# Part 1 Base Information

| | |
|---|---|
| **1.** Project Title | **SH 119 Bus Rapid Transit Enhancements with Passage of Prop 110** |
| **2.** Project *Start/End* points or Geographic Area<br>*Provide a map with submittal, as appropriate* | Start: 9th/Coffman, Longmont<br>Via: SH 119<br>End: 28th and Pearl, Boulder |
| **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<br>Multimodal Division Manager<br>720-564-2665<br>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<br>*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): | Northwest Area Mobility Study, adopted June 24, 2014.<br>CDOT's Statewide Priority Project List (2018)<br>SH 119 BRT Study, in progress. |

*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?

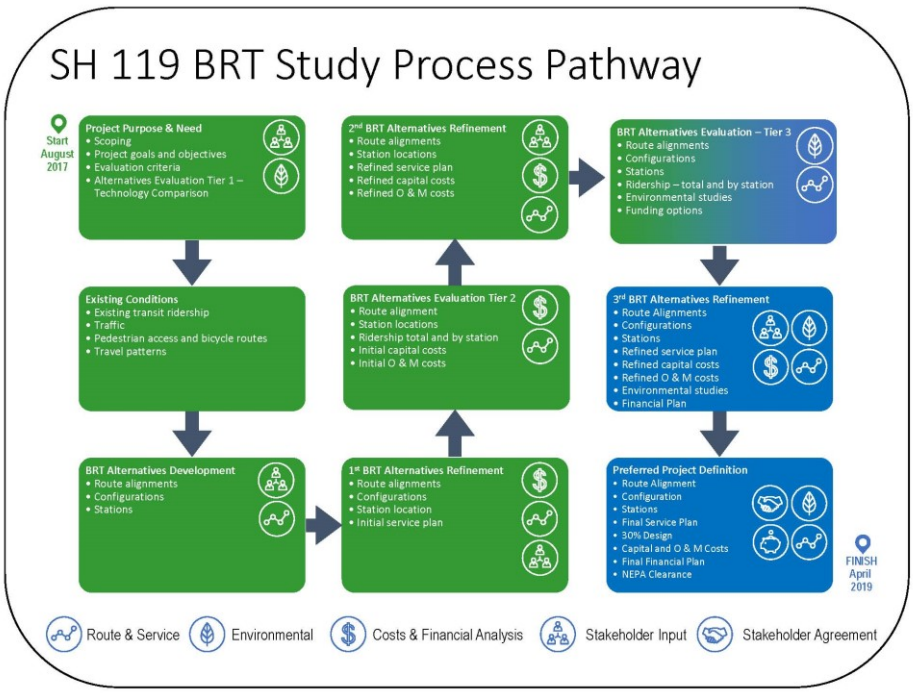
State Highway 119 between Longmont and Boulder is the second most travelled corridor in Boulder County serving residents, employees and visitors from all across the North Front Range. Travelers using the SH119 corridor today face extreme traffic congestion, particularly during peak commute hours. Recent analysis shows that each day vehicles stack up for more than a mile as they approach the most congested intersection, SH 52. (*Source: Apex*

*Designs RTD SH119 BRT Corridor Study – Traffic Existing Conditions)*. Using DRCOG's 2040 land use projections, modeling performed within RTD's SH 119 BRT Study estimated that traffic volumes in the corridor will increase 25% by 2040. Unaddressed this additional travel demand will resulting in stifling congestion with major negative economic, social and environmental ramifications.

Improved mobility is needed to support regional economic vitality, access to jobs and education, achieve social equity goals of affordable living (considering transportation and housing costs) and serve vulnerable users, reduce air pollution to improve public health, and strive to achieve regional environmental stewardship goals. The purpose of this SH 119 Bus Rapid Transit (BRT) Enhancements project is to optimize regional mobility between Longmont and Boulder by providing multimodal improvements that result in faster and more reliable transit travel. In accordance with the Northwest Area Mobility Study (RTD, 2014) these multimodal improvements include implementation of BRT capital enhancements between and within Boulder and Longmont.

Capital improvements for this corridor have been extensively studied. This project is featured in the principle planning documents for the City of Longmont, City of Boulder, Boulder County, RTD, CDOT and DRCOG. The documents, referenced page numbers, and document links are:
- Longmont Enhanced Multi-use Corridor Plan, Appendix H and page 121 of the principle document: https://www.longmontcolorado.gov/departments/departments-n-z/planning-and-development-services/transportation-planning/enhance-multi-use-corridor-plan
- Boulder County Transportation Master Plan, Pages 6, 14-17, https://assets.bouldercounty.org/wp-content/uploads/2017/03/transportation-master-plan.pdf
-City of Boulder Transportation Master Plan, Pages 54, 59,67 https://www-static.bouldercolorado.gov/docs/transportation-master-plan-tmp-2014-1-201408271459.pdf?_ga=2.99314078.1226892162.1537462860-566105078.1481666580
-Northwest Area Mobility Study, Pages 38-40
https://www.dropbox.com/s/1uj1mt3z1h80ya4/Final%20Report%20508%5B1%5D.pdf?dl=0
-DRCOG 2040 Fiscally Constrained Regional Transportation Plan (2040 FCRTP), page 91,
https://drcog.org/sites/default/files/resources/ACTION DRAFT-2040 MVRTP-RTC and Board 2018.pdf
-CDOT Statewide Priority Project List https://www.codot.gov/programs/colorado-transportation-matters/together-we-go
-RTD SH 119 BRT Study, http://www.rtd-denver.com/hwy119.shtml

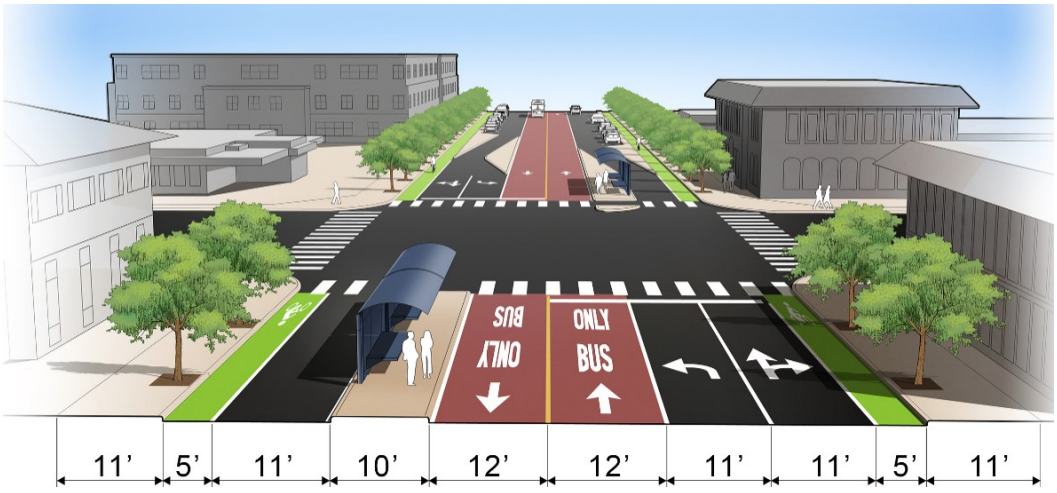
The flow chart on the right shows the elements of the RTD SH 119 BRT Study. The project began in August 2017 and will be completed in April 2019. The project is currently in the Tier 3 Alternatives Evaluation.
*Source: Parsons*



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

There are three components of this project.

**Component 1: Coffman Street Busway (CSB)**
This component will design and construct a dedicated, center-lane busway on Coffman Street between 1st and 9th Avenues in downtown Longmont. The Coffman Street Busway (CSB) conceptual designs and cost estimates were developed in the Longmont Enhanced Multi-use Corridor Plan, which was adopted by Longmont City Council in March 2018. The CSB is an operational improvement providing regional and local transit travel time savings as a result of transit vehicles bypassing all general traffic queues.




*Source: Longmont Enhanced Multi-use Corridor Plan, 2018*

Planning level cost estimates for this component of the project was developed by Kimley Horn in 2018 dollars.

Kimley»Horn

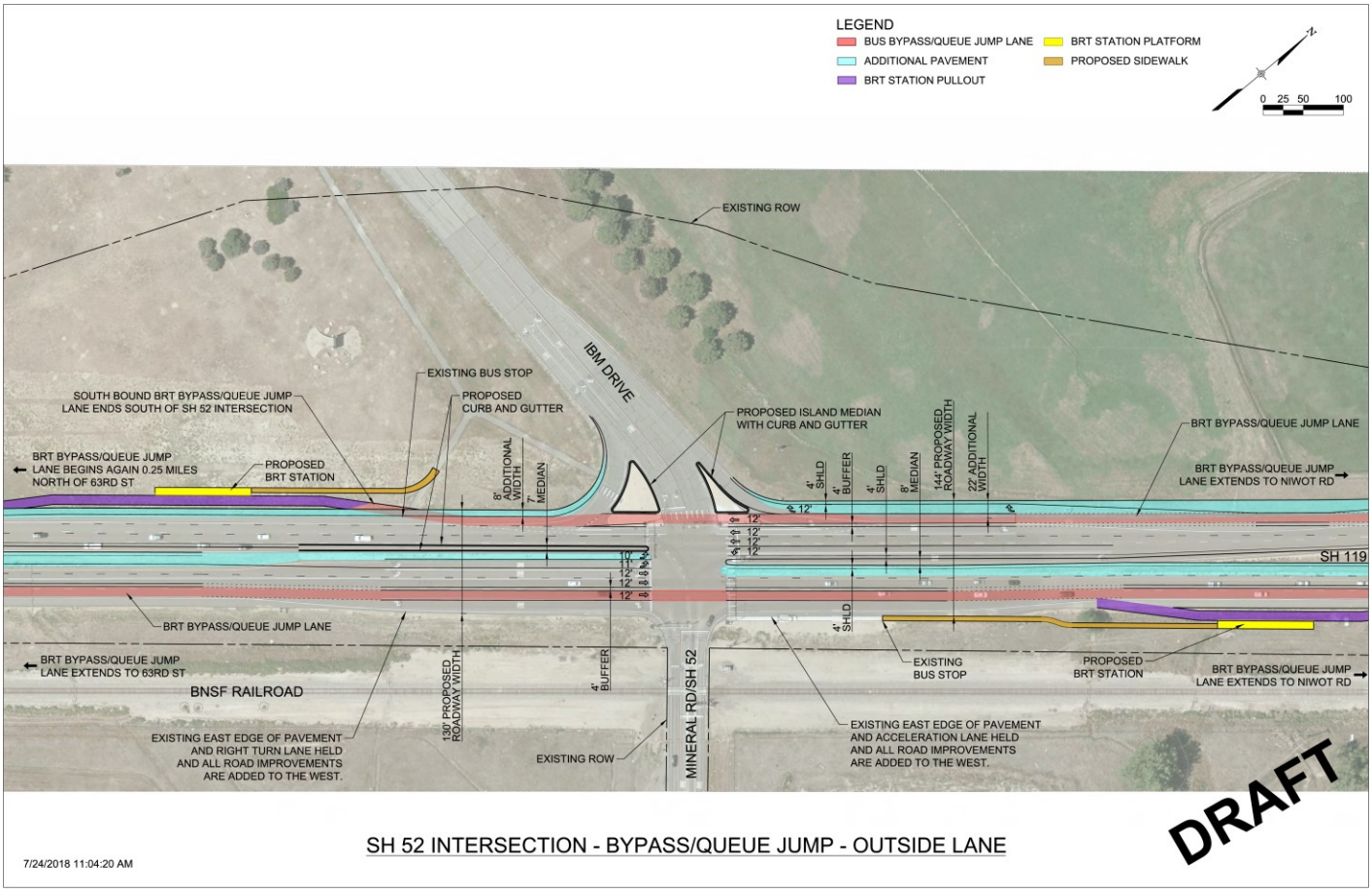
City of Longmont Coffman Street Conceptual Public Infrastructure Opinion of Probable Cost Opinion

| Coffman Avenue Improvements Cost Opinion Summary | |
|---|---|
| Section | |
| 2nd Ave to 3rd Ave | $780,000 |
| 3rd Ave to 4th Ave | $1,070,000 |
| 4th Ave to 5th Ave | $1,030,000 |
| 5th Ave to 6th Ave | $1,030,000 |
| 6th Ave to Longs Peak Ave | $630,000 |
| Longs Peak Ave to 8th Ave | $1,330,000 |
| 8th Ave to 9th Ave | $410,000 |
| Total Cost of Project: | $6,280,000 |

*Source: Longmont Enhanced Multi-use Corridor Plan, March 2018.*

**Component 2: SH 52 Transit Bypass Lanes**

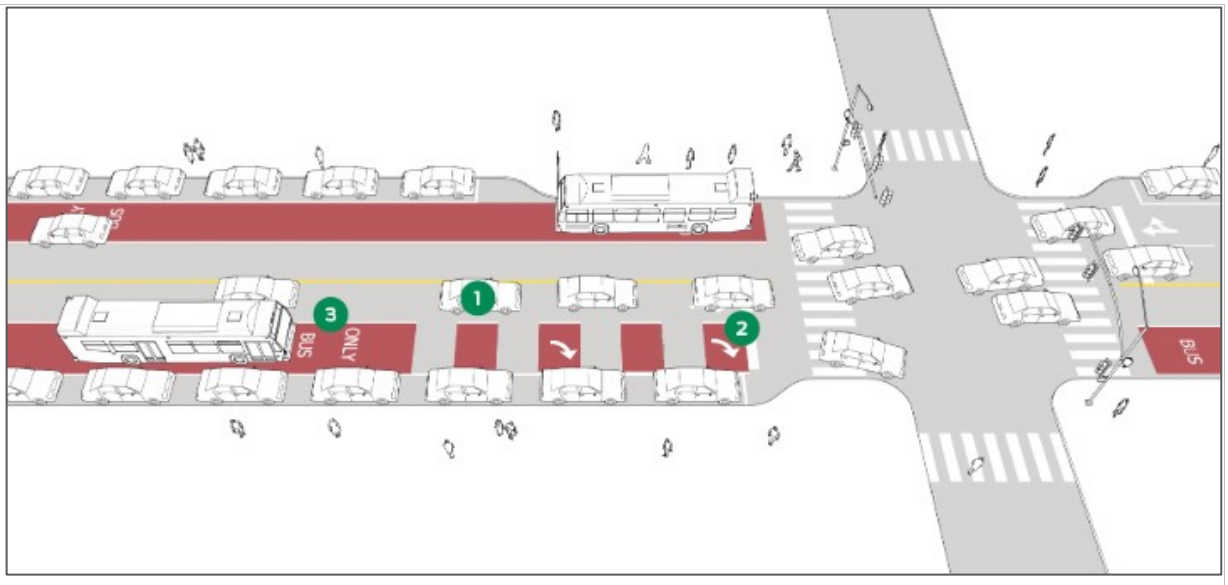
This component will design and construct transit bypass lanes on SH 119 at the north and southbound approaches of the SH 52 intersection. There is significant AM and PM peak period congestion at this intersection with daily queues exceeding a mile in length in each direction. The transit bypass lanes are essentially extended intersection queue jump lanes providing transit vehicles dedicated transit only lanes to pass these daily queues. While the primary benefit is for transit riders, auto travel also benefits from moving transit vehicles out of the general purpose lanes. Conceptual designs and cost estimates have been developed in RTD's SH 119 BRT Study and used in the cost estimates for this project.




*Source: Parsons*

**Component 3: 28th Street BAT Lanes**

This component will construct Business Access Transit (BAT) Lanes in the City of Boulder on 28th Street between Iris and Valmont. Located in the outside lanes, the BAT lanes will be designated for transit and right turning vehicles. Similar to the Coffman Street Busway, this is an operational improvement that will provide travel time and reliability benefits to regional and local transit vehicles by allowing them to bypass queuing in the general traffic lanes. Based on the city's analysis for a similar arterial corridor in Boulder, the traffic analysis shows that the BAT lanes will reduce transit travel time by approximately 5%, while maintaining auto travel times even with the projected growth in background traffic. The anticipated These BAT lanes also provide an opportunity to serve new, emerging transportation technologies such as shared/electric multiple occupant vehicles, micro transit, and connected/autonomous vehicles as they become more prevalent over time.




*Source: National Association of City Transportation Officials*

3 In road segments where there are no driveways or intersections the BAT lanes function as a transit-only lane.

2 Approaching the driveways or intersections – where right turning vehicles can be expected – the BAT lanes function as a transit only/ right turn lane.

1 Transit vehicles are able to bypass vehicle queueing that occurs in the other travel lanes.

In addition to the BAT lanes, this component also has the following multimodal elements:

- Raised and landscaped medians near major intersections
- Transit stops to facilitate regional/local high-frequency service
- Multi-use paths on both sides of street to provide safe, ADA accessible connections to transit
- Raised pedestrian crossings at intersection right turn lanes
- Mid-block pedestrian crossings coupled with bus stops (depicted below)

*Source: City of Boulder*

**Project Scope Summary**

| Component | Description | Year | Cost |
|---|---|---|---|
| Coffman Street Busway | Eight blocks of Dedicated Center Running Transit Lanes | 2020 | $6,900,000 |
| SH 52 Transit Bypass Lanes | One mile of SH 119 NB & SB Dedicated Transit Bypass Lanes | 2023 | $8,400,000 |
| 28th Street BAT Lanes | 3,000 feet of Outside Running Right Turn/ Transit Only Lanes | 2020 | $5,700,000 |
| **TOTAL** | | | **$21,000,000** |

**10.** What is the status of the proposed project?

**Component 1: Coffman Street Busway**

Conceptual designs and a right of way analysis were completed as part of the Longmont Enhanced Multi-use Corridor Plan. This work has confirmed that the project is entirely within the existing City of Longmont right of way. This work has also demonstrated that the project can be completed with the funding amount requested. The City of Longmont's local match of $150,000 is budgeted for calendar year 2020 and the City will ensure that there is sufficient staff to adequately complete the project in the year in which it is funded.

**Summary**: Ready to go in 2020.

**Component 2: SH 52 Transit Bypass Lanes**

The RTD SH 119 Bus Rapid Transit study will complete the designs for the transit bypass lanes by Q2 of 2019. While this project has the ability to be constructed in calendar year 2020, the other intersection improvements along the trunk line will not be constructed until 2023 when the $30 Million in local funds from RTD are budgeted. There may be substantial economies of scale by securing a contractor for this section together with the other sections of the SH 119 BRT project. In addition to economies of scale, a joint project would also likely result in the least disruption to the traveling public.

**Summary**: Ready to go in 2023

**Component 3: 28th Street BAT Lanes**

At the time of this application the 28th Street BAT lanes are in the design process in collaboration with RTD's SH 119 BRT corridor planning process. The goal is to complete design in early 2019 so that the project can proceed in coordination with the DRCOG TIP funding and overall project coordination with city, county, RTD, and CDOT. The City of Boulder's local match of $1,000,000 is currently budgeted and available for this project.

**Summary**: Ready to go in 2020

**11.** Would a smaller federal funding amount than requested be acceptable, while maintaining the original intent of the project? ☒ Yes ☐ No

Each of the three project components has independent utility and can be designed and constructed with or without the other components. The project benefits – transit travel time savings and increased travel time reliability leading to increased transit ridership – scale independently for each component. The three components can also be constructed in different years, allowing for flexibility on timing of available funding.

That said, partial funding for any one of the three components would not lead to the most cost-effective project implementation. If the DRCOG Board were to award a lesser dollar amount to one of the components, other state or local funding would need to be secured to ensure a whole project.

The project team also recognizes the phasing opportunities that would be possible if the Let's Go Colorado ballot initiative (110) is approved by the voters in November 2018. If this new state funding is approved, then these three project elements can be incorporated in to the larger, multimodal corridor project.

## A. Project Financial Information and Funding Request

| | | |
|---|---|---|
| **1. Total Project Cost** | | **$350,000,000** |
| **2. Total amount of DRCOG Regional Share Funding Request** *(no greater than **$20 million** and not to exceed **50% of the total project cost**)* | **$8,150,000** | **2.3%** of total project cost |
| **3. Outside Funding Partners** ***(other than DRCOG Regional Share funds)*** List each funding partner and contribution amount. | **$$ Contribution Amount** | **% of Contribution to Overall Total Project Cost** |
| Boulder County Subregion | $5,000,000 | 1.43% |
| RTD | $5,000,000 | 1.43% |
| CDOT Regional Priority Project Funds | $1,700,000 | 0.5% |
| City of Boulder | $1,000,000 | 0.3% |
| City of Longmont | $150,000 | 0.04% |
| **Total amount of funding provided by other funding partners** *(private, local, state, Subregion, or federal)* | **$12,850,000** | |

**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 (Regional)** | $600,000 | $4,560,000 | $0 | $2,990,000 | **$8,150,000** |
| **Federal Funds (Subregional)** | $0 | $140,000 | $0 | $4,860,000 | **$5,000,000** |
| **State Funds** | $0 | $0 | $0 | $330,700,000 | **$330,700,000** |
| **Local Funds** | $150,000 | $1,000,000 | $0 | $5,000,000 | **$6,150,000** |
| **Total Funding** | $750,000 | $5,700,000 | $0 | $343,550,000 | **$350,000,000** |
| **4. Phase to be Initiated** *Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other* | Design- Coffman Street Busway | CON- 28th Street BAT Lanes | | CON- SH 119 BRT | |

**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. ☒

**Budget Breakdown of the three project components**

## Component 1: Coffman Street Busway

| Item | | | Cost |
|---|---|---|---|
| 2nd to 3rd Avenue | | $ | 780,000 |
| 3rd to 4th Avenue | | $ | 1,070,000 |
| 4th to 5th Avenue | | $ | 1,030,000 |
| 5th to 6th Avenue | | $ | 1,030,000 |
| 6th to Longs Peak Avenue | | $ | 630,000 |
| Longs Peak Avenue to 8th Avenue | | $ | 1,330,000 |
| 8th to 9th Avenue | | $ | 410,000 |
| **TOTAL 2018 dollars** | | **$** | **6,280,000** |
| **TOTAL 2021 dollars** | **3% per year** | **$** | **6,862,326** |

## Component 2: SH 52 Bypass Lanes

| Item | Unit | | Cost |
|---|---|---|---|
| Dedicated Median lanes | Per mile | $ | 1,500,000 |
| Drainage structure extensions/replacements | Avg. Per Mile | $ | 1,000,000 |
| Sitework (clearing/grubbing, utility relocate, landscape) | Per mile | $ | 2,500,000 |
| **SUBTOTAL** | | **$** | **5,000,000** |
| Professional Service (Survey, Traffic Control, Construction Management, Financing) | 25% | $ | 1,250,000 |
| Contingency | 20% | $ | 1,000,000 |
| **TOTAL 2018 dollars** | | **$** | **7,250,000** |
| **TOTAL 2023 dollars** | **3% per year** | **$** | **8,404,737** |

## Component 3: 28th Street BAT Lanes

| Item | | | Cost |
|---|---|---|---|
| Iris to Valmont | | | |
| **TOTAL 2018 dollars** | | **$** | **5,400,000** |
| **TOTAL 2020 dollars** | **3% per year** | **$** | **5,728,860** |

**TOTAL** **20,995,923**

# Part 2 Evaluation Criteria, Questions, and Scoring

## A. Regional significance of proposed project

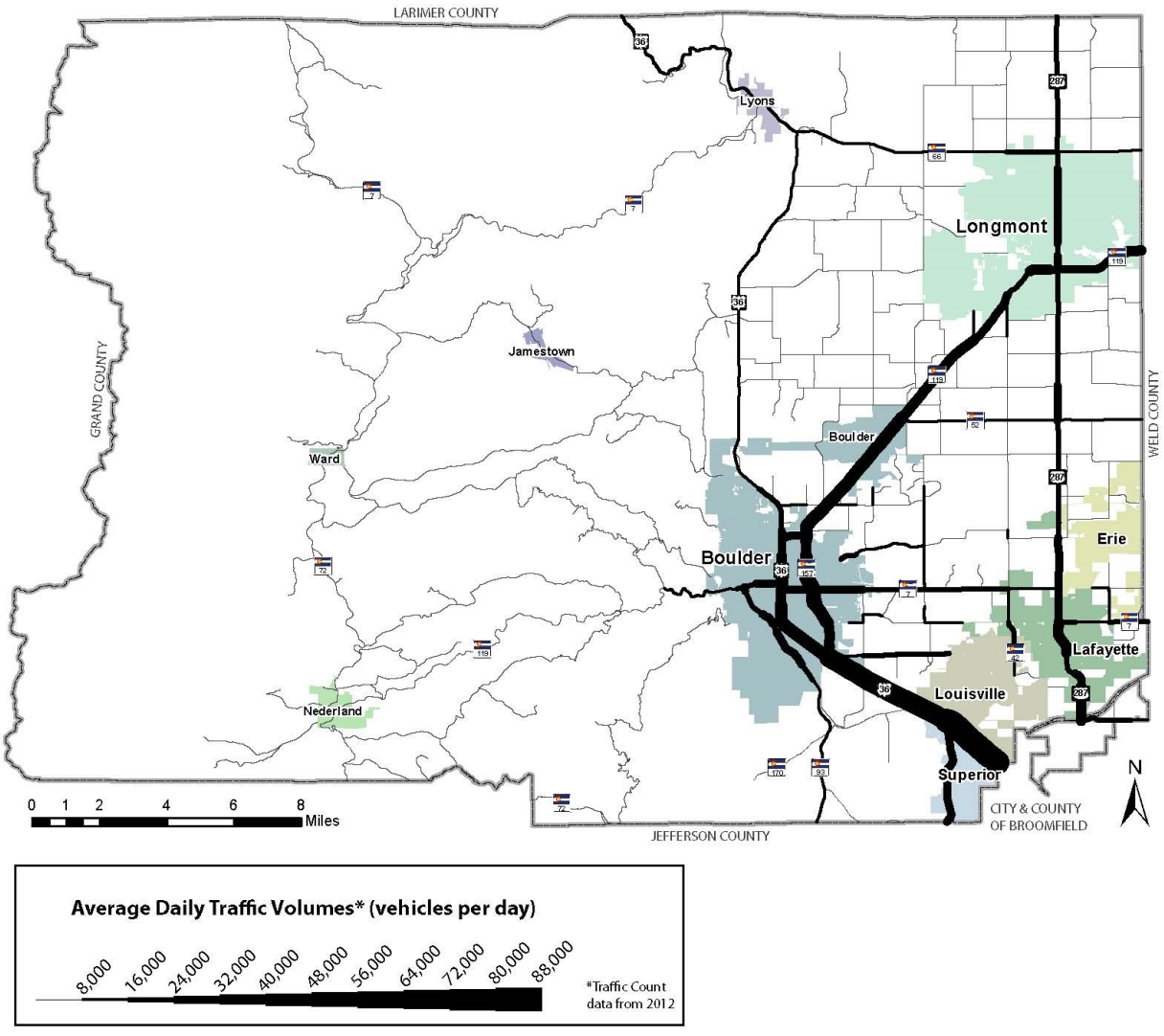
**WEIGHT** **40%**

*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?

State Highway 119 is a vital regional and inter-regional transportation corridor serving the economic health of both Boulder County and the surrounding metro areas and North Front Range. 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.

**Average Daily Traffic Volumes in Boulder County**

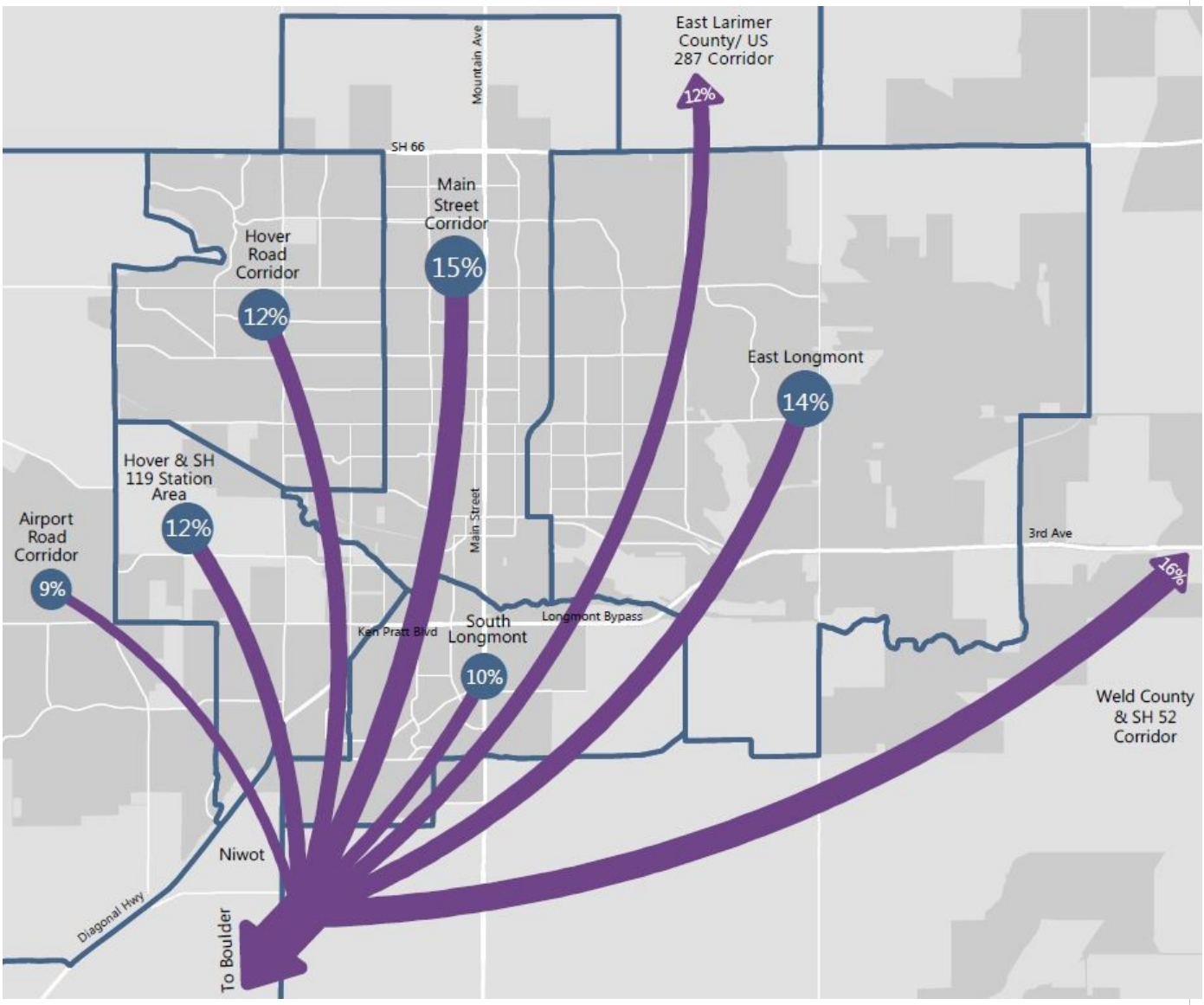



*Source: Boulder County Transportation, using CDOT and Boulder County Data*

Travel demand is forecasted to rise 15% by 2040 between Boulder and Longmont on the SH 119 corridor, which will result in increased delay and reduced travel time reliability, particularly during peak periods. The annual average daily traffic (AADT) on segments of SH 119 between Boulder and Longmont is currently 45,000 vehicles, and is expected to increase to 56,000 vehicles by 2040 *(CDOT Online Transportation Information System, Station ID 104352, 2016)*. The increased travel demand will contribute to congestion and delay for all persons when traveling between and within Boulder and Longmont including those whose trips start or end outside of Boulder County.

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

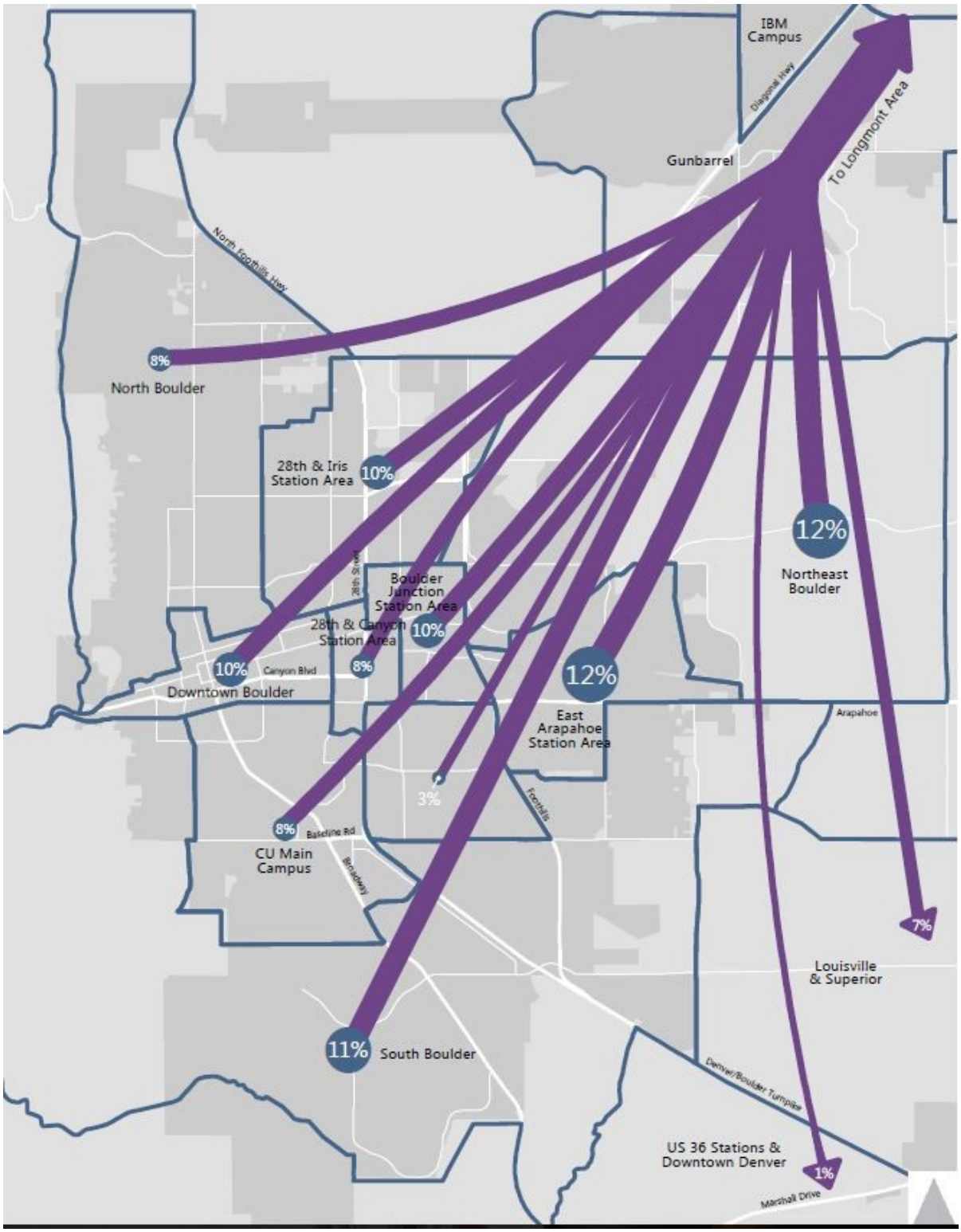
Geographically the project crosses the City of Longmont, Boulder County and the City of Boulder jurisdictions. Functionally, it provides benefit to many other jurisdictions. As part of the SH 119 BRT project, a traffic analysis was conducted using cell phone data to understand where users of SH 119 start their trips. The data shows that almost 30% of trips on the corridor start in Larimer or Weld Counties. Improvements to this corridor will have benefits to tens of thousands of people across the north Front Range, not just in Boulder County.




*Source: Fehr and Peers SH119 StreetLight Origin-Destination Analysis*

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

The project directly benefits the DRCOG Weld County subregion. Approximate 16% of the trips on SH 119 – or about 7,500 a day – start or end in Weld County. The project will also have benefits to Broomfield and Adams County subregions. The reason is that for some trip patterns between Broomfield and Longmont, it is faster to take US 36 connecting to SH 119 through Boulder than to use US 287 or I-25. The traffic analysis shows that 1% – or about 500 trips a day – start or end along the US 36 corridor toward Denver.




*Source: Fehr and Peers SH119 StreetLight Origin-Destination Analysis*

As mentioned above, the project will greatly benefit communities in the North Front Range Metropolitan Planning Organization. The FLEX route – operated by City of Fort Collins – connects Fort Collins (and Colorado State University) to Boulder (and University of Colorado) via Coffman Street in Longmont and SH 119. This inter-regional route – which was initially funded by a DRCOG grant and is now continuing with local funding – will see direct and immediate benefits of this project. The project team also recognizes the phasing opportunities that would be possible if the Let's Go Colorado ballot initiative (110) is approved by the voters in November 2018. If this new state funding is approved, then these three project elements can be incorporated in to the larger, multimodal corridor project. Based on data calculated later in this application, the FLEX route should witness a delay reduction of 26 minutes for each trip into Boulder County.

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

Implementation of BRT on SH 119 between Boulder and Longmont is not a newly proposed solution to address the increased congestion and poor travel time reliability on the corridor. This project was the highest priority of the multiyear Northwest Area Mobility Study (NAMS) which was completed and adopted by the RTD Board in June 2014. This collaborative planning study included RTD, the Colorado Department of Transportation (CDOT), the Denver Regional Council of Governments (DRCOG), and the Northwest area stakeholders including government representatives and public stakeholders from the City of Longmont, City of Boulder and Boulder County. The study determined that BRT would support and increase transit usage along SH 119, increase mobility, improve reliability, and was feasible for implementation in the near-term (5 to 10 years).

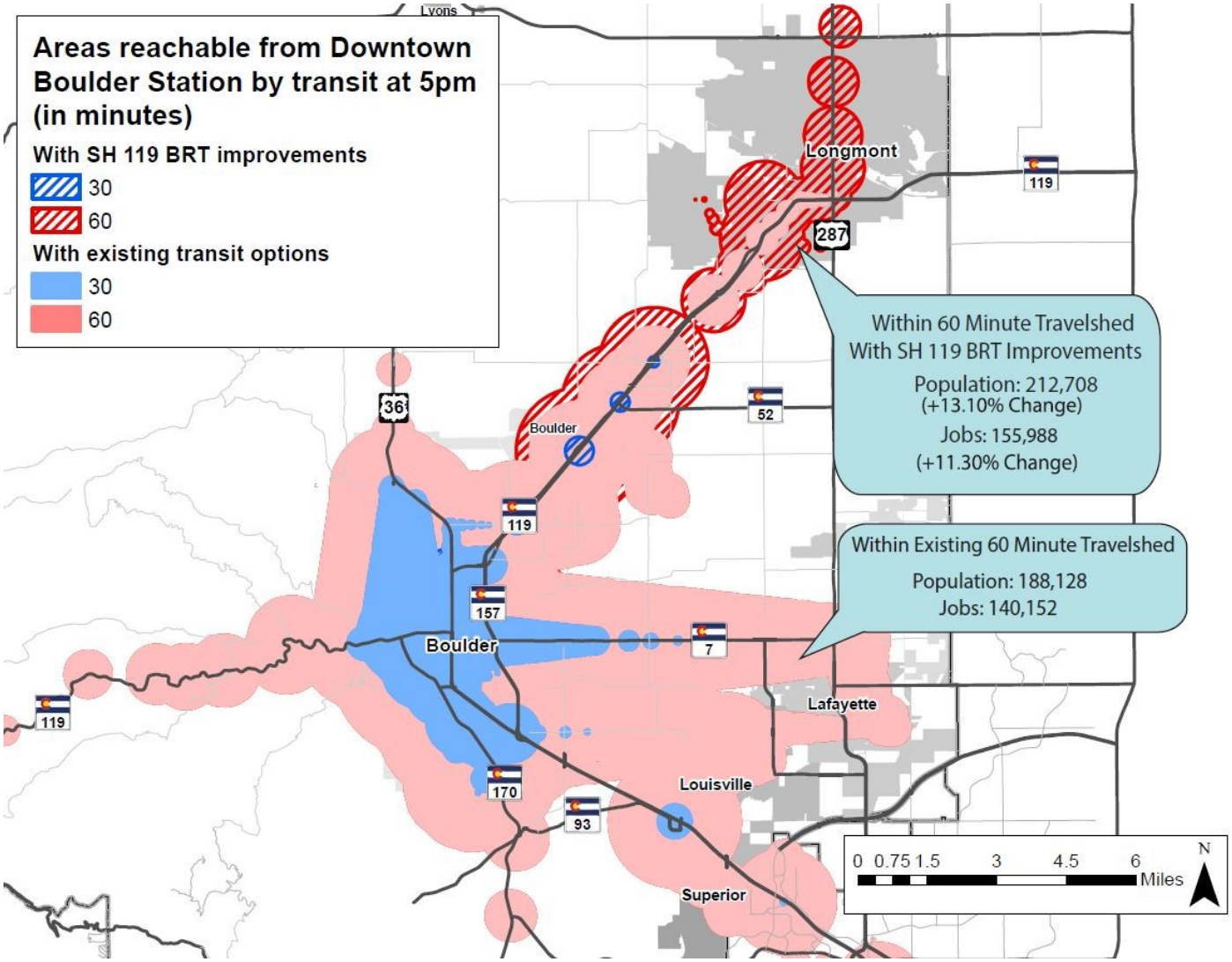
The NAMS recommendations were to implement the entire BRT corridor between and within the City of Boulder and City of Longmont as the top priority project. In addition, in 2018 CDOT added the SH 119 multimodal corridor project to the list of state-wide priority projects. Recognizing that these larger corridor projects require phased implementation over time, this application focuses on three components of the SH 119 that can be constructed now and provide short-term independent utility, while also supporting the longer-term implementation of the remaining corridor improvements. In general, the three project components – the Coffman Street Busway, the SH 52 Transit Bypass Lanes, and the 28th Street BAT Lanes – will both decrease delay at intersections and improve transit travel time reliability. Transit passengers will be unaffected by highly variable traffic congestion currently experienced on Main Street in Longmont, on SH 119 at SH 52, and along 28th Street. The quantitative benefits of these improvements are noted in the next section. In a nutshell, this project will increase the attractiveness of taking transit over a car.

A corollary benefit of this project is that it will improve the performance metrics of the transit routes using these new facilities. As ridership increases the local agencies and transit agencies (RTD and TransFort) can justify adding additional service to the route. Additional service further attracts new riders leading to a virtuous circle of transit use and the benefits of a transit rich community.

**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?

It is widely recognized that private dollars follow public investment. In its 2013 report, the Institute for Transportation Development Project found that of 21 transit corridors in North America evaluated, 14 leveraged more than $1 of TOD investment per $1 of transit investment, and five of these were BRT projects. (Source: Institute for Transportation & Development Policy, https://www.itdp.org/2013/11/13/more-development-for-your-transit-dollar-an-analysis-of-21-north-american-transit-corridors/?/moredevelopment ) Investment in these projects will increase developer confidence that SH119 is a priority corridor for local and state government entities. The completed projects will also help corridor communities negotiate with developers and advocate for the types of developments called for in the Metro Vision Plan, including Transit Oriented Development (TOD) opportunities. Dense, livable, accessible development, and Transit Oriented Designs can be pursued around planned station areas due to increased confidence that these services will be available in the future.

Reduction in transit travel times also increase the number of housing units and jobs that can be accessed in a fixed amount of time. Travel sheds for both existing conditions and after project implementation were quantified in GIS. The hatched polygons in the map below show the additional area that is reachable in 30 and 60 minute commutes from downtown Boulder. For the 60 minute commute, 13% more households and 11% more jobs can be accessed.




*Source: DRCOG 2017 Population and Employment*

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

This is a multimodal project with the core intent of improving all travel modes. Furthermore, for each component all modes are designed to integrate with each other to allow seamless connectivity between modes. Each of the three components of the project has provisions for the following modes: transit, bike, pedestrians and private vehicles as well as support future transportation trends and technologies such as Transportation Network Companies, mobility as a service/mobility on demand, micro transit, electric vehicles (public, private, and fleet vehicles) as well as future connected/autonomous vehicles.

| | Transit | Bike | Pedestrian | Vehicles |
|---|---|---|---|---|
| **Coffman Street Busway** | ✓<br>• Dedicated center-running transit lanes<br>• Enhanced bus stops | ✓<br>• MUTCD compliant bike lanes | ✓<br>• Pedestrian refuges at each intersection<br>• Improved crosswalks | ✓<br>• Vehicle separation from transit vehicles |
| **SH 52 Bypass Lanes** | ✓<br>• Dedicated transit bypass lanes<br>• Enhanced bus stops | ✓<br>• Existing bikable shoulders are retained | ✓<br>• Enhanced sidewalk connections to bus stops | ✓<br>• Vehicle separation from transit vehicles |
| **28th Street BAT Lanes** | ✓<br>• Right turn /bus only lanes<br>• Enhanced bus stops | ✓<br>• Adjacent multiuse path (both sides of the road) | ✓<br>• Adjacent multiuse path<br>• Mid-block pedestrian refuges | ✓<br>• Vehicle separation from transit vehicles |

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

This is truly a multi-agency partnership. The chart below summarizes all of the agencies involved in the project and their roles.

| | **Role** | **Support** |
|---|---|---|
| **RTD** | Manager and sponsor of the SH119 BRT Project which will determine transit service parameters;<br>Transit operator utilizing the system;<br>Funding partner | $5,000,000 |
| **TransFort** | Operator and primary funder of the FLEX Route which will utilize the system | Indirectly through service provision |
| **City of Longmont** | Project manager for the design and construction of the Coffman Street Busway;<br>Operations and maintenance of the Coffman Street Busway;<br>Funding partner for the FLEX route;<br>Participant in the SH119 BRT Project;<br>Funding partner | $150,000 |

| | | |
|---|---|---|
| **City of Boulder** | Project manager for the design and construction of 28th Street BAT Lanes;<br>Operations and maintenance of the 28th Street BAT Lanes;<br>Funding partner for the FLEX route;<br>Participant in the SH119 BRT Project;<br>Funding partner | $1,000,000 |
| **Boulder County** | Lead of the DRCOG TIP subregional process;<br>Lead of the TIP application;<br>Funding partner for the FLEX route;<br>Participant in the SH119 BRT Project | Staff time |
| **CDOT R4** | Trunk line of the BRT is on CDOT facility;<br>Participant in the SH119 BRT Project;<br>Funding partner | $1,700,000 |
| **CDOT Division of Transit and Rail** | Participant in the SH119 BRT Project;<br>Funding partner for the FLEX route | Indirectly through service provision |
| **CU Boulder** | Participant in the SH119 BRT Project;<br>Possible funding partner for the FLEX route | Indirectly through service provision |
| **DRCOG** | Participant in the SH119 BRT Project | Possible Funder! |

## 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).**

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 the most vulnerable populations – older adults, low-income families, and people with disabilities. Vulnerable populations are much more likely to depend on transit due to the high cost of owning and operating a personal vehicle as well as medical conditions, which prevent them from driving. If funded, this project will support older adults and people with disabilities to live independently and put a low-income household on the path to self-sufficiency.

Transportation is a linchpin service that connects people to all other aspects of their life: healthcare, education, employment, and human services. The 2015 Boulder County Mobility for All Needs Assessment, conducted by BBC Research, found that 19% of Boulder County's population was age 60 and over and 8.1% had disabilities. Boulder County is aging faster than other areas of Colorado and forecasts suggest that the population age 60 and over will account for approximately 26% of Boulder County's population by 2040. Improved transit service in the county will ensure our rapidly-aging population can age in place while still maintaining their quality of life and access to essential health and human services.

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, dependable transit between Longmont and Boulder will help provide relief from our county's high cost of living, freeing up money for other essential household expenses.

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.**

There is a high level of queueing at intersections along the project corridor. This has recently been quantified through a VISSIMs analysis developed by Apex Designs for the SH 119 BRT Study. Using the most recent traffic data and turning movement counts, ten VISSIM micro-simulations models were developed and found that not only was there significant queuing, the queue lengths were highly variable. This variability decreases the reliability of taking transit.

Each component of this project directly addresses these issues by allowing transit vehicles to bypass vehicle queues every time they approach these intersections. This greatly increases transit reliability making this a more attractive mode.

**Component 1: Coffman Street Busway**

In today's traffic conditions, the Coffman Street Busway component will save several minutes of delay on each trip. The chart below shows the *median* bus delay experienced at each busway segment over a period of four months, January 2017 through May 2017. Half of the trips experienced more delay than this and half experienced less.

**Median Bus Delay in AM & PM Peak Periods (in seconds)**

| | AM Peak Period (6-9am) | | PM Peak Period (3-6pm) | |
|---|---|---|---|---|
| **Busway Segment** | Northbound | Southbound | Northbound | Southbound |
| 1st Ave - 3rd Ave | 11 | 4 | 19 | 12 |
| 3rd Ave - 6th Ave | 5 | 15 | 11 | 24 |
| 6th Ave - 8th Ave | 25 | 10 | 41 | 23 |
| 8th Ave - 11th Ave | 48 | 15 | 60 | 24 |
| **Total** | **89** | **44** | **131** | **83** |

*Source: Apex Designs RTD SH119 BRT Corridor Study – Traffic Existing Conditions*

These median values were deemed reasonable to estimate the *expected* delay for each bus trip. Note that in addition to the expected delay reduction, the Coffman Street Busway project also eliminates the *variability* in delay. While this data was not available for the Longmont component, it was available and used for the SH 52 Transit Bypass Lanes and 28th Street BAT lanes components.

**Component 2: SH 52 Transit Bypass Lanes**

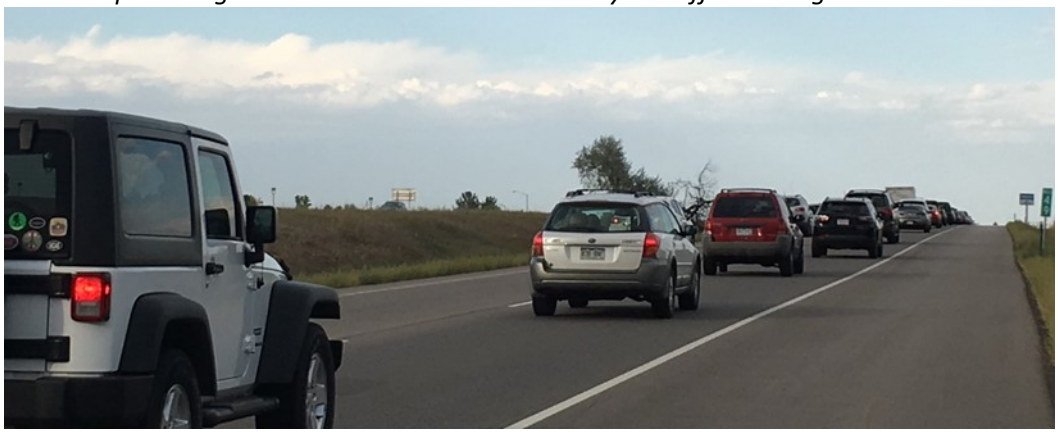
As anyone who has traveled on SH 119 through the SH52 intersection knows qualitatively how congested it is and the VISSIM analysis has now quantified this. Every day there is an AM southbound queue of at least 5,800 feet and a PM northbound queue of almost 5,200 feet. That means that this project – if funded – will allow existing and future transit vehicles to avoid almost a mile of congestion.

| | Southbound: Weekday AM Peak-Hour | | | | | Northbound: Weekday PM Peak-Hour | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Intersection | Level of Service | Average Delay (sec.) | Average Queue Length (ft.) | Maximum Queue Length (ft.) | Queue Variability (Max queue/ avg queue) | Level of Service | Average Delay (sec.) | Average Queue Length (ft.) | Maximum Queue Length (ft.) | Queue Variability (Max queue/ avg queue) |
| Hover St | D | 44 | 142 | 533 | 4x | D | 39 | 45 | 385 | 9x |
| Airport Rd | A | 8 | 23 | 655 | 28x | A | 6 | 8 | 316 | 40x |
| Niwot Rd | D | 41 | 413 | 3,578 | 9x | A | 5 | 8 | 572 | 72x |
| SH 52 | F | 109 | 2,533 | 5,854 | 2x | F | 116 | 2,426 | 5,182 | 2x |
| 63rd St | C | 30 | 13 | 203 | 16x | B | 16 | 14 | 198 | 14x |
| Jay Rd | C | 25 | 23 | 238 | 10x | B | 15 | 38 | 372 | 10x |
| **Total** | | **257** | **3,147** | **11,061** | | | **197** | **2,539** | **7,025** | |

Total Max Queue Length is **4x** the Total Average Queue Length

Total Max Queue Length is **3x** the Total Average Queue Length

*Source: Apex Designs RTD SH119 BRT Corridor Study – Traffic Existing Conditions*



*SH 119*

**Component 3: 28th Street BAT Lanes at Walnut**

This same VISSIM analysis also found that the vehicle queue lengths on 28th Street – while not as long as on SH119 at SH52 – are highly variable. In the peak hours there is a 6 to 17 times difference in the average queue length from the maximum queue length.

| | Maximum Queue Length (Feet) | Average Queue Length (Feet) | Variability |
|---|---|---|---|
| Northbound Through PM | 410 | 64 | 6x |
| Southbound Through PM | 238 | 38 | 6x |
| Northbound Through AM | 359 | 21 | 17x |
| Southbound Through AM | 247 | 24 | 10x |
| **After Project** | **0** | **0** | **0** |

*Source: Apex Designs RTD SH119 BRT Corridor Study – Traffic Existing Conditions*

All of the quantitative data shown above is for existing traffic conditions. While we know from the SH 119 BRT modeling that traffic volumes in the corridor will increase by 25% by 2040, modeling has not been completed to calculate the resulting increase delay. Regardless of increases in future traffic conditions this is true: after these components have been implemented, the transit delay and transit travel time variability will remain at zero.

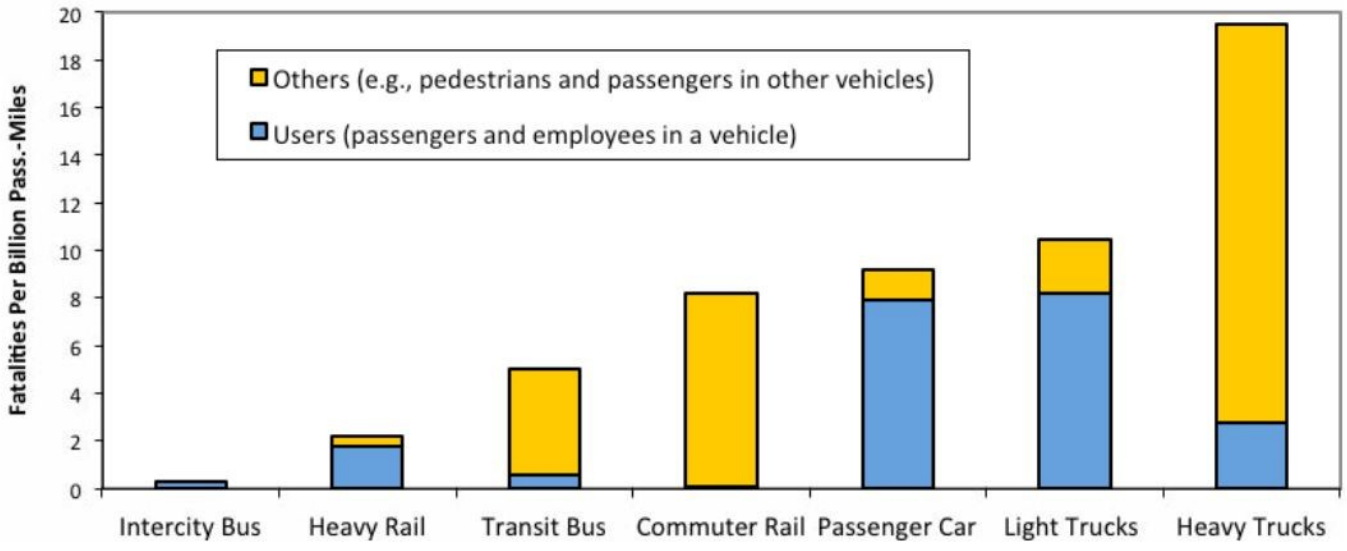
**3.** Describe how the project will **improve transportation safety and security.**

Safety is a paramount to local agencies in Boulder County. This project increases safety in several ways.

**Overall safety**

Riding on a bus is safer than any other mode of travel (Journal of Public Transportation, 2014). On a per passenger mile travel basis, drivers and passengers of cars have a fatality risk 67 times greater than passengers in a bus. When it comes to vehicle crashes, larger vehicles protect their passengers better during a crash than smaller vehicles; and there are no passenger vehicles on the road larger than an RTD bus! High quality transit service also provides people with travel options to prevent distracted, tired, and impaired driving. The RTD vehicles and drivers must conform to all Federal Transit Administration safety minimums ensuring that drivers are professionally trained, are not under the influence of drugs or alcohol, and are prohibited from listening to music or using a smart phone when operating the vehicle.

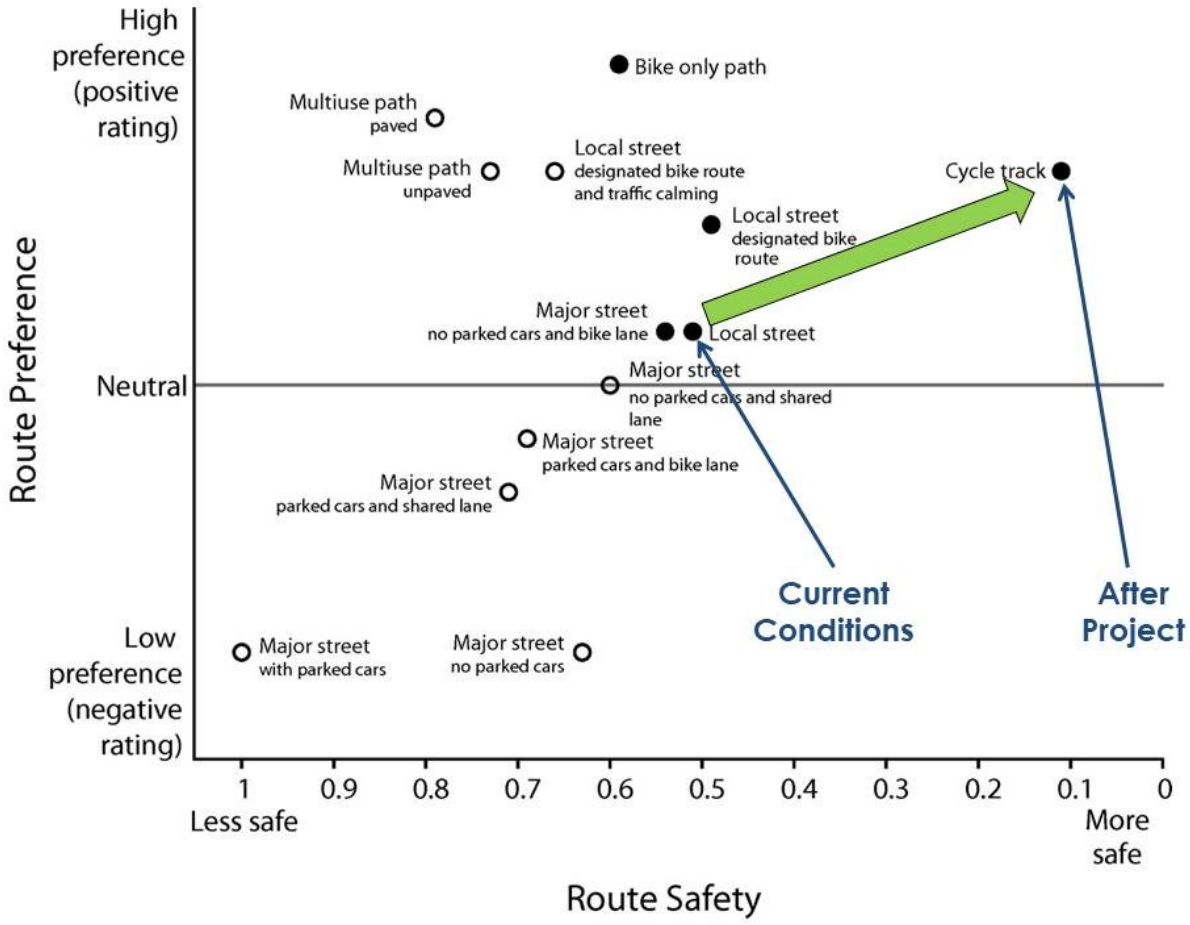
In summary, this project will increase safety on the transportation network by enticing a larger portion of SH 119 travelers to use a much safer mode.



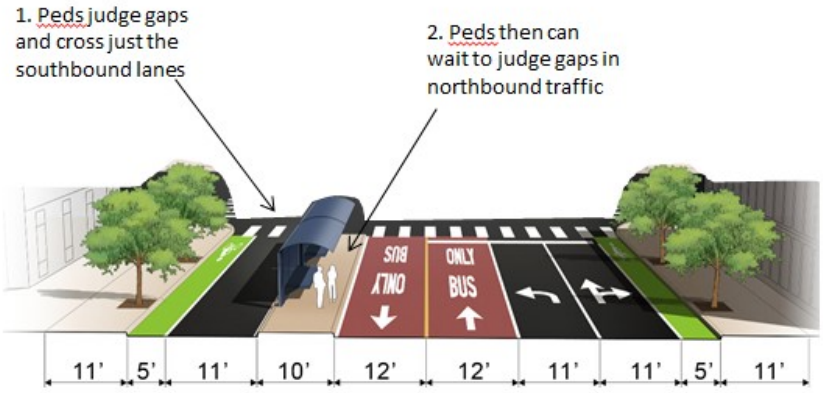

*Source: Litman and Fitzroy, based on FHWA and APTA data*

**Coffman Street Busway Safety**

The Coffman Street Busway greatly enhances the safety of cyclists and pedestrian. Currently there are no bike facilities on Coffman and crossing distances for pedestrian are quite large. The project will construct protected bike lanes, which have been shown to result in 5x fewer bicycle crashes than minor streets without bicycle facilities. (Source: Route Infrastructure and the Risk of Injuries to Bicyclists. *American Journal of Public Health.* 2012)




Pedestrian crossings are also being enhanced. At intersections the bus stop will be on an pedestrian island placed between the north and southbound vehicle lanes allowing the pedestrian to judge and wait for gaps in traffic one direction at a time.




**28th Street BAT Lanes Safety**

The project proposes to build a shared bicycle, transit and right turn only lane, as well as an adjacent multi-use path through the project area. These improvements should enhance the safety and the security of people using the corridor in several ways.

- The provision of BAT lanes will move much motor vehicle traffic away from the sidewalk/Multi-use path adjacent to the roadway. This will enhance the safety and security of pedestrians and any cyclists using these

facilities by not having arterial level, high speed traffic directly adjacent to them.

- The provision of BAT lanes will also ensure that there is much less motor vehicles traffic and very little high speed motor vehicle traffic in the travel lane being used by on-street cyclists. This will enhance the safety and security of on-street cyclists in the corridor.
- The provision of BAT lanes will ensure that there are fewer arterial drivers who find themselves behind either buses, bikes or right turning vehicles which is likely to result in lane change to avoid slowing or stopping for those vehicles. This will enhance the safety and security of arterial drivers in the corridor.
- The provision of Multi-use paths on both sides of the roadway will ensure the cyclists who do not want to ride in motor vehicle travel lanes have an off-street facility to do so on either side of the roadway and will not have to cross the high speed arterial roadway to use a facility on only one side of the street. This will prevent considerable potential conflict between turning vehicles and bicyclists at signalized intersections and mid-block crosswalks along the corridor and will enhance the safety and security of both bicyclists and arterial drivers in the corridor.

The City of Boulder publishes a Travel Safety evaluation of its Transportation System every three years. This document is titled the Safe Streets Boulder Report and includes information about high crash locations in the City of Boulder. There are several locations in the project corridor, identified as high crash locations, which should benefit from the construction of the BAT lanes and the MU paths on both sides of the street.

## 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

This project corridor is planned to have the largest transit infrastructure investment in Boulder County for the next two decades. The RTD SH 119 BRT study is planning for capital investments in the corridor at a minimum of $50 Million and up to $500 Million should the Let's Go Colorado ballot measure pass in November. The three components of the SH 119 BRT project detailed in this application are a subset of the overall capital investments for the corridor. Importantly each of the three components has full independent utility and can be implemented with or without the other components.

| 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

This project provides transit connections to the four highest density employment and housing locations in Boulder County: Downtown Longmont, Boulder Junction, University of Colorado and Downtown Boulder. It directly serves the following six Urban Centers: 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 58,800 and 56,600 respectively. By 2040 the

population and employment is expected to increase to 62,700 and 69,400, respectively. A map of the 1-mile buffers and the data can be seen at the end of this application.

| 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

This project increases mobility choice by providing decreased transit travel times and increased transit travel time reliability. The transit services that will benefit from these proposed projects are local services (205, 323, 324, 326, 327) regional services (BOLT, J, L) and interregional services (FLEX service between Boulder and Fort Collins via Loveland). Specifically, each BRT vehicle is expected to save 26 minutes after this project is implemented.
As mentioned above, this project will improve the performance metrics of all of the transit routes using these new facilities. As ridership increases the local agencies and transit agencies (RTD and TransFort) can justify adding additional service to the route. Additional service further attracts new riders leading to a virtuous circle of transit use and the benefits of a transit rich community.

| 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

This project improves air quality by converting single occupant vehicle trips into transit trips. Due to the regional nature of the project – and the relative long trip distance between Longmont and Boulder – each trip that is converted from a vehicle to a transit trips saves approximately 16 miles. This is the distance from downtown Longmont to Downtown Boulder was deemed a good median value of all of the trips in the corridor. Note that new transit riders on the FLEX route will be coming from as far away as Loveland and Fort Collins, 45 miles away. These long distances will be offset by new transit riders between Gunbarrel and Boulder, only an 8 mile trip.

As calculated in Part 3, this project is estimated to have a net increase of 2,040 daily transit trips. After accounting for some of these new transit trips that came from carpools and vanpools (thus not reducing net VMT), it is estimated that there will be savings of 31,840 VMT saved every day. This is equal to over 30,000 lbs of greenhouse gases reduced every day.

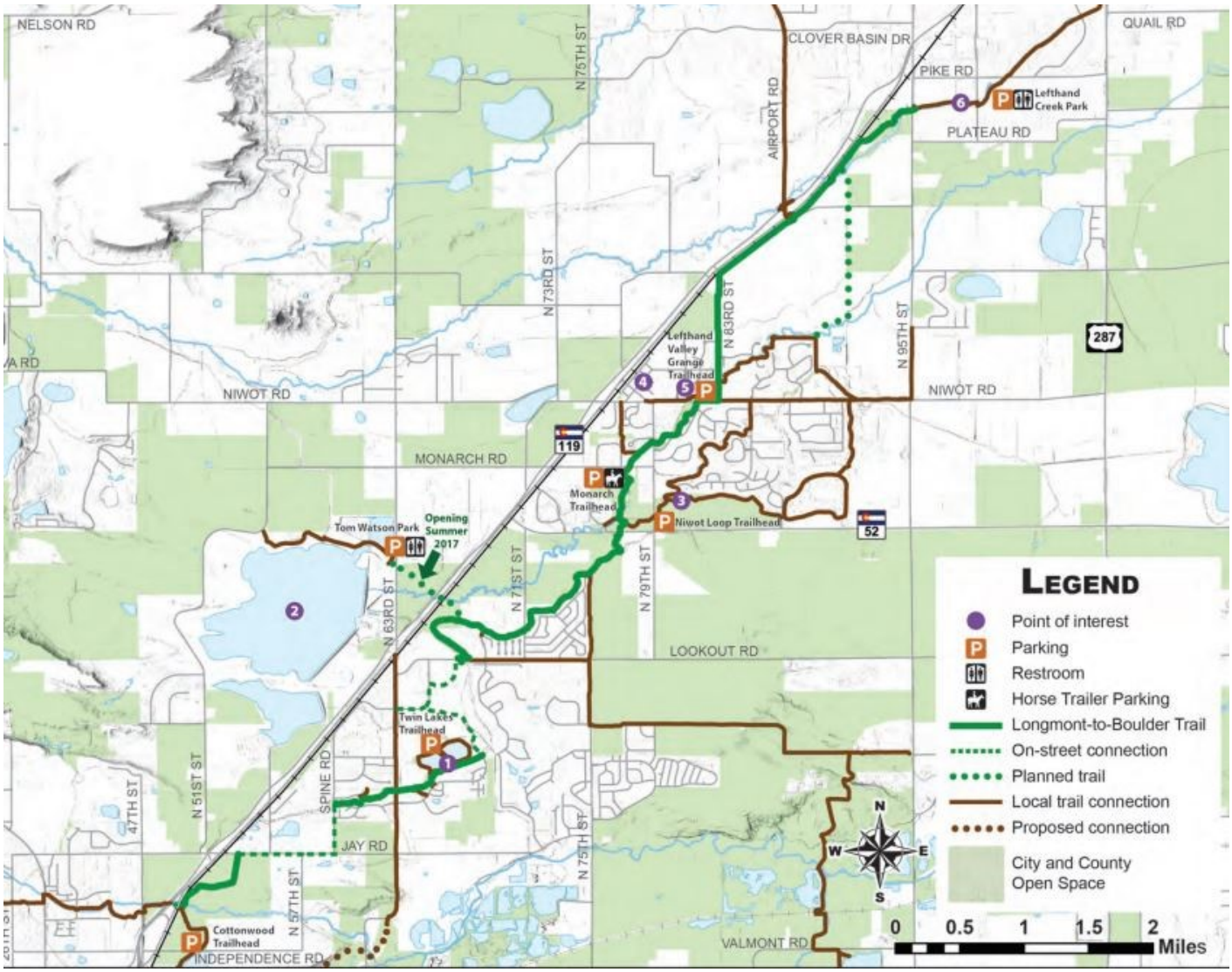
| MV objective 7b | **Connect people to natural resource or recreational areas**. |
|---|---|

**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

The SH119 BRT 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 lightening is not Photoshoped!)*

There are several locations where the proposed transit stops can access one of the regional or local trails. In addition, the roads that travel through the above mentioned agricultural and Open Space lands are low traffic volume roads. Almost all of them have bikable shoulders and many of them are gravel roads with extremely low traffic volumes. Enhanced transit services – with the ability to transport bikes as the current buses have – will provide an opportunity to access 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

This increases healthy lifestyles in two ways. First, research has shown that transit commuters are more likely than car commuters to achieve minimum daily activity thresholds. (Sources: Transit and Health: Mode of Transport, Employer-Sponsored Public Transit Pass Programs, and Physical Activity. *Journal of Public Health Policy* 2009; Walking to Public Transit: Steps to Help Meet Physical Activity Recommendations. *American Journal of Preventative Medicine.* 2005; Evaluating Public Transportation Health Benefits. *Victoria Transportation Policy Institute*. 2012) This is due to the fact that access and from transit – the first and final mile – is often non-motorized trips (walking and biking).

Second, as described above, this particular transit project provides opportunities to access local and regional trails along the corridor. This is particularly true for individuals that don't have access to a private vehicle.

| 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

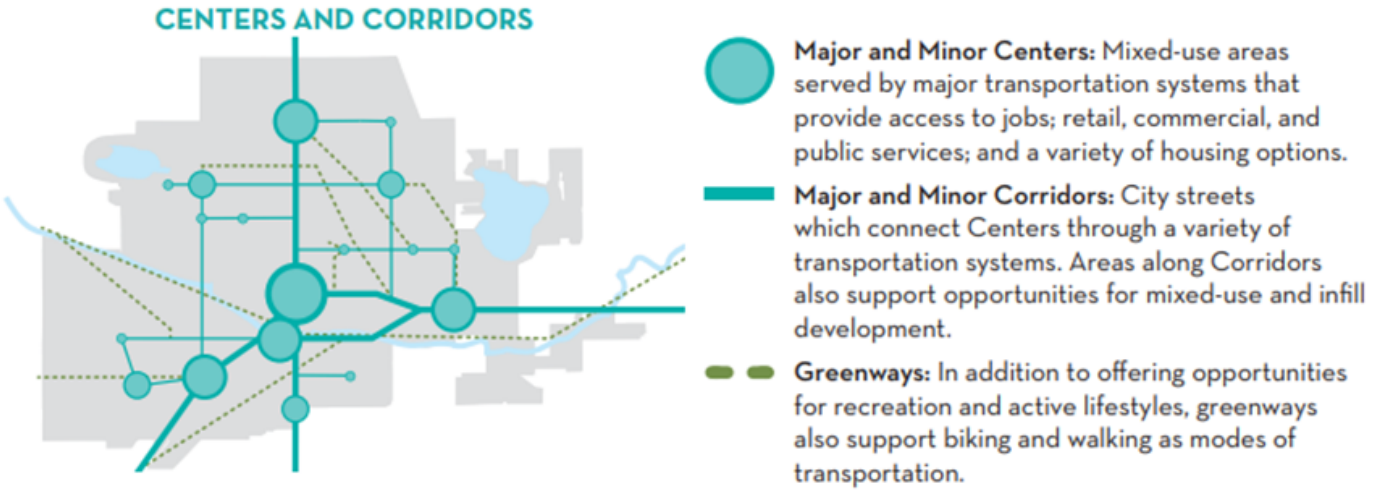
It would be difficult to say that a single transportation project could measurably reduce education and income disparities. That said transit projects increase equity by providing mobility options for the many residents and employees of our region that cannot drive a personal car. These are people that are too young or too old to drive, are physically disabled, or cannot afford to own and operate their own personal vehicle. Unlike standard road projects, this project disproportionately increases opportunities to these populations.

In addition, this project provides stronger transit connections between the two largest higher education systems in the State of Colorado – Colorado State University and University of Colorado at Boulder. Together these two schools have an annual enrollment of 49,000 students. (Source: Colorado Commission on Higher Education) These capital projects increase mobility and access to and between the two universities by reducing travel time and increasing reliability of the FLEX route which directly serves each campus. Also benefiting is the Front Range Community College, Boulder County Campus, which is located less than a ¼ mile from the planned SH 119 and Hover BRT stop. While the enrollment of this college is smaller, it serves a vital role in proving access to higher education for students across the Front Range.

| 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

Longmont recently completed their Envision Longmont which details housing and employment growth areas for the City. The SH 119 BRT project touches all major growth centers for the City. 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"

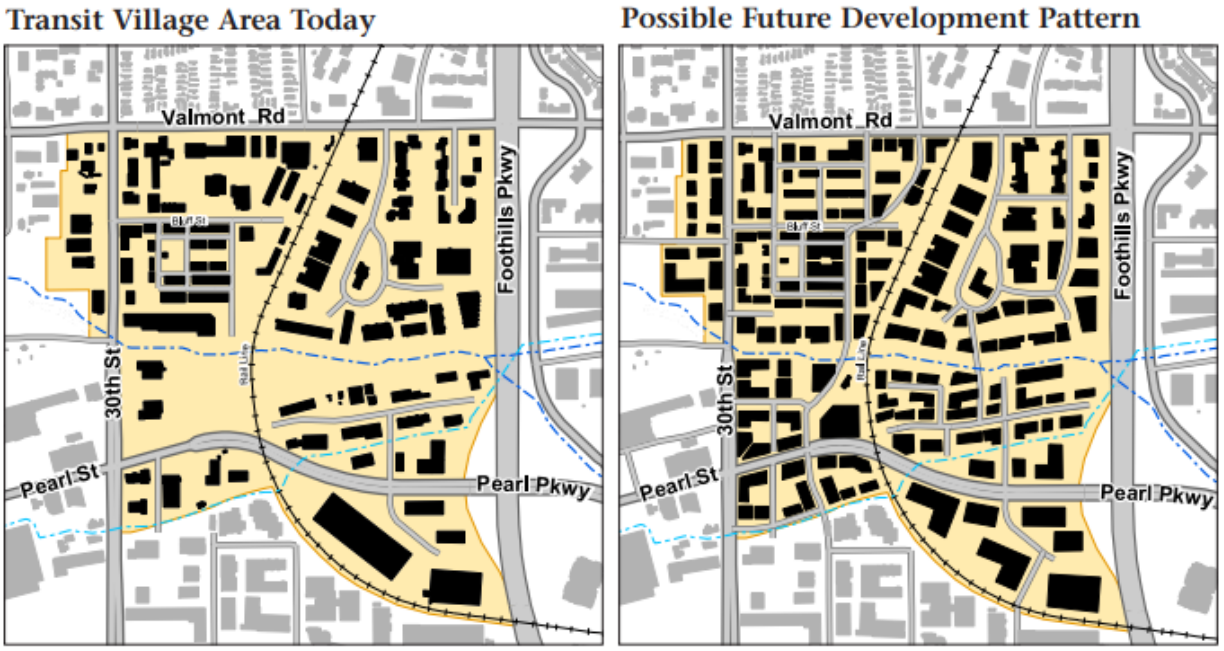



*Source: Envision Longmont*

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.




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.*

## D. Project Leveraging

**WEIGHT 10%**

| | | | |
|---|---|---|---|
| **9.** | What percent of outside funding sources (non-DRCOG-allocated Regional Share funding) does this project have? | 97.7% | 80%+ outside funding sources ..... High<br>60-79% ..... Medium<br>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 | 1,660 |
| **2.** | Population and Employment | |

| Year | Population within 1 mile | Employment within 1 mile | Total Pop and Employ within 1 mile |
|---|---|---|---|
| 2020 | 112,453 | 103,678 | **216,131** |
| 2040 | 121,306 | 122,483 | **243,789** |

| 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* | 2,040 | 3,060 |
| **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)* | 0 | 0 |
| **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)* | 50 | 75 |
| **6.** = Number of SOV one-way trips reduced per day (#3 – #4 – #5) | **1,990** | **2,985** |
| **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)* | 31,840 | 47,760 |
| **8.** = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.) | **30,248** | **45,372** |

**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:

Ridership projections were taken from the modeling performed by Parsons and RTD staff in as part of the SH 119 BRT Study. The daily ridership projections from Alternative #1, which is the NAMS preferred alternative route. On opening day this work estimated a daily ridership of 3,700, which is a net increase of 2,040 daily boardings.

For number 4, there is only one transit route connecting Boulder to Longmont. As such, none of the additional boardings would have come form other transit routes.

For number 5, this being a regional transit route with the median distance from Longmont to Boulder of 16 miles, there are effectively no walking or cycling trips that are going to convert to transit because of this project. While there are cyclists that commute this distance, these are not time sensitive commuters and it is unlikely that the travel time savings on the bus of under 10 minutes would induce them to switch modes. There could be some carpoolers that switch to transit and this has been estimated at 2.5% of all of the new transit trips.

## B. Bicycle Use

| | | |
|---|---|---|
| **1.** | Current weekday bicyclists | 51 (SH 119 at SH 52) |
| **2.** | Population and Employment | |

| Year | Population within 1 mile | Employment within 1 mile | Total Pop and Employ within 1 mile |
|---|---|---|---|
| 2020 | 112,453 | 103,678 | **216,131** |
| 2040 | 121,306 | 122,483 | **243,789** |

| 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. | 9 | 14 |
| **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)* | 0 | 0 |
| **5.** = Initial number of new bicycle trips from project (#3 – #4) | 9 | 14 |
| **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)* | 9 | 14 |
| **7.** = Number of SOV trips reduced per day (#5 - #6) | 9 | 14 |
| **8.** Enter the value of **{#7 x 2 miles}**. (= the VMT reduced per day) *(Values other than 2 miles must be justified by sponsor)* | 108 | 168 |
| **9.** = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.) | 103 | 160 |
| **10.** If values would be distinctly greater for weekends, describe the magnitude of difference: | | |
| **11.** If different values other than the suggested are used, please explain here: We only had data for the bicycle use on SH 119. This is a long distance, regional bike route with trip distances between 9 and 16 miles. It was assumed an average distance of 12 miles per trip but very few new trips. | | |

## C. Pedestrian Use

| | | |
|---|---|---|
| **1.** | Current weekday pedestrians (include users of all non-pedaled devices) | 0 |
| **2.** | Population and Employment | |

| Year | Population within 1 mile | Employment within 1 mile | Total Pop and Employ within 1 mile |
|---|---|---|---|
| 2020 | 112,453 | 103,678 | **216,131** |
| 2040 | 121,306 | 122,483 | **243,789** |

| 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 | 0 | 0 |
| **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)* | 0 | 0 |
| **5.** = Number of new trips from project (#3 – #4) | 0 | 0 |
| **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)* | 0 | 0 |
| **7.** = Number of SOV trips reduced per day (#5 - #6) | 0 | 0 |
| **12.** Enter the value of **{#7 x .4 miles}**. (**= the VMT reduced per day**) *(Values other than .4 miles must be justified by sponsor)* | 0 | 0 |
| **8.** = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.) | 0 | 0 |
| **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: | | |

## D. Vulnerable Populations

| | Vulnerable Populations | Population within 1 mile |
|---|---|---|
| Use Current Census Data | **1.** Persons over age 65 | 11,124 |
| | **2.** Minority persons | 28,326 |
| | **3.** Low-Income households | 8,277 |
| | **4.** Linguistically-challenged persons | 3,259 |
| | **5.** Individuals with disabilities | 5,438 |
| | **6.** Households without a motor vehicle | 3,755 |
| | **7.** Children ages 6-17 | 13,958 |
| | **8.** Health service facilities served by project | 78 |

## 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 ADT (average daily traffic volume) on applicable segments | 45,000 vpd |
| **2.** 2040 ADT estimate | 56,000 vpd |
| **3.** Current weekday vehicle hours of delay (VHD) (before project) | 4.6 VHD* |

| Travel Delay Calculations | Year of Opening |
|---|---|
| **4.** Enter calculated future weekday VHD (after project) | 0 VDH (transit vehicles only) |
| **5.** Enter value of **{#3 - #4} =** Reduced VHD | 4.6 VHD |
| **6.** Enter value of **{#5 X 1.4}** = **Reduced person hours of delay**<br>*(Value higher than 1.4 due to high transit ridership must be justified by sponsor)* | 56 PHD** |
| **7.** **After project peak hour congested average travel time reduction** per vehicle (includes persons, transit passengers, freight, and service equipment carried by vehicles).<br>*If applicable, denote unique travel time reduction for certain types of vehicles* | 26 minutes*** |

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

**9.** If different values other than the suggested are used, please explain here:
* This is the current delay incurred by all of the transit vehicles.
** This is the total person hour delay reduction. We used weighed average of bus passengers/vehicle in AM & PM peak periods
***This is the travel time savings for each BRT transit vehicle trip (40 minutes one-way) compared to the existing BOLT one-way travel time (66 minutes).

## F. Traffic Crash Reduction

| | | |
|---|---|---|
| **1.** Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians *(most recent **5-year** period of data)* | | 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).* |
| **Fatal** crashes | 4 | |
| **Serious Injury** crashes | 23 | |
| **Other Injury** crashes | 270 | |
| **Property Damage Only** crashes | NA | |
| **2.** Estimated reduction in crashes applicable to the project scope *(per the five-year period used above)* | | |
| **Fatal** crashes reduced | 0 | |
| **Serious Injury** crashes reduced | 0 | |
| **Other Injury** crashes reduced | 0 | |
| **Property Damage Only** crashes reduced | 0 | |

## 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 | Coffman Street: Fair<br>SH 119 @ SH 52: Fair<br>28th Street: Poor |
| 2. Describe current pavement issues and how the project will address them. | |

| | |
|---|---|
| The pavement conditions range from fair to poor. Project costs include complete street renovation for the full extent of all three components. | |
| 3. Average Daily User Volume | Coffman Street:7,700<br>SH 119 @ SH 52: 45,000<br>28th Street: 29,000 |
| ***Bicycle/Pedestrian/Other Facility*** | |
| 4. Current bicycle/pedestrian/other facility condition | Fair |
| 5. Describe current condition issues and how the project will address them.<br>As described above, the project components increase safety for cyclist and pedestrians, including pedestrians accessing the regional transit stops. | |
| 6. Average Daily User Volume | 0 |

## H. Bridge Improvements

| | |
|---|---|
| 1. Current bridge structural condition from CDOT<br>There are no bridge components of this project | |
| 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: | |