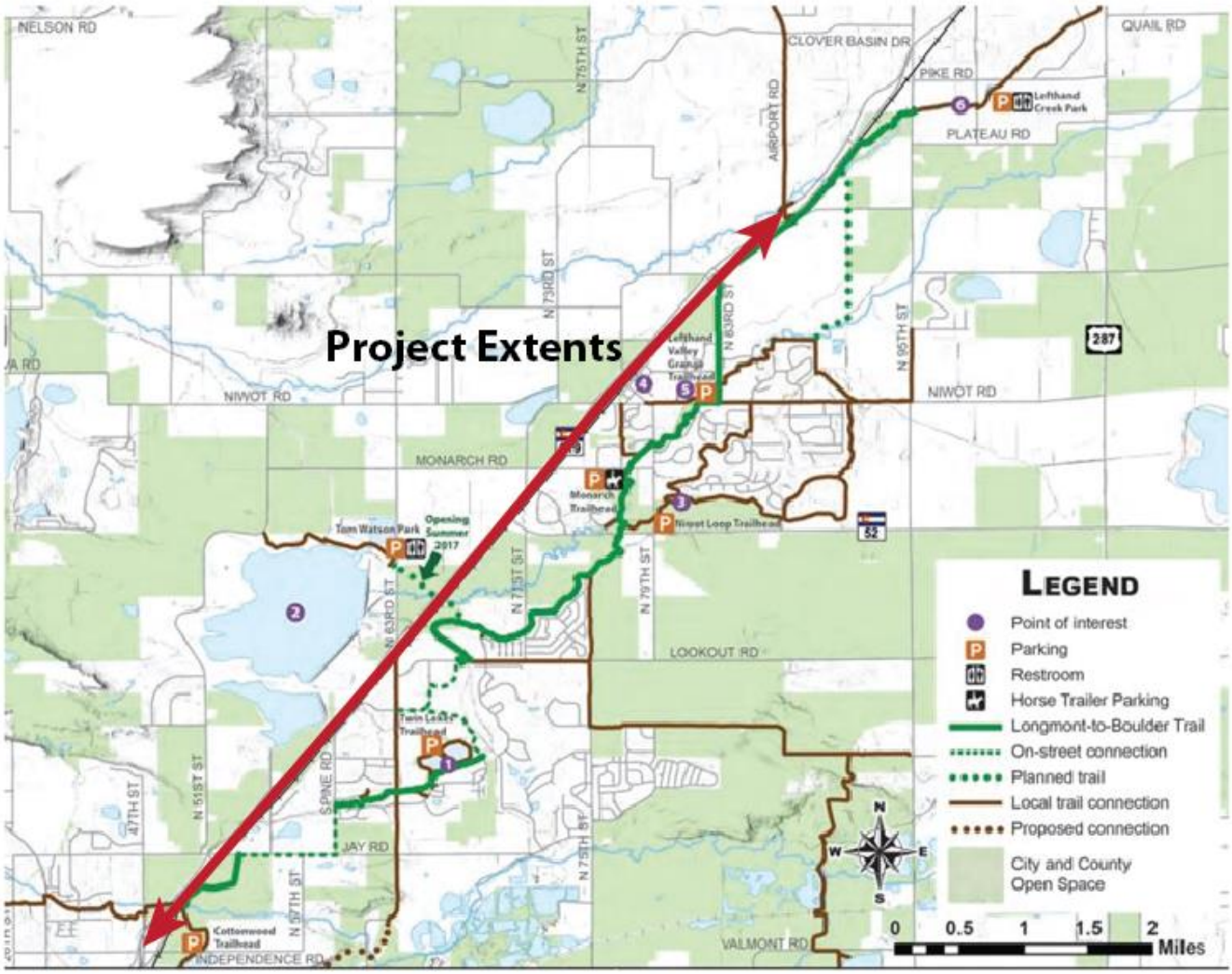
5. Will this project help complete missing links in the regional trail and greenways network or improve other multimodal connections that increase accessibility to our region's open space assets? ☒ Yes ☐ No

Regional Connections Multimodal Affordability

The SH119 Bikeway project corridor goes through City of Boulder and Boulder County Open Space and actively used agricultural lands. This corridor has views across Open Space and agricultural properties to the mountains on the west part of the county.

View from SH 119 looking west to the mountain range (That lightning is not Photoshopped!)

There are several locations where the proposed SH 119 bikeway connects with existing regional or local trails, including the Fourmile Canyon Creek Path, Cottonwood Trail, LoBo Trail, IBM Connector Trail, Niwot Loop Trails and the Left Hand Greenway. In addition, the roads that travel through the above mentioned agricultural and Open Space lands are low traffic volume roads. Almost all of the paved roads have bikeable shoulders and many of them are gravel roads with extremely low traffic volumes. A SH 119 Bikeway will provide enhanced access to these natural resources.



Source: Boulder County Parks and Open Space

MV objective 10	**Increase access to amenities that support healthy, active choices.**

6. Will this project expand opportunities for residents to lead healthy and active lifestyles? ☒ Yes ☐ No

Affordability

The health benefits of bicycling, either for recreation or commuting, are well documented and include:

- increased cardiovascular fitness
- increased muscle strength and flexibility
- improved joint mobility
- decreased stress levels
- improved posture and coordination
- strengthened bones
- decreased body fat levels
- prevention or management of disease
- reduced anxiety and depression

Source: Victorian State Government (Australia), https://www.betterhealth.vic.gov.au/health/healthyliving/cycling-health-benefits

The Lancet Diabetes & Endocrinology Journal found significant weigh differences for bicycle commuters when compared to car commuters: on average, men who bike commute weigh 11lbs less than their driving counterparts and women weigh 10lbs less (https://www.thelancet.com/journals/landia/article/PIIS2213-8587(16)00053-X/fulltext).

This project will make cycling on the SH 119 corridor an option for many people who would not consider it now, opening up the aforementioned health benefits to a larger population.

MV objective 13	**Improve access to opportunity**.

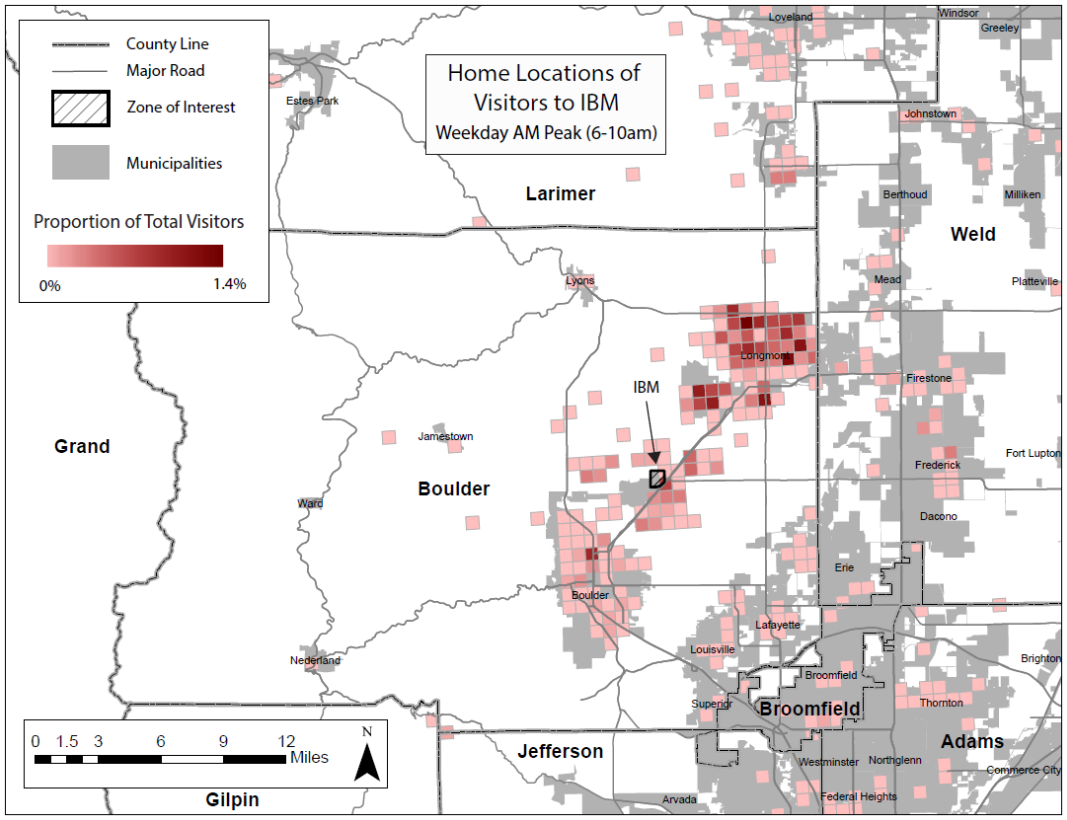
7. Will this project help reduce critical health, education, income, and opportunity disparities by promoting reliable transportation connections to key destinations and other amenities? ☒ Yes ☐ No

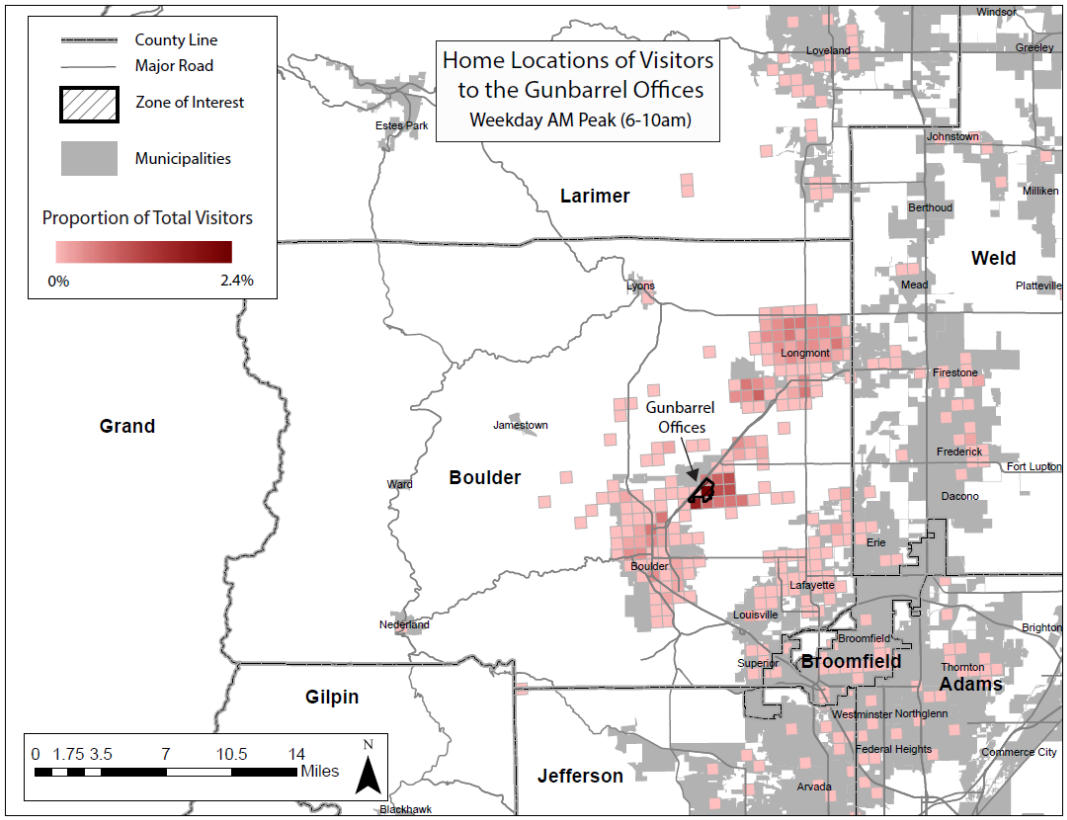
Regional Connections Multimodal Affordability

This project will reduce health, education, income and opportunity disparities in Boulder County by linking many of the county's key destinations with the most affordable and healthiest travel option: bicycling. Roughly half of the City of Boulder's workers in-commute in from other communities; 19% come from Longmont which is more than any other single community. Boulder County's recent Streetlight analysis also shows that this project would provide tremendous benefit to Niwot: two-thirds of Niwot's regional trips are to or from Longmont or Boulder.

This project would also provide connections to the two largest educational opportunities in Boulder County: the University of Colorado-Boulder and Front Range Community College in Longmont. Due to the high cost of tuition, university and college students are more likely than the general public to not own a personal vehicle; the bikeway provides students another affordable means of access to education.

Boulder County's Streetlight analysis of the IBM and Gunbarrel job centers underscores this project's potential to connect residents with jobs; as many if not more of the trips to these job centers come from Longmont as from Boulder:





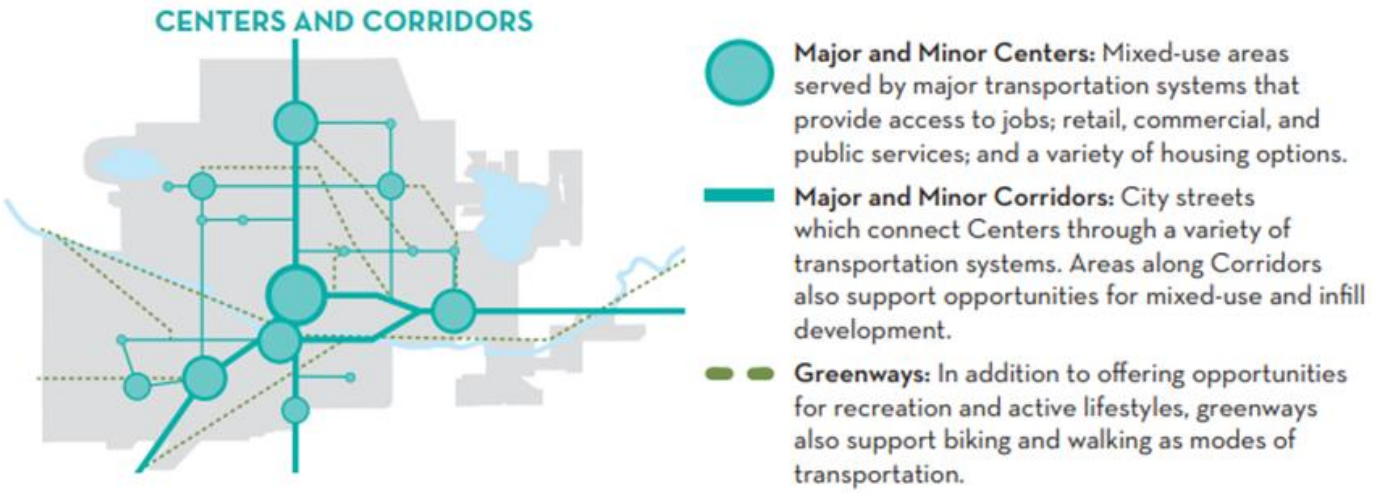
Source: Boulder County

MV objective 14	**Improve the region's competitive position**.

8. Will this project help support and contribute to the growth of the region's economic health and vitality? ☒ Yes ☐ No

Regional Connections Multimodal Affordability

Longmont recently completed their Envision Longmont which details housing and employment growth areas for the City. The SH 119 Bikeway project will link the major growth centers in Longmont with those in Boulder. From the Plan: "Longmont's major transportation corridors—Main Street, Hover Street, Highway 119, and Ken Pratt Boulevard are a central focus of the Growth Framework, and provide an opportunity to align the City's land use and multimodal transportation objectives with myriad quality of life considerations by concentrating future growth and reinvestment in livable centers and corridors. Centers and corridors vary in terms of their scale, overall mix of uses, and the types of transportation options that are available today or are planned for the future"



Source: Envision Longmont

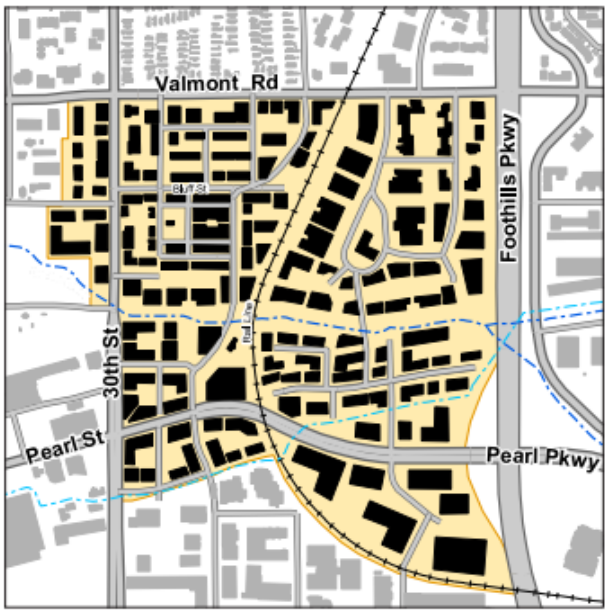
In particular the First and Main area of Longmont is slated for massive increases in residential, commercial and mixed use development. This is being guided by the Downtown Longmont Master Plan of Development, adopted in 2017. (https://www.downtownlongmont.com/_files/docs/-master-plan-final-4-3-17-single-pages-reduced.pdf) This plan calls for a 37% increase in housing units and a 44% increase in jobs in the downtown core.

	Current	Buildout Estimate	% Increase
Housing Units	1,771	2,430	37%
Jobs	4,620	6,632	44%

On the Boulder side, the project will support the continued development at the Boulder Junction and downtown Boulder areas. The City of Boulder's Transit Village Action Plan calls for a minimum of 1,400 new residential units and up to 2,400 new residential units in the area.

Transit Village Area Today

Possible Future Development Pattern



Higher-density land uses supported by a finer-grain street network will create a more urban environment with fewer surface parking lots and a walkable block pattern.

Source: Transit Village Area Plan, 2010.

By decreasing these cities' reliance on personal vehicles, this project will allow the growth centers in Boulder and Longmont to develop more densely, with less area and cost dedicated to vehicle parking.

D. Project Leveraging		WEIGHT **10%**
9. What percent of outside funding sources (non-DRCOG-allocated Regional Share funding) does this project have?	20%	80%+ outside funding sources ..... High 60-79% ..... Medium 59% and below ..... Low

Part 3 Project Data Worksheet – Calculations and Estimates

(Complete all subsections applicable to the project)

A. Transit Use

1.	Current ridership weekday boardings	N/A
2.	Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	N/A	N/A	**N/A**
2040	N/A	N/A	**N/A**

Transit Use Calculations		Year of Opening	2040 Weekday Estimate
3.	Enter estimated additional daily transit boardings after project is completed. *(Using 50% growth above year of opening for 2040 value, unless justified)* *Provide supporting documentation as part of application submittal*	N/A	N/A
4.	Enter number of the additional transit boardings (from #3 above) that were previously using a different transit route. (Example: **{#3 X 25%}** *or other percent, if justified)*	N/A	N/A
5.	Enter number of the new transit boardings (from #3 above) that were previously using other non-SOV modes (walk, bicycle, HOV, etc.) (Example: **{#3 X 25%}** *or other percent, if justified)*	N/A	N/A
6.	= Number of SOV one-way trips reduced per day (#3 – #4 – #5)	**N/A**	**N/A**
7.	Enter the value of **{#6 x 9 miles}**. (= **the VMT reduced per day**) *(Values other than the default 9 miles must be justified by sponsor; e.g., 15 miles for regional service or 6 miles for local service)*	N/A	N/A
8.	= Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	**N/A**	**N/A**
9.	If values would be distinctly greater for weekends, describe the magnitude of difference:		
10.	If different values other than the suggested are used, please explain here:		

B. Bicycle Use

1.	Current weekday bicyclists	**120** (averaged from four locations along SH 119 at 55th St, SH 52, 83rd St, and Airport Rd)
2.	Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	25,815	27,048	**52,863**
2040	29,915	35,186	**65,101**

Bicycle Use Calculations	Year of Opening	2040 Weekday Estimate
3. Enter estimated additional weekday one-way bicycle trips on the facility after project is completed.	300	450
4. Enter number of the bicycle trips (in #3 above) that will be diverting from a different bicycling route. (Example: **{#3 X 50%}** *or other percent, if justified)* **25% used**	75	113
5. = Initial number of new bicycle trips from project (#3 – #4)	225	337
6. Enter number of the new trips produced (from #5 above) that are replacing an SOV trip. (Example: **{#5 X 30%}** *(or other percent, if justified) 90% used*	203	303
7. = Number of SOV trips reduced per day (#5 - #6)	203	303
8. Enter the value of **{#7 x 12 miles}**. (= the VMT reduced per day) *(Values other than 2 miles must be justified by sponsor)*	2,436	3,636
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	2,314	3,454

10. If values would be distinctly greater for weekends, describe the magnitude of difference:

Based on trail count data from the Longmont-to-Boulder Trail (soft surface) and the US 36 Bikeway (hard surface), it is anticipated that bike volumes on the weekends will be 10-40% higher than on weekdays.

11. If different values other than the suggested are used, please explain here:

Estimate for 300 additional weekday one-way bicycle trips was derived from reviewing existing bicycle counts on the SH 119 shoulders, the Longmont-to-Boulder (soft-surface) trail, Boulder County roads intersecting SH 119, and the US 36 Bikeway.

A 25% diversion rate was used after reviewing trail counts from the Longmont-to-Boulder trail occurring in the AM and PM peak periods.

It is anticipated that 90% of the new trips are replacing SOV trips. Bicycling and transit are usually mutually reinforcing; it is not anticipated that the SH 119 Bikeway will divert many trips from other non-SOV modes.

This is a long distance, regional bike facility with trip distances between 8 and 16 miles. It was assumed an average distance of 12 miles per trip.

C. Pedestrian Use

1. Current weekday pedestrians (include users of all non-pedaled devices)	No data available. Assumed to be near 0

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	25,815	27,048	**52,863**
2040	29,915	35,186	**65,101**

Pedestrian Use Calculations	Year of Opening	2040 Weekday Estimate
3. Enter estimated additional weekday pedestrian one-way trips on the facility after project is completed	35	53

4. Enter number of the new pedestrian trips (in #3 above) that will be diverting from a different walking route (Example: **{#3 X 50%}** *or other percent, if justified)*	8	13
5. = Number of new trips from project (#3 – #4)	27	40
6. Enter number of the new trips produced (from #5 above) that are replacing an SOV trip. (Example: **{#5 X 30%}** *or other percent, if justified)*	8	13
7. = Number of SOV trips reduced per day (#5 - #6)	8	13
12. Enter the value of **{#7 x .4 miles}**. (**= the VMT reduced per day**) *(Values other than .4 miles must be justified by sponsor)*	3.2	5.2
8. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	3	5

9. If values would be distinctly greater for weekends, describe the magnitude of difference:

It is assumed pedestrian volumes would be higher on weekends, but unlikely that these trips (mostly people "going for a walk") would be replacing SOV trips.

10. If different values other than the suggested are used, please explain here:
Pedestrian volumes in #3 are based on pedestrian count data from the US 36 Bikeway, another regional multi-use path that has similar characteristics to the SH 119 bikeway project.

Given the distance from the SH 119 Bikeway to other pedestrian routes, it is expected that the bikeway will not divert many walking trips from other routes. Thus, a 25% diversion rate was used for #4.

D. Vulnerable Populations

	Vulnerable Populations	Population within 1 mile
Use Current Census Data	**1.** Persons over age 65	2,601
	2. Minority persons	3,914
	3. Low-Income households	1,001
	4. Linguistically-challenged persons	282
	5. Individuals with disabilities	956
	6. Households without a motor vehicle	595
	7. Children ages 6-17	3,495
	8. Health service facilities served by project	21

E. Travel Delay *(Operational and Congestion Reduction)*

Sponsor must use industry standard Highway Capacity Manual (HCM) based software programs and procedures as a basis to calculate estimated weekday travel delay benefits. *DRCOG staff may be able to use the Regional Travel Model to develop estimates for certain types of large-scale projects.*

1. Current AADB (average daily traffic bicyclists) on applicable segments	120

2.	2040 AADB estimate	450
3.	Current weekday bicycle hours of delay (BHD) (before project)	4

Travel Delay Calculations		Year of Opening
4.	Enter calculated future weekday BHD (after project)	0
5.	Enter value of **{#3 - #4} =** Reduced BHD	4
6.	Enter value of **{#5 X 1.4}** = **Reduced person hours of delay** *(Value higher than 1.4 due to high transit ridership must be justified by sponsor)* Used 1.0: each bicycle has one rider.	4
7.	**After project peak hour congested average travel time reduction** per vehicle (includes persons, transit passengers, freight, and service equipment carried by vehicles). *If applicable, denote unique travel time reduction for certain types of vehicles*	**2 minutes** if comparing to SH 119 shoulders, **20 minutes** if comparing to existing soft-surface routes

8. If values would be distinctly different for weekend days or special events, describe the magnitude of difference.

Based on trail count data from the Longmont-to-Boulder Trail (soft surface) and the US 36 Bikeway (hard surface), it is anticipated that bike volumes, and thus travel delay on the weekends will be 10-40% higher than on weekdays.

9. If different values other than the suggested are used, please explain here:
As this is a bicycle project, we used bicycle hours of delay, which currently come exclusively from the four traffic signals along the SH 119 corridor: Jay Rd, 63rd St, SH 52 and Niwot Rd.

F. Traffic Crash Reduction

1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians *(most recent **5-year** period of data)*

In this table we are only showing bicycle (b) and pedestrian (p) crashes, as the project will only address these crashes. The most recently available 5-year period is **2011-2015**.

As the majority of bicycle and pedestrian crashes are at intersections along the SH 119 corridor where underpasses are proposed as part of this project, and the remainder of crashes are "mid-block" that will virtually be eliminated by separating the bikeway from the roadway, the project will reduce crashes by two-thirds.

Fatal crashes	0 b, 0 p
Serious Injury crashes	3 b, 0 p
Other Injury crashes	10 b, 1 p
Property Damage Only crashes	N/A

2. Estimated reduction in crashes applicable to the project scope
(per the five-year period used above)

Fatal crashes reduced	0 b, 0 p
Serious Injury crashes reduced	2 b, 0 p
Other Injury crashes reduced	7 b, 1 p

Sponsor must use industry accepted crash reduction factors (CRF) or accident modification factor (AMF) practices *(e.g., NCHRP Project 17-25, NCHRP Report 617, or DiExSys methodology).*

Property Damage Only crashes reduced	N/A	

G. Facility Condition

Sponsor must use a current industry-accepted pavement condition method or system and calculate the average condition across all sections of pavement being replaced or modified.
Applicants will rate as: Excellent, Good, Fair, or Poor

Roadway Pavement

1. Current roadway pavement condition	N/A
2. Describe current pavement issues and how the project will address them.	
3. Average Daily User Volume	N/A

Bicycle/Pedestrian/Other Facility

4. Current bicycle/pedestrian/other facility condition	Poor

5. Describe current condition issues and how the project will address them.

Currently the SH 119 bikeway alignment has no pavement and routes users through tall grasses, unimproved topography and over ditches, creeks and wetlands without bridges. This project will address these issues by providing an excellent regional multimodal bicycle and pedestrian facility.

Current "poor" pavement condition of the SH 119 Bikeway. Source: Google Streetview

6. Average Daily User Volume	120 today, 450 in 2040 with this project

H. Bridge Improvements

1. Current bridge structural condition from CDOT

2. Describe current condition issues and how the project will address them.

3. Other functional obsolescence issues to be addressed by project	
4. Average Daily User Volume over bridge	

I. Other Beneficial Variables *(identified and calculated by the sponsor)*

1.	
2.	
3.	

J. Disbenefits or Negative Impacts *(identified and calculated by the sponsor)*

1. Increase in VMT? *If yes, describe scale of expected increase*	☐ Yes ☒ No
2. Negative impact on vulnerable populations	
3. Other:	

COLORADO
Department of Transportation
Region 4

Regional Director's Office
10601 W. 10th Street
Greeley, CO 80634-9000

February 7, 2019

Scott McCarey
Boulder County
PO Box 471
Boulder, CO

100% SH 119 Bikeway Design: Phase 1

Dear Mr. McCarey,

RE: CDOT Region 4 Support Request for DRCOG TIP Sub-Regional Call FY20-23

This letter is to inform you that the Colorado Department of Transportation (CDOT) Region 4 staff concurs with the following Boulder County application for the DRCOG Sub-Regional FY20-23 TIP Call. This applies only to the 100% SH 119 Bikeway Design: Phase 1 project, in the event it is selected by DRCOG as a sub-regional project around Summer 2019. If this project is awarded DRCOG funds at a later date, the Local Agency (LA) will need to re-affirm CDOT's concurrence at that time.

This concurrence is conditionally granted, based on the scope as described. CDOT does, however, retain final decision-making authority for all improvements and changes within CDOT's right of way. As the project progresses, the LA will need to work closely with CDOT Region staff to ensure CDOT's continued concurrence.

This project must comply with all CDOT and/or FHWA requirements, including those associated with clearance for right of way, utilities and environmental. All costs associated with clearances, including right of way acquisition, utilities relocation and environmental mitigation measures, such as wetland creation, must be included in the project costs. CDOT staff will assist in determining which clearances are required for your project. The *CDOT Local Agency Manual* includes project requirements to assist with contracting, design and construction, *accessed* at: **http://www.coloradodot.info/business/designsupport/bulletins_manuals.**

Should you have any questions regarding this concurrence, or if your agency would like to schedule time to meet with a member of the CDOT Specialty Unit, please contact Karen Schneiders at (970) 350-2172.

Sincerely,

Johnny Olson, P.E.
Region 4 Transportation Director

JWO:KAS:mbc
cc: Todd Cottrell, DRCOG
Long Nguyen
Katrina Kloberdanz
Kateyn Triggs
Karen Schneiders