

Part 1

Base Information

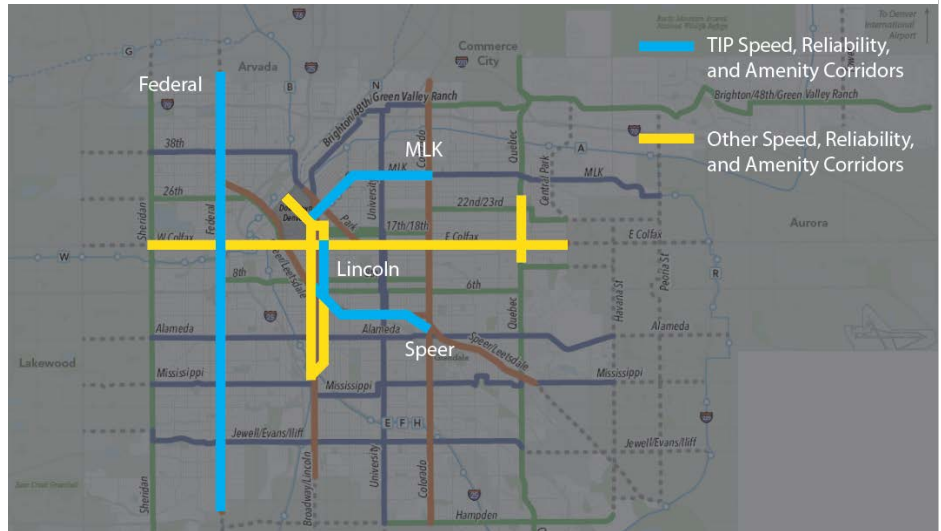
1. Project Title

Denver Moves: Transit – Speed, Reliability, and Amenity Improvements

2. Project Start/End points or Geographic Area

Provide a map with submittal, as appropriate

1. Federal Boulevard – Floyd to 54th Ave.
2. Lincoln – 6th Ave. to 16th Ave.
3. Speer/1st – Broadway to Colorado Blvd.
4. MLK – 16th St. to Downing, Downing to Colorado



3. Project Sponsor (entity that will construct/ complete and be financially responsible for the project)

City and County of Denver

4. Project Contact Person, Title, Phone Number, and Email

Ryan Billings, Transit & Corridors Planning Supervisor, 720-865-3130, ryan.billings@denvergov.org

5. Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service?

Yes No

If yes, provide applicable concurrence documentation with submittal

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

[DRCOG 2040 Fiscally Constrained Regional Transportation Plan \(2040 FCRTF\)](#)

Local plan:

- Denver Moves: Transit
- Blueprint Denver
- Federal Corridor Study
- Go Speer/Leetsdale Study
- Denver Moves: Broadway Lincoln Study

Other(s):

RTD Transit Priority Study Phase 1 and Phase 2

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

7. Identify the project's key elements.

- Rapid Transit Capacity (2040 FC RTP)
- Transit Other: Speed and Reliability
- Bicycle Facility
- Pedestrian Facility
- Safety Improvements
- Roadway Capacity or Managed Lanes (2040 FC RTP)
- Roadway Operational

Grade Separation

- Roadway
- Railway
- Bicycle
- Pedestrian
- Roadway Pavement Reconstruction/Rehab
- Bridge Replace/Reconstruct/Rehab
- Study
- Design
- Transportation Technology Components
- Other:

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

Transit vehicles in shared rights-of-way often have poor operating efficiency due to congestion and facilities not designed to support effective transit service.

The 2017 RTD Customer Satisfaction survey demonstrates the challenge bus transit has competing as a mode with automobile and train trips. The on-time performance, or, ability to adhere to published schedule timepoints is about a quarter point lower than train trips. A similar response is seen asking riders about the reliability of bus transfer connections when compared to that of rail.

In order to increase ridership and gain a larger portion of regional modeshare, transit, specifically buses, must do everything possible to decrease travel time and improve reliability.

Average quality ratings of various service aspects



Denver’s Speed, Reliability, and Amenity project will incorporate and address the following Metro Vision regional problems and issues:

1. Non-single-occupancy vehicle mode share to work
2. Average travel time variation
3. Daily person delay per capita
4. Number of traffic fatalities

5. Surface transportation-related greenhouse gas emissions per capita
6. Share of the region's housing and employment near high-frequency transit
7. Contain urban development in locations designated for urban growth and services
8. Connect urban centers and multimodal corridors throughout the region, accommodate a growing share of the region's housing and employment
9. Make connections that increase access and travel choices
10. Embrace new technologies and innovations
11. Improve and expand the region's multimodal transportation system, services, and connections
12. Improve the region's comprehensive transit system, including the timely completion of the FasTracks program
13. Increase transit service and ridership within and to urban centers
14. Prioritize investments in first- and last-mile connections to transit
15. Maintain existing and future transportation facilities in good condition
16. Improve transportation system performance and reliability
17. Improve transportation system safety and security
18. Increase safe and convenient active transportation options for all ages and abilities
19. Facilitate public/private partnerships to identify and address first- and last-mile connectivity issues associated with regional transit
20. Collaborate with local governments and other stakeholders to address the transportation needs of mobility limited populations in transportation and land use planning and decision-making at the regional and local levels
21. Strengthen partnerships between health and transportation providers to increase access to care, improve health outcomes and reduce healthcare costs
22. Coordinate investments in local and regional transportation services that improve access to health services for those with mobility obstacles or impairments
23. Continue to support local planning that furthers the implementation of the region's transit system and urban centers
24. Identify best practices to expand and retain manufacturing and production businesses in areas served by transit
25. Facilitate public/private partnerships to improve first- and final-mile connections to the region's high capacity transit services, with an emphasis on enhancing connections to major employment centers and underserved populations. Identify working relationships with private shared mobility providers.
26. Ensure traditionally underserved populations receive at least a proportionate share of transportation benefits and are not disproportionately affected by transportation investments relative to the entire regional population
27. Invest in the region's infrastructure to ensure the region remains globally competitive

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

Task 1: Transit Priority Study and Conceptual Design

This task will conduct an analysis process to determine Speed, Reliability, and Amenity improvements for four corridors (identified above) within the City and County of Denver. This analysis will consider ridership, transit travel time, ADT, and other criteria to develop recommendations for transit priority improvements. Prioritization and costing of elements will help define exact locations and impact using a Build-to-budget model based on ROI measures. Denver will utilize treatments defined by toolboxes within Denver Moves: Transit (2019) and RTD's Transit Priority Study (2018):

- Transit-Only Lanes
- Business Access and Transit Lanes (BAT)
- Bypass Lanes
- Queue Jumps
- Bus Bulbs
- Bus Islands
- Transit Signal Priority (TSP)
- Optimal Stop Spacing
- Stop Access and Amenities
- Level Boarding Platforms
- Smart Payment and All-door Boarding

Task 2: Design

This task will take Task 1 Conceptual Design recommendations and bring them through a design process including final costing, coordination with RTD and CDOT, and environmental considerations identified in Task 3. Determination of potential ROW needs.

Task 3: Environmental

This task will determine final environmental documentation based on design considerations and environmental analysis of the four corridors. Determination of potential ROW needs.

Task 4: ROW

As needed, acquisition of ROW based on determinations within Task 2 and Task 3.

Task 5: Construction

After environmental documentation, ROW acquisition, and Design are complete, implement the project elements defined in Task 1. Due to the projects flexibility for implementing Speed and Reliability treatments, it is anticipated that Denver would only construct prioritized elements that fit within the construction budget. Therefore, cost overruns (as a part of this application) are unlikely.

10. Would a smaller DRCOG-allocated funding amount than requested be acceptable, while maintaining the original intent of the project?

Yes No

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

Corridor Package Phase 1 – Federal Boulevard and Lincoln only

- Federal – Floyd to 54th Ave. AND Lincoln – 6th to 16th
- \$7,000,000 Total Budget
- \$4,900,000 Federal Share
- \$2,100,000 Local Share
- Scope would be same as full project, but only for Federal and Lincoln segments.

A. Project Financial Information and Funding Request

1. Total Project Cost	\$13,000,000	
2. Total amount of DRCOG Subregional Share Funding Request	\$9,100,000	70% of total project cost
3. Outside Funding Partners (other than DRCOG Subregional Share funds) List each funding partner and contribution amount.	\$\$ Contribution Amount	% of Contribution to Overall Total Project Cost
City and County of Denver – TIP Allocated CIP	\$2,600,000	20%
City and County of Denver – CIP Denver Moves: Transit Implementation	\$900,000	7%
RTD	\$400,000	3%
	\$	
	\$	
	\$	
Total amount of funding provided by other funding partners <i>(private, local, state, Regional, or federal)</i>	\$3,900,000	30%

Funding Breakdown (year by year)*

**The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2019.*

	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds	\$400,000	\$1,000,000	\$5,000,000	\$2,700,000	\$9,100,000
State Funds	\$	\$	\$	\$	\$0
Local Funds	\$900,000	\$400,000	\$1,500,000	\$1,100,000	\$3,900,000
Total Funding	\$1,300,000	\$1,400,000	\$6,500,000	\$3,800,000	\$13,000,000

4. Phase to be Initiated <i>Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other</i>	Study/ENV/Design	ENV/Design/ROW	ROW/CON	ROW/CON	
5. By checking this box, the applicant’s Chief Elected Official (Mayor or County Commission Chair) or City/County Manager for local governments or Agency Director or equivalent for others, has certified it allows this project request to be submitted for DRCOG-allocated funding and will follow all DRCOG policies and state and federal regulations when completing this project, if funded.					<input checked="" type="checkbox"/>

Part 2 Evaluation Criteria, Questions, and Scoring

A. Subregional significance of proposed project

WEIGHT **30%**

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

1. Why is this project important to the Denver subregion?

Denver's right-of-way (ROW) is limited and the ability to expand is infeasible in almost all cases. Denver cannot continue to build capacity for personal vehicles averaging 1.4 passengers each and achieve the goals set out in the Mayor's Mobility Action Plan. This challenge represents a unique opportunity to use this limited space in a more efficient manner – prioritizing modes that move more people.

In fact, buses provide one of the best efficiencies of mobility space; able to move up to 2,800 people per hour in a mixed traffic lane and up to 8,000 people per hour in a dedicated transit lane. The corridors identified in this application are home to some of the most heavily utilized local bus lines in the Denver system. According to RTD, the Federal Blvd corridor alone is host to nearly 10,000 average weekday boardings with the other 3 corridors identified for improvement totalling near as many. The corridors in this package of transit improvements reach a maximal number of the Denver Subregion's population and employment. More than 336,000 people, or 46% of the City's population and nearly 58% of the City's jobs are within a mile of the corridors. Investment in these treatments have a high cost effectiveness and are foundational to making transit more attractive as a travel mode.

Additionally, transit priority elements like bus bulbs, queue jumps, transit signal priority, and real-time information have the ability to drastically reduce bus travel time and improve reliability – the two main tenants for increasing ridership. Denver's Transit Speed, Reliability, and Amenity project will design and implement a myriad of transit improvements to move more people, more efficiently, and safely.

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

While Denver's Transit Speed, Reliability, and Amenity project does not include capital improvements in neighboring jurisdictions, it will improve transit travel times for the RTD routes it serves. The four corridors outlined in this application for improvements carry many regional and local (serving other jurisdictions) RTD routes including, but not limited to, Route 0, Route 0L, Route 83L, Route 31, and Route 1.

The length of Federal Blvd truly operates as a corridor without jurisdictional borders. Efforts to jointly develop Bus Rapid Transit (BRT) on Federal with the City of Westminster to the north will be a long term effort to serve commuters connecting into places of employment in Denver. Both a light and commuter rail line have stations on Federal Blvd connecting the communities to the west. Cities served by rail service on the W line and G line include Golden, Wheat Ridge, Arvada and Lakewood. By improving Federal Blvd with Transit Speed and Reliability, riders can experience improved safety and assurance their bus & rail connections will be made on time.

While the other three corridors are more centrally located within Denver's core and may not appear to be as useful to neighboring cities, the network of improvements will be beneficial. Denver Moves: Transit found that each weekday, 300,000 people commute into Denver from neighboring jurisdictions highlighting the reality that Denver's transportation network is really a regional network.

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

Again, while Denver's Transit Speed, Reliability, and Amenity project does not include capital improvements in neighboring subregions, it will improve transit travel times for the RTD routes serving those subregions. The four corridors outlined in this application for improvements carry many regional and local RTD routes including, but

not limited to, Route 0 and 0L (Arapahoe and Douglas County Subregions), Route 83L (Arapahoe County Subregion), Route 31 (Arapahoe and Adams County Subregions), and Route 1 (Jefferson County Subregion). Additionally, Denver Moves: Transit found that each weekday, 300,000 people commute into Denver from neighboring jurisdictions highlighting the reality that Denver’s transportation network is really a regional network.

Another example of the truly inter-subregional travel demand through Denver is found using LEHD data which identifies the home addresses for the employers along corridors, in this case Federal Blvd. Only 3 in 10 of the employees working in census tracts along Federal actually originate in Denver, with Jefferson, Adams and Arapahoe Counties contributing 15-20% each.

Jobs Counts by Counties Where Workers Live - Primary Jobs

	2015	
	Count	Share
<u>All Counties</u>	34,709	100.0%
<u>Denver County, CO</u>	10,612	30.6%
<u>Jefferson County, CO</u>	6,790	19.6%
<u>Adams County, CO</u>	5,219	15.0%
<u>Arapahoe County, CO</u>	5,126	14.8%
<u>Douglas County, CO</u>	1,606	4.6%
<u>Weld County, CO</u>	930	2.7%
<u>El Paso County, CO</u>	855	2.5%
<u>Boulder County, CO</u>	798	2.3%
<u>Larimer County, CO</u>	515	1.5%
<u>Broomfield County, CO</u>	456	1.3%
All Other Locations	1,802	5.2%

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

The specific travel problem of buses being slowed by congestion, safety concerns accessing and waiting for buses and the slower average speeds of buses in revenue service will be addressed in the following ways.

1. Reduction of passenger travel time by implementing improvements at the highest value locations for moving loaded buses past congestion using bus bypass lanes, queue jumps and bus only lanes.
2. Improved schedule reliability using transit signal priority at key intersections where delay is occurring.

- 3. Facilitating improved security, stop amenities, and efficient boarding for passengers; through the use of level boarding platforms and extending the curb to the bus using bus bulb outs.
- 4. Integrating transit stop facilities with context-sensitive design throughout and
- 5. Enhancing, or at worst maintenance of general and cross-street vehicular traffic flow to reduce overall travel time, congestion, air pollution, and fuel consumption.

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

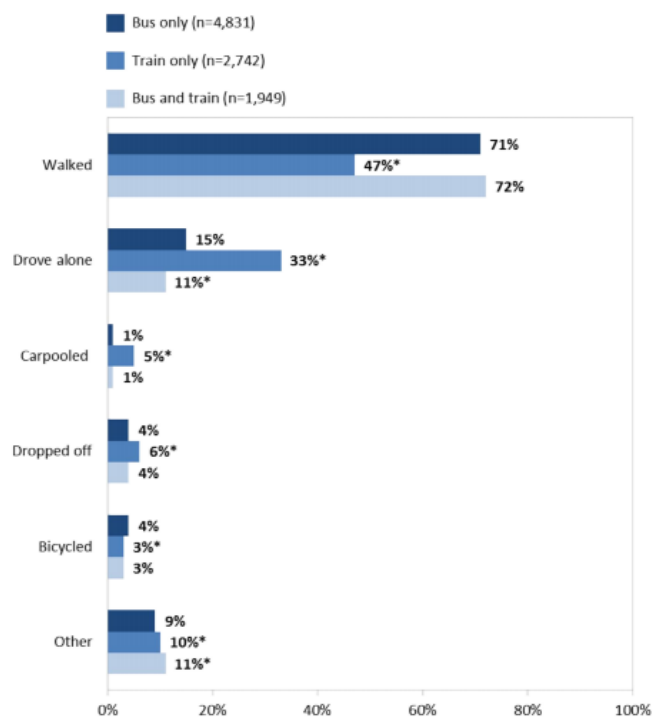
Providing multiple transportation options is paramount to developing and maintaining a mobility system that is both sustainable and resilient economically. Denver’s Transit Speed, Reliability, and Amenities project will implement a host of transit priority elements delivering much needed improvements to bus operations and RTD service. Many of the region’s citizens rely on public transportation to get them to work, school, and play. Improving public transportation gives people more opportunities to access jobs and school while inviting choice-riders to give up all or part of car trip for an equally convenient and affordable alternative. A recent TRIP study puts the statewide cost of congestion at \$3.1 billion, with the vast majority of that in the DRCOG region.

Employees of local businesses rely on RTD bus services to access jobs and in turn put fewer cars on the road. Approximately one-quarter (23%) of passengers paid their fare using a Business EcoPass; — Nearly two-thirds (62%) of passengers paid at the local fare level; — One-third of passengers indicated that their employer either paid all (21%) or part (12%) of their fare.

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

Denver’s Transit Speed, Reliability, and Amenity project is a multimodal effort at its core. Most transit trips begin or end with a person walking, driving, or riding a bike.

Figure 5.
Mode of travel to reach location for RTD boarding



Note: * Indicates statistically significant difference from bus only passengers.
Percentages for each group may not sum to 100% due to rounding.

Source: 2017 RTD Customer Satisfaction Survey.

This effort builds on this connectivity by supporting the build-out of Denver’s Speed and Reliability network – a web of intersecting corridors identified in Denver Moves: Transit aimed at getting buses out of congestion and moving more people.

This network (and specifically the four corridors identified in this application) will improve bus operations for numerous bus routes that serve the entire region. In addition, these four corridors will see bus stop enhancements to make connecting to other modes even easier. Improvements like potential bike racks/lockers, dockless parking, and safer pedestrian elements.

Improving bus connections to rail through increased reliability means new opportunity for people to choose bus connections rather than driving to rail stations. In 2017 RTD survey revealed 15% of bus riders drove alone to their stop and one in three (33%) train riders in the RTD network drove alone to their bus stop. It is critical to move some number of those riders accessing transit out of their cars and onto connecting bus services. By improving the speed of those connecting services and reliability of schedule adherence as not to be late on bus connections, connectivity to bus and rail trips will be improved by implementing this project for more than 20,000 boardings daily.

Additionally, RTD found train only passengers (54%) were less likely than bus only passengers (79%) to indicate that they walked from their final RTD stop to their final destination; and train only passengers (29%) were more likely than bus only passengers (9%) to indicate that they drove to their final destination. This means more ‘final mile’ trips have the potential to be shifted to connecting bus lines from current auto trips with better quality connections.

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

Denver has been working with Subregional Forum member RTD on Speed, Reliability, and Amenity improvements for many years. RTD’s recently completed Transit Priority Study highlighted dozens of corridors in the region for improvements. All four corridors included in this application were determined to be prime candidates for transit speed, reliability, and amenities upgrades. Some of these proposed improvements are on CDOT facilities and both entities (Denver and RTD) have been working with the state agency to find more efficient and safer ways to move people.

Coordination discussions have yielded a commitment from RTD to provide a \$400,000 project contribution to the improvements should an award be made from the Subregional TIP. The impact of those dollars would be felt across the City, by bus and rail transit riders and those who could switch from auto trips to transit as their rides could be made more quickly and reliably.

B. DRCOG Board-approved Metro Vision TIP Focus Areas and Specific Denver Goals

WEIGHT

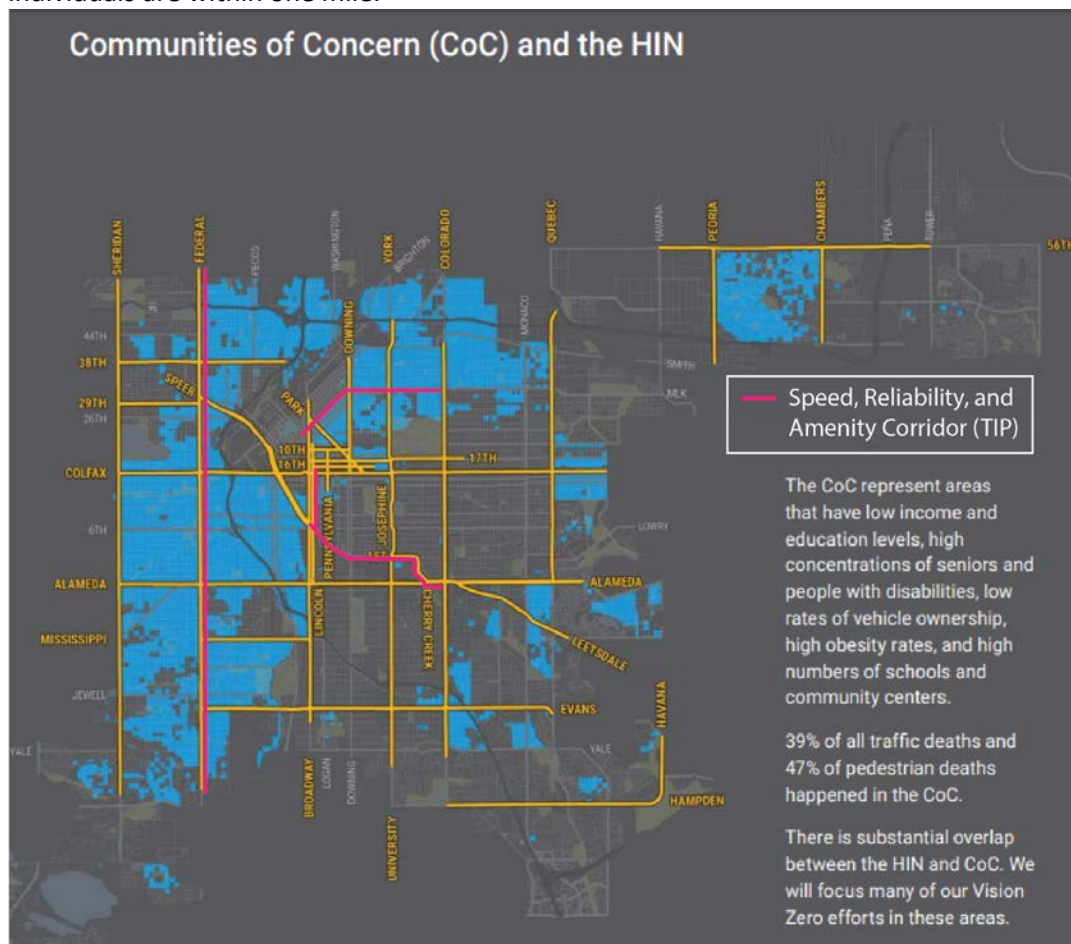
30%

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

VULNERABLE POPULATIONS AND EQUITY

1.A. Describe how the project will **improve mobility infrastructure and services for vulnerable populations (including improved transportation access to health services)** as defined in the [Adopted 2020-2023 TIP Policy](#):

Denver's Transit Speed, Reliability, and Amenity project was developed with equity in mind. The four corridors (along with corridors already in development) were evaluated through a two-phase process in Denver Moves: Transit that including demographic criteria to make sure the recommended corridors were in line with City equity priorities. Additionally, as you can see in the below graphic, the majority of corridor geography serves Denver's Communities of Concern. These corridors are host to a high number of vulnerable populations within a mile. Nearly 40% of the City senior population and more than 44% of the City minority population are within a mile of the corridors. More than 50% of the low income households, language challenged and zero vehicle households are within a mile of the project. Also, a third of health service facilities and 47% of disabled individuals are within one mile.



1.B. Describe how your project is consistent with **Denver's commitments to Equity principles** as defined below, and discussed in more detail in Chapter 4, Access to Opportunity, in the [Blueprint Denver \(Public Review Draft August 6, 2018\)](#).

Equity is providing everyone with access to opportunity regardless of income level, race, ethnicity, gender, ability, or age.

Blueprint Denver equity principles identified below are all satisfied through the Transit Speed and Reliability project. Access to opportunity is improved with more quick and reliable access using transit to a third of the City's health facilities. Vulnerability to displacement is reduced by investing in corridors serving low income communities and bringing their quality of transit service to a higher standard. Systemwide 23% of RTD riders have no vehicle at home, but these corridors are home to more than 50% of the City's zero vehicle households. Finally, improved transit options provide vulnerable populations throughout the City expanded access to housing and employment diversity.



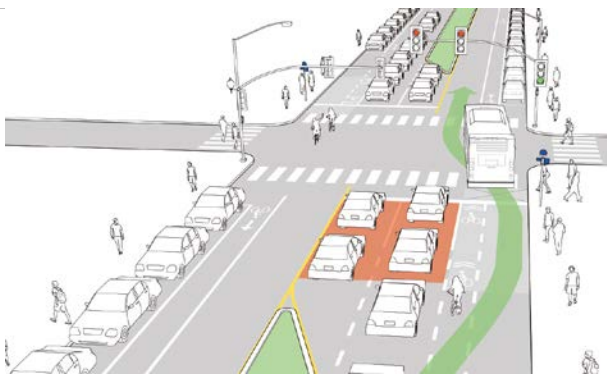
Denver's Transit Speed, Reliability, and Amenity project was defined through the 3-year public and technical analysis effort, Denver Moves: Transit. In Denver Moves: Transit, a concerted effort was made to identify corridors that were both high performing and equitable. The two-phase evaluation included criteria like low-income households, zero vehicle households, and Communities of Concern. The improvements outlined in this application will work to provide even more opportunity to everyone regardless of income, race, ethnicity, gender, ability, or age. In fact, public transportation is one of Denver's best mobility tools when accounting for equity. Its ability to serve nearly all people is fairly unique.

RELIABILITY OF THE MULTIMODAL TRANSPORTATION NETWORK

2.A. Describe how the project will **increase reliability of existing multimodal transportation network** as defined in the **Adopted 2020-2023 TIP Policy**:

Denver's Transit Speed, Reliability, and Amenity project is, at its core, a reliability investment. As described in other sections of this application, this effort will develop and implement a myriad of transit priority improvements included bus bulbs, transit signal priority, queue jumps, and bypass/transit only lanes. These improvements possess a unique ability to increase reliability of transit service by reducing dwell time, bypassing congestion, and being more efficient with limited right-of-way.

Queue jumps, such as the image depicted below, will move the buses with typical 25-30 passenger loads past the average 1.4 passenger personal automobile. This is the most efficient use of limited rights of way, moving more people within the limited space the roadway provides.



2.B. Describe how the project will meet the goals of the [Denver Mobility Action Plan](#).

Denver's Mobility Action Plan has a stated goal of delivering 15% of commute trips by transit in 2030. Denver is committed to this goal and speed, reliability, and amenity corridors like the ones outlined in this application provide a positive step in reaching this goal. In order to achieve a 15% modeshare by 2030, Denver will need to start prioritizing transit operations; giving buses dedicated space, enhancing bus stops, and improving connectivity to other modes. The goals within the MAP literally cannot be achieved without the types of improvements that prioritize moving people over cars such as transit speed and reliability. The Transit Speed, Reliability, and Amenity project does just that and is a meaningful step in developing a Speed and Reliability network.

The majority of passengers (77%) indicated that they used RTD services for two one-way trips on the day on which they received the survey. This indicates there may be significant drive up trips to transit that could be moved to bus trips if the connecting services were more quick and reliable.

2.C. If applicable, describe how the project will **increase multimodal person-trip capacity and access** as described in the [Denver Strategic Transportation Plan \(2008\)](#).

Denver's Transit Speed, Reliability, and Amenity project is heavily driven out of a need to move more people. As described in previous questions, public transit's opportunity to increase capacity without adding additional right-of-way makes it one of Denver's best tools to increase person-trip capacity. Mixed traffic buses can carry up to 2,800 people per hour; while bus-only lanes can carry up to 8,000 people per hour. This is significantly more than a car.

Transit is the tool by which the largest number of people can be moved with the greatest efficiency in a multimodal transportation network. It is the trunk of any effective multimodal system, connecting with other short distance trip modes for first and last mile. No other mode can compete on the numbers with transit.

The same number of buses can effectively provide higher levels of service when not impeded by traffic. An example of this is if a transit trip can be completed 10% faster than its existing condition with Speed and Reliability improvements, those time savings can be reinvested into the corridor, increasing the number of available seats on transit for that hour.

Access is improved by decreasing transit travel time and increasing reliability. When a person knows that a bus will arrive consistently at the same time, get them to their destination on-time, and do so quickly and safely, it provides them with better access to work and school.

TRANSPORTATION SAFETY AND SECURITY

3A. Describe how the project will **improve transportation safety and security as defined in the *Adopted 2020-2023 TIP Policy***:

These corridors represent a significant number of the fatalities, injury and non-injury crashes across the City, including the length of what might be the most dangerous road in the state by the numbers, Federal Blvd. In 5 years, these roads were home to 31 vehicle and pedestrian related fatalities, 329 serious injuries and 972 other classified injuries were sustained. There were more than 8300 property damage crashes. This provides an enormous and urgent opportunity to make transformative change in the safety outcomes of transportation in Denver. The Bus Safety Study: A Report to Congress (FTA, 2014) found that transit buses with their slower speeds, high curb weights with lower centers of gravity are the safest motorized travel option available based on the numbers of people they move and associated fatalities nationwide.

A major component of Denver’s Speed, Reliability, and Amenity project is upgrades to bus stops including shelters, lighting, and potentially security cameras. These improvements provide needed safety and security measures for transit users. The predominant way to access these proposed bus corridors and stations is by foot or bike.

3B. Describe how the project will meet the goals of [Denver’s Vision Zero Action Plan](#).

Eleven of the seventeen miles of speed, reliability, and amenity corridors are on the Vision Zero High Injury Network. As mentioned in a previous question, the predominant way to access these proposed bus corridors and stations is by foot or bike. Therefore, people walking and people on bikes are important considerations as Denver determines the speed and reliability tools needed to both improve transit operations and provide meaningful safety improvements. An example of this is a bus bulb.



This type of treatment brings the bus stop in-line with the travel lane or bus lane decreasing dwell time, thus decreasing travel time. The bulb also doubles as a treatment for pedestrians as it shortens the crossing distance and limits exposure for pedestrians to traffic/vehicles.

C. Consistency & Contributions to Transportation-focused Metro Vision and Denver Plans, Goals, and Objectives

WEIGHT **30%**

Provide **qualitative and quantitative** responses (derived from Part 3 of the application) to the following items on how the proposed project contributes to Transportation-focused Objectives (in bold) in the adopted Metro Vision plan. Refer to the expanded Metro Vision Objective by clicking on links. In addition, provide information related to the consistency with Denver goals, objectives, plans, and priorities.

[MV objective 2](#)

Contain urban development in locations designated for urban growth and services.

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

Yes No

Describe, including supporting quantitative analysis

The investment corridors for Transit Speed & Reliability improvements were strategically chosen as they are both programmed for other infrastructure investments which can be coordinated with this project and are planned to have high levels of transit service to maximize value of the Transit Speed & Reliability projects.

Federal Blvd is identified in multiple plans as a top three transit investment corridor which also has a significant number of concurrent projects underway such as green infrastructure, an alternatives analysis to evaluate Bus Rapid Transit and Vision Zero projects among others. Speer Blvd has been studied for medium to high capacity transit and is a top ranking corridor for RTD’s Bus Rapid Transit study. MLK and Lincoln originate in the Denver CBD, where urban-level infrastructure and the highest levels of transit service exist Citywide. In the table below are examples of a few of the DRCOG Urban Centers served by this project.

Community	Urban Center	Associated Station	Size (Acre)	Planned Household Density	Planned Employment Density
	Central Business District	Multiple	1688	17	92
	Federal and Decatur TOD (Federal Blvd, W. Colfax Ave)	Federal Blvd	155	13	23
	Federal and Evans (Federal Blvd)	-	60	30	22

[MV objective 3](#)

Increase housing and employment in urban centers.

2.A. Will this project help establish a network of clear and direct multimodal connections within and between urban centers, or other key destinations?

Yes No

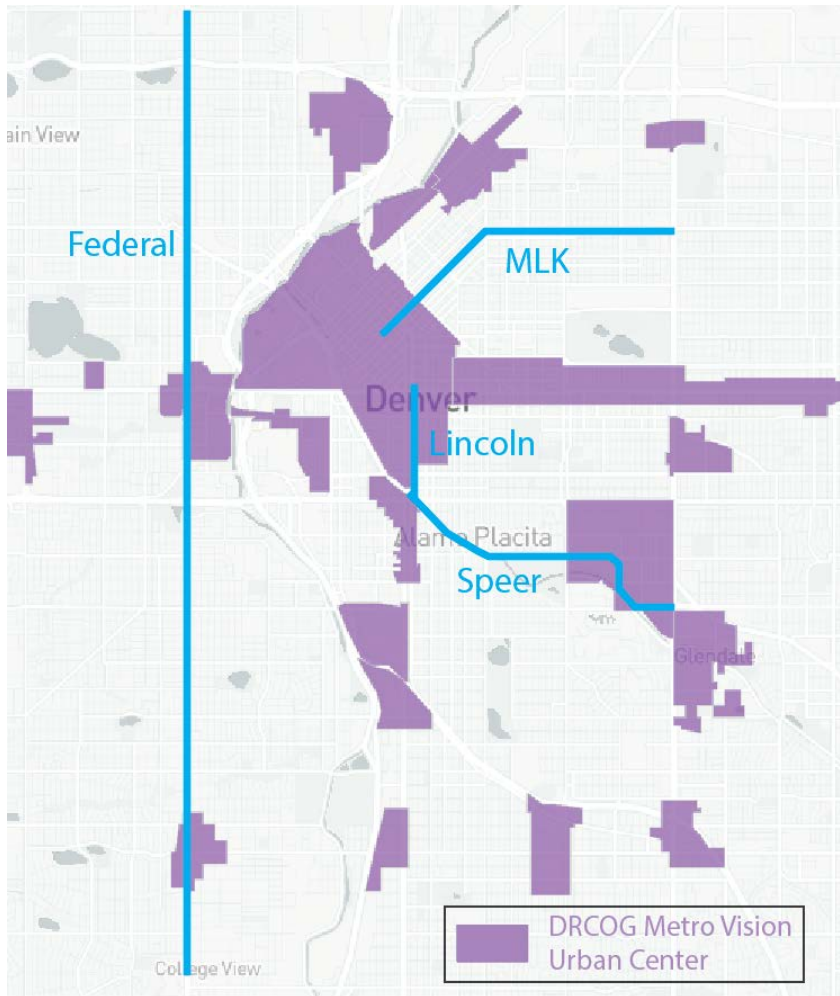
Describe, including supporting quantitative analysis

Denver’s Speed, Reliability, and Amenity project will establish an improved network of clear and direct multimodal connections within and between urban centers and other key destinations. More than 21,000 boardings were counted within demonstrating that these corridors and urban centers are drivers of multimodal trips already. With the implementation of the project, Denver expects to see an additional 14,000 new boardings. This represents a massive opportunity to get people out of their cars and into fast and reliable transit in areas where we expect the most population and job growth (Urban Centers).

DRCOG Metro Vision Urban Centers connected by Denver’s Speed, Reliability, and Amenity project include:

- Central Business District
- Broadway
- Cherry Creek
- Glendale

- Decatur-Federal TOD
- Federal and Evans



2.B. How does this project focus or serve desired growth in areas identified on the Places map (Chapter 5, p. 126) in the [Blueprint Denver \(Public Review Draft August 6, 2018\)](#)?

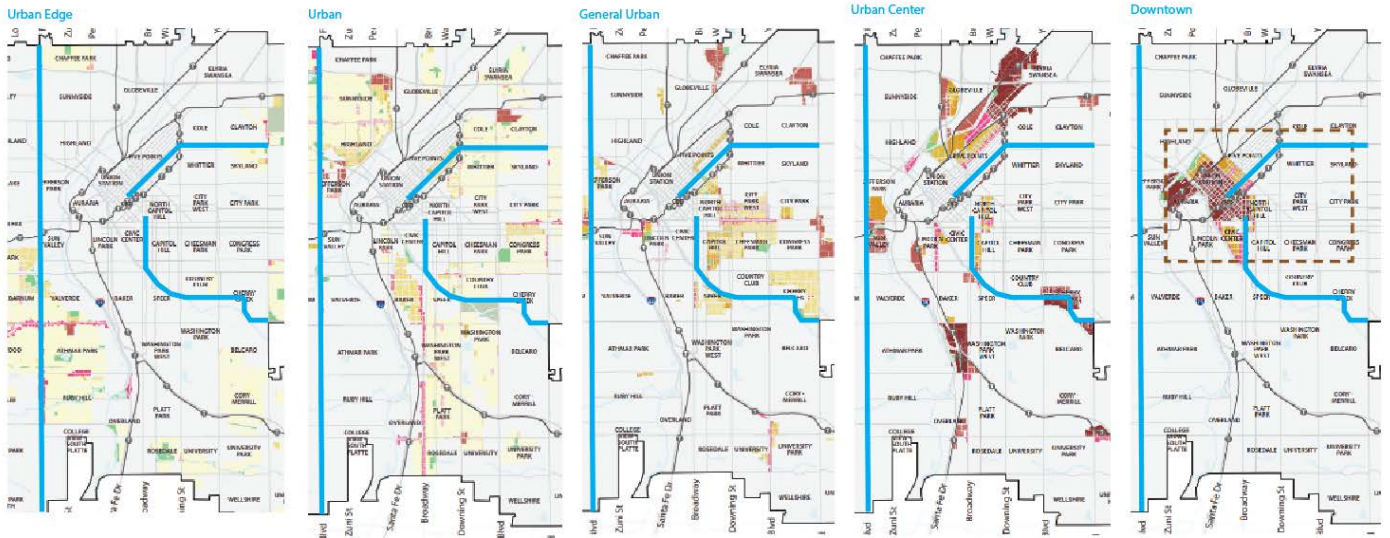
Blueprint Denver and Denver Moves: Transit were developed in tandem due to their dependency on one another. In fact, the Transit Priority Streets identified in Blueprint are identical to Denver Moves: Transit’s Capital Investment Corridors. Blueprint then used these Transit Priority Streets to help develop Urban Places designation for various areas in Denver. The idea is that these Places had the ability to grow based on their access to high quality and frequent transit.

More than 21,000 boardings were counted demonstrating that these corridors and “places” are drivers of multimodal trips already. With the implementation of the project, Denver expects to see an additional 14,000 new boardings. This represents a massive opportunity to get people out of their cars and into fast and reliable transit in areas where we expect the most population and job growth (Places).

Denver’s Speed, Reliability, and Amenity project connects all of the Places identified in Blueprint Denver as population and job growth areas including:

- Urban Edge
- General Urban

- Urban
- Urban Center
- Downtown



MV objective 4

Improve or expand the region’s multimodal transportation system, services, and connections.

3.A. Will this project help increase mobility choices within and beyond your subregion for people, goods, or services?

Yes No

Describe, including supporting quantitative analysis

While Denver’s Transit Speed, Reliability, and Amenity project does not include capital improvements in neighboring jurisdictions, it will improve transit travel times for the RTD routes it serves. The four corridors outlined in this application for improvements carry many regional and local (serving other jurisdictions) RTD routes including, but not limited to, Route 0, Route OL, Route 83L, Route 31, and Route 1. Additionally, Denver Moves: Transit found that each weekday, 300,000 people commute into Denver from neighboring jurisdictions highlighting the reality that Denver’s transportation network is really a regional network.

By implementing spot improvements to strategically move existing transit services more quickly through a corridor, an increase in service can be realized from existing resources without new operating investments. The most costly component of transit is in service delivery as it represents an ongoing, year-over-year cost rather than the one-time cost of capital improvements to generate more efficiency in the operating environment.

3.B. If applicable, describe how this project is consistent with Denver’s specific alternative mode and/or project priorities contained in one or more of **Denver’s modal plans linked below or small area plans** (Neighborhood Planning Initiative, corridor plans, station area plans, Next Steps Studies, etc.). See Denvergov website: denvergov.org search bar and specific plan links below:

NOTE: The application does not need to address numerous plans. Provide documentation for the most applicable or relevant document(s) or plan(s).

Examples are listed below:

- Denver Moves: Transit
<https://www.denvergov.org/content/denvergov/en/denveright/transit.html>
- Denver Moves: Pedestrian and Trails
<https://www.denvergov.org/content/denvergov/en/denveright/pedestrians-trails.html>
- Denver Moves: Bicycles
https://www.denvergov.org/content/dam/denvergov/Portals/708/documents/FINAL_Denver_Moves.pdf
- Transit Oriented Development (TOD) Strategic Plan
https://www.denvergov.org/content/dam/denvergov/Portals/193/documents/TOD_Plan/TOD_Strategic_Plan_FINAL.pdf
- Small area plans (Neighborhood Planning Initiative, corridor plans, station area plans, Next Steps studies, etc.)

Denver’s Speed, Reliability, and Amenity project is consistent with several of Denver’s modal, citywide, corridor, and area plans. While infeasible to go through each one, it makes the most sense to focus on Denver Moves: Transit. Denver Moves: Transit is the City’s first transit plan focused on increasing accessibility to transit and driving transit modeshare to 15% by 2030. The four corridors represented in this application are all in Denver Moves Transit as either High Capacity, Medium Capacity, or Speed + Reliability corridors. The plan also provides guidance on interim improvements. In the case of these four Speed, Reliability, and Amenity corridors, Denver Moves Transit highlights that in lieu of having major funding for BRT or Rail implementation, all High Capacity and Medium Capacity corridors can be Speed + Reliability corridors in the near-term.

With boarding increases of 65% above Metro Vision forecasts, this project demonstrates a unique ability to move the needle on transit modeshare. Couple these improvements, with other Speed, Reliability, and Amenity projects, the network developed begins to compound ridership creating a system that is exponentially better with each implemented segment.

MV objective 6a

Improve air quality and reduce greenhouse gas emissions.

4.A. Will this project help reduce ground-level ozone, greenhouse gas emissions, carbon monoxide, particulate matter, or other air pollutants?

Yes No

Describe, *including supporting quantitative analysis*

Denver’s Speed, Reliability, and Amenity project will help reduce air pollutants by getting people out of their car. While buses aren’t perfect, the efficiency of moving more people with one vehicle versus moving people in a single occupant vehicle can’t be over-stated. As demonstrated in the below data calculations, Denver’ Speed, Reliability, and Amenity project has the potential to reduce greenhouse gas emissions approximately 63,800 pounds.

4.B. If applicable, describe how this project is consistent with, or helps implement, Denver’s [80x50 Climate Action Plan](#), which set the City’s target to **reduce greenhouse gas emissions to 80% below 2005 levels by 2050**, and/or Denver’s [2020 Sustainability Goals](#).

This project will reduce greater than 63,000 pounds of GHG emissions daily by 2040. Collectively, a greater shift to transit from other modes will have a multiplier effect on emissions reductions. As the transit industry continues to deploy higher numbers of electric vehicle fleets, combustion engine sourced emissions can be reduced through mode shift and conversion of bus fleets to electric vehicles.

4.C. If applicable, describe if this project contains **water quality and green infrastructure** consistent with project types and focus areas identified in **Denver’s [Green Infrastructure Implementation Strategy](#)**:

Denver’s Speed, Reliability, and Amenity project will work with Denver Public Works Green Infrastructure team to determine opportunities for water quality and green infrastructure treatments. These treatments are most generally implemented as part of bus bulbs. NACTO and Denver green infrastructure design guidelines provide proven and implementable. An existing ‘Federal Blvd Green Streets’ green infrastructure project will be implemented concurrently and provide lessons learned for implementing green infrastructure and transit projects together.

MV objective 7b

Connect people to natural resource or recreational areas.

5.A. Will this project help complete missing links in the regional trail and greenways network or improve other multimodal connections that increase accessibility to our region’s open space assets?

Yes No

Describe, *including supporting quantitative analysis*

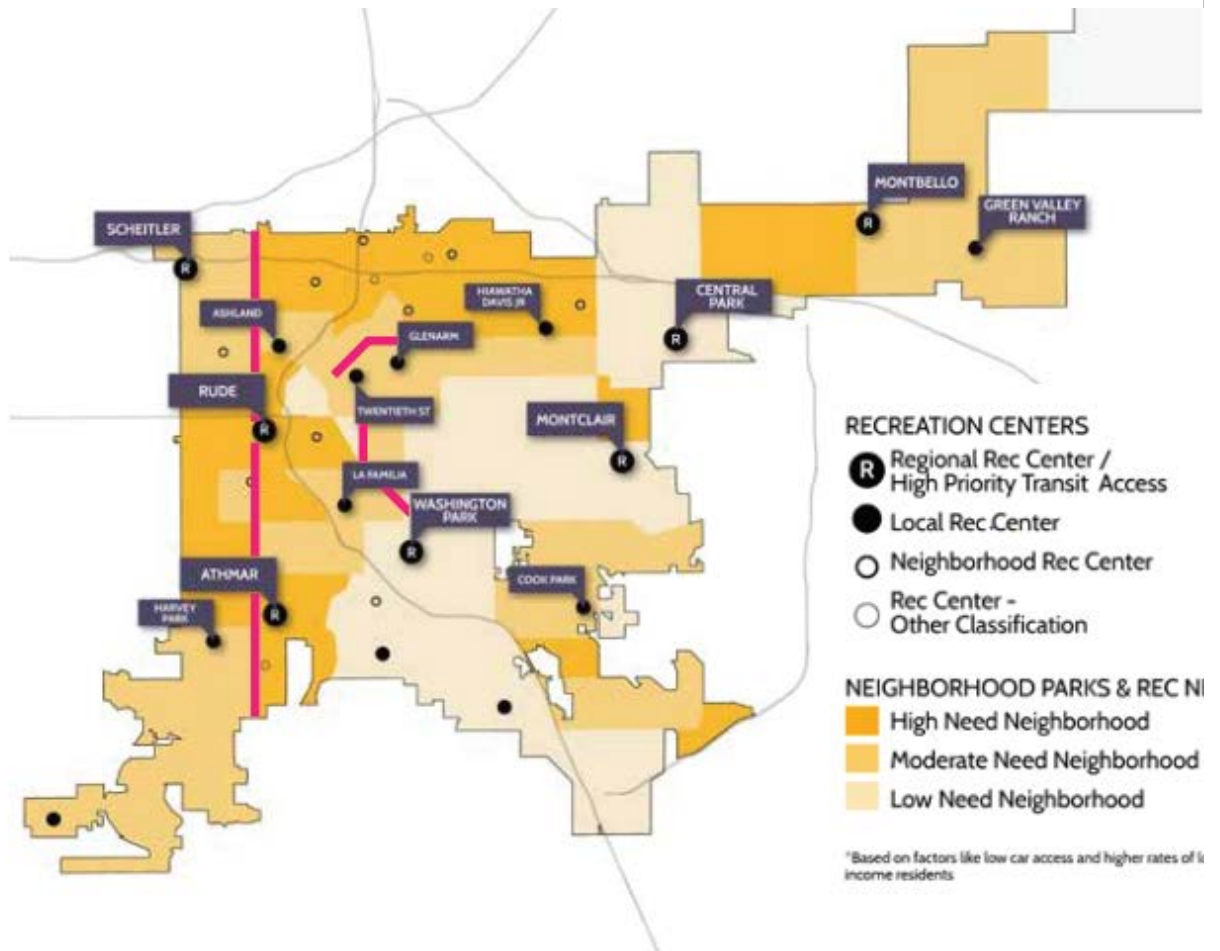
Denver’s Speed, Reliability, and Amenity project improves multimodal connections to increase accessibility to the region’s open space assets through the build-out of a Speed, Reliability, and Amenity network criss-crossing Denver. The four proposed transit corridors currently connect some of the region’s best open spaces including Cherry Creek, Rocky Mountain Lake Park, Curtis Park, George Morrison Sr. Park, Civic Center, Alamo Placita Park, Hungarian Freedom Park, Lawson Park, and many others. With build-out of these four corridors and other Speed, Reliability, and Amenity corridors already underway, the connections and accessibility to even more open space destinations becomes possible. Now people can better connect to City Park, Cheesman Park, Sloan’s Lake, and other regional open spaces.

5.B. If applicable, describe how your project meets the goals, objectives and priorities of the Denver Department of Parks and Recreation’s **[Game Plan for a Healthy City \(Public review draft 2018\)](#)**.

Denver Department of Parks and Recreation’s Game Plan for a Healthy City was developed in coordination with Denver Moves: Transit as part of the Denveright process. This integration and coordination of planning efforts allowed for the development of plans that included recommendations for how transit plays and important role to get people to Denver’s robust park and open space system. Strategies within Game Plan included locating new parks near transit to support greater use. Game Plan also identified transit as a potential equalizer in underserved, high-need (parks) neighborhoods by better connecting people to existing parks and recreation centers. The plan also identified transit as an opportunity to promote healthy living by improving access. Other recommendations and strategies include:

- Coordinate with local and regional public transportation providers to ensure that transit options are maintained or created to connect residents to city parks and facilities.
- Partner with transit providers to include major and/or regional parks on websites, public transportation maps, and other transportation plans.
- Consider prioritizing facility improvements and program expansions at recreation centers with a high degree of mobility and transit connectivity.

The Game Plan even developed a strategy for city-wide mobility improvements and recreational resources to be prioritized together. Denver’s Speed, Reliability, and Amenity project would better connect many of the City’s recreation centers including Glenarm, Twentieth St., La Familia, Rude, Ashland, and Athmar.



Transit Priority Recreation Centers

Regional and local recreation centers in or near high-need neighborhoods:

- Scheitler
- Ashland
- Rude
- Athmar
- Harvey Park
- Hiawatha Davis Jr
- Glenarm
- Twentieth St
- La Familia
- Washington Park
- Cook Park
- Montclair
- Central Park
- Montbello
- Green Valley Ranch

[MV objective 10](#)

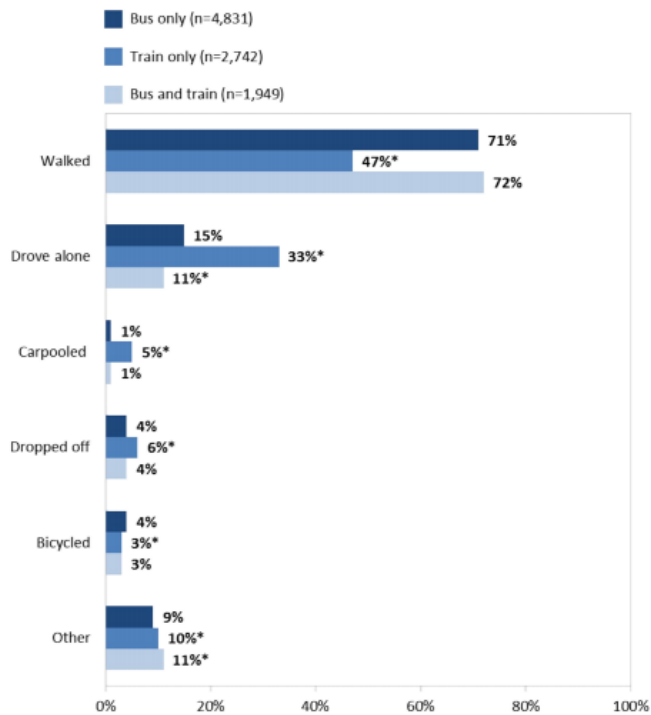
Increase access to amenities that support healthy, active choices.

6. Will this project expand opportunities for residents to lead healthy and active lifestyles?
Describe, including supporting quantitative analysis

Yes No

Riding transit isn't considered, in and of itself, as being healthy or active, but the cumulative effect of transit being a staple of someone's mobility allows for the including of walking and biking in their overall trip. In fact, a 2017 RTD survey (see below) showed that for bus boardings, 71% of respondents said that they accessed transit by walking. Another 4% accessed the bus stop by bike. That means 75% of bus riders either walked or biked to their stop and allowed them to lead a more active and healthy lifestyle through transportation.

Figure 5.
Mode of travel to reach location for RTD boarding



Note: * Indicates statistically significant difference from bus only passengers.
Percentages for each group may not sum to 100% due to rounding.
Source: 2017 RTD Customer Satisfaction Survey.

MV objective 13

Improve access to opportunity.

7.A. Will this project help reduce critical health, education, income, and opportunity disparities by promoting reliable transportation connections to key destinations and other amenities?

Yes No

Describe, including supporting quantitative analysis

Denver’s Speed, Reliability, and Amenity Project is building on high frequency service already providing good access to key destinations and amenities. The goal of this effort is to ensure that this service can continue through needed operational improvements to get buses out of traffic and get people to hospitals, social services, school, and jobs. By decreasing travel time and improving reliability, this project is uniquely situated to help those most in need and help to reduce critical health, education, income, and opportunity disparities. If a person has the ability to access high frequency, high functioning transit, it opens up the ability to improve their lives. Within a mile of the project are more than 50% of the low income households, language challenged and zero vehicle households in the City

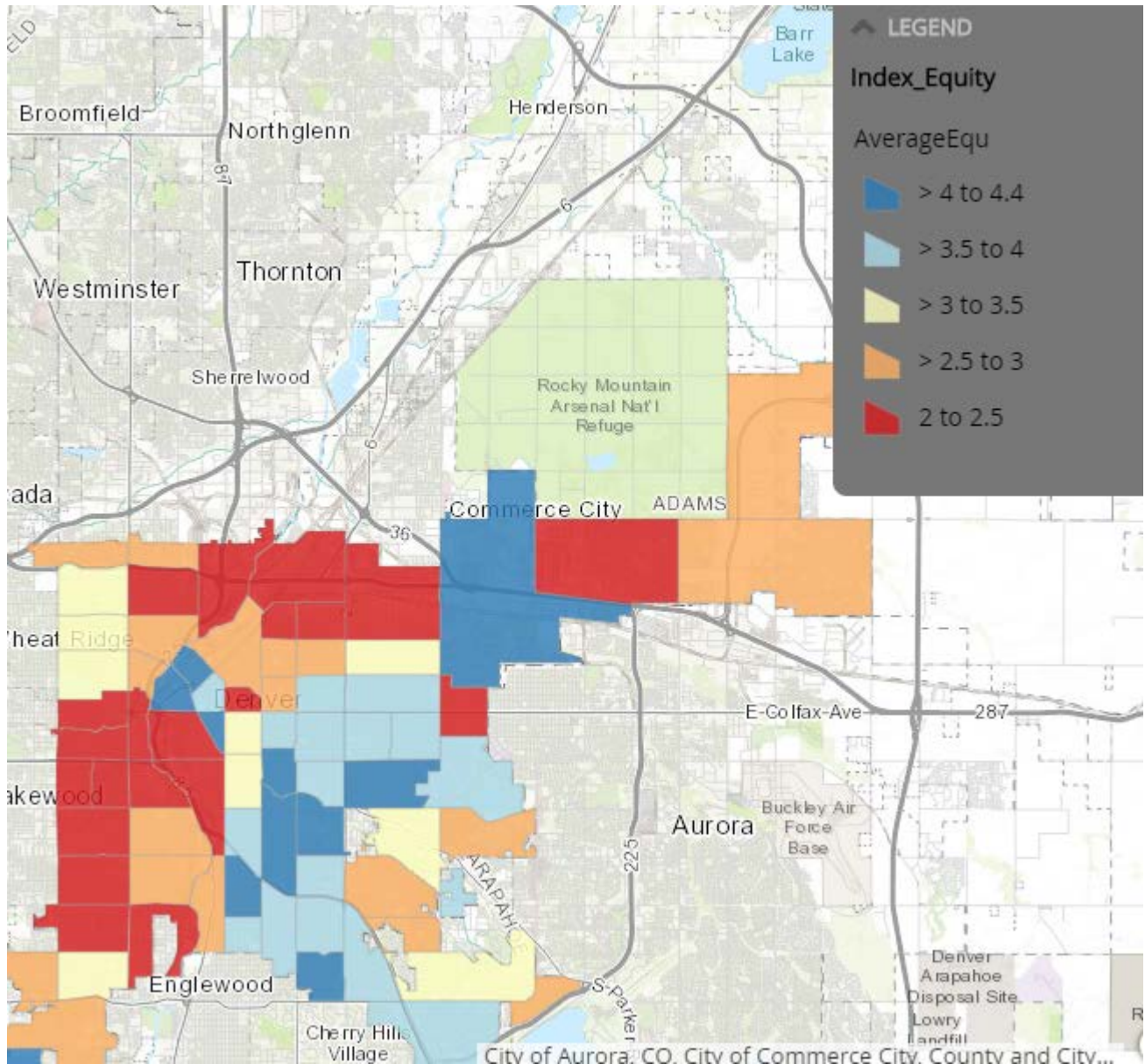
7.B. Describe how your project addresses the neighborhood inequities related to transportation as depicted and mapped in the **Denver Neighborhood Equity Index** which was produced by the Denver Department of Public Health and Environment, which helps to inform decision makers about where city investment and resources are needed most for those living in Denver’s underserved neighborhoods?

General information on the Neighborhood Equity Index is on the Denvergov website:

<https://www.denvergov.org/content/denvergov/en/environmental-health/community-health/health-in-all-policies.html>

See the interactive map, by opening this [link](#) in a new window. The source of each indicator is described in the map. Click on each individual link and see specific map layers; for example, in Built Environment, there is information on “Access to Parks” separately.

Transit Speed & Reliability corridor primarily serve communities at or below the median rankings for socio-economic factors, built environment, access to care, morbidity and mortality.



[MV objective 14](#)

Improve the Denver Subregion’s competitive position.

8. Will this project help support and contribute to the growth of the subregion’s economic health and vitality?

Yes No

Describe, including supporting quantitative analysis

At the heart of a healthy and economically diverse region is a robust multimodal transportation system. Within the multimodal system, public transportation is the anchor – providing opportunity to access jobs, schools, entertainment, and basic services. In the 2013 CityLab article, “Public Transit Is Worth Way More to a City Than You Might Think”, planners Daniel Chatman and Robert Noland suggest public transportation has a hidden

economic value of \$1.5 million and \$1.8 billion a year due to the agglomeration benefit of dense cities set around a robust transit network. This hidden economic value is only icing on the cake of providing residents with access to opportunity. Denver’s Speed, Reliability, and Amenity project serves to bolster the transit value by decreasing travel time and improving reliability. These savings equate to a more efficient and robust economy in which people have more time to work, learn, and play.

D. Project Leveraging

WEIGHT **10%**

9. What percent of outside funding sources (non-DRCOG-allocated Subregional Share funding) does this project have?	30%	60%+ outside funding sources High 30-59%Medium 29% and belowLow
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Part 3

Project Data Worksheet – Calculations and Estimates

(Complete all subsections applicable to the project)

A. Transit Use

1. Current ridership weekday boardings	21587
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	336,101	306,532	642,633
2040	395,744	363,835	395,744

Transit Use Calculations	Year of Opening	2040 Weekday Estimate
3. Enter estimated additional daily transit boardings after project is completed. <i>(Using 50% growth above year of opening for 2040 value, unless justified)</i> <i>Provide supporting documentation as part of application submittal</i>	1961	14865
4. Enter number of the additional transit boardings (from #3 above) that were previously using a different transit route. <i>(Example: {#3 X 25%} or other percent, if justified)</i>	490	3716
5. Enter number of the new transit boardings (from #3 above) that were previously using other non-SOV modes (walk, bicycle, HOV, etc.) <i>(Example: {#3 X 25%} or other percent, if justified)</i>	490	3716
6. = Number of SOV one-way trips reduced per day (#3 – #4 – #5)	980	7433
7. Enter the value of {#6 x 9 miles} . (= the VMT reduced per day) <i>(Values other than the default 9 miles must be justified by sponsor; e.g., 15 miles for regional service or 6 miles for local service)</i>	8824	66893
8. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	8383	63548
9. If values would be distinctly greater for weekends, describe the magnitude of difference:		

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

B. Bicycle Use

1. Current weekday bicyclists	863
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	336,101	306,532	642,633
2040	395,744	363,835	395,744

Bicycle Use Calculations	Year of Opening	2040 Weekday Estimate
3. Enter estimated additional weekday one-way bicycle trips on the facility after project is completed.	31	274
4. Enter number of the bicycle trips (in #3 above) that will be diverting from a different bicycling route. (Example: {#3 X 50%} or other percent, if justified)	15	137
5. = Initial number of new bicycle trips from project (#3 – #4)	15	137
6. Enter number of the new trips produced (from #5 above) that are replacing an SOV trip. (Example: {#5 X 30%} or other percent, if justified)	5	41
7. = Number of SOV trips reduced per day (#5 - #6)	11	96
8. Enter the value of {#7 x 2 miles} . (= the VMT reduced per day) (Values other than 2 miles must be justified by sponsor)	21	192
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	20	182
10. If values would be distinctly greater for weekends, describe the magnitude of difference:		
11. If different values other than the suggested are used, please explain here:		

C. Pedestrian Use

1. Current weekday pedestrians (include users of all non-pedaled devices)	15327
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	336,101	306,532	642,633

2040	395,744	363,835	395,744
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Pedestrian Use Calculations		Year of Opening	2040 Weekday Estimate
3.	Enter estimated additional weekday pedestrian one-way trips on the facility after project is completed	752	781
4.	Enter number of the new pedestrian trips (in #3 above) that will be diverting from a different walking route (Example: {#3 X 50%} or other percent, if justified)	376	391
5.	= Number of new trips from project (#3 – #4)	376	391
6.	Enter number of the new trips produced (from #5 above) that are replacing an SOV trip. (Example: {#5 X 30%} or other percent, if justified)	113	117
7.	= Number of SOV trips reduced per day (#5 - #6)	263	273
12.	Enter the value of {#7 x .4 miles} . (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor)	105	109
8.	= Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	100	104
9.	If values would be distinctly greater for weekends, describe the magnitude of difference:		
10.	If different values other than the suggested are used, please explain here:		

D. Vulnerable Populations

Use Current Census Data	Vulnerable Populations	Population within 1 mile
	1.	Persons over age 65
2.	Minority persons	135,902
3.	Low-Income households	22,806
4.	Linguistically-challenged persons	20,129
5.	Individuals with disabilities	15,927
6.	Households without a motor vehicle	17,200
7.	Children ages 6-17	35,904
8.	Health service facilities served by project	120

E. Travel Delay (Operational and Congestion Reduction)

Sponsor must use industry standard Highway Capacity Manual (HCM) based software programs and procedures as a basis to calculate estimated weekday travel delay benefits. <i>DRCOG staff may be able to use the Regional Travel Model to develop estimates for certain types of large-scale projects.</i>		
1.	Current ADT (average daily traffic volume) on applicable segments	0
2.	2040 ADT estimate	0
3.	Current weekday vehicle hours of delay (VHD) (before project)	0

Travel Delay Calculations	Year of Opening
4. Enter calculated future weekday VHD (after project)	0
5. Enter value of {#3 - #4} = Reduced VHD	0
6. Enter value of {#5 X 1.4} = Reduced person hours of delay <i>(Value higher than 1.4 due to high transit ridership must be justified by sponsor)</i>	0
7. After project peak hour congested average travel time reduction per vehicle (includes persons, transit passengers, freight, and service equipment carried by vehicles). <i>If applicable, denote unique travel time reduction for certain types of vehicles</i>	0
8. If values would be distinctly different for weekend days or special events, describe the magnitude of difference.	
9. If different values other than the suggested are used, please explain here:	

F. Traffic Crash Reduction		
1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians <i>(most recent 5-year period of data)</i>		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	31	
Serious Injury crashes	329	
Other Injury crashes	972	
Property Damage Only crashes	8308	
2. Estimated reduction in crashes <u>applicable to the project scope</u> <i>(per the five-year period used above)</i>		
Fatal crashes reduced	0	
Serious Injury crashes reduced	0	
Other Injury crashes reduced	0	
Property Damage Only crashes reduced	0	

G. Facility Condition	
Sponsor must use a current industry-accepted pavement condition method or system and calculate the average condition across all sections of pavement being replaced or modified. Applicants will rate as: Excellent, Good, Fair, or Poor	
Roadway Pavement	
1. Current roadway pavement condition	Choose an item
2. Describe current pavement issues and how the project will address them.	
3. Average Daily User Volume	0
Bicycle/Pedestrian/Other Facility	

4. Current bicycle/pedestrian/other facility condition	Choose an item
5. Describe current condition issues and how the project will address them.	
6. Average Daily User Volume	0
H. Bridge Improvements	
1. Current bridge structural condition from CDOT	
2. Describe current condition issues and how the project will address them.	
3. Other functional obsolescence issues to be addressed by project	
4. Average Daily User Volume over bridge	0
I. Other Beneficial Variables <i>(identified and calculated by the sponsor)</i>	
1.	
2.	
3.	
J. Disbenefits or Negative Impacts <i>(identified and calculated by the sponsor)</i>	
1. Increase in VMT? <i>If yes, describe scale of expected increase</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Negative impact on vulnerable populations	
3. Other:	