



DRCOG FY2022-2025 TIP – Boulder County Subregion
Subregional Share Air Quality/Multimodal (AQ/MM)
Application Programming Federal Fiscal Years 2023-2025

APPLICATION OVERVIEW

What: The Subregional Share Call for Projects for the FY2022-2025 TIP, programming fiscal years 2023-2025

Funding Available: \$161,292,000 overall. Target of \$16,000,000 for Boulder County (estimated as of the open date)

Application: Air Quality & Multimodal (AQ/MM) eligible projects only

Major Project Eligibility Exceptions: Roadway capacity, roadway reconstruction, bridge, interchange projects

Call Opens: May 2, 2022

Call Closes: June 24, 2022, 3 pm

Application Submittals: submit the items below online through the submittal link on the [TIP Data Hub](#)

1. REQUIRED: a **single PDF document** containing the below. Please DO NOT attach additional cover pages, embed graphics in the application, or otherwise change the format of the application form.
 - a. this application
 - b. one location map/graphic
 - c. cost estimate (your own or the CDOT [cost estimate form](#))
 - d. CDOT/RTD concurrence response (if applicable)
 - e. any required documentation based on the application text (i.e., FHWA emissions calculators)
 - f. project support letters and/or [Request for Peer Agency Support](#)
2. OPTIONAL: Submit **one additional** PDF document containing any supplemental materials, if applicable
3. REQUIRED: Submit a zipped GIS shapefile of your project. Requests for assistance with creating a shapefile should be submitted to tipapplications@drcog.org no later than June 3, 2022

Other Notable items:

- **TIP Trainings:** To be eligible to submit an application, at least one person from your agency must have attended one of the two mandatory TIP training workshops ([February 10](#) and [February 16, 2022](#))
- **CDOT/RTD Concurrence:** If required, [CDOT and/or RTD concurrence](#) must be provided with the application submittal. The CDOT/RTD concurrence request is due to CDOT/RTD no later than May 13, 2022, with CDOT/RTD providing a response no later than June 10, 2022. Submit requests to the following: CDOT Region 1 – JoAnn Mattson, joann.mattson@state.co.us; CDOT Region 4 – Josie Hadley, josie.hadley@state.co.us; RTD – Chris Quinn, chris.quinn@rtd-denver.com
- **If a submitted application in Call #1 was not funded,** and you wish to resubmit the same application for this call, please contact DRCOG at tipapplications@drcog.org. In these cases, we can unlock the application, change the title, and save the applicant work in the resubmittal process.
- **Application Data:** To assist sponsors in filling out the application, DRCOG has developed a TIP Data Tool to streamline quantitative analyses requested in the application. A link to the TIP Data Tool and instructions on how to use it are available on the TIP Data [Hub](#). Additionally, sponsors may download datasets to run their own analyses from this same site. Requests for additional data or calculations from DRCOG staff should be submitted to tipapplications@drcog.org no later than June 3, 2022
- **Project Affirmation:** 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
- **TIP Policy:** Further details on project eligibility, evaluation criteria, and the selection process are defined in the [Policies for TIP Program Development](#) document (a [quick-guide](#) is also available for reference)
- **Evaluation Process:** DRCOG staff will review submittals for eligibility and post to the DRCOG website (June 27-July 1). Applications and scoring sheets will then be provided to the individual subregional forums no later than July 1. The forums will then review, score, discuss, and rank the applications and provide a recommended funding list within the funding available by August 5. The forums’ recommendations will then be forwarded to the DRCOG committee process for incorporation into the adopted TIP
- If you have any questions or need assistance, reach out to us at tipapplications@drcog.org

APPLICATION FORMAT

The AQ/MM Subregional Share application contains two parts: *project information* and *evaluation questions*.

Project Information

Applicants enter **foundational** information for the *project/program/study* (hereafter referred to as *project*), including a problem statement, project description, and concurrence documentation from CDOT and/or RTD, if applicable. This section is not scored.

Evaluation Questions

This part includes four sections (A-D) for the **applicant to provide qualitative and quantitative responses** to use for scoring projects. The checkboxes and data entry fields should guide the applicant’s responses. They are not directly scored but provide context as reviewers consider the full response to each question. Applicants may access the TIP Data Tool and additional data resources which applicants may find useful [here](#).

Scoring Methodology: Each section will be scored on a scale of 0 to 5, relative to other applications received. All questions will be factored into the final score, with any questions left blank receiving 0 points. The four sections are weighted and scored as follows:

Section A. Subregional Impact of Proposed Projects 25%

Projects will be evaluated on the degree to which they address a significant regional or subregional problem or benefit people throughout the subregion. Relevant quantitative data should be included within narrative responses.

5	The project benefits will substantially address a major regional or subregional problem and benefit people and businesses in multiple subregions.
4	The project benefits will significantly address a major subregional problem primarily benefiting people and businesses in one subregion.
3	The project benefits will either moderately address a major subregional problem or significantly address a moderate -level subregional problem.
2	The project benefits will moderately address a moderate -level subregional problem.
1	The project benefits will address a minor subregional problem.
0	The project does not address a subregional problem.

Section B. Metro Vision Regional Transportation Plan Priorities60%

The TIP’s investments should implement the 2050 Metro Vision Regional Transportation Plan (2050 MVRTP) regional project and program investment priorities, which contribute to addressing the Board-adopted Metro Vision objectives and the federal performance-based planning framework required by the Federal Highway Administration and Federal Transit Administration as outlined in current federal transportation legislation and regulations. Therefore, projects will be evaluated on the degree to which they address the six priorities identified in the 2050 MVRTP: safety, active transportation, air quality, multimodal mobility, freight, and regional transit. It is anticipated that projects may not be able to address all six priorities, but it’s in the applicant’s interest to address as many priority areas as possible. Relevant quantitative data is required to be included within narrative responses. The table below demonstrates how each priority area will be scored.

5	The project provides demonstrable substantial benefits in the 2050 MVRTP priority area and is determined to be in the top fifth of applications based on the magnitude of benefits in that priority area.
4	The project provides demonstrable significant benefits in the 2050 MVRTP priority area.
3	The project provides demonstrable moderate benefits in the 2050 MVRTP priority area and is determined to be in the middle fifth of applications based on the magnitude of benefits in that priority area.
2	The project provides demonstrable modest benefits in the 2050 MVRTP priority area.
1	The project provides demonstrable slight benefits in the 2050 MVRTP priority area and is determined to be in the bottom fifth of applications based on the magnitude of benefits in that priority area.
0	The project does not provide demonstrable benefits in the 2050 MVRTP priority area.

Section C. Project Leveraging (“overmatch”)5%
 Scores are assigned based on the percent of other funding sources (non-Subregional Share funds).

Score	% non-Subregional Share funds
5	60% and above
4	50-59.9%
3	40-49.9%
2	20-39.9%
1	10.1-19.9%
0	10%

Section D. Project Readiness10%

Be sure to answer ALL questions. While “Yes” answers will generally reflect greater readiness, opportunities are given to provide additional details to assist reviewers in fully evaluating the readiness of your project.

5	Substantial readiness is demonstrated and all known obstacles that are likely to result in project delays have been mitigated.
4	Significant readiness is demonstrated and several known obstacles that are likely to result in project delays have been mitigated.
3	Moderate readiness is demonstrated and some known obstacles that are likely to result in project delays have been mitigated.
2	Slight readiness is demonstrated and some known obstacles that are likely to result in project delays have been mitigated.
1	Few mitigation or readiness activities have been demonstrated.
0	No mitigation or readiness activities have been demonstrated.

Project Information

1. Project Title		CO93/Broadway & Table Mesa and CO93/Broadway & Regent Transit Priority Intersections (Broadway: 18 th Street to Table Mesa)	
2. Project Location <i>Provide a map, as appropriate (see Page 1)</i>		Start point: CO93/Broadway & Table Mesa Drive End point: CO93/Broadway & 18th Street OR Geographic Area:	
3. Project Sponsor (entity that will be financially responsible for the project)		City of Boulder	
4. Project Contact Person:			
Name	Gerrit Slatter	Title	Principal Engineer – Transportation Capital Projects
Phone	(303) 441-1978	Email	slatterg@BoulderColorado.gov
5. Required CDOT and/or RTD Concurrence: Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide applicable concurrence documentation</i>	
		<input checked="" type="checkbox"/> DRCOG 2050 Metro Vision Regional Transportation Plan (2050 MVRTP) Provide MVRTP staging period, if applicable capital project: 2030-2039, but all project components are non regionally significant for air quality purposes	
6. What planning document(s) identifies this project? <i>Provide link to document(s) and referenced page number if possible, or provide documentation in the supplement</i>	<input checked="" type="checkbox"/> Local/Regional plan:		
	Planning Document Title: (1) RTD Northwest Area Mobility Study (NAMS): https://www.rtd-denver.com/sites/default/files/files/2020-07/NAMS-Final-Report-508.pdf (2) City of Boulder Transportation Master Plan: https://bouldercolorado.gov/projects/transportation-master-plan , (3) University of Colorado Boulder Transportation Master Plan: https://live-ucb-masterplan.pantheonsite.io/sites/default/files/attached-files/cu_boulder_transportation_master_plan_final_may2020.pdf (4) CDOT 10-Year Plan https://www.codot.gov/programs/your-transportation-priorities/your-transportation-plan/111521_cdot_ytp_10yearvision.pdf Adopting agency (local agency Council, CDOT, RTD, etc.): (1) RTD, (2) Boulder City Council, (3) University of Colorado, (4) Colorado Transportation Commission Provide date of adoption by council/board/commission, if applicable: (1) 2014, (2) 2019, (3) 2020, (4) 2021		
	Please describe public review/engagement to date:		Public engagement and opportunities for input and feedback have occurred through several planning processes:

		<p>2013-14: NAMS public engagement process (public meetings, telephone town halls, website)</p> <p>2017-19: City of Boulder TMP collaborative community engagement (public meetings, stakeholder meetings, website)</p> <p>2022: City of Boulder Call for Feedback on Spring 2022 TIP Applications (website, questionnaire, staff office hours, Transportation Advisory Board and City Council public hearings)</p>
	Other pertinent details:	N/A

7. Identify the project’s key phases and the anticipated schedule of phase milestones.
 (phases and dates should correspond with the Funding Breakdown table below)

Phases to be included:	Major phase milestones:	Anticipated completion date (based on 9/21/2022 DRCOG approval date): (MM/YYYY)
<u>FOR ALL PHASES</u>	Intergovernmental Agreement (IGA) executed (with CDOT/RTD; assumed process is 4-9 months)	04/2023
<input checked="" type="checkbox"/> Design	Design contract Notice to Proceed (NTP) issued (if using a consultant):	05/2023
	Design scoping meeting held with CDOT (if no consultant):	
<input checked="" type="checkbox"/> Environmental	Environmental contract Notice to Proceed (NTP) issued (if using a consultant):	
	Environmental scoping meeting held with CDOT (if no consultant):	05/2023
<input checked="" type="checkbox"/> Right-of-Way	Initial set of ROW plans submitted to CDOT:	06/2024
	ROW acquisition completed: Estimated number of parcels to acquire: 0	
<input checked="" type="checkbox"/> Construction	FIR (Field Inspection Review):	02/2024
	FOR (Final Office Review):	10/2024
	Required clearances:	12/2024
	Project publicly advertised:	01/2025
<input type="checkbox"/> Study	Kick-off meeting held after consultant NTP (or internal if no consultant):	
<input type="checkbox"/> Bus Service	Service begins:	
<input type="checkbox"/> Equipment Purchase (Procurement)	RFP/RFQ/RFB (bids) issued:	
<input type="checkbox"/> Other:	First invoice submitted to CDOT/RTD:	03/2025

8. **Problem Statement:** What specific subregional problem/issue will the transportation project address?

The CO93/Broadway corridor is a key regional transit corridor, carrying the last four miles of the FasTracks-funded Flatiron Flyer route between US 36/Table Mesa and downtown Boulder Station, as well as numerous other regional and local transit routes, including the DASH service between Boulder, Louisville and Lafayette. However, significant traffic congestion in the peak periods severely degrades transit travel times and reliability, as illustrated in Attachment A, Figure 1: Broadway Existing Conditions.

This project will improve travel time and reliability for RTD's Flatiron Flyer BRT service, along with other regional transit routes, future arterial BRT service, and local transit. Improvements will benefit mobility, air quality, transit travel speeds and reliability, and multimodal safety at key intersections benefiting numerous corridors throughout the subregion.

9. Identify the project's **key elements**. A single project may have multiple project elements.

Roadway

Operational Improvements

Grade Separation

- Roadway
- Railway
- Bicycle
- Pedestrian

Regional Transit¹

- Rapid Transit Capacity (2050 MVRTP)
- Mobility Hub(s)
- Transit Planning Corridors
- Transit Facilities/Service (Expansion/New)

Safety Improvements

Active Transportation Improvements

- Bicycle Facility
- Pedestrian Facility

Air Quality Improvements

Improvements Impacting Freight

Multimodal Mobility (i.e., accommodating a broad range of users)

Complete Streets Improvements

Study

Other, briefly describe: [The Study referenced above refers to the Business Access Transit lane capacity analysis on CO93/Broadway between Table Mesa Drive and Regent Drive.](#)

¹For any project with transit elements, the sponsor must coordinate with RTD to ensure RTD agrees to the scope and cost. Be sure to include RTD's concurrence in your application submittal.

10. Define the **scope** and **specific elements** of the project (including any elements checked in #9 above). *DO NOT* include scope elements that will not be part of the DRCOG funded project or your IGA scope of work (i.e., adjacent locally funded improvements or the project merits and benefits). Please keep the response to this question tailored to details of the scope only and no more than five sentences.

The project includes the following:

- Design and construction of intersection improvements to provide transit priority at two key intersections: CO93/Broadway & Table Mesa Drive and CO93/Broadway & Regent Drive intersections. Specifically, the project includes:
 - o Broadway & Table Mesa Intersection: an additional bus-only left turn lane for southbound to eastbound bus turning movements, combined with transit signal timing improvements.
 - o Broadway & Regent Intersection: a continuous bus-only through travel, multi-use path realignment, and ADA compliant curb ramps.

See Attachment A, Figure 2: CO93/Broadway & Table Mesa Transit Priority Intersection Concept Plan and Attachment A, Figure 3: CO93/Broadway & Regent Transit Priority Intersection Concept Plan.

- Lane capacity analysis of CO93/Broadway general purpose lane conversions to Business Access Transit (BAT) lanes between Table Mesa Drive and 18th Street to assess BAT lane feasibility.
- Operational improvements to CO93/Broadway intersections between Table Mesa Drive and 18th Street, where feasible.

11. What is the current status of the proposed scope as defined in Question 10 above? *Note that overall project readiness is addressed in more detail in Section D below.*

The City of Boulder has developed preliminary concept plans and cost estimates for the CO93/Broadway & Table Mesa intersection and CO93/Broadway & Regent intersection improvements. See Attachment A, Figure 2: CO93/Broadway & Table Mesa Transit Priority Intersection Concept Plan and Attachment A, Figure 3: CO93/Broadway & Regent Transit Priority Intersection Concept Plan.

12. Would a smaller DRCOG-allocation than requested be acceptable, while maintaining the original intent of the project?

Yes No

*If yes, smaller meaningful limits, size, service level, phases, or scopes, along with the cost, **MUST** be defined.*

Smaller DRCOG funding request: \$1,600,000

Outline the differences between the scope outlined above and the reduced scope: The City would either explore additional opportunities to fund the full scope of the project and/or explore reducing the scope of the project to include perhaps only one intersection instead of two.

Project Financial Information and Funding Request

(All funding amounts in \$1,000s)

Total amount of Subregional Share Funding Request (in \$1,000's)

(No less than \$100,000 and not to exceed 90% of the total project cost)

\$2,480

53.91%
of total project cost

Check box if requesting **only state MMOF funds** (requires minimum 50% local funds)¹

Match Funds (in \$1,000's)			% Contribution to Overall Project Total
List each funding source and contribution amount.		Contribution Amount	
Colorado Department of Transportation		\$1,500	33%
City of Boulder		\$620	13%
█		\$ █	0%
		\$ █	0%
		\$ █	0%
		\$ █	0%
Total Match <i>(private, local, state, another subregion, or federal)</i>		\$2,120	46.09%
Project Total		\$4,600	
Notes:	<p>1. Per CDOT action, the following jurisdictions are only required to provide 25% match on the MMOF funds: Englewood, Jamestown, and Wheat Ridge. The following jurisdictions are not required to provide a match on the MMOF funds: Federal Heights, Lakeside, Larkspur, Sheridan, and Ward. All sponsors will still be required to have 20% match on any added federal funds.</p>		

Funding Breakdown (in \$1,000s) (by program year)¹ (Total funding should match the Project Total from above)

	FY 2023	FY 2024	FY 2025	Total
DRCOG Requested Funds	\$ <input type="text"/>	\$ <input type="text"/>	\$2,480	\$2,480
CDOT or RTD Supplied Funds²	\$1,500	\$ <input type="text"/>	\$ <input type="text"/>	\$1,500
Local Funds (Funding from sources other than DRCOG, CDOT, or RTD)	\$ <input type="text"/>	\$ <input type="text"/>	\$620	\$620
Total Funding	\$1,500	\$0	\$3,100	\$4,600
Phase to be Initiated	Design	Design	Construction	
Notes:	<ol style="list-style-type: none"> 1. Fiscal years are October 1 through September 30 (e.g., FY 2023 is October 1, 2022 through September 30, 2023). 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 a recommended 3% inflation factor. 2. Only enter funding in this line if CDOT and/or RTD specifically give permission via concurrence letters or other written source. 			
Affirmation:	By checking this box, the applicant's Chief Elected Official (Mayor or County Commission Chair/City or County Manager/Agency Director) has certified it allows this application to be submitted for potential DRCOG-allocated funding and will follow all local, DRCOG, state, and federal policies and regulations if funding is awarded. <input checked="" type="checkbox"/>			

Evaluation Questions

A. Subregional Impact of Proposed Project

WEIGHT

25%

Provide **qualitative and quantitative** responses to the following questions on the regional impact of the proposed project. Be sure to provide all required information for each question. Quantitative data from DRCOG is available [here](#).

1. Why is this project subregionally important? Relevant quantitative data in your response is required.
The CO93/Broadway corridor is a key regional transit corridor, carrying the last four miles of the FasTracks-funded Flatiron Flyer route between US 36/Table Mesa and downtown Boulder Station, as well as numerous other regional and local transit routes, including the DASH service between Boulder, Louisville and Lafayette. Pre-pandemic, northbound CO93/Broadway carried 37 buses per hour in the a.m. peak.

Identified in the 2014 Northwest Area Mobility Study as a component of Boulder System Improvements (shown in Attachment A, Figure 4), the primary purpose of the project is to improve travel time and reliability for RTD's Flatiron Flyer BRT service, along with other regional transit routes, future arterial BRT service, and local transit. Improvements will benefit mobility, air quality, transit travel speeds and reliability, and multimodal safety at key intersections benefiting numerous regional BRT corridors.

Cell phone and navigation data (StreetLight) shows visitors and non-resident workers driving in the CO93/Broadway corridor have trip lengths of 15 and 10 miles, respectively, on an average morning peak weekday, distances that are typical of longer commutes and demonstrate the subregional and regional importance of providing fast and reliable transit as an attractive travel option.

2. How will the proposed project address the specific transportation problem described in the **Problem Statement** (as submitted in Project Information, #8)? Relevant quantitative data in your response is required.

Today, regional travel on the roadways connecting Boulder to neighboring communities is still highly dependent on single-occupant vehicles, with approximately 46,000 non-resident employees, or 80% of commuters, driving alone to work. If this continues and travel demand grows as expected, the city and entire region will pay tremendous social, environmental, and economic costs associated with increased congestion and GHG emissions. To combat this trend, the City of Boulder has committed to making more efficient use of limited road capacity and regional transportation networks by providing convenient, affordable and reliable travel choices, with transit being the cornerstone of this strategy.

The CO93/Broadway corridor carries a significant amount of this commuter traffic: in 2019, it carried over 42,000 vehicles per day; and, 21,800 transit riders, 64% of the city's average weekday transit riders, rode one of the twelve (12) transit routes in this corridor. However, this corridor experiences significant traffic congestion in the peak periods, which degrades transit travel times and reliability; thereby limiting transit as a convenient and reliable option for travelers. For example, in the southbound direction, scheduled transit travel times on the corridor increase from 11 minutes off-peak to 19 minutes during peak periods, and on-time performance falls from 85% to 70% in the p.m. peak.

The project will address this problem by providing exclusive movements for buses and signal timing improvements through these congested intersections. Specifically, an additional bus-only left turn lane for southbound to eastbound turning transit routes combined with transit signal timing improvements at the CO93 & Table Mesa intersection, and a continuous bus-only through travel lane, that also allows turning vehicles, through the CO93/Broadway and Regent intersection will ensure transit priority and reduce travel delay for riders, particularly during peak periods. The project will also analyze CO93/Broadway general purpose lane conversions to Business Access Transit lanes between Table Mesa Drive and 18th Street. Combined, these improvements will speed up transit travel time and improve reliability for RTD's Flatiron Flyer BRT service, along with other regional transit routes, future arterial BRT service, and local transit.

Reducing transit travel time by providing transit priority at intersections, and creating Business Access Transit lanes along the corridor where there is capacity to do so, will create a more reliable and convenient mode of travel through a corridor that has very limited right of way. In the CO93/Broadway corridor, transit is the most efficient way to move the most amount of people in a limited right of way. According to NACTO, where a single travel lane of private vehicle traffic on an urban street might move 600 to 1,600 people per hour (assuming one to two passengers per vehicle and 600 to 800 vehicles per hour), a dedicated bus lane can carry up to 8,000 passengers per hour. A transitway lane can serve up to 25,000 people per hour per travel direction. Increasing person throughput and capacity on this critical regional corridor will help the city achieve its overall mode-shift objective to increase walking, biking, and transit to 80 percent of all trips for residents and to 40 percent of work trips for non-residents by 2030, with transit accounting for 10% for resident trips and 12% for non-resident trips. These reductions will in turn advance the city's air quality goal of reducing transportation-sector GHG emissions by 50 percent and the region's air quality goal to reduce per capita GHG emissions by 34% by decreasing trips and associated vehicle miles traveled, air pollution, and greenhouse gases.

3. Does the proposed project benefit multiple municipalities and/or subregions? If yes, which ones and how? Also describe any funding partnerships (*other subregions, regional agencies, municipalities, private, etc.*) established in association with this project.

The proposed project benefits several municipalities within Boulder County and beyond by reducing travel time and improving transit reliability for several regional transit routes, including the following: (1) the Flatiron Flyer 1,2, and 5 which collectively serve the Town of Superior, City of Louisville, City and County of Broomfield, City of Westminster, the City and County of Denver (Denver Union Station), and the City of Aurora (Anschutz Medical Campus) (2) the GS route serving the City of Golden and the Denver Federal Center, (3) the high-frequency DASH route serving the Cities of Louisville and Lafayette, (4) the 225 route serving the City of Lafayette, and (5) the AB1 route serving the Town of Superior, City of Louisville, City and County of Broomfield, and the City and County of Denver (Denver International Airport) and the Y route serving the Town of Lyons.

The City of Boulder has established a partnership with the Colorado Department of Transportation (CDOT) to fund the proposed project. CDOT Region 4 has committed \$1.5M in its 10-Year Plan to advance design and implementation, demonstrating the agency's prioritization of and commitment to this project.

4. Describe how the project will improve access and mobility for each of the applicable disproportionately impacted and environmental justice population groups identified in the table below. This data is available in the TIP Data Tool.

Completing the below table and referencing relevant quantitative data in your response is required.

	DI and EJ Population Groups	Number within ½ mile	% of Total	Regional %
Use 2015-2019 American Community Survey Data (In the TIP Data Tool, use a 0.5 mile buffer)	a. Total population	38,119	-	-
	b. Total households	13,495	-	-
	c. Individuals of color	8,891	23%	33%
	d. Low-Income households	3,686	27%	9%
	e. Individuals with limited English proficiency	346	1%	3%
	f. Adults age 65 and over	2,801	7%	13%
	g. Children age 5-17	2,144	6%	16%
	h. Individuals with a disability	1,058	3%	9%
	i. Households without a motor vehicle	1,573	12%	5%
	j. Households that are housing cost-burdened	6,193	46%	32%

For Lines c. – i. use definitions in the [DRCOG Title VI Implementation Plan](#). For Line j., as defined in C.R.S. 24-38.5-302(3)(b)(i): “cost-burdened” means a household that spends more than thirty percent of its income on housing.”

Describe how this project will improve access and mobility for each of the applicable groups, including the required quantitative analysis: This project will increase transit speeds and reliability for twelve bus routes on this corridor that have a combined weekday ridership average of approximately 21,800 riders in 2019. Within 1/2

mile of the project area, there are approximately 6,200 households that are cost-burdened (46%), 3,600 low-income households (27%) and 1,500 households without access to a motor vehicle (12%), people who studies demonstrate have greater need for affordable, reliable, and safe transportation options, and that are respresented in the project area in greater proportions than the regional average. Further, there are approximately 8,900 persons of color (23%), 2,100 children (6%), and 2,800 older adults over 65 (7%), people data show more greatly benefit from affordable, reliable and convenient transit access to daily needs, such as housing, grocery stores, education, and employment. The improvements will connect these community members to the over 14,000 jobs in the corridor today and nearly 20,000 jobs by 2050.

5. How will this project move the region toward achieving the shared [regional transportation outcomes](#) established in [Metro Vision](#)?

- Improve the diversity and livability of communities. One of the key guiding principles of the Boulder Valley Comprehensive Plan is to provide infrastructure and services that will encourage all diverse communities to both prosper within and connect to the larger community. This project, located along an urban arterial that supports a diverse residential population and regional employment base, supports this principle for the Boulder Valley and beyond. It will advance the DRCOG vision for multimodal corridors of local livability and regional accessibility. Specifically, for the 27% of households in the corridor that are low income, this project will ensure greater livability by unlocking convenient, reliable transit access within the city and throughout the region.
- Contain urban development in locations designated for urban growth and services. This project is within the City of Boulder’s Area 1 Planning Area, as defined in the Boulder Valley Comprehensive Plan which fully supports growth and development where urban-level infrastructure already exists and/or there are plans in place for infrastructure and service expansion. This is particularly important as the DRCOG-designated Urban Centers of University Hill and Downtown Boulder continue to redevelop with higher density mixed use.
- Increase housing and employment in urban centers. This project will improve regional transit service between several DRCOG-designated urban centers, thereby providing the quality of high-frequency transit needed to support more concentrated housing and employment. Specifically within the City of Boulder, this project will directly benefit the University Hill and Downtown Boulder Urban Centers to support greater housing and employment opportunities.
- Improve and expand the region’s multimodal transportation system, services, and connections. The regional vision, as presented in the DRCOG MVRTP, includes the FasTracks US 36 Corridor as a key regional transit corridor connecting DRCOG Urban Centers with high-quality transit. The City of Boulder has embraced this vision by designing CO93/Broadway as a multimodal corridor connecting the University Hill and Downtown Boulder Urban Centers to the several other areas of focused growth throughout the Northwest region. This project will support this vision by ensuring fast, reliable transit connects CO93/Broadway to the entire regional multimodal transportation system.
- Operate, manage, and maintain a safe and reliable transportation system. This project will ensure transit, along with all modes of travel along the CO93/Broadway corridor, can operate more reliably and safely, with operations and maintenance considerations being a key factor in the design of the transit priority intersections and Business Access Transit lanes.
- Improve air quality and reduce greenhouse gas emissions. By shifting more travelers away from single occupant vehicle travel and onto high-quality, high-frequency transit routes, this projects helps to improve air quality and reduce greenhouse gas (GHG) emissions.
- Connect people to natural resource and recreational areas. This project will connect people to the abundance of natural and recreational resources within the City of Boulder and along the Front Range. Transit stops along the CO93/Broadway corridor offer direct walking and biking connections to multiple City of Boulder Open Space and Mountain Parks trailheads, with access to over 150 miles of recreational trails and the extensive greenway system throughout the Boulder Valley.
- Reduce the risk of hazards and their impact. This project will reduce community wide hazard risk by improving reliability and capacity of transit lanes to move large numbers of people in the event of

flooding, fires or other natural hazards. Resilient infrastructure will be designed using the city green stormwater and landscape standards. Additionally, by applying the Americans with Disability Act compliant intersection improvements at the CO93/Broadway and Regent intersection, the project will reduce risk for those traveling with mobility impairments through improved accessibility.

- **Increase access to amenities that support healthy, active choices.** The project will enhance transit connections to pedestrian and bicycle facilities, which then expands opportunities for walking and cycling to access services and destinations, as well trail and recreation opportunities.
- **Improve transportation connections to health care facilities and service providers.** The project will enhance regional transit travel time and reliability for those accessing regional health care facilities, such as Boulder Community Health (via high frequency local transit), UCHealth Broomfield Hospital (via the FF1, FF2, and FF5), and the Anschutz Medical Campus (via FF5).
- **Diversify the region's housing stock.** This project will benefit the existing and planned housing stock within the city, as residential zoning and planned land uses along the CO93/Broadway corridor are entirely medium and high density residential and mixed use. By ensuring more reliable and time-competitive regional transit, this project will help to provide the higher-quality transit service needed to promote transit-oriented development along the US36 corridor and throughout the region.
- **Improve access to opportunity.** This project will provide a critical need for those seeking access to opportunities – that of greater mobility options for all ages, abilities and income levels, particularly for those who rely on transit as their primary mode of transportation to and from employment, services, and educational opportunities. Attachment A, Figure 5: Broadway Community Assets maps the range of community destinations that will benefit from improved access.
- **Improve the region's competitive position.** Completing the high-quality, high-frequency US36/CO93 BRT corridor improvements by ensuring competitive transit travel times both along the highway and along the local street network is critical to the region's economic competitiveness. This project will ensure transit is an attractive, reliable option for travelers, whether using transit to meet their daily needs and services, commuting along the Front Range, or traveling to and from Boulder and the Denver International Airport. These improvements also provide resiliency to the city, subregion, and region as high quality transit service provide a strong platform for economic recovery, whether immediately following the COVID-19 pandemic or future unforeseen shocks.

6. Describe how the project will improve access to and/or connectivity between DRCOG-defined urban centers, multimodal corridors, mixed-use areas, Transit Oriented Development (transit near high-density development), or locally defined priority growth areas. Items marked with an asterisk (*) below are available in the TIP Data Tool.

- Is there a DRCOG designated urban center within ½ mile of the project limits?*
- Does the project connect two or more urban centers?*

Yes No If yes, please provide the name: [University Hill](#)

Yes No If yes, please provide the names: [A portion of this project is located within the University Hill urban center; and the project will improve transit service to several other DRCOG-defined urban centers, including Downtown Boulder, Downtown Louisville, Superior Town Center, Interlocken Loop Activity Center, Urban Transit Village, Original Broomfield TOD, Westminster Promenade Activity Center, Westminster Center Activity Center, and the Denver Central Business District](#)

- Is there a transit stop or station within ½ mile of the project limits?*
- Bus stop: Yes No If yes, how many? [75](#)
- Rail station: Yes No If yes, how many?

- Is the project in a locally-defined priority growth and development area?

Yes No

If yes, provide a link to the relevant planning document:
[Boulder Valley Comprehensive Plan:](#)
<https://bouldercolorado.gov/projects/boulder-valley-comprehensive-plan>

[University of Colorado Boulder Campus Master Plan:](#)
<https://www.colorado.edu/masterplan/tmp>

If yes, provide how the area is defined in the relevant planning document: [The University Hill \(“The Hill”\) business district, to the west of the Main Campus across Broadway, serves both the university population and the surrounding neighborhood, with restaurants, shopping and entertainment. Efforts are underway to revitalize and diversify uses on The Hill to include more housing, some office, a broader range of retail offerings and increased cultural activities. The University of Colorado Campus Master Plan calls for continued infill development \(particularly on surface parking lots\) on Main Campus.](#)

- Is the project in an area with zoning that supports compact, mixed-use development patterns and a variety of housing options?

Yes No If yes, please provide the zoning district designation(s): [Yes, the project is bordered by several zoning designations that support a variety of housing options, including low, medium and high density residential zones \(Residential Low 1, Residential Medium 2 and Residential High 5\) Public district zoning \(including residential, educational, and administrative uses at the Univeristy of Colorado Boulder Main Campus, National Institute of Standards and Technology, and National Oceanic and Atmospheric Administration\), and Business Community 2 uses which include neighborhood serving businesses and services such as veterinarian clinics, convenience stores, restaurants, schools, and similar uses.](#)

Provide households and employment data*	2020	2050
Households within ½ mile	13,495	14,144
Jobs within ½ mile	14,468	19,726
Household density (per acre) within ½ mile	5.62	5.81
Job density (per acre) within ½ mile	6.02	8.68

Describe how this project will improve access to and/or connectivity between the above identified areas, *including the required quantitative analysis:*

[This project will improve access to high-frequency and reliable transit for the approximately 13,500 households living within 1/2 mile of the improvements and people accessing approximately 14,500 jobs in the same area, which is expected to grow to nearly 20,000 jobs by 2050 \(an increase of 36%\).](#)

7. Describe how this project will improve **access** and **connections** to key employment centers or regional destinations, including health services; commerce, educational, cultural, and recreational opportunities; or other important community resources. In your answer, define the key destination(s) and clearly explain how the project improves **access** and/or **connectivity**.

By reducing travel time variability and creating more predictable travel times, this project will unlock transit access and improve connectivity between key regional destinations within Boulder, Denver, and the Northwest area communities. The project provides direct connections to three of the largest destinations in the region:

- Downtown Boulder, with 2.5 million square feet of building space (30% retail, 52% office, 18% other) and an important employment, cultural and commerce center. This central business district is a hub of civic, social, cultural, entertainment, professional and commercial activity.
- The University of Colorado Boulder, with over 36,000 students and 4,000 faculty. As documented in the 2020 University of Colorado Transportation Master Plan, over 20 percent of the students, faculty and staff travel to campus via bus transit services.
- The Federal Laboratories Campus in Boulder, housing the National Oceanic and Atmospheric Administration and National Institute of Standards and Technology.

Additional regional centers that will benefit from improved transit travel time and reliability along the CO93/Broadway Corridor include the following:

- Superior Town Center, Interlocken employment center and Flatiron Crossing in Broomfield, Westminster Promenade, the Shops at Walnut Creek, and Downtown Westminster. These destinations are served by the Flatiron Flyer 1 and 2.
- Anschutz Medical Campus, which includes UCHHealth University of Colorado Hospital and Children’s Hospital Colorado. This regional center is served by the Flatiron Flyer 5.
- Downtown Lafayette and Downtown Louisville. These urban cores are served by the DASH.
- Denver Federal Center, a 600+ acre campus housing 28 different agencies in 44 federal buildings. The government center is served by the GS.

B. MVRTP Priorities

WEIGHT

60%

- **Qualitative and quantitative** responses are **REQUIRED** for the following items on how the proposed project contributes to the project and program investment priorities in the adopted 2050 Metro Vision Regional Transportation Plan. To be considered for full points, you must fully answer all parts of the question, including incorporating quantitative data into your answer. (see scoring section for details). Quantitative data from DRCOG is available [here](#).
- Checkboxes and data tables help to provide context and guide responses, but do not account for the full range of potential improvements and are not directly scored, but are required to be completed.
- Not all proposed projects will necessarily be able to answer all questions, however it is in the applicant's interest to address as many priority areas as possible.

Multimodal Mobility

Provide improved travel options for all modes.

(drawn from [2050 MVRTP priorities](#); [federal travel time reliability, infrastructure condition, & transit asset management performance measures](#); & [Metro Vision objective 4](#))

Examples of Project Elements: combinations of improvements that support options for a broad range of users, such as complete streets improvements, or a bicycle/pedestrian access to transit, etc.

How does this project help increase mobility choices for people, goods, and/or services? Note that any roadway operational improvements must be on the DRCOG [Regional Roadway System](#) and/or [Regional Managed Lanes System](#).

- What modes will project improvements directly address?
 Walking Bicycling Transit Roadway Operations Other:
 - List the elements of this project which will address the above modes (i.e., sidewalk, shared use path, bus stop improvements, signal interconnection, etc.):
 - **Broadway & Table Mesa Intersection:** an additional bus-only left turn lane for southbound to eastbound bus turning movements, combined with transit signal timing improvements.
 - **Broadway & Regent Intersection:** a continuous bus-only through travel, multi-use path realignment, and ADA compliant curb ramps.
 - Lane capacity analysis of CO93/Broadway general purpose lane conversions to Business Access Transit (BAT) lanes between Table Mesa Drive and 18th Street to assess BAT lane feasibility.
 - Operational improvements to CO93/Broadway intersections between Table Mesa Drive and 18th Street, where feasible.
- Will the completed project be a complete street as described in the [Regional Complete Streets Toolkit](#)? This data is available in the TIP Data Tool.
 Yes No If yes, describe how it implements the Toolkit's strategies in your response.
- Does this project improve travel time reliability?
 Yes No
- Does this project improve asset management of active transportation facilities and/or transit vehicle fleets?
 Yes No
- Does this project implement resilient infrastructure that helps the region mitigate natural and/or human-made hazards?
 Yes No

Describe how this project increases mobility choices for all users, *include quantitative information, including any items referenced above, in your response:*

The 2050 MVRTP prioritizes investments that provide mobility choices, and specifically investments in the region's Bus Rapid Transit System. This project achieves both priorities, by opening up greater mobility choices for people who use transit as their primary mode of travel, and people who choose transit as a travel option because it is convenient, reliable, and affordable. The CO93/Broadway corridor is designated as a Regional Connector in the DRCOG Complete Streets Toolkit, and as such, places a high priority on ensuring transit facilities provide for rapid, reliable, safe and comfortable service which makes transit a convenient choice. By offering faster travel times for

transit and ensuring reliable, predictable transit trip times, while improving pedestrian facilities at key intersections, this project increases mobility choices for all users.

Specifically, this project improves multimodal options for all users of this Regional Connector, as described here:

- **Transit mobility:** The CO93/Broadway corridor carries the last four miles of the FasTracks-funded Flatiron Flyer route between Denver Union Station and the Downtown Boulder Station, as well as numerous other regional and local transit routes, including: the Flatiron Flyer 1,2, and 5 which collectively serve the Town of Superior, City of Louisville, City and County of Broomfield, City of Westminster, the City and County of Denver (Denver Union Station), and the City of Aurora (Anschutz Medical Campus); the GS route serving the City of Golden, the high-frequency DASH serving the Cities of Louisville and Lafayette; the 225 route serving the City of Lafayette; and the AB1 route serving the Town of Superior, City of Louisville, City and County of Broomfield, and the City and County of Denver (Denver International Airport). Pre-pandemic, northbound CO93/Broadway carried 37 buses per hour in the a.m. peak. This project will increase transit speeds and reliability for twelve routes on this corridor that have a combined weekday ridership average of approximately 21,800 riders in 2019.
- **Pedestrian and bicycle mobility:** The corridor is also significant pedestrian and bicycle corridor, with 2,400 people walking and 900 people biking to the University of Colorado Main Campus, Downtown Boulder, and other popular destinations within the project area on an average day.

Multimodal mobility benefits associated with each element of the project are described here:

- **CO 93/Broadway and Table Mesa Drive Transit Priority Intersection:** The CU Boulder South Traffic Impact Study (2021) analyzed this intersection and found that, in the CO93/Broadway southbound direction, scheduled transit travel times on the corridor increase from 11 minutes off-peak to 19 minutes during peak periods, and on-time performance falls from 85% to 70% in the p.m. peak. These delays also have safety implications because frustrated drivers are more likely to run red lights, creating unsafe conditions for the thousands of people walking and biking, and tens of thousands driving through the project area on a daily basis. The project, which will add a transit-only southbound CO93/Broadway to eastbound Table Mesa Drive left-turn lane, will improve level of service of the intersection and reduce congestion and associated travel time and transit service delays on this key regional transit corridor. These changes will also improve safety for all modes traveling through the intersection, and importantly, not widen crossing distances for pedestrians and bicyclists.
- **CO93/Broadway and Regent Drive Transit Priority Intersection:** This is an important intersection because it is the front door to the University of Colorado Boulder Main Campus and connects the campus and adjacent multi-use paths to the 38,000 residents living within the project area, including the University Hill neighborhood. This intersection also plays an important role in the corridor's regional transit travel time and reliability. The project will implement transit priority and pedestrian and bicycle improvements by constructing Bus and Right Turn Only lanes in the outside northbound lane on CO93/Broadway at Regent Drive, improvements to the adjacent multi-use paths, upgraded curb ramps on all four corners of the intersection, and realigned southbound lanes at the intersection to improve pedestrian visibility and reduce crossing distance. These improvements will build upon the rebuilding of the traffic signal and providing protected left-turn phasing that will be implemented in 2022, a safety improvement prioritized in the City's 2022 Vision Zero Boulder Safe Streets Report.
- **Business Access Transit Lanes:** An initial CO93/Broadway Corridor lane conversion feasibility analysis conducted by the City of Boulder in 2015 concluded that the conversion of existing through and right lanes to Business Access Transit lanes would maintain acceptable Levels of Service for all users of the corridor. The benefit of these lane conversions would be to allow transit vehicles to operate with a higher Level of Service through the corridor than if traveling on general purpose lanes, thereby providing faster travel times and less travel time variability for transit users.

Air Quality

Improve air quality and reduce greenhouse gas emissions.

(drawn from [2050 MVRTP priorities](#); [state greenhouse gas rulemaking](#); [federal congestion & emissions reduction performance measures](#); [Metro Vision objectives 2, 3, & 6a](#))

Examples of Project Elements: active transportation, transit, or TDM elements; vehicle operational improvements; electric vehicle supportive infrastructure; etc.

How does this project help reduce congestion and air pollutants, including but not limited to, carbon monoxide, ground-level ozone precursors, particulate matter, and greenhouse gas emissions?

- Does this project reduce congestion?
 Yes No
- Does this project reduce vehicle miles traveled (VMT)?
 Yes No
- Does this project reduce single-occupant vehicle (SOV) travel?
 Yes No

Emissions Reduced (kg/day)	CO	NOx	VOCs	PM 10
	52.04	2.81	0.95	0.70

Use the [FHWA CMAQ Calculators](#) or a similar reasonable methodology to determine emissions reduced. Base your calculations on the year of opening. Please attach a screenshot of your work (such as the FHWA calculator showing the inputs and outputs) as part of your submittal packet.

Note: if not using the FHWA Calculators, please note your methodology in your narrative below.

Describe how this project reduces air pollutants, *include quantitative information, including any items referenced above, in your response:*

The City of Boulder, in keeping with the DRCOG 2050 MVRTP and state climate goals, has established aggressive air quality targets to reduce transportation-sector GHG emissions. The City is aiming for a 50 percent reduction in transportation-sector GHG emissions and continuously reduce mobile source emissions of other air pollutants by 2030. Today, over 46,000 non-resident employees commute into Boulder for work each day by private automobile (pre-COVID), accounting for nearly 80% of commute trips into the city. Shifting this mode split to cleaner forms of transportation is essential to meeting our local and regional climate goals.

The University of Colorado Boulder offers one example of the challenges to reducing single-occupant vehicle commuting and GHG emissions that is indicative of the larger problem facing the city and region as a whole:

While a significant majority of undergraduate students live either on-campus or within the City of Boulder, 4 percent of freshmen, 13 percent of upperclassmen students, 28 percent of graduate students, 51 percent of faculty and 73 percent of staff live outside of the City of Boulder. Once a student, faculty member or staff member lives outside of the City of Boulder, the likelihood that they drive to campus significantly increases. The mode share of single-occupant vehicle commuters and the distance traveled to campus increased significantly from 2005 to 2018.

Implementation of this project, which directly benefits the University of Colorado Main Campus, is one important tool in the toolbox to reduce single-occupant vehicle travel and overall Vehicle Miles Traveled and associated GHG emissions.

By reducing congestion and delay, the project's intersection improvements will reduce emissions (idling is associated with higher vehicle emissions) and improve transit travel time and reliability, which will encourage more travelers to use local, subregional, and regional transit.

Quantitatively, the project improvements will result in a reduction of 1,037 average daily vehicle trips and associated traffic congestion and 19,774 average daily vehicle miles traveled (VMT). Annually, this represents an estimated reduction of 392,897 trips and 7,217,618 VMT. As a result, every day air quality benefits are realized from these avoided trips and associated VMT by reducing: 52.04 kg/day of Carbon Monoxide (CO), 0.952 kg/day

of Volatile Organic Compounds (VOC), 2.819 kg/day of Nitrogen Oxide (NOx), and 0.700 kg/day of the most harmful Particulate Matter, that sized less than 10 micrograms. New research points to additional health benefits of reducing single-occupancy vehicle traffic: reducing brake dust reduces air pollution damage to community member's lungs (See <https://theconversation.com/air-pollution-from-brake-dust-may-be-as-harmful-as-diesel-exhaust-on-immune-cells-new-study-129594>).

The trip and associated reductions in Vehicle Miles Traveled used an average trip length of 18.37 miles and processes utilized by LA Metro, MTA, and WSDOT in Los Angeles, New York city, and King County, WA. The emissions reductions were calculated using the CMAQ Emissions Calculator Tool Kit. (See the attached emissions calculator and transit ridership model spreadsheets).

The CO93/Broadway at Regent Drive improvements will also provide for safer and more direct walking and biking through this busy intersection. Safer and more reliable travel has the potential to shift people's travel from single occupancy vehicles to walking, biking, and using transit, which also reduces congestion and associated emissions from increased idling, reduces vehicle miles travelled and associated greenhouse gases.

**Regional
Transit**

Expand and improve the region’s transit network.

(drawn from [2050 MVRTP priorities](#), [Coordinated Transit Plan](#), [RTD’s Regional Bus Rapid Transit Feasibility Study](#))

Examples of Project Elements: transit lanes, station improvements, new/expanded service, etc.

Note: For any project with transit elements, the sponsor must coordinate with RTD to ensure RTD agrees to the scope and cost. Be sure to include RTD’s concurrence in your application submittal.

How does this project improve connections to or expand the region’s transit system, as outlined in the [2050 MVRTP](#)? Note that rapid transit improvements must be on the [Regional Rapid Transit System](#). Items marked with an asterisk (*) below are available in the TIP Data Tool.

- Does this project implement a portion of the [regional bus rapid transit \(BRT\) network](#)?*
 Yes No If yes, which specific corridor will this project focus on? [FastTracks Flatiron Flyer BRT corridor](#)
- Does this project involve a [regional transit planning corridor](#)?*
 Yes No If yes, which specific corridor will this project focus on? [FastTracks Flatiron Flyer BRT corridor](#)
- Does this project implement a mobility hub as defined in the [2050 MVRTP](#)?
 Yes No
- Does this project improve connections between transit and other modes?
 Yes No If yes, please describe in your response.
- Is this project adding new or expanded transit service?
 Yes No If yes, who will operate the service?
- Does this project add and/or improve transit service to or within a DRCOG-defined urban center?*
 Yes No If yes, provide the name of the urban center: [A portion of this project is located within the University Hill urban center; and the project will improve transit service between the Downtown Boulder urban center and several other DRCOG-defined urban centers, including Downtown Louisville, Superior Town Center, Interlocken Loop Activity Center, Urban Transit Village, Original Broomfield TOD, Westminster Promenade Activity Center, Westminster Center Activity Center, and the Denver Central Business District](#)

Describe how this project improves connections to or expands the region’s transit system, *include quantitative information, including any items referenced above, in your response:*

[CO93/Broadway, between 18th Street and Table Mesa Drive, is a high frequency transit service corridor that is critical to regional, BRT, local, and campus transit services in Boulder and throughout the region, as shown in Attachment A, Figure 6: Boulder Renewed Vision for Transit. Twelve \(12\) bus routes operate along this segment of Broadway, including the RTD AB1-Boulder/Denver International Airport, Flatiron Flyer 1-Denver/Boulder, Flatiron Flyer 2-Denver/Boulder express, Flatiron Flyer 5-Boulder/Anshutz, 204-Table Mesa/Moorhead/N. 19th, 225-Boulder/Lafayette via Baseline, DASH-Boulder/Lafayette via Louisville, BOUND-30th Street, SKIP-Broadway, and GS-Golden/Boulder routes and the CU Buff Bus Bear Creek Express route and the Y route to Lyons. See Attachment A, Figure 7: RTD Route Map.](#)

[During peak hours, as many as 37 buses operate along portions of this corridor. Broadway serves as a key route to facilitate the movement of regional and BRT bus services in and out of Boulder. There are twelve \(12\) bus stops in this 1.6-mile stretch, which averaged approximately 2,600 daily boardings and 3,300 daily alightings in 2019. This project will increase transit speeds and reliability for the twelve routes on this corridor that have a combined weekday ridership average of approximately 21,800 riders in 2019. The total combined ridership of these twelve \(12\) routes that travel via this segment of Broadway represents about 64% \(21,800 of 34,000\) of the 2019 average weekday ridership for all twenty-nine \(29\) routes serving Boulder. See Attachment A, Figure 8: Broadway High Frequency Transit Map for an illustration of the relative dense ridership along this corridor.](#)

[The project area is an important transit route for commuters and residents alike, including vulnerable and transit dependent individuals. An estimated 13,495 people live and 14,468 people work within 1/2-mile of the project area. Approximately 37% of households are low income and 23% are individuals of color, 51% work in essential jobs, and 12% take transit to work.](#)

[The City of Boulder’s vision for transit services focuses on developing and enhancing a complete transit system – a network of high-quality, frequent and convenient transit routes that connect local destinations and neighborhoods](#)

and regional destinations. Currently, scheduled transit travel times on the corridor increase from 11 minutes off-peak to 19 minutes during peak periods, and on-time performance falls from 85% to 70% in the p.m. peak.

This project will design and implement transit priority intersection improvements which will improve connections to and service reliability for local, subregional, and regional transit services.

Importantly, the project will support transit time reliability on the region's most vital BRT corridors – the Flatiron Flyer routes connecting Boulder to regional destinations. The project's bicycle and pedestrian facilities will further improve first and final mile connections between these modes and the improved transit facilities.

Safety **Increase the safety for all users of the transportation system.**
 (drawn from [2050 MVRTP priorities](#), [Taking Action on Regional Vision Zero](#), [CDOT Strategic Transportation Safety Plan](#), & [federal safety performance measures](#))
 Examples of Project Elements: bike/pedestrian crossing improvements, vehicle crash countermeasures, traffic calming, etc.

How does this project implement safety improvements (roadway, active transportation facility, etc.), particularly improvements in line with the recommendations in [Taking Action on Regional Vision Zero](#)? Note that any improvements on roadways must be on the DRCOG [Regional Roadway System](#). Items marked with an asterisk (*) below are available in the TIP Data Tool.

- Does this project address a location on the [DRCOG High-Injury Network or Critical Corridors](#) or corridors defined in a local Vision Zero or equivalent safety plan?*
 Yes No
- Does this project implement a safety countermeasure listed in the [countermeasure glossary](#)?
 Yes No

Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians* <i>(using the 2015-2019 period – in the TIP Data Tool, use a 0.02 mile buffer of your project)</i> <small>NOTE: if constructing a new facility, report crashes along closest existing alternative route</small>		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	0	
Serious Injury crashes	11	
Other Injury crashes	120	
Property Damage Only crashes	397	
Estimated reduction in crashes <u>applicable to the project scope</u> <i>(per the five-year period used above)</i>		Provide the methodology below:
Fatal crashes reduced	0.00	IMPLEMENT TRANSIT SIGNAL AND LANE PRIORITY (AT TRANSIT-SERVED LOCATIONS) CMF ID 7275
Serious Injury crashes reduced	2.00	
Other Injury crashes reduced	20.00	
Property Damage Only crashes reduced	65.00	

Describe how this project will improve safety, include quantitative information, including any items referenced above, in your response:

Boulder has been reporting on Vision Zero since 2009. That report defines severe crashes as those that result in a serious injury or fatality – and the City is committed to eliminating all severe crashes. And while the number of overall crashes has decreased, serious injury and fatal crashes are still occurring. Between 2009 and 2020, 636 people have been seriously injured or killed, with 67% of these crashes occurring on arterial streets, including CO93/Broadway and the project area.

Between 2015 and 2019, the project area saw no fatal crashes, fortunately, but saw 11 severe injury crashes. These data result in the project area being identified by DRCOG as a High Injury Network, and from Baseline Rd to 18th St, also a Critical Corridor, and for the Boulder City Council, in partnership with the City’s Transportation Advisory Board, to prioritize safety enhancements on arterial streets, including CO93/Broadway.

The CO93/Broadway at Table Mesa Drive intersection improvements will improve safety by reducing delays that can lead to frustrated drivers running red lights, creating unsafe conditions for those walking, biking, and driving through the project area.

The CO93/Broadway at Regent Drive intersection improvements will incorporate safety elements included in both Boulder’s Vision Zero and DRCOG’s Taking Action on Regional Vision Zero that are proven to reduce severe injury or fatal crashes. These countermeasures include: realigning and straightening adjacent multi-use paths, upgrading curb ramps on all four corners of the intersection to comply with the Americans with Disabilities Act, and realigning the southbound travel lanes at the intersection to improve pedestrian visibility and reduce crossing distance. These will build upon the city’s 2022 Vision Zero Boulder Safe Streets Report identified improvements to rebuild the traffic signal and provide protected left-turn phasing to address crashes that occur at this location; the signal improvements will be completed in 2022.

Using the CMR clearinghouse database, a crash modification factor for a transit signal and lane priority (CMF 7275) was used to estimate crash reductions. According to the analysis, the project would reduce serious injury crashes in a 5-year period by 2 crashes (an 18% reduction), other injury crashes by 20 crashes (a 16% reduction), and property damage only by 65 crashes (a 16% reduction). It is likely the full set of project improvements could further reduce crashes than the estimate.

Further, the project improvements will advance Boulder's Transportation Master Plan (2019) goals of creating a safe, equitable, and reliable system that provides more travel choices to people, and supports the city's commitment to addressing climate change through greenhouse gas reduction and will advance the Low Stress Walk and Bike Network Plan (2019) which plans for a network of low-stress facilities to help people of all ages and abilities walk and bike safely and comfortably throughout the community by implementing improvements for both walking and biking.

When implemented, the 2,400 walking, 900 cycling, and over 3,000 people boarding or alighting transit in the project area will be safer and more comfortable – and an estimated 18% reduction in serious injury crashes will occur.

Freight

Maintain efficient movement of goods within and beyond the region.

(drawn from [2050 MVRTP priorities](#); [Regional Multimodal Freight Plan](#); [Colorado Freight Plan](#), [federal freight reliability performance measure](#); [Metro Vision objective 14](#))

Examples of Project Elements: roadway operational improvements, etc.

How does this project improve the efficient movement of goods, specifically improvements identified in the [Regional Multimodal Freight Plan](#)? Note that any improvements on roadways must be on the DRCOG [Regional Roadway System](#). Items marked with an asterisk (*) below are available in the TIP Data Tool.

- Is this project located in or impact access to a [Freight Focus Area](#)?*
 Yes No If yes, please provide the name: [Northwest Metro](#)
- Is the project located on the [Tier 1 or Tier 2 Regional Highway Freight Vision Network](#)?*
 Yes No
- If this project is located in a [Freight Focus Area](#) does it address the relevant Needs and Issues identified in the Plan (see text located within each Focus Area)?
 Yes No If yes, please describe in your response.
- Check any items from the [Inventory of Current Needs](#) which this project will address:
 Truck Crash Location Rail Crossing Safety ([eligible locations](#))
 Truck Delay Truck Reliability
Please provide the location(s) being addressed:
- Does this project include any innovative or non-traditional freight supportive elements (i.e., curb management strategies, cargo bike supportive infrastructure, etc.)?
 Yes No If yes, please describe in your response.

Describe how this project will improve the movement of goods, *include quantitative information, including any items referenced above, in your response:*

[CO93/Broadway between Table Mesa Drive to 18th Street serves 10,399 freight vehicles on an average day, representing 25% of vehicles.](#)

The project will address two identified needs and issues for the Northwest Metro Freight Focus Area: 1) safety of local truck movements and residential delivery demand, and 2) multimodal and nonmotorized traveler safety.

Active Transportation	Expand and enhance active transportation travel options. <small>(drawn from 2050 MVRTP priorities; Denver Regional Active Transportation Plan; & Metro Vision objectives 10 & 13) Examples of Project Elements: shared use paths, sidewalks, regional trails, grade separations, etc.</small>
------------------------------	--

How does this project help expand the active transportation network, close gaps, improve comfort, and/or improve connections to key destinations, particularly improvements in line with the recommendations in the [Denver Regional Active Transportation Plan](#)? Items marked with an asterisk (*) below are available in the TIP Data Tool.

- Does this project close a gap or extend a facility on a [Regional Active Transportation Corridor](#) or locally-defined priority corridor?*
 Yes No
- Does this project improve pedestrian accessibility and connectivity in a [pedestrian focus area](#)?*
 Yes No
- Does this project improve active transportation choices in a [short trip opportunity zone](#)?*
 Yes No
- Does this project include a high-comfort bikeway (like a sidepath, shared-use path, separated bike lane, bicycle boulevard)?
 Yes No If yes, please describe in your response.

Bicycle Use

NOTE: if constructing a new facility, report bike usage along closest existing alternative route

1. Current Average Single Weekday Bicyclists:	900	
Bicycle Use Calculations	Year of Opening	2050 Weekday Estimate
2. Enter estimated additional average weekday one-way bicycle trips on the facility after project is completed.	900	1,100
3. Enter number of the bicycle trips (in #2 above) that will be diverting from a different bicycling route. <i>(Example: {#2 X 50%} or other percent, if justified on line 10 below)</i>	450	550
4. = Initial number of new bicycle trips from project (#2 – #3)	450	550
1. Enter number of the new trips produced (from #4 above) that are replacing a trip made by another non-SOV mode (bus, carpool, vanpool, bike, etc.). <i>(Example: {#4 X 30%} or other percent, if justified on line 10 below)</i>	135.00	165.00
5. = Number of SOV trips reduced per day (#4 - #5)	315.00	385.00
6. Enter the value of {#6 x 2 miles} . (= the VMT reduced per day) <i>(Values other than 2 miles must be justified by sponsor on line 10 below)</i>	630.00	770.00
7. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	598.50	731.50
8. If values would be distinctly greater for weekends, describe the magnitude of difference: n/a		
9. If different values other than the suggested are used, please explain here: n/a		

Pedestrian Use

NOTE: if constructing a new facility, report pedestrian usage along closest existing alternative route

2. Current Average Single Weekday Pedestrians (including users of non-pedaled devices such as scooters and wheelchairs):	2,400	
Pedestrian Use Calculations	Year of Opening	2050 Weekday Estimate
3. Enter estimated additional average weekday pedestrian one-way trips on the facility after project is completed	2,400	2,800
4. Enter number of the new pedestrian trips (in #2 above) that will be diverting from a different walking route <i>(Example: {#2 X 50%} or other percent, if justified on line 10 below)</i>	1,200	1,400
5. = Number of new trips from project (#2 – #3)	1,200	1,400
6. Enter number of the new trips produced (from #4 above) that are replacing a trip made by another non-SOV mode (bus, carpool, vanpool, bike, etc.). <i>(Example: {#4 X 30%} or other percent, if justified on line 10 below)</i>	360.00	420.00
7. = Number of SOV trips reduced per day (#4 - #5)	840.00	980.00

8. Enter the value of {#6 x .4 miles}. (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor on line 10 below)	336.00	392.00
9. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	319.20	372.40
10. If values would be distinctly greater for weekends, describe the magnitude of difference: n/a		
11. If different values other than the suggested are used, please explain here: n/a		

Describe how this project will expand the active transportation network, close gaps, improve comfort, and/or improve connections to key destinations, *include quantitative information, including any items referenced above, in your response:*

CO93/Broadway between Table Mesa Drive and 18th Street is identified as a DRCOG Regional Active Transportation Corridor, Short-Trip Opportunity Zone, and a Pedestrian Focus Area.

Regional Active Transportation Corridors support connections of residents to important destinations and improve the quality of life for both residents and visitors of the region. Pedestrian Focus Areas and Short Trip Opportunity Zones enhance connectivity and livability by improving walkability and bikeability in areas ripe to transition single occupancy vehicle trips to walking and biking. These zones and focus areas do so by implementing comfortable, safe, and convenient walking and biking paths and roadway crossings. Combined, these corridors, zones, and focus areas could reduce drive-alone trips and crashes involving pedestrians and cyclists.

The City of Boulder identified the project area as a high priority bicycle route and a high frequency transit corridor and has elevated the project area as an important corridor in the city's bicycle and pedestrian transportation networks through its 2019 Transportation Master Plan and 2019 Low-Stress Walk and Bike Network Plan.

The Low-Stress Plan was created to advance a network of low-stress facilities to help people of all ages and abilities walk and bike safely and comfortably. As with the DRCOG Active Transportation Plan (2019), the Low Stress plan identified pedestrian improvement areas and corridors to focus improvements.

Engineering improvements have been chosen to fit the walking and biking needs of the project area and its connections to an educational campus; neighborhood, subregional and regional serving transit; neighborhoods; the downtown and other employment and retail centers; and citywide and regional bike paths.

The project will improve crossings and walk and bike facility improvements at the CO93/Broadway at Regent Drive intersection to address crash patterns and safety concerns, including realigning and straightening adjacent multi-use paths, upgrading curb ramps on all four corners of the intersection to comply with the Americans with Disabilities Act, and realigning the southbound travel lanes at the intersection to improve pedestrian visibility and reduce crossing distance.

As a result, the project will result in 400 additional walking trips and 200 additional bicycle trips by 2050, advancing the Metro Vision 2040 goal for 35% of commuters to use non-SOV mode to work and the 2019 DRCOG Active Transportation Plan objectives for expanding and connecting comfortable transportation facilities for people who bike and people who walk, improving bicycle and pedestrian access to and from transit, and improving and expanding equitable access to active transportation corridors.

C. Project Leveraging	WEIGHT	5%
------------------------------	--------	-----------

What percent of outside funding sources (non-Subregional Share funding) does this project have? <i>(number will automatically calculate based on values entered in the Funding Request table)</i>	46.09%	60%+ outside funding sources 5 pts 50-59.9% 4 pts 40-49.9% 3 pts 20-39.9% 2 pts 10.1-19.9% 1 pt 10%..... 0 pts
--	---------------	---

D. Project Readiness	WEIGHT	10%
-----------------------------	--------	------------

Provide responses to the following items to demonstrate the readiness of the project. DRCOG is prioritizing those projects that have a higher likelihood to move forward in a timely manner and are less likely to experience a delay.

Section 1. Avoiding Pitfalls and Roadblocks

a. Has a licensed engineer (CDOT, consultant, local agency, etc.) reviewed the impact the proposed project will have on utilities, railroads, ROW, historic and environmental resources, etc. and have those impacts and pitfalls been mitigated as much as possible to date before this submittal?
 Yes No N/A (for projects which do not require engineering services)

If yes, please type in the engineer's name below which certifies their review and that impacts have been evaluated and mitigated as much as possible before your application is submitted:

Gerrit Slatter

Please describe the status to date on each, including 1) anticipated/known pitfalls/roadblocks, and 2) mitigation activities taken to date:

- Utilities: None
- Railroad: N/A
- Right-of-Way: Preliminary
- Environmental/Historic: None
- Other:

b. Is this application for a single project phase only (i.e., design, environmental, ROW acquisition, construction only, study, bus service, equipment purchase, etc.)?
 Yes No

If yes, are the other prerequisite phases complete? Yes No N/A

If this project is for construction, please note the NEPA status: Not Started

c. Has all required ROW been identified? Yes No N/A
 Has all required ROW already been acquired and cleared by CDOT? Yes No N/A

d. Based on the current status provided in Project Information, question 11, do you foresee being able to execute your IGA by October 1 of your first year of funding (or if requesting first year funding, beginning discussions on your IGA as soon as possible), so you can begin your project on time?
 Yes No

Does your agency have the appropriate staff available to work on this project? Yes No

If yes, are they knowledgeable with the federal-aid process? Yes No

e. Have other stakeholders in your project been identified and involved in project development?
 Yes No N/A

If yes, who are the stakeholders? The City has been coordinating with CDOT Region 4, RTD, and the University of Colorado in the development of this project.

Please provide any additional details on any of the items in Section 1, if applicable.

Section 2. Local Match

- a. Is all the local match identified in your application currently available, and if a partnering agency is also committing match, do you have a commitment letter?

Yes No

Please describe:

City of Boulder Funds will be used for a portion of the local match. Programmed funds from CDOT's 10-Year Plan will be used for the remainder. See CDOT commitment letter attached.

- b. Is all funding for this project currently identified in the sponsor agency's Capital Improvement Program (CIP)?

Yes No

Please describe:

Yes, the project is programmed in the City of Boulder's 2022-2027 Capital Improvement Program.

Section 3. Public Support

- a. Has the proposed project previously been through a public review process (public comment period, public hearing, etc.)?

Yes No

- b. Has the public had access to translated project materials in relevant languages for the local community?

Yes No

Please describe:

Several outreach efforts were implemented to notify adjacent property owners and the community about the TIP submittal process for this project. There is a project webpage that includes information about the project. A mailing was sent to property owners, residents, and businesses adjacent to the project and other interested stakeholders in the community notifying them of the upcoming TIP grant application process. Community members were invited to review a project factsheet and informational video, provide online feedback, and schedule virtual office hours with staff. This information was also included in a city press release and social media postings by the city and Transportation Advisory Board members. Seventeen people provided feedback.

The Transportation Advisory Board (TAB) considered items related to this TIP submittal at its December 13, 2021, February 14, 2022, March 14, 2022, and April 11, 2022 meetings. A public hearing was held at the May 9 Transportation Advisory Board meeting and a May 17th City Council public hearing was also held.

While the TIP project selection outreach process did not include translated project materials, the proposed project will provide the public access to translated project materials as per the city's newly released Language Access Plan.

- c. Have any adjacent property owners to the proposed project been contacted and provided with the initial project concept?

Yes No N/A

Please provide any additional details on the items in Section 3, if applicable.

The project has been reviewed with the University of Colorado - Boulder (see the attached letter of support). The project will include a robust community engagement process through design and construction.

Submit completed applications through the [TIP Data Hub](#) no later than 3pm on June 24, 2022.

Project Location



Broadway Intersections Multimodal Improvements Estimate

CATEGORY	ITEM	UNIT	UNIT COST	Broadway Intersection Multimodal Enhancements	
				QTY	COST
210	BOX CULVERT REPAIR (SPALL, CRACK, AND JOINT)	EACH	\$ 50,000.00		\$ -
304	AGGREGATE BASE COURSE (CLASS 6) (12 INCH)	CY	\$ 55.00	1,389	\$ 76,389
403	PAVEMENT (HMA) (8 INCH AVERAGE)	TON	\$ 100.00	440	\$ 44,000
403	HOT MIX ASPHALT (PATCHING) (ASPHALT)	TON	\$ 200.00		\$ -
412	CONCRETE PAVEMENT (8 INCH)	SY	\$ 110.00		\$ -
503	DRILLED CAISSON 36"	LF	\$ 650.00		\$ -
503	DRILLED CAISSON 54"	LF	\$ 800.00		\$ -
504	RETAINING WALL (BOULDER)	SF	\$ 75.00		\$ -
601	BRIDGE (COST/SF)	SF	\$ 200.00		\$ -
601	CONCRETE CLASS D (WALL)	LF	\$ 1,000.00		\$ -
601	FORMLINER	LF	\$ 30.00		\$ -
602	STEEL REINFORCEMENT (EPOXY COATED)	LBS	\$ 2.00		\$ -
603	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	\$ 150.00	400	\$ 60,000
603	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	\$ 175.00		\$ -
603	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	\$ 200.00		\$ -
603	42 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	\$ 250.00		\$ -
603	54 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	\$ 325.00		\$ -
603	18 INCH REINFORCED CONCRETE END SECTION	EACH	\$ 1,800.00		\$ -
603	36 INCH REINFORCED CONCRETE END SECTION	EACH	\$ 2,200.00		\$ -
603	42 INCH REINFORCED CONCRETE END SECTION	EACH	\$ 2,600.00		\$ -
603	54 INCH REINFORCED CONCRETE END SECTION	EACH	\$ 3,000.00		\$ -
604	INLET TYPE 13 (5 FOOT)	EACH	\$ 5,000.00		\$ -
604	INLET TYPE R L 5 (5 FOOT)	EACH	\$ 7,000.00		\$ 2
604	DROP STRUCTURE	EACH	\$ 1,000.00		\$ -
604	EDB WATER QUALITY POND	LS	\$ 250,000.00		\$ -
604	MANHOLE SLAB BASE (5 FOOT)	EACH	\$ 5,000.00		\$ -
604	STORM SEWER VAULT	EACH	\$ 30,000.00		\$ -
606	GUARDRAIL TYPE 7 (PRECAST)	LF	\$ 120.00		\$ -
608	CONCRETE SIDEWALK (6 INCH)	SY	\$ 75.00	4,267	\$ 320,000
608	CONCRETE SIDEWALK (6 INCH) (COLORED)	SY	\$ 75.00		\$ -
608	CONCRETE CURB RAMP	SY	\$ 130.00		\$ -

Broadway Intersections Multimodal Improvements Estimate

CATEGORY	ITEM	UNIT	UNIT COST	Broadway Intersection Multimodal Enhancements	
				QTY	COST
608	CONCRETE BIKEWAY (8 INCH)	SY	\$ 65.00		\$ -
608	COLORED PATTERNED CONCRETE (6 INCH)	SY	\$ 160.00		\$ -
609	CURB AND GUTTER STANDARD 6"	LF	\$ 30.00	1,600	\$ 48,000
609	CURB AND GUTTER STANDARD 2"	LF	\$ 25.00		\$ -
609	CURB AND GUTTER OUTFALL/MEDIAN	LF	\$ 30.00	2,000	\$ 60,000
609	CURB TYPE 2 (SECTION B)	LF	\$ 20.00		\$ -
609	CURB AND GUTTER TYPE 2 (SECTION II-B) (SPECIAL)	LF	\$ 30.00		\$ -
610	MEDIAN COVER MATERIAL (PATTERNED CONCRETE)	SF	\$ 15.00		\$ -
613	2 INCH ELECTRICAL CONDUIT (BORED)	LF	\$ 30.00		\$ -
613	3 INCH ELECTRICAL CONDUIT (BORED)	LF	\$ 22.00		\$ -
613	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	\$ 22.00		\$ -
613	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	\$ 25.00		\$ -
613	TYPE ONE PULL BOX	EACH	\$ 1,000.00		\$ -
613	TYPE FOUR PULL BOX	EACH	\$ 1,500.00		\$ -
613	TYPE FIVE PULL BOX	EACH	\$ 3,000.00		\$ -
613	WIRING	LS	\$ 15,000.00		\$ -
613	LUMINAIRE (LED) (8500 LUMENS)	EACH	\$ 2,000.00		\$ -
613	SERVICE METER CABINET	EACH	\$ 5,500.00		\$ -
614	1310nm SFP OPTIC MODULE	EACH	\$ 500.00		\$ -
614	TRAFFIC SIGNAL UPGRADES	LS	\$ 400,000.00	1	\$ 400,000
614	OPTICAL ATTENUATOR	EACH	\$ 150.00		\$ -
614	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	\$ 600.00		\$ -
614	TRAFFIC SIGNAL FACE (12-12-12)	EACH	\$ 1,000.00		\$ -
614	TRAFFIC SIGNAL FACE (12-12-12-12)	EACH	\$ 1,100.00		\$ -
614	CONFLICT MONITOR	EACH	\$ 1,100.00		\$ -
614	TRAFFIC SIGNAL CONTROLLER CABINET	EACH	\$ 30,000.00		\$ -
614	PEDESTRIAN PUSH BUTTON	EACH	\$ 1,000.00		\$ -
614	SIG-LIGHT POLE STEEL (1-70 FT)	EACH	\$ 30,000.00		\$ -
614	SIG-LIGHT POLE STEEL (1-75 FT)	EACH	\$ 35,000.00		\$ -
614	CONTROLLER (TYPE 2070LC)	EACH	\$ 5,000.00		\$ -
614	UNINTERRUPTABLE POWER SUPPLY	EACH	\$ 8,000.00		\$ -
614	FIBER OPTIC CABLE (SM) (12 FIBER)	LF	\$ 3.00		\$ -
614	FO TERMINATION PANEL (12 FIBER)	EACH	\$ 1,200.00		\$ -
614	BUFFER TUBE FAN OUT KIT	EACH	\$ 120.00		\$ -
614	CLOSED CIRCUIT TELEVISION	EACH	\$ 6,000.00		\$ -
614	SPLICE FIBER OPTIC CABLE (12 STRAND)	EACH	\$ 2,000.00		\$ -
614	ETHERNET SWITCH TYPE II	EACH	\$ 5,000.00		\$ -
628	BRIDGE GIRDER AND DECK UNIT (75 FEET TO 80 FEET)	LS	\$ 300,000.00		\$ -
					\$ 1,008,391

Broadway Intersections Multimodal Improvements Estimate

CATEGORY	ITEM	UNIT	UNIT COST	Broadway Intersection Multimodal Enhancements	
				QTY	COST
SECONDARY	CLEARING AND GRUBBING	LS		2.50%	\$ 25,210
SECONDARY	REMOVALS AND RESETS	LS		20.00%	\$ 201,678
SECONDARY	EXCAVATION AND EMBANKMENT (COMPLETE IN PLACE)	LS		10.00%	\$ 100,839
SECONDARY	EROSION CONTROL/STORMWATER MANAGEMENT	LS		5.00%	\$ 50,420
SECONDARY	LANDSCAPING AND TOPSOIL	LS		5.00%	\$ 50,420
SECONDARY	ENVIRONMENTAL HEALTH AND SAFETY	LS		0.50%	\$ 5,042
SECONDARY	DRAINAGE	LS		10.00%	\$ 100,839
SECONDARY	PERMANENT WATER QUALITY	LS		5.00%	\$ 50,420
SECONDARY	LIGHTING	LS		5.00%	\$ 50,420
SECONDARY	CONSTRUCTION SURVEYING	LS		4.00%	\$ 40,336
SECONDARY	MOBILIZATION	LS		15.00%	\$ 151,259
SECONDARY	PERMANENT SIGNING AND STRIPING	LS		5.00%	\$ 50,420
SECONDARY	FLAGGING	LS		5.00%	\$ 50,420
SECONDARY	TRAFFIC CONTROL MANAGEMENT	LS		5.00%	\$ 50,420
SECONDARY	TRAFFIC CONTROL INSPECTION	LS		1.00%	\$ 10,084
SECONDARY	CONSTRUCTION ZONE TRAFFIC CONTROL	LS		5.00%	\$ 50,420
SECONDARY	CITY UTILITY CONTINGENCIES	LS		5.00%	\$ 50,420
SECONDARY	FORESTRY CHARGES	LS			\$ -
SECONDARY	ENVIRONMENTAL MITIGATION	LS		1.00%	\$ 10,084
SECONDARY	URBAN DESIGN FEATURES	LS		1.00%	\$ 10,084
SECONDARY	MISCELLANEOUS CONSTRUCTION ITEMS	LS		3.00%	\$ 30,252
					\$ 2,147,873
CONTINGENCY	CONSTRUCTION CONTINGENCIES	LS		30%	\$ 644,362
CONTINGENCY	FORCE ACCOUNTS AND MINOR CONTRACT REVISIONS	LS		10%	\$ 214,787
					\$ 3,007,022

Broadway Intersections Multimodal Improvements Estimate

CATEGORY	ITEM	UNIT	UNIT COST	Broadway Intersection Multimodal Enhancements	
				QTY	COST
PROJECT DEV	SURVEYING AND MAPPING	LS		2.50%	\$ 75,176
PROJECT DEV	PROFESSIONAL CIVIL ENGINEERING	LS		10.00%	\$ 300,702
PROJECT DEV	GEOTECHNICAL/TRAFFIC/ELECTRICAL ENGINEERING	LS		2.00%	\$ 60,140
PROJECT DEV	LANDSCAPE AND URBAN DESIGN	LS		1.00%	\$ 30,070
PROJECT DEV	ENVIRONMENTAL CLEARANCES	LS		1.00%	\$ 30,070
PROJECT DEV	MISCELLANEOUS DESIGN	LS		1.00%	\$ 30,070
PROJECT DEV	PUBLIC PROCESS/ALTERNATIVES ANALYSIS/CEAP	LS		1.00%	\$ 30,070
PROJECT DEV	SUBSURFACE UTILITY ENGINEERING (SUE)	LS		3.00%	\$ 90,211
PROJECT DEV	CONSTRUCTION MANAGEMENT	LS		8.00%	\$ 240,562
PROJECT DEV	MATERIALS TESTING	LS		2.00%	\$ 60,140
PROJECT DEV	POST-DESIGN ENGINEERING SERVICES	LS		1.00%	\$ 30,070
PROJECT DEV	ENTITY SALARIES	LS		5.00%	\$ 150,351
PROJECT DEV	ROW PLANS	LS			\$ -
PROJECT DEV	ROW ACQUISITION CONSULTANT	LS			\$ -
PROJECT DEV	APPRAISAL COSTS	LS			\$ -
PROJECT DEV	ROW/EASEMENT COSTS	LS			\$ -
					\$ 4,134,655
TOTAL PROJECT COST (WITH COMPLEXITY FACTOR)				1	\$ 4,134,655
CURRENT YEAR					2022
YEAR OF CONSTRUCTION (ASSUME MIDPOINT OF CONSTRUCTION)					2024
ASSUMED INFLATION (YEAR OVER YEAR)					5%
TOTAL PROJECT COST (YEAR OF CONSTRUCTION)					\$ 4,558,457
ROUNDED TOTAL PROJECT COST					\$ 4,600,000



COLORADO

Department of Transportation

Region 4
Regional Director's Office
10601 10th Street
Greeley, CO 80634-9000

May 20, 2022

Jean Sanson
Boulder County
PO Box 471
Boulder, CO 80306

Dear Ms. Sanson,

This letter is to inform you that the Colorado Department of Transportation (CDOT) concurs with the City of Boulder's DRCOG FY22-25 Subregional Call applications for the following projects:

- **30th Street Preliminary Design (CO 7/Arapahoe - CO 119 /Iris) Project**
- **CO 93/Broadway & Table Mesa and CO 93/Broadway & Regent Transit Priority Intersections:** CDOT Region 4 supports the City of Boulder's funding request of **\$1,500,000** with 10-Year Plan funds.
- **Baseline Enhanced Transit Stops and Protected Bike Lanes (30th Street - Foothills Parkway)**
- **US 36/28th Street West Side Multi-Use Path (Four Mile Canyon Creek Bridge - Jay Road)**

Additionally, CDOT Region 4 supports your funding request (highlighted above) with the US 36/28th Street and CO 93/Broadway Intersection Improvements funds identified in the 10-Year Plan. It is important to note that CDOT is currently working through a 10-Year Plan update and is allocating funding to projects for FY23-26. For funds identified in FY23-26, funds are expected to be approved by the Colorado Transportation Commission in August 2022 (date is subject-to-change) and this funding commitment is contingent upon that formal approval.

If this project is awarded funding, the City of Boulder will need to reaffirm CDOT's concurrence at that time and amend the current Intergovernmental Agreement in place for this project. This concurrence is conditionally granted based on the scope of work 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 City of Boulder will need to work closely with CDOT Regional staff to ensure continued concurrence.

This project must comply with all CDOT requirements, including those associated with clearance for right-of-way, utilities, railroad 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 you in determining which clearances are required for your project. The CDOT Local Agency Manual includes project requirements to assist with contracting, design and construction, which can be accessed at: <https://www.codot.gov/business/localagency/manual>.



If you have any questions regarding this concurrence, please contact Josie Hadley at <mailto:josie.hadley@state.co.us>.

Sincerely,

Heather Paddock, P.E.
CDOT Region 4 Transportation Director

Cc: Josie Hadley, CDOT Region 4 Planning & Local Agency Environmental Manager
Bryce Reeves, CDOT Region 4 Local Agency Resident Engineer



From: [Christopher Quinn](#)
To: [Sanson, Jean](#); [Josie Langhorst - CDOT](#)
Cc: [Slatter, Gerrit](#); [Todd Cottrell](#)
Subject: RE: City of Boulder Subregional TIP Concurrence Forms
Date: Thursday, May 26, 2022 4:12:36 PM

External Sender

Hi Jean,

This email is to provide RTD's concurrence with the City of Boulder's TIP applications for:

- CO 93/Broadway & Table Mesa and CO 93 Broadway & Regent Transit Priority Intersections
- 30th Street Preliminary Design
- Baseline Enhanced Transit Stops & Protected Bike Lanes

Please continue to coordinate with RTD on any of these projects that may have any impact to an existing RTD facility.

Thanks and let me know if I can provide any additional information.

Chris

Chris Quinn

Project Manager

Planning

he | him | his

o. 303.299.2439

chris.quinn@rtd-denver.com

rtd-denver.com



Regional Transportation District
1660 Blake Street, BLK-21
Denver, CO 80202

We make lives better through connections.

Transit Bus Service and Fleet Expansion

This calculator will estimate the reduction in emissions from projects which expand transit bus service and fleets, including new routes, new schedules, and new vehicles. Emissions reductions are associated with the mode shift from passenger vehicle to transit activity. Users are recommended to forecast activity by mode with an external travel demand model.

Navigator

Transit Bus Service and Fleet Expansion

[Model Year Distribution](#)

[Fuel Type Distribution](#)

[Road Type Distribution](#)

INPUT

(1) What is your project evaluation year?

(2) Please input the number of days that the bus service is operated annually
*Note: Default is 365 days per year.
 For weekdays only, enter 260 days per year.
 For weekends only, enter 105 days per year*

Transit Bus Information

(3a) Enter the estimated vehicle miles traveled annually by the transit buses before and after the transit project is completed.

	Before	After	
Transit Bus Miles Traveled	<input type="text" value="3,979,243"/>	<input type="text" value="3,979,243"/>	Miles

(3b) Enter the [VMT allocations](#) of your transit bus fleet on the separate tabs before and/or after project completion. If desired, default national average distributions can be used to fill these tables.

Allocations of Model Years

Allocations of Fuel Types

Allocations of Road Types

Passenger Vehicle Information

(4a) Enter the annual passenger vehicle activity information before and after the project. Annual passenger vehicle activity can be entered either in terms of vehicle miles traveled, or number of passenger trips diverted. The passenger vehicle average one-way trip distance should be entered in miles.

Passenger Vehicle Activity Type
 Passenger Vehicle Miles Traveled
 Passenger Vehicle Trips

	Before	After	
Passenger Vehicle Activity	<input type="text" value="7,217,518"/>	<input type="text" value="0"/>	Miles

Average One-Way Trip Distance Miles
Note: National Default value is 4.52

(4b) Do you expect most passenger vehicle trips to be linked with bus trips as a result of the service or fleet expansion?
 Linked Passenger Vehicle Trips
 Yes, passengers will drive to transit hubs to use the expanded transit bus service or fleet.
 No, the expansion will eliminate full passenger vehicle trips (reduction of running and start activity)

OUTPUT

FLEET PERFORMANCE

Transit Bus VMT increase Miles

Passenger Vehicle Trip Reduction Trips

Passenger Vehicle VMT reduction Miles

EMISSION REDUCTIONS

Pollutant	Total kg/day
Carbon Monoxide (CO)	52.043
Particulate Matter <2.5 μm (PM _{2.5})	0.155
Particulate Matter <10 μm (PM ₁₀)	0.700
Nitrogen Oxide (NOx)	2.819
Volatile Organic Compounds (VOC)	0.952
Carbon Dioxide (CO ₂)	6,722.356
Carbon Dioxide Equivalents (CO ₂ e)	6,749.603
Total Energy Consumption (MMBTU)	88.576

Transit Bus Model Year Distribution

This module contains national default VMT distributions by model year. These are the percentages of the total fleet VMT driven by specific model years in the given evaluation year. Model year distributions commonly change when increasing or decreasing the number of transit buses in the fleet. Users are encouraged to enter their own model year VMT distribution(s) where applicable. If user's do not have accurate VMT distributions by model year, the population distributions by model year may be used as a reasonable proxy provided that each bus travels a similar distance regardless of the model year.

Navigator

Transit Bus Service and Fleet Expansion

[Model Year Distribution](#)

[Fuel Type Distribution](#)

[Road Type Distribution](#)

ACTIVITY ALLOCATIONS

(1) Enter the model year distribution of transit bus activity before and/or after completion (fractions for each distribution/column must sum to 1*).

(2) Use the button below to fill the table with national default model year distributions if desired. These distributions are specific to the year input on the "Transit Bus Service & Fleet Expansion" Tab.

Model Year	Age	Fraction Before	Fraction After
2025	0	0.0676	0.0676
2024	1	0.0666	0.0666
2023	2	0.0666	0.0666
2022	3	0.0666	0.0666
2021	4	0.0666	0.0666
2020	5	0.0666	0.0666
2019	6	0.0666	0.0666
2018	7	0.0666	0.0666
2017	8	0.0666	0.0666
2016	9	0.0666	0.0666
2015	10	0.0666	0.0666
2014	11	0.0666	0.0666
2013	12	0.0666	0.0666
2012	13	0.0666	0.0666
2011	14	0.0666	0.0666
2010	15		
2009	16		
2008	17		
2007	18		
2006	19		
2005	20		
2004	21		
2003	22		
2002	23		
2001	24		
2000	25		
1999	26		
1998	27		
1997	28		
1996	29		
1995	30		
SUM		1.0000	1.0000

Transit Bus Fuel Type Distribution

This module contains national default VMT distributions by fuel type. These are the percentages of the total fleet VMT driven by vehicle with specific fuel types in the given evaluation year. Fuel type distributions commonly change when increasing or decreasing the number of transit buses in the fleet. Users are encouraged to enter their own fuel type VMT distribution(s) where applicable. If user's do not have accurate VMT distributions by fuel type, the population distributions by fuel type may be used as a reasonable proxy.

Navigator

Transit Bus Service and Fleet Expansion

[Model Year Distribution](#)

[Fuel Type Distribution](#)

[Road Type Distribution](#)

ACTIVITY ALLOCATIONS

(1) Enter the fuel type distribution of transit bus activity before and/or after completion (fractions for each distribution/column must sum to 1*).

(2) Use the button below to fill the table with national default fuel type distributions if desired. These distributions are specific to the year input on the "Transit Bus Service & Fleet Expansion" Tab.

Fuel Type	Fraction Before	Fraction After
Gasoline		
Diesel	1.0000	1.0000
Compressed Natural Gas (CNG)		
Liquefied Natural Gas (LNG)		
20% Biodiesel (B20)		
100% Biodiesel (B100)		
Dual Fuel (Natural Gas/Diesel)		
Hybrid Electric (HEV)		
Hydraulic Hybrid (HHV)		
Battery Electric (BEV)		
Hydrogen Fuel Cell (FCV)		
SUM	1.0000	1.0000

Transit Bus Road Type Distribution

This module contains national default VMT distributions by road type. These are the percentages of the total fleet VMT driven by vehicle on specific road types in the given evaluation year. Road type distributions commonly change when increasing or decreasing the number of transit buses in the fleet or expanding transit routes or service areas. Users are encouraged to enter their own road type VMT distribution(s) where applicable. If user's do not have accurate VMT distributions by road type, it is recommended to use national defaults.

Navigator

Transit Bus Service and Fleet Expansion

[Model Year Distribution](#)

[Fuel Type Distribution](#)

[Road Type Distribution](#)

ACTIVITY ALLOCATIONS

(1) Enter the road type distribution of transit bus activity before and/or after completion (fractions for each distribution/column must sum to 1*).

(2) Use the button below to fill the table with national default road type distributions if desired. These distributions are specific to the year input on the "Transit Bus Service & Fleet Expansion" Tab and shown below.

Road Type	Fraction Before	Fraction After
Rural Restricted		
Rural Unrestricted		
Urban Restricted	0.6000	0.6000
Urban Unrestricted	0.4000	0.4000
SUM	1.0000	1.0000

Ridership Model with Transit Priority

BASELINE INPUTS AND CALCULATIONS														FORECAST										
Route	DOW	Annual Days	RTD SOP Service Level Factor vs 2019 Baseline	Service Hrs	Daily Mileage	Annual Mileage	Daily Trips	Annual Trips	Boardings /Service Hour	Average Daily Ridership	Annual Ridership	1-Way Mileage	Average Load/Trip	Daily Transit Passenger Miles Traveled	Annual Transit Passenger Miles Traveled	TSP Ridership Increase Factor	Projected Average Daily Ridership	Projected Annual Ridership	Daily Transit Passenger Miles Traveled	Annual Transit Passenger Miles Traveled				
204	WKDY	255	0.85	48.72	583	148,608	66	16,907	24.12	1,175	299,670	8.79	17.73	10,330	2,634,095	1.10	1,293	329,636	11,363	2,897,505				
204	SAT	52	0.85	9.52	209	10,879	24	1,238	24.12	230	11,940	8.79	9.65	2,018	104,956	1.10	253	13,134	2,220	115,451				
204	SUN	58	0.85	9.52	209	12,134	24	1,380	24.12	230	13,318	8.79	9.65	2,018	117,066	1.10	253	14,650	2,220	128,773				
225	WKDY	255	0.85	36.35	572	145,976	47	11,921	18.23	663	168,999	12.25	14.18	8,115	2,069,397	1.10	729	185,899	8,927	2,276,337				
225	SAT	52	0.85	39.41	583	30,309	48	2,475	18.23	719	37,363	12.25	15.10	8,798	457,514	1.10	790	41,100	9,678	503,266				
225	SUN	58	0.85	31.76	479	27,769	39	2,268	18.23	579	33,586	12.25	14.81	7,091	411,259	1.10	637	36,944	7,800	452,385				
225D	WKDY	255	0.85	2.58	152	38,796	12	3,035	18.23	47	12,000	12.79	3.95	602	153,423	1.10	52	13,200	662	168,766				
225T	WKDY	255	0.85	5.39	76	19,398	6	1,517	18.23	98	25,052	12.79	16.51	1,256	320,284	1.10	108	27,557	1,382	352,313				
AB1	WKDY	255	0.85	52.33	1,797	458,121	40	10,187	29.11	1,523	388,419	44.97	38.13	68,499	17,467,181	1.10	1,676	427,260	75,349	19,213,899				
AB1	SAT	52	0.85	54.00	1,758	91,433	39	2,033	29.11	1,572	81,742	44.97	40.20	70,691	3,675,921	1.10	1,729	89,916	77,760	4,043,514				
AB1	SUN	58	0.85	53.41	1,835	106,417	41	2,366	29.11	1,555	90,169	44.97	38.10	69,912	4,054,890	1.10	1,710	99,186	76,903	4,460,379				
DASH	WKDY	255	0.85	76.42	1,509	384,805	107	27,311	25.36	1,938	494,215	14.09	18.10	27,308	6,963,496	1.10	2,132	543,637	30,039	7,659,846				
DASH	SAT	52	0.85	34.55	695	36,121	49	2,564	25.36	876	45,565	14.09	17.77	12,346	642,012	1.10	964	50,122	13,581	706,213				
DASH	SUN	58	0.85	21.72	431	25,007	31	1,775	25.36	551	31,944	14.09	18.00	7,760	450,089	1.10	606	35,138	8,536	495,098				
FF1	WKDY	255	0.85	124.95	3,574	911,286	129	32,946	36.03	4,502	1,147,997	27.66	34.84	124,524	31,753,593	1.10	4,952	1,262,797	136,976	34,928,953				
FF1	SAT	52	0.85	102.00	2,868	149,154	104	5,392	36.03	3,675	191,103	27.66	35.44	101,652	5,285,912	1.10	4,043	210,213	111,817	5,814,504				
FF1	SUN	58	0.85	48.17	1,411	81,818	51	2,958	36.03	1,736	100,662	27.66	34.03	48,005	2,784,303	1.10	1,909	110,728	52,806	3,062,734				
FF2	WKDY	255	0.85	70.14	2,352	599,639	85	21,675	36.03	2,527	644,440	27.67	29.73	69,915	17,828,437	1.10	2,780	708,884	76,907	19,611,280				
FF5	WKDY	255	0.85	25.88	308	78,518	18	4,552	36.03	933	237,799	17.25	52.24	16,086	4,102,039	1.10	1,026	261,579	17,695	4,512,243				
GS	WKDY	255	0.85	24.81	582	148,515	19	4,769	16.25	403	102,813	31.15	21.56	12,557	3,202,100	1.10	444	113,094	13,813	3,522,310				
SKIP	WKDY	255	0.85	110.50	1,436	366,257	178	45,301	42.13	4,655	1,187,118	8.09	26.21	37,639	9,597,850	1.10	5,121	1,305,830	41,402	10,557,635				
SKIP	SAT	52	0.85	64.41	921	47,886	114	5,923	42.13	2,714	141,113	8.09	23.83	21,940	1,140,902	1.10	2,985	155,225	24,134	1,254,992				
SKIP	SUN	58	0.85	49.26	680	39,460	84	4,881	42.13	2,075	120,363	8.09	24.66	16,778	973,132	1.10	2,283	132,399	18,456	1,070,445				
Y	WKDY	255	0.85	3.00	82	20,938	5	1,301	18.00	54	13,772	16.10	10.59	870	221,734	1.10	59	15,150	956	243,907				
											3,979,243	1,358	216,673		5,621,162	18.37				116,411,587		6,183,278		128,052,745

Projected Annual Ridership w/ TSP 6,183,278
 Baseline Annual Ridership w/o TSP 5,621,162
 Annual Ridership Gain w/ TSP 562,116

TSP Ridership Increase Factor 10%

Source 1: LA Metro gange of riderhip increase w/ TSP is 4-40%

<https://www.ctps.org/data/html/studies/transit/TSP-Guidebook/TSP-Guidebook.html>

Projected Transit Passenger Miles Traveled with TSP 128,052,745
 Baseline Annual Ridership w/o TSP 116,411,587
 Annual Ridership Gain w/ TSP 11,641,159

Source 2: 10% ridership gain with TSP and other treatments for MTA buses in NYC:

<https://new.mta.info/projects/bus-improvements>

Vehicle miles avoided through transit factor (WSDOT) 0.62
 Vehicle miles avoided through transit calculation/SOV avoided 7,217,518
 Trips avoided (USDOT CMAQ calculator formula) 633,870

Source (p 11) https://wsdot.wa.gov/publications/fulltext/graynotebook/CCR14_methodology.pdf#page=11

Transit passenger miles traveled is calculated the same way as person miles traveled, by multiplying vehicle occupancy by the distance traveled. WSDOT multiplies the average maximum load of passengers for each transit trip by the trip distance. The passenger miles traveled can then be summed up for any time period or geographic area.

$$\text{Transit passenger miles traveled} = \sum_{\text{Time period}} \sum_{\text{Commuter trip}} \left(\frac{\text{Average maximum load}}{\text{Transit trip}} \times \text{Distance traveled} \right)$$

WSDOT reports transit passenger miles traveled using the equation above for major commute corridors in urban areas. Statewide transit passenger miles traveled are pulled from the National Transit Database. The calculation below illustrates the transit passenger miles traveled on the I-5 Everett to Seattle commute route 5-10 a.m. in 2012:

$$\text{Transit passenger miles traveled} = \sum_{\text{Morning peak period}} \left(\frac{832}{57510 @ 6:11 am} + \frac{1,214}{57510 @ 6:41 am} + \frac{1,181}{CT 412 @ 10:00 am} \right) = 137,646 \text{ transit passenger miles traveled}$$

Source 1 Excerpt:

In Los Angeles, the Metropolitan Transportation Authority has implemented TSP along nine corridors, with another 19 planned. Along these corridors, 283 buses are equipped with transponders for TSP, and 654 signalized intersections are controlled and monitored from a traffic management center. The agency has seen a 19 to 25 percent reduction in travel times along the corridors, and ridership increases from four to 40 percent since implementing TSP and other bus service improvements, such as introducing headway-based service, increasing stop spacing, and implementing strategies to reduce dwell time.

Vehicle miles avoided by transit use is the approximate number of miles that were not traveled in a single occupant vehicle (SOV) due to people taking transit instead. King County Metro provided WSDOT with the factor that approximately 62% of transit miles traveled would have been taken as equivalent SOV trips if transit services were not available. This takes into consideration the average rate of ridesharing in the central Puget Sound area served by Metro's transit services. Multiplying the passenger miles traveled by 0.62 results in the estimated SOV miles avoided due to transit services.

$$\text{Vehicle miles avoided through transit} = \text{Transit passenger miles traveled} \times 0.62 \text{ SOV miles per transit passenger mile}$$

For example, applying King County Metro's conversion factor to the transit passenger miles traveled for the 2012 Everett to Seattle commute yields the SOV miles avoided.

$$\text{Vehicle miles avoided through transit} = \frac{137,646 \text{ transit passenger miles traveled} \times 0.62 \text{ SOV miles avoided per transit passenger mile}}{1.5 \text{ Everett to Seattle}} = 81,795 \text{ SOV miles avoided through transit use}$$

Ridership Model with Transit Priority - Model Inputs

Route	DOW	Trips	RT Length	-Way Trip Leng	Trip Mileage	In-Service Hrs
204	WKDY	78	17.58	8.79	686	57.32
204	SAT	28	17.58	8.79	246	11.2
204	SUN	28	17.58	8.79	246	11.2
225	WKDY	55	24.49	12.25	673	42.77
225	SAT	56	24.49	12.25	686	46.37
225	SUN	46	24.49	12.25	563	37.37
225D	WKDY	14	25.57	12.79	179	3.037
225T	WKDY	7	25.57	12.79	89	6.34
AB1	WKDY	47	89.94	44.97	2,114	61.56
AB1	SAT	46	89.94	44.97	2,069	63.53
AB1	SUN	48	89.94	44.97	2,159	62.83
DASH	WKDY	126	28.18	14.09	1,775	89.91
DASH	SAT	58	28.18	14.09	817	40.65
DASH	SUN	36	28.18	14.09	507	25.55
FF1	WKDY	152	55.32	27.66	4,204	147
FF1	SAT	122	55.32	27.66	3,375	120
FF1	SUN	60	55.32	27.66	1,660	56.67
FF2	WKDY	100	55.33	27.67	2,767	82.52
FF5	WKDY	21	34.50	17.25	362	30.45
GS	WKDY	22	62.29	31.15	685	29.19
SKIP	WKDY	209	16.17	8.09	1,690	130
SKIP	SAT	134	16.17	8.09	1,083	75.78
SKIP	SUN	99	16.17	8.09	800	57.95
Y	WKDY	6	32.20	16.10	97	3.53

Ridership Model with Transit Priority - Model Inputs

Ranking - Total Boardings



Regional Transportation District

RTD Service Standards Analysis - 2019 By Route & Class								
Route	Standards Class	Fare Revenue	Operating Costs	Total Boardings	In-Service Hours	Net Subsidy	Subsidy per Boarding	Boardings per Hour
FF	Regional	\$6,743,627	\$23,360,810	3,366,474	93,426	\$16,617,183	\$4.94	36.03
SKIP	Urban Local	\$1,690,901	\$6,485,214	1,453,308	34,500	\$4,794,312	\$3.30	42.13
HOP	Urban Local	\$0	\$3,457,608	786,203	41,757	\$1,551,202	\$1.97	18.83
AB	Regional	\$3,491,356	\$6,374,128	739,590	25,403	\$2,882,771	\$3.90	29.11
DASH	Suburban Local	\$672,437	\$4,658,313	577,951	22,789	\$3,985,876	\$6.90	25.36
JUMP	Suburban Local	\$578,678	\$3,976,009	497,366	23,417	\$3,397,331	\$6.83	21.24
BOLT	Regional	\$853,703	\$4,854,983	413,772	19,666	\$4,001,280	\$9.67	21.04
BOND	Urban Local	\$470,917	\$2,112,666	404,747	11,130	\$1,641,749	\$4.06	36.37
225	Suburban Local	\$458,159	\$3,622,082	393,782	21,606	\$3,163,923	\$8.03	18.23
205	Suburban Local	\$403,838	\$2,713,417	347,094	15,670	\$2,309,579	\$6.65	22.15
204	Urban Local	\$394,278	\$2,263,909	338,877	14,050	\$1,869,631	\$5.52	24.12
208	Urban Local	\$203,617	\$1,144,687	175,006	6,714	\$941,070	\$5.38	26.07
N	Regional	\$280,192	\$1,117,036	125,337	3,743	\$836,844	\$6.68	33.49
GS	Regional	\$249,387	\$1,621,461	112,787	6,939	\$1,372,074	\$12.17	16.25
206	Suburban Local	\$112,970	\$1,015,249	97,096	5,279	\$902,279	\$9.29	18.39
209	Urban Local	\$84,052	\$662,782	72,242	2,283	\$578,729	\$8.01	31.64
J	Regional	\$111,983	\$883,170	56,687	2,810	\$771,187	\$13.60	20.17
Y	Regional	\$46,898	\$190,351	20,735	1,152	\$143,452	\$6.92	18.00
236	Urban Local	\$22,553	\$335,402	19,384	1,846	\$312,849	\$16.14	10.50

Ranking - Boardings/Hour



Regional Transportation District

RTD Service Standards Analysis - 2019 By Route & Class								
Route	Standards Class	Fare Revenue	Operating Costs	Total Boardings	In-Service Hours	Net Subsidy	Subsidy per Boarding	Boardings per Hour
SKIP	Urban Local	\$1,690,901	\$6,485,214	1,453,308	34,500	\$4,794,312	\$3.30	42.13
HOP - RTD Portion of Service	Urban Local	\$0	\$3,457,608	786,203	19,124	\$1,551,202	\$1.97	41.11
BOND	Urban Local	\$470,917	\$2,112,666	404,747	11,130	\$1,641,749	\$4.06	36.37
FF	Regional	\$6,743,627	\$23,360,810	3,366,474	93,426	\$16,617,183	\$4.94	36.03
N	Regional	\$280,192	\$1,117,036	125,337	3,743	\$836,844	\$6.68	33.49
209	Urban Local	\$84,052	\$662,782	72,242	2,283	\$578,729	\$8.01	31.64
AB	Regional	\$3,491,356	\$6,374,128	739,590	25,403	\$2,882,771	\$3.90	29.11
208	Urban Local	\$203,617	\$1,144,687	175,006	6,714	\$941,070	\$5.38	26.07
DASH	Suburban Local	\$672,437	\$4,658,313	577,951	22,789	\$3,985,876	\$6.90	25.36
204	Urban Local	\$394,278	\$2,263,909	338,877	14,050	\$1,869,631	\$5.52	24.12
205	Suburban Local	\$403,838	\$2,713,417	347,094	15,670	\$2,309,579	\$6.65	22.15
JUMP	Suburban Local	\$578,678	\$3,976,009	497,366	23,417	\$3,397,331	\$6.83	21.24
BOLT	Regional	\$853,703	\$4,854,983	413,772	19,666	\$4,001,280	\$9.67	21.04
J	Regional	\$111,983	\$883,170	56,687	2,810	\$771,187	\$13.60	20.17
HOP - Total Service Hrs	Urban Local	\$0	\$3,457,608	786,203	41,757	\$1,551,202	\$1.97	18.83
206	Suburban Local	\$112,970	\$1,015,249	97,096	5,279	\$902,279	\$9.29	18.39
225	Suburban Local	\$458,159	\$3,622,082	393,782	21,606	\$3,163,923	\$8.03	18.23
Y	Regional	\$46,898	\$190,351	20,735	1,152	\$143,452	\$6.92	18.00
GS	Regional	\$249,387	\$1,621,461	112,787	6,939	\$1,372,074	\$12.17	16.25
236	Urban Local	\$22,553	\$335,402	19,384	1,846	\$312,849	\$16.14	10.50

Ranking - RTD Subsidy/Boarding

RTD Service Standards Analysis - 2019 By Route & Class								
Route	Standards Class	Fare Revenue	Operating Costs	Total Boardings	In-Service Hours	Net Subsidy	Subsidy per Boarding	Boardings per Hour
HOP	Urban Local	\$0	\$3,457,608	786,203	41,757	\$1,551,202	\$1.97	18.83
SKIP	Urban Local	\$1,690,901	\$6,485,214	1,453,308	34,500	\$4,794,312	\$3.30	42.13
AB	Regional	\$3,491,356	\$6,374,128	739,590	25,403	\$2,882,771	\$3.90	29.11
BOND	Urban Local	\$470,917	\$2,112,666	404,747	11,130	\$1,641,749	\$4.06	36.37
FF	Regional	\$6,743,627	\$23,360,810	3,366,474	93,426	\$16,617,183	\$4.94	36.03
208	Urban Local	\$203,617	\$1,144,687	175,006	6,714	\$941,070	\$5.38	26.07
204	Urban Local	\$394,278	\$2,263,909	338,877	14,050	\$1,869,631	\$5.52	24.12
205	Suburban Local	\$403,838	\$2,713,417	347,094	15,670	\$2,309,579	\$6.65	22.15
N	Regional	\$280,192	\$1,117,036	125,337	3,743	\$836,844	\$6.68	33.49
JUMP	Suburban Local	\$578,678	\$3,976,009	497,366	23,417	\$3,397,331	\$6.83	21.24
DASH	Suburban Local	\$672,437	\$4,658,313	577,951	22,789	\$3,985,876	\$6.90	25.36
Y	Regional	\$46,898	\$190,351	20,735	1,152	\$143,452	\$6.92	18.00
209	Urban Local	\$84,052	\$662,782	72,242	2,283	\$578,729	\$8.01	31.64
225	Suburban Local	\$458,159	\$3,622,082	393,782	21,606	\$3,163,923	\$8.03	18.23
206	Suburban Local	\$112,970	\$1,015,249	97,096	5,279	\$902,279	\$9.29	18.39
BOLT	Regional	\$853,703	\$4,854,983	413,772	19,666	\$4,001,280	\$9.67	21.04
GS	Regional	\$249,387	\$1,621,461	112,787	6,939	\$1,372,074	\$12.17	16.25
J	Regional	\$111,983	\$883,170	56,687	2,810	\$771,187	\$13.60	20.17
236	Urban Local	\$22,553	\$335,402	19,384	1,846	\$312,849	\$16.14	10.50

A	B	C	D	E	F	G	H	I	J	K	L	M
Bus Route	NB/ EB passengers	SB/ WB passengers	TOTAL passengers	Transit travel time of average passenger (minutes)	Average passenger transit trip length (miles)	Transit travel time reduced by study recommended projects (minutes)	Percent of travel time saved	Percent increase in total passengers	Number of increase in total passengers	Decrease VMT (miles)	Travel time saved by existing total passengers	Travel time saved by new passengers
							=G/E	=H	=(D*I)	=(F*J)	=(D*G)	=(J*G)
SKIP	830	780	1,610	15	5	3	20%	20%	322	1,610	4,830	966
DASH	630	750	1,380	25	8	5	20%	20%	276	2,208	6,900	1,380
204	300	250	550	15	5	2	13%	13%	73	367	1,100	147
225	300	325	625	25	10	2	8%	8%	50	500	1,250	100
FF1	1,000	900	1,900	40	20	5	13%	13%	238	4,750	9,500	1,188
FF2	650	500	1,150	55	25	5	9%	9%	105	2,614	5,750	523
FF5	40	45	85	70	35	5	7%	7%	6	213	425	30
GS	70	80	150	45	20	3	7%	7%	10	200	450	30
AB1	300	160	460	75	35	5	7%	7%	31	1,073	2,300	153
TOTAL			7,910						1,110	13,534	32,505	4,517

500
250
one year 125000
Factor ridership increase 1.14
100000
0.8

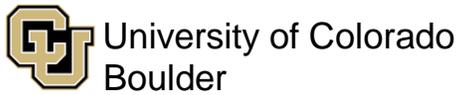
Ridership Model with Transit Priority - Model Inputs

Route	DOW	Annual Days	2019 Factor	Service Hrs	Daily Mileage	Annual Mileage	Daily Trips	Annual Trips	Boardings /Service Hour	2019 Average Daily Ridership	2019 Annual Ridership	Adjusted Baseline Factor (SOP @ 85% 2019 Levels)	Adjusted Baseline Average Daily Ridership	Adjusted Baseline Annual Ridership	1-Way Mileage	Average Load/Trip	Daily Transit Passenger Miles Traveled	Annual Transit Passenger Miles Traveled
204	WKDY	255	1.00	57.32	686	174,833	78	19,890	24.12	1,383	352,552	0.85	1,175	299,670	8.79	17.73	12,153	3,098,936
225	WKDY	255	1.00	42.77	673	171,736	55	14,025	18.23	780	198,823	0.85	663	168,999	12.25	14.18	9,547	2,434,585
225D	WKDY	255	1.00	3.04	179	45,642	14	3,570	18.23	55	14,118	0.85	47	12,000	12.79	3.95	708	180,498
225T	WKDY	255	1.00	6.34	89	22,821	7	1,785	18.23	116	29,472	0.85	98	25,052	12.79	16.51	1,478	376,805
AB1	WKDY	255	1.00	61.56	2,114	538,965	47	11,985	29.11	1,792	456,963	0.85	1,523	388,419	44.97	38.13	80,587	20,549,624
DASH	WKDY	255	1.00	89.91	1,775	452,712	126	32,130	25.36	2,280	581,430	0.85	1,938	494,215	14.09	18.10	32,127	8,192,349
FF1	WKDY	255	1.00	147.00	4,204	1,072,102	152	38,760	36.03	5,296	1,350,585	0.85	4,502	1,147,997	27.66	34.84	146,499	37,357,169
FF2	WKDY	255	1.00	82.52	2,767	705,458	100	25,500	36.03	2,973	758,165	0.85	2,527	644,440	27.67	29.73	82,253	20,974,631
FF5	WKDY	255	1.00	30.45	362	92,374	21	5,355	36.03	1,097	279,764	0.85	933	237,799	17.25	52.24	18,925	4,825,928
GS	WKDY	255	1.00	29.19	685	174,723	22	5,610	16.25	474	120,956	0.85	403	102,813	31.15	21.56	14,773	3,767,177
SKIP	WKDY	255	1.00	130.00	1,690	430,890	209	53,295	42.13	5,477	1,396,610	0.85	4,655	1,187,118	8.09	26.21	44,281	11,291,588
Y	WKDY	255	1.00	3.53	97	24,633	6	1,530	18.00	64	16,203	0.85	54	13,772	16.10	10.59	1,023	260,863
				684	15,321	3,906,889	837	213,435		21,787	5,555,640		18,519	4,722,294	18.30	26	398,804	113,310,152

Route	DOW	Annual Days	2019 Factor	Service Hrs	Daily Mileage	Annual Mileage	Daily Trips	Annual Trips	Boardings /Service Hour	Average Daily Ridership	Annual Ridership	Adjusted Baseline Factor (SOP @ 85% 2019 Levels)	Adjusted Baseline Average Daily Ridership	Adjusted Baseline Annual Ridership	1-Way Mileage	Average Load/Trip	Daily Transit Passenger Miles Traveled	Annual Transit Passenger Miles Traveled
204	SAT	52	1.00	11.20	246	12,798	28	1,456	24.12	270	14,047	0.85	230	11,940	8.79	9.65	2,375	123,477
225	SAT	52	1.00	46.37	686	35,657	56	2,912	18.23	845	43,957	0.85	719	37,363	12.25	15.10	10,351	538,252
AB1	SAT	52	1.00	63.53	2,069	107,568	46	2,392	29.11	1,849	96,167	0.85	1,572	81,742	44.97	40.20	83,166	4,324,613
DASH	SAT	52	1.00	40.65	817	42,495	58	3,016	25.36	1,031	53,606	0.85	876	45,565	14.09	17.77	14,525	755,308
FF1	SAT	52	1.00	120.00	3,375	175,475	122	6,344	36.03	4,324	224,827	0.85	3,675	191,103	27.66	35.44	119,591	6,218,720
SKIP	SAT	52	1.00	75.78	1,083	56,336	134	6,968	42.13	3,193	166,016	0.85	2,714	141,113	8.09	23.83	25,812	1,342,238
				358	8,276	430,331	444	23,088		11,512	598,620		9,785	508,827	18.64	25.93	11,157,508	13,302,609

Route	DOW	Annual Days	2019 Factor	Service Hrs	Daily Mileage	Annual Mileage	Daily Trips	Annual Trips	Boardings /Service Hour	Average Daily Ridership	Annual Ridership	Adjusted Baseline Factor (SOP @ 85% 2019 Levels)	Adjusted Baseline Average Daily Ridership	Adjusted Baseline Annual Ridership	1-Way Mileage	Average Load/Trip	Daily Transit Passenger Miles Traveled	Annual Transit Passenger Miles Traveled
204	SUN	58	1.00	11.20	246	14,275	28	1,624	24.12	270	15,668	0.85	230	13,318	8.79	9.65	2,375	137,725
225	SUN	58	1.00	37.37	563	32,670	46	2,668	18.23	681	39,513	0.85	579	33,586	12.25	14.81	8,342	483,834
AB1	SUN	58	1.00	62.83	2,159	125,196	48	2,784	29.11	1,829	106,081	0.85	1,555	90,169	44.97	38.10	82,249	4,770,459
DASH	SUN	58	1.00	25.55	507	29,420	36	2,088	25.36	648	37,581	0.85	551	31,944	14.09	18.00	9,130	529,516
FF1	SUN	58	1.00	56.67	1,660	96,257	60	3,480	36.03	2,042	118,426	0.85	1,736	100,662	27.66	34.03	56,477	3,275,651
SKIP	SUN	58	1.00	57.95	800	46,424	99	5,742	42.13	2,441	141,603	0.85	2,075	120,363	8.09	24.66	19,739	1,144,861
				251.57	5935.21	344241.89	317.00	18386.00		7911.58	458,872		6,725	390,041	18.72	24.96	8,591,476	10,342,046

A



June 6, 2022

Gerrit Slatter
Principal Transportation Project Engineer
Transportation Division
City of Boulder

Dear Gerrit:

On behalf of the University of Colorado Boulder, I am writing to express support for the Denver Regional Council of Government (DRCOG) Subregional TIP funding application sponsored by the City of Boulder to design and construct the **CO93/Broadway & Table Mesa and CO93/Broadway & Regent Transit Priority Intersection project**. The proposed improvements support transportation goals within the university's recently completed Campus Master Plan and Transportation Master Plan to improve transit, increase safety and improve air quality. Broadway is a heavily traveled corridor for university students, staff, and faculty commuting to campus and traveling between the Boulder campus properties. Transportation projects designed to reduce the number of single-occupancy vehicles, creating a lower stress travel network will assist in attaining the Transportation Demand Management goals set by the university while reducing our carbon footprint.

The University of Colorado looks forward to this partnership opportunity with the City of Boulder on this key transportation improvement.

Sincerely,

DocuSigned by:


51A6379CD9CD4BA...
Chris Ewing
Interim Vice Chancellor
Infrastructure and Sustainability
University of Colorado Boulder



2601 SPRUCE ST, UNIT B
BOULDER, CO 80302

COMMUNITYCYCLES.ORG

Gerrit Slatter

Community Cycles is writing to share this letter of support for the City of Boulder's applications to the Fiscal Year 2024 – 2027 TIP grant opportunity through the Boulder County Subregional Forum.

Community Cycles is made up of people who ride bicycles, love bicycles, and support bicycle-based transportation. We seek to create safe, equitable access to bicycles for everyone in our community.

30th Street Preliminary Design (CO7/Arapahoe - CO119)

30th street is a main transportation corridor in Boulder for local and regional travel trips. 30th Street lacks the complete street infrastructure to provide safe, convenient and comfortable travel for those biking, walking, or taking transit.

The City of Boulder's Safe Streets Report (2019) identified 30th Street as one of the top 10 crash locations in the city and DRCOG identifies the project area as a High Injury Network and Critical Corridor.

Thousands of people live, work, and attend university within the project area, many of whom rely on biking and walking to reach their destinations: 26% of households are low-income, 46% households are housing cost burdened, 6% are children, and another 9% are over the age of 65.

Providing complete street connections to the many residences, destinations, and bus services along the corridor and at Boulder Junction at Depot Square, with RTD Flatiron Flyer and Airport regional bus services, the project will provide safer and improved biking, walking, and transit facilities for a wider range of ages and abilities.

Community Cycles supports the project because the improvements identified through the planning and design, such as protected bicycle lanes, protected intersections, enhanced crossings, and wider sidewalks, will address the safety needs of the corridor and lead to more people cycling safely and comfortably when implemented.

CO93/Broadway & Table Mesa and CO93/Broadway & Regent Transit Priority Intersections (Broadway 18th Street to Table Mesa)

The CO93/Broadway corridor is a key regional transit corridor, carrying the last four miles of the FasTracks-funded Flatiron Flyer route between US 36/Table Mesa and downtown Boulder Station, as well as numerous other regional and local transit routes, including the DASH service between Boulder, Louisville and Lafayette. Pre-pandemic, northbound CO93/Broadway carried 37 buses per hour in the a.m. peak.

The corridor is also a significant multimodal corridor, with 2,400 people walking and 900 people biking on an average day, that connects and provides key first and last mile connections to the University Hill and Downtown Boulder Urban Centers, and to several other urban centers throughout the Northwest region.

Today, regional travel on the roadways connecting Boulder to neighboring communities is still highly dependent on single-occupant vehicles, with approximately 46,000 non-resident employees, or 80% of commuters, driving alone to work.

If this continues and travel demand grows as expected, the city and entire region will pay tremendous social, environmental, and economic costs associated with increased congestion and GHG emissions.

Community Cycles supports the city's commitment to making more efficient use of limited road capacity and regional transportation networks by providing convenient, affordable and reliable travel choices, with transit being the cornerstone of this strategy.

This project implements that commitment by providing exclusive movements for buses at the two project intersections and analyzing the conversion of general-purpose lanes to Business Access Transit lanes between Table Mesa Dr and 18th St, with lane restriping and signage as feasible.

These improvements will improve transit travel time and reliability while improving safety for cyclists and pedestrians through the intersections, by upgrading curb ramps (Regent Dr), improving pedestrian visibility (Regent Dr), and importantly, not widening crossing distances.

Community Cycles supports the project because these improvements will address the needs of this important multimodal corridor and key intersections which will lead to more people cycling safely and comfortably.

Baseline Road Enhanced Transit Stops & Separated Bike Lanes (30th Street – Foothills Parkway).

Baseline Road is identified in DRCOG's Regional High Injury Network and is a Critical Corridor. According to the 2022 City of Boulder Safe Streets Report, the intersections of Baseline Road and Mohawk Drive and Baseline Road and 30th Street continue to be in the top-ten crash locations for the most vulnerable road users: pedestrians and cyclists. Bicycle facilities are currently unprotected and inconsistently designed along the corridor. Walkability along the corridor is poor and crossing opportunities are unsafe and spaced far apart. Transit facilities do not adequately support transit service and travel time reliability.

Within the project area 23% of residents are individuals of color who are more likely to walk or wheel to meet their transportation needs than non-minority individuals; 20% of households are low-income, 10% are adults 65 years of age or older, 6% are children aged 5 –17, and 2% are individuals with a disability – all people data demonstrate are less likely to drive and are, thus, more reliant on non motorized travel. With over 20,000 people driving, 340 biking, and 150 people walking through the project area on an average day this project is needed.

Community Cycles supports this project because it will design and build solutions to these safety and connectivity issues, such as separated bicycle facilities, changes to travel lane dimensions and intersections, pedestrian crossings, and improved transit facilities, and increase the number of people walking, biking, and riding transit.

RESPONSE (to be completed by agency/subregion from whom support is requested)

9. The forum/agency in #1 above has requested for you to support their project. Who are you?
Subregional Forum: **Broomfield County Forum** Local Agency: **City & County of Broomfield**

10. Contact person at supporting forum/agency:

Title: Sarah Grant, Email: SGrant@broomfield.org Phone: 303-438-6385
Transportation
Manager

11. Does your subregion/agency support this project? Yes No

12. Does your subregion/agency pledge financial support to this project, if requested?

Yes No N/A

If yes, provide amount: \$ N/A Fiscal year(s) funds are provided in:

If yes, where are funds coming from:

Local Agency (i.e., non-DRCOG funds)

Subregional Funding Target (forum must approve)

13. Please enter your name and date below which certifies the above information is accurate and complete, and your subregion/agency will honor any financial commitments made above:

Name: Sarah Grant, Transportation Date: May 13, 2022
Manager on Behalf of the Broomfield
County Forum