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1. Executive Summary

The River North (RiNo) Railroad Crossing Connectivity Analysis focuses broadly on improving bicycle and pedestrian connectivity at the Union Pacific Railroad (UPRR) and Regional Transportation District (RTD) A-Line rail corridor in the RiNo neighborhood between Broadway and 40th Street. The primary focus of the analysis was to evaluate crossing improvements near 38th Street, and a secondary focus was to identify and evaluate alternative locations across the tracks that could enhance bicycle/pedestrian connectivity and complement improvements at 38th Street.

A number of previous studies identified connectivity improvements in this area. Pedestrian connectivity in the area has been enhanced through the construction of the RTD pedestrian bridge north of 38th Street and the 35th/36th pedestrian bridge; however, those connections do not include ramps. Without ramps, bicyclists are required to either carry bikes up several flights of stairs or use the elevator. The construction of a bicycle friendly connection would enhance local neighborhood connectivity as well as connectivity to and from other areas in Denver (as an additional option to the 38th Street underpass).

![Figure 1: Alternatives considered](image)

A number of crossing locations and high level concepts were evaluated as part of this project using a screening process based on criteria such as connectivity for bicycles and pedestrians, minimization of impacts to existing residential and commercial property, community support, cost, and other feasibility factors. The screening process resulted in the recommendation for near-term priority improvements at the existing 38th Street connection under the UPRR and RTD tracks. These improvements include widening the existing narrow path on the approaches to the underpass and under the Blake Street Bridge and RTD Bridge. However, the section under the UPRR tracks would need to remain unchanged due to the multiple technical and financial challenges of reconstructing the UPRR bridge to accommodate a wider path. The City and County of Denver (City) is actively pursuing funding opportunities to construct this highly needed near term neighborhood improvement on 38th Street and is committed to working with local agencies and other partners for potential funding sources.

A longer-term connectivity improvement was identified as a tunnel or bridge crossing of the railroad and RTD University of Colorado A-Line at 31st Street. This option has significant cost and technical challenges and is discussed further in Section 4.3.
2. Project Overview

Recent and upcoming changes to Denver’s RiNo neighborhood have sparked the need for improved mobility and access in the area. Connectivity issues have been exposed as the neighborhood has grown, particularly limited east/west connections across the existing commuter and freight rail corridor (between 40th Street and Broadway). 38th Street provides one of the few east/west connections in this area of the City. Development is rapidly changing the neighborhood, bringing new residents and new businesses to the area.

This analysis focuses on bike and pedestrian connectivity primarily at the 38th Street underpass, between Walnut Street and Brighton Boulevard. The analysis examines the potential to provide high impact, but lower cost changes to the 38th Street underpass to improve the pedestrian and bike experience. As a secondary focus, the analysis also examines the feasibility of an additional east/west bike and pedestrian crossing over or under the freight and commuter rail corridor somewhere between Blake Street and Brighton Boulevard (from Broadway to 40th Street).

2.1. Project Leadership and Organization

This analysis was managed by the North Denver Cornerstone Collaborative (NDCC). A Project Management Team (PMT) composed of staff from multiple City departments and AECOM provided regular input and guidance over the course of the project. Two focus group meetings were held with project stakeholders during the analysis to guide the process and gather input.

2.2. Area Context

The study area is primarily focused on the areas in and around the intersection of 38th Street and Blake Street in the north central area of Denver as shown on Figure 2. A two-mile radius from 38th Street and Blake was used to provide area context, and a smaller focus study area was used to show areas within immediate proximity to the 38th Street and Blake Street intersection.

Figure 2: Project context map
The existing infrastructure in the study area includes two US interstates, two privately owned railroad lines, commuter rail lines operated by RTD, and many arterial roadways as highlighted on Figure 3. The northern part of the two mile study area overlaps with Adams County, which is outside of the jurisdiction of the City.

Multiple barriers including the UPRR mainline and RTD’s University of Colorado A-Line bisect the RiNo neighborhood which limits bicycle connectivity across the railroads to two locations at Broadway/Brighton Boulevard and the narrow underpass at 38th Street. Pedestrian bridges exist north of 38th Street at the 38th and Blake Station and at 35th/36th Street, but neither of the connections include ramps or way for bicyclists to utilize the bridges without a dismount.
2.3. Previous Studies

Connectivity and infrastructure improvements at this location have been identified as a priority in multiple strategic and environmental planning publications, pedestrian master plans, and neighborhood and community plans. These studies include:

- **Denver Comprehensive Plan (2000)** established a long term vision for the City including increasing mobility choices in Denver neighborhoods.

- **Pedestrian Master Plan (2004)** recommended providing pedestrian/multiuse bridges and crossings over railroads, rivers, and other features that are major barriers.

- **38th & Blake Station Area Plan (2009)** studied the RTD commuter rail station as a centerpiece for the surrounding community. The plan recommended a pedestrian bridge across the UPRR railroad tracks at 35th/36th Street. An additional bridge at 31st Street or 33rd Street was recommended to provide access between River North and the Denargo Market redevelopment to Upper Larimer and Curtis Park. Public input indicated the need for this additional pedestrian crossing over the railroad tracks closer to downtown. This additional crossing was identified to be less of a priority than the 35th/36th Street crossing, but was stated as beneficial for residents on both sides of the railroad tracks. The plan was amended in 2016 to update building height restrictions to help foster more transit oriented development.

- **38th Blake Next Steps Study (2010)** was a traffic operations study, which recommended improving the 38th Street underpass of the UPRR to include sidewalks on both sides of the underpass with the northern sidewalk meeting American Association of State Highway and Transportation Officials (AASHTO) standards for a bike path. This could be included with a full roadway reconstruction of 38th Street underpass into four lane cross section with wide sidewalks on both sides and adequate vertical clearance. Until major widening is completed, it was suggested that painting, lighting, and improved cleanliness be implemented as short term improvements. It also recommended a 36th Street pedestrian bridge over the Platte River to create a pedestrian spine along 36th Street. In addition, it recommended a second pedestrian bridge at 31st Street or 33rd Street closer to downtown to provide access between RiNo and the Denargo market redevelopment to Upper Larimer and Curtis Park.

- **Northeast Downtown Neighborhood Plan (2011)** focused on the neighborhoods in proximity to the Central Business District (CBD), to help establish a long range plan for the area to help preserve the character of the historic neighborhoods. Suggested enhancements to connections between neighborhoods included a bike and pedestrian bridge at 35th Street, a bridge to accommodate all modes at 33rd Street, and a bike and pedestrian bridge at 31st Street.

- **35th/36th Conceptual Design (2012)** outlined a pedestrian bridge with an elevator and stairs at this preferred location. A ramp for bike access was investigated but site constraints did not allow for it. A public process resulted in the preferred location at 35th/36th Street where it was subsequently constructed and opened in 2017.

- **Northeast Downtown Neighborhood Plan Next Steps Study (2015)** built off the transportation and mobility recommendations made in the Northeast Downtown Neighborhood Plan of 2011 to create a prioritization of projects to help enhance mobility choices. The study proposed high level estimates and engineering evaluations to help rank projects that could be easily implemented with low cost and a high return on investment.

- **Denver Moves (2016)** proposed a trail connection between Larimer and Brighton Boulevard over the railroad at 31st Street. Phase I included a bike connection on 36th Street and Phase III recommended an improved connection on 38th Street.

- **38th & Blake Station Area Height Amendments (2016)** was adopted to create unification between the small area and neighborhood plans that surround the 38th and Blake Street station area (River North Area Plan, 38th and Blake Station Area Plan, Northeast Downtown Neighborhoods Plan, Globeville Neighborhood Plan, and Elyria & Swansea Neighborhood Plan). The height and value recommendations
superseded previous small area and neighborhood plan height recommendations due to overlapping study areas.

- **North Denver Cornerstone Collaborative (NDCC) Master Mobility Plan (In Progress)** The Master Mobility Plan seeks to build off existing neighborhood plans and other applicable studies to help balance the needs of pedestrians, cyclists, drivers, and transit riders getting to and through the NDCC region.

### 2.3. Current Relevant Street Infrastructure Projects

Within the two mile study area, there are at least ten substantial projects shown on Figure 4 that are at various stages of planning and construction. These projects include automobile improvements to the road surface and infrastructure through annual street paving programs or roadway studies, Americans with Disability Acts (ADA) sidewalk ramp repairs, and mobility improvements for pedestrians and bicyclists. As of fall 2017, three of the projects impact the immediate project area, and downtown street paving will also affect a small portion of the study area as the street crews work downtown. Four projects are either implementing improvements as of fall 2017, and the rest are in the process of completing a study within proximity of this study area.

![Figure 4: Study area Public Works projects](image-url)
<table>
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<th>Project</th>
<th>Description</th>
<th>Status</th>
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<td>1</td>
<td>19th and 20th Two-Way Conversion Project</td>
<td>Seeks to turn one-way travel direction roads into two-way roadways.</td>
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<td>2</td>
<td>40th and Colorado Next Steps</td>
<td>Identifies multi-modal improvements in and around the 40th and Colorado rail station (RTD A-Line).</td>
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<td>3</td>
<td>Brighton Boulevard Corridor</td>
<td>Focuses on designing and constructing public infrastructure (e.g. cycle track, sidewalks, curb and gutter, on-street parking). Project to be completed in two phases, phase one being from 29th to 40th streets and phase 2 focusing between 40th and 44th Streets. Once completed, this project will make Brighton a gateway to the heart of Denver from northern destinations for automobiles, pedestrians and bicycle users.</td>
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<td>4</td>
<td>Elyria Swansea at York East/West Connectivity Study</td>
<td>Focused on improving pedestrian and bicycle access for east-west travel where railroad and major roadways impede travel near 47th Avenue and York Street. Recommended a new pedestrian/bicycle bridge over the rail tracks at 47th/York.</td>
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<tr>
<td>5</td>
<td>Washington Street Study</td>
<td>This study is focused on improving multimodal access along Washington Street to better connect the corridor. It promotes the area as “an attractive corridor that creates positive sense of place, attracts private reinvestment, and better accommodates all transportation modes.”</td>
</tr>
<tr>
<td>6</td>
<td>Walnut Street Corridor Improvements</td>
<td>Reorganized parking along Walnut Street to better accommodate pedestrians using curb stops. Phase 1 includes curb stops and phase 2 will study the corridor for additional future improvements.</td>
</tr>
<tr>
<td>7</td>
<td>Martin Luther King (MLK) Boulevard/31st Avenue Buffered Bike Lanes</td>
<td>Plans to extend bicycle lanes to provide connections to existing infrastructure.</td>
</tr>
<tr>
<td>8</td>
<td>E 28th Ave, Josephine to Champa- Bike Lane/Sharrows</td>
<td>Plans to implement bike lane/sharrows on 28th Avenue from Josephine to Champa Streets.</td>
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<td>9</td>
<td>E 25th Ave, Gaylord to 22nd- Bike Lane/Sharrows</td>
<td>Plans to implement bike lanes/sharrows on 25th Avenue from Gaylord to 22nd Street.</td>
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<td>33rd Outfall Study Area</td>
<td>Study evaluates the impact of the 33rd Outfall area.</td>
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2.4. Current Development

The RiNo neighborhood and surrounding areas are experiencing major changes with current development and future possibilities of development. Figure 5 shows active applications (fall 2017) that are undergoing review for development and recently approved applications that may have begun construction. At least nine locations have been approved for development with at least 28 development projects currently undergoing review. Prominent development occurring in the area includes The Source + Hotel, The World Trade Center (WTC) of Denver, DriveTrain, Taxi, and numerous multifamily residential infill projects.

The Source, located at 3350 Brighton Boulevard, opened an artisan food market in 2013 that houses at least twenty different individual businesses and will begin operating a hotel in 2018. The historic Ironworks Foundry property was purchased by Zeppelin Development in 2012\(^1\) and redeveloped into The Source. The Denver Urban Renewal Authority was a key partner in this redevelopment project. DriveTrain is anticipated to open in 2018 on the Brighton Boulevard corridor and will bring some of the same concepts as The Source, with retail, restaurants and housing.

The World Trade Center (WTC) of Denver is anticipated to begin operations by 2019 and is designed to “be a mixed use, transit-oriented development – and will serve as a major catalyst for the area.”\(^2\) Led by OZ Architecture, the vision for the WTC is to provide a lasting link for Denver to the global market, while offering office space, retail, and other amenities at the location site.

In addition to business development, housing is also growing at a rapid pace. Out of 29 active applications, fourteen include some form of multi-family housing, and some of the development proposals include at least fifty or more multi-unit dwellings. The future density of this neighborhood continues to increase as projects are completed and demand for access increases. Improving connectivity for upcoming projects in this area will greatly enhance mobility options for future residents and employees in the RiNo neighborhood.

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\(^1\) http://renewdenver.org/projects/source/

\(^2\) http://ozarch.com/2016/02/oz-to-lead-master-planning-for-denvers-world-trade-center-global-campus/
Figure 5: Current and future development occurring in focus study area
2.5. Existing Zoning

Existing zoning based on the Blueprint Denver plans of 2002 is shown on Figure 6. The area bounded by Brighton Boulevard and Larimer Streets is zoned as Mixed Use, and Industrial land uses surround the areas in proximity to the railroads. The periphery of the immediate study area shifts into single-family homes. Blueprint Denver plans are currently under revision to redefine Denver’s goals for the next twenty years to guide land use and transportation and to continue to build on the achievements from 2002. Figure 7 shows the total percentage that each land use is dedicated to within the immediate study area and highlights Mixed Use, Industrial, and Single Family Residential land uses as almost 70% of the total land use within this area.

Figure 6: Study area existing zoning
Figure 7: Study area zoning percentage by type
3. Purpose and Need

Project development was initiated through the creation of a purpose and need. The purpose and need helps define the overall goals of the project and brings together data, which help outline the individual needs of the project. The purpose and need was developed with the Project Management Team and stakeholder groups.

3.1. Project Purpose

The primary purpose of this project is to identify if any cost effective options exist to improve bicycle and pedestrian connectivity along or near the 38th Street corridor including alternative routes across the railroad between Brighton Boulevard and Blake Street from Broadway to 40th Street. The improvements identified in this analysis are intended to enhance bicycle and pedestrian access in advance of the future widening of 38th Street which is anticipated to include four vehicular lanes as well as bicycle and pedestrian facilities. The future widening of 38th Street is not currently funded and could be 10 to 20 years in the future (timing is unknown).

This analysis evaluated the technical feasibility of improvements to the 38th Street crossing that could be implemented at relatively low cost to improve safety and mobility conditions for bicyclists and pedestrians prior to a full widening project. The analysis also evaluated a potential alternative crossing separate from 38th Street. All of these options were presented to and discussed with nearby businesses, resident representatives and developers as part of the process (see Section 7).

3.2. Project Needs

3.2.1. Connectivity and Access

Pedestrian and bicycle access to public places, neighborhoods, and businesses in the project area is limited due to the railroad barrier and the limited crossing locations. Improvements to the existing connections or adding new connections would help meet the access needs of the neighborhood.

Figure 8 highlights some of the physical barriers that exist within the study area, which was adapted from the NDCC master mobility plan due to the plan overlapping much of this study’s area. The large network of railroads (BNSF and UPRR), US Interstates 25 and 70, and the South Platte River create physical obstructions to mobility for automobiles, pedestrians and bicyclists throughout much of the central Denver area. The lack of safe crossings of these large, linear facilities is especially difficult for pedestrians and bicyclists.

The 38th and Blake Street underpass is the one connection that serves bicyclists traveling in the immediate vicinity. Regional connections to the South Platte and other various multi-use trail networks, the 38th and Blake RTD Commuter Light Rail Station, and infill development occurring in the RiNo area will create added stress on the mobility network.

Transportation connections for the community are challenging due to railroad barriers limiting east to west connections in the RiNo neighborhood. The primary need of this area is enhanced mobility with increased bicycle and pedestrian connectivity across the rail and RTD tracks. If an individual in RiNo want to bike to downtown, they are currently limited to using the Brighton Boulevard and Broadway bike connection or the 38th Street underpass. This is similar for Cole residents who want to travel to RiNo.

Pedestrian connectivity in the area has been recently enhanced through the construction of the RTD pedestrian bridge on the north side of 38th Street which connects the RTD parking area with the 38th and Blake rail station as well as the 35th/36th pedestrian bridge constructed by the City and County of Denver in 2017. Due to land constraints and other factors, ramps were not feasible for these bridges (elevators were constructed). Elevators can be limiting for bicyclists as they require a dismount.
Figure 8: Barriers to connectivity
3.2.1.1. Bicycle Connectivity and Access

The City has aggressively implemented new options for bicycle connectivity based on its goals to create “a bicycling network where every household is within a quarter mile (two minute bike ride) of a comfortable and low-stress bicycling facility.” There are 24 bicycle projects slated for implementation this year including bicycle lanes, protected bike lanes, wayfinding signage, and neighborhood bikeways.

Currently, the bicycle route that intersects and travels through the 38th and Blake intersection is Bicycle Route D-9, which connects bicyclists travelling through the area to destinations such as Downtown Denver or the South Platte River trail. Denver’s D-Routes are interconnected in Denver by a grid-like pattern, providing east-west and north-south routes on lower-trafficked roadways. Navigation along these routes is accomplished by signs that direct users on where to go. Some of these D-Routes navigate cyclists onto sidewalks, which is a behavior that is normally prohibited by Denver Ordinance code. Section 54-576, section 3 of the ordinance code allows for cyclists to use the sidewalk “where the sidewalk is part of a designated bicycle route,” and route D-9 permits sidewalk usage as the sidewalk is the safest place for bicyclists to cross the Union Pacific railroad tracks in proximity to the 38th and Blake intersection.

Figure 9 summarizes existing and proposed bicycle infrastructure as well as D-routes which show patterns and connectivity to existing and proposed infrastructure.

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1 https://www.denvergov.org/content/denvergov/en/bicycling-in-denver.html
3 https://library.municode.com/co/denver/codes/code_of_ordinances?nodeId=T1TI1REMU1CO_CH54TRRE_ART1XBI1PEASMODE_DIV1BI_S54576RISI
3.2.1.2. Pedestrian Connectivity and Access

WalkDenver and PlaceMatters developed WALKscope as a tool that allows a user to submit data pertaining to the condition of a segment of sidewalk or intersection using a smartphone, and it provides a method to visualize where inefficiencies may exist within the sidewalk network nearly instantly. Gaps are more easily identified and improvements can help create better sidewalk connectivity. Sidewalk conditions in the study area are shown on Figure 10. Nonexistent sidewalk reports may be due to no report having been made. The sidewalk network is mostly complete on the southern side of the railroad tracks but deficiencies exist in between and on the northern side of the railroad tracks within the immediate study area. The sidewalk conditions in immediate proximity to the 38th and Blake Street intersection are rated in a poor condition, and the sidewalk under the underpass at 38th and Blake only exists on the north side and is utilized by both pedestrians and bicyclists.
Figure 10: Study area sidewalk score
3.2.2. Safety

The only bicycle connection across the railroad and RTD tracks in the study area is an existing six foot wide multi-use path on one side of the street along the underpass parallel to 38th Street. The path is not wide enough to comfortably accommodate two-way bicycles and pedestrians (including wheelchairs). Bicyclists traveling along this connection experience potential crash hazards when confronting opposing bicyclists and pedestrians along the route.

The lack of adequate lighting increases the safety hazard and sense of safety due to potential heightened crime. Bicyclists in particular find it difficult to adjust their vision from broad daylight to the dark condition under the bridge as they travel through. Artistic lighting is funded and planned for installation under the 38th Street bridges in the near term. Additional lighting enhancements may be needed long-term.

Improvements at the 38th and Blake underpass for bicyclists and pedestrians will help provide a safer and more comfortable connection for more roadway users, while enhancing and promoting multimodal travel patterns. Current projects such as the bicycle lane extension on MLK Boulevard will connect pedestrians and bicyclists traveling east-west to the 38th and Blake vicinity, while proposed future bicycle facilities such as improvements to Marion Street would feed into the 38th and Blake intersection. In the immediate future, the Brighton corridor improvements will create immediate connections to 38th and Blake. Improvements to the 38th Street underpass will increase safety and comfort for both bicyclists and pedestrians as they travel between the Blake Street and Brighton Boulevard corridors.
4. Alternatives Considered

This analysis focused broadly on improving bicycle and pedestrian connectivity over the Union Pacific Railroad and RTD rail barrier in the RiNo neighborhood between Broadway and 40th Street. The primary focus of the analysis was to evaluate crossing improvements near 38th Street, and a secondary focus was to identify and evaluate alternative locations in the neighborhood that could complement improvements at 38th Street. All alternatives were evaluated at a conceptual level and did not include detailed engineering analysis. The alternatives considered are shown on Figure 11.

4.1. Primary Focus: 38th Street

Vehicular travel at the 38th Street underpass is limited to two lanes (one in each direction). The improvements recommended in this project would not preclude expansion of the roadway and adjacent bicycle connections to the north of the existing 38th Street underpass. However, it was clear from initial outreach for this effort that a near-term lower cost pedestrian/bicycle improvement should be prioritized and funds identified as long-term roadway widening is costly and not funded at this time.

4.1.1. Basic Improvements on 38th Street

Basic lower cost improvements that do not require extensive construction but would enhance the existing path to make it more inviting for bicyclists and pedestrians were identified as part of this process.
Figure 12: Improved lighting would make traveling on the path safer and more comfortable

Figure 13: Signage and wayfinding to 38th and Blake rail station, bicycle routes, and other relevant destinations would make the connection more intuitive
Figure 14: Security cameras at key locations would help to reduce crime and increase the feeling of safety.
Figure 15: On-street striping could provide a safer bike option on street especially in the eastbound direction opposite from the existing path on 38th Street

4.1.2. Widen Existing Path on 38th Street

This improvement involves widening the existing path from around 6 feet to 10 feet for 70% of the length of the underpass. The 160 foot length of path under UPRR would not be part of this improvement as it would require expensive reconstruction of the UPRR Bridge which is much older than the other two bridges and has its abutment located immediately behind the wall unlike the other two bridges which were constructed in anticipation of future widening of 38th Street. To accommodate this narrow section, the path would taper from the widened portions on the east and west sides of the UPRR Bridge.

The 10 foot width of the path was limited by the location of the north abutments of both the RTD A-Line bridge and the Blake Street Bridge. These two bridges both have abutments built behind the existing 38th Street retaining wall. Removing the existing retaining wall allows the path to be widened until it reaches the bridge abutment structure. The new path width would also provide room for the construction of a new soil nail retaining wall in front of the bridge abutments at the offset location. The abutment for the UPRR Bridge, however, is built in line with the existing retaining wall and therefore would require a complete bridge reconstruction to accommodate any widening.

The removal of the existing cast in place retaining wall will require a top down approach to eliminate and/or minimize impacts to the RTD Bridge abutment embankment. Currently the RTD Bridge abutment is founded on deep foundations and includes a buried track approach slab on concrete flow fill. One approach required partial demolition of existing concrete wall and installation of the soil nails as required by design, additional staged removal and top down construction of the soil nail temporary concrete facing, followed by the construction of the final concrete facing. Work may require a partial shutdown of the RTD line so that the embankment and buried track approach slab would not be compromised.
Figure 16: Potential limits of a widened path (east side looking west)

Figure 17: Wall moved five feet to accommodate a wider path (west side looking east)
Figure 18: Eight foot path would narrow for the 160 foot section under UPRR bridge

Figure 19: Path widened on approaches (west side looking east)
4.2. Other Options Considered: Improve Existing Pedestrian Bridges

4.2.1. Add Ramps to RTD Pedestrian Bridge

RTD designed and constructed a pedestrian bridge north of 38th Street to connect the parking area on the west side of the tracks with the 38th and Blake rail station on the east side of the tracks. The bridge has stairway and elevator access on both sides but does not accommodate cyclists without dismounting. One alternative evaluated was to add ramps on both sides of the existing bridge. The ramps would need to be approximately 700 feet long to accommodate a 5% slope down from the bridge, and several switchbacks or alternative ramp designs would be necessary to accommodate site constraints. Substantial impacts to property would be anticipated under this option. However, since this bridge is already built, the intent was to reevaluate to see if ramps could be viable.

Figure 20: View of the RTD pedestrian bridge from Blake Street

Figure 21: View of the RTD pedestrian bridge from the west side of 38th Street
Conceptual ramp layout shown in Figure 22 is intended to achieve a general understanding of layout and length. Other designs would likely have similar impacts. The City has not had discussions with land owners due to the conceptual nature of the analysis. If a preferred option were to advance we assume we could come to an agreement.

**Figure 22: Potential configuration of ramps added to RTD pedestrian bridge**

### 4.2.2. Add Ramps to 35th/36th Pedestrian Bridge

The 35th/36th Pedestrian bridge opened in 2017 and provides stairs and elevator access on the east and west side. This alternative would add ramps to the bridge to better accommodate bicyclists. The ramps would need to be approximately 700 feet long to accommodate a 5% slope down from the bridge, and site constraints would limit the placement of the ramps on the east and west sides. Substantial impacts to property would be required under this option.
Figure 23: View of 35th/36th pedestrian bridge from east side

Figure 24: View of 35th/36th pedestrian bridge from west side
Conceptual ramp layout shown on Figure 25 is intended to achieve a general understanding of layout and length. Other designs would likely have similar impacts. The City has not had discussions with land owners due to the conceptual nature of the analysis. If a preferred option were to advance we assume we could come to an agreement.
4.3. Other Options Considered: New Crossing Location

The full network of interconnecting streets between 40th Street and Broadway was evaluated for potential crossing locations. Since both 31st Street and 33rd Street were identified in previous studies, those were the focus of this report. Potential crossing locations farther north (towards the 38th Street underpass) were found to be redundant with the recently completed pedestrian bridges near the 38th Street underpass. It is important to note that the crossing configurations shown below are high-level concept only; numerous variations for ramps are possible with each. Some of the concepts drafted during this analysis are included in Appendix A.

4.3.1 33rd Street

33rd Street has been identified in previous connectivity planning studies as a potential location for a multi-modal bridge or bicycle and pedestrian only bridge. The alternative evaluated in this analysis would involve a new bicycle and pedestrian bridge or tunnel spanning the railroad and RTD tracks. The eastern ramp would land in the Coors Field parking area with access to Blake on 33rd Street, and the western ramp would access Brighton Boulevard through a new access easement with The Source at 3350 Brighton Boulevard.

Figure 26: Coors Field parking lot view from 33rd Street

Figure 27: West side looking south (at 33rd Street)
Conceptual ramp layout shown on Figure 28 is intended to achieve a general understanding of layout and length. Other designs would likely have similar impacts. The City has not had discussions with land owners due to the conceptual nature of the analysis. If a preferred option were to advance we assume we could come to an agreement.

Figure 28: Concept to add new crossing at 33rd Street
4.3.2 31st Street

31st Street has been identified in previous connectivity planning studies as a potential location for a bicycle and pedestrian bridge. This alternative would construct a new bicycle and pedestrian bridge or tunnel spanning the railroad and RTD tracks. The eastern ramp would land in the Coors Field parking area with access to Blake on 33rd Street, and the western ramp would access Brighton Boulevard along 31st Street.

Figure 29: 31st Street on west side of Brighton Boulevard looking east

Figure 30: East side: Coors Field parking lot
Conceptual ramp layout shown on Figure 31 is intended to achieve a general understanding of layout and length. Other designs would likely have similar impacts. The City has not had discussions with land owners due to the conceptual nature of the analysis. If a preferred option were to advance we assume we could come to an agreement.

Figure 31: Potential crossing with ramps at 31st Street
## 4.4. Screening Process

A screening process, shown in Table 1, helped to identify which alternatives should move forward into further concept development.

**Table 1: First Level Alternatives Screening**

<table>
<thead>
<tr>
<th>Connection</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Advance</th>
</tr>
</thead>
</table>
| **38th Street Basic Improvements** | + Lower cost than other options  
+ Enhances existing path to make it more inviting for bicyclists and pedestrians | - Does NOT widen path (only aesthetic enhancements) | Advance (with widening) |
| **38th Street Path Widening** | + Provides a 10 foot multi-use path on 70% of the length of the underpass  
+ Lower cost than constructing a new bridge or tunnel in a different location  
+ No access issues or property impact | - 160 foot length of path under UPRR not widened as it would require expensive reconstruction of UPRR bridge  
- The taper from wide path to narrow section is not preferable but would improve over the existing condition | Advance (with basic improvements) |
| **Add Ramps to RTD Pedestrian Bridge** | + Provides additional bicycle connectivity at 38th Street | - Property at the 38th and Blake Station and RTD parking are impacted including a reduction of parking spaces and potential impact on a future parking structure  
- Long ramps (>700 feet) on either side would require out of direction travel  
- Existing 38th Street underpass may remain the primarily used bicycle route due to a shorter and less steep climb  
- Significant coordination required with RTD and other stakeholders; unknown if would be acceptable | Eliminate |
| **Add Ramps to 35th/36th Pedestrian Bridge** | + Provides additional bicycle connectivity at 38th Street | - East landing parcel has approved development plans  
- Wazee Street is not wide enough to accommodate parallel ramps  
- Long ramps (>700’) require out of direction travel  
- Significant coordination required with RTD and other stakeholders; unknown if would be acceptable | Eliminate |
| **New Crossing at 33rd Street** | + Complements current and future connectivity at 38th Street  
+ Enhances connectivity to Brighton Blvd Businesses  
+ Connectivity to S. Platte River Trail via 31st Street or 35th Street. | - Property needed in Coors Field parking lot for crossing structure (Parking loss)  
- Right of Way easement needed to access Brighton Blvd Businesses  
- Drainage pipe at 33rd restricts the viability for constructing a tunnel  
- Long ramps (>700 feet) require out of direction travel  
- Significant cost | Eliminate |
| **New Crossing at 31st Street** | + Complements current and future connectivity at 38th Street  
+ Enhances connectivity to Brighton Blvd Businesses  
+ Connectivity to S. Platte River Trail on 31st (more direct than 33rd Street connection)  
+ Railroad is narrower than 33rd Street connection  
+ Bridge: West ramp could clear Brighton Blvd and provide a direct connection to trail  
+ Tunnel: West ramp would be short enough to meet level grade before Brighton Blvd | - Property needed in Coors Field parking lot for crossing structure (parking loss)  
- Access to parcels on 31st Street may be impacted  
- Bridge: Visual issue of ramp extending over Brighton Blvd  
- Bridge: Long ramps (>700 feet) require out of direction travel  
- Tunnel: Environmental issues and extensive railroad coordination  
- Significant cost | Advance (for Future Planning) |
The screening of connectivity options resulted in a recommendation to advance the 38th Street Path Widening + Basic improvements and the new connection at 31st Street for further analysis.

Basic improvements and path widening at 38th Street are recommended to be carried forward because it would enhance the existing crossing into a safer and more usable bicycle and pedestrian link at a lower cost than building a connection at a new location. The demand for access in this area is high and is in close proximity to the RTD 38th and Blake rail station.

At the 31st Street crossing location, a tunnel and bridge are both feasible options. Additional analysis and public consultation of this crossing is required to determine the exact location, design, cost, and configuration. The purpose of this analysis was to simply narrow the bicycle and pedestrian crossing location options in the RiNo neighborhood to focus future planning efforts (should the crossing advance). The following items were key considerations of this analysis:

- Tunnel requires shorter ramps, reducing out of direction travel
- Tunnel reduces climbing due to bridge height requirement
- Downward slope between rail and S. Platte River works in favor of a tunnel (less ramp required for tunnel versus more for bridge)

The following are challenges identified with a bridge:

- Bridge ramps would require substantial property acquisition
- Bridge would have a significant visual impact, particularly with the need for ramps to cross over Brighton Boulevard to meet grade
5. Recommended Alternative Design

The priority near-term recommendation of this analysis includes improvements to 38th Street to enhance bicycle and pedestrian connectivity as shown on Figure 32. In addition, a long-term recommendation was identified at 31st Street with a new tunnel or bridge connection. Both connections are important, but the immediate recommendation of this analysis is to pursue funding opportunities to design and construct the 38th Street improvements.

*Figure 32: Recommended alternative design*
5.1. Priority: 38th Street Mobility Improvements

5.1.1. Path Widening
The recommended design option includes widening the existing path from six to ten feet throughout most of the underpass including both approaches and the sections under the Blake Street bridge and RTD bridge. The section under the UPRR bridge is not included in the widening as it would require a full replacement of the UPRR bridge. The widened path will taper from ten feet to six feet at the underpass pinch point, but overall usability would be enhanced. The existing grade of the path will be maintained, and the widened multi-use path will be more convenient for cyclists, wheelchairs and strollers.

The benefits to the recommended design include:
- Avoids building impacts
- Keeps 38th traffic lanes as they exist today
- Avoids additional property acquisition (beyond the parcels already identified as part of the full widening of 38th Street)

5.1.2. On-Street Bike Improvements
Based on input from stakeholders, the feasibility of implementing a bike lane on 38th Street in the eastbound direction was investigated to accommodate cyclists using the road that would otherwise have to cross 38th Street to access the path and then cross 38th Street again after going through the underpass to get back to the other side of the street.

Just over 17 feet of width exist between the bridge column and wall on 38th Street under the UPRR bridge. A two foot shoulder is required next to obstructions and a minimum width travel lane of 11 feet is required for trucks and buses, so only four feet is left for a potential bike striping. A four foot bike lane adjacent to the wall structure is substandard and would indicate a higher-level facility than would exist, so it is recommended to have the lane striped to provide a space for bikes but not to mark it as a bike lane or sharrow. This lane would operate as a shoulder and would signal to drivers that bicyclists may use this lane.
Figure 33: Striped five foot shoulder under RTD bridge

Figure 34: Striped four foot shoulder under UPRR
In addition to the striping, signage installation is recommended to indicate that bicyclists may use the full lane which will help educate drivers that bicyclists may use the road even though an adjacent path is present.

To encourage use of the multi-use path and reduce confusion in the westbound direction, the signage is not planned to be installed facing westbound (although it is legal for bicyclists to use the full lane in this direction).

5.1.3. Wayfinding Signage
Bicycle and pedestrian wayfinding are an important element for guiding users and for clarifying the spaces that are acceptable for bicyclists and pedestrians to use.

Wayfinding signage is recommended to direct pedestrians and cyclists to the 38th and Blake rail station at the east underpass approach.

5.1.4. Lighting Enhancements
An artistic lighting installation funded by the River North Business Improvement District (BID) and a grant from the City was installed in December 2017. The lighting includes multiple colors and is intended to improve the aesthetics with up lighting. It is not intended to meet roadway lighting requirements.

This analysis recommends replacement of the existing lighting under the bridges with more efficient lights that safely illuminate the path and complement the artistic lighting. Lighting fixtures would be placed in similar locations as existing throughout the underpass, but lighting would not be replaced beneath the UPRR Bridge without prior railroad coordination.

5.1.5. 38th Street Improvements Cost
The total program cost is estimated to be $2.5-3.5 Million (expressed in 2017 dollars). Recognizing the variability in future construction costs, this estimate should be considered within a +/- ten percent variation. The estimate is comprised of three main cost categories: pre-construction costs, construction costs, and contingencies.

5.11.1. Pre-Construction Costs
Pre-construction costs comprise right of way, relocation expenses, administrative and legal expenses, and architectural and engineering fees and are estimated to between $700,000 and $900,000.

5.11.2. Construction Costs
Construction costs for the 38th Street Improvements are estimated to be between $1.6 million and $2.3 million excluding appropriate contingencies for this level of design. These costs include removal of existing wall and fill, civil and drainage components, reconstruction of the wall, utility relocations and force accounts, and construction management activities.

5.11.3. Contingencies
Design, change order, and project contingency appropriate for the project’s current level of design have been estimated between $200,000 and $300,000, which represents 30% of the construction cost.

Table 3 provides a breakdown of the estimated capital costs.
Table 2: Estimated Capital Costs for 38th Street Underpass Improvements

<table>
<thead>
<tr>
<th></th>
<th>Pre-Construction</th>
<th>Construction Costs</th>
<th>Contingencies (30%)</th>
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<td>$700k-$900k</td>
<td>$1.6M-$2.3 M</td>
<td>$200k-$300k</td>
</tr>
<tr>
<td>2017 Program Costs</td>
<td>$2.5M-$3.5M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1.6. Next Steps for 38th Street Improvements
The City is actively pursuing funding opportunities to design and construct this improvement on 38th Street and is committed to working with local agencies and other partners for potential funding sources.

5.2. Long Term Priority: New Crossing at 31st Street
The purpose of identifying a long term crossing location was to keep a viable option on the table for future planning should another crossing be desired in the future. This analysis was focused on narrowing the options to facilitate future planning. The recommended long term design option (in addition to improvements at 38th Street) focuses on additional bicycle and pedestrian connectivity at 31st Street. Both tunnel and bridge options are feasible in this location and are not being removed from future consideration. Despite a bridge being a feasible option, the design overview is focused on a tunnel as it was a stakeholder preference and has several benefits compared to a bridge. Although a bridge would be approximately 30% less in cost, there are numerous advantages of a tunnel.

Figure 35: 31st Street on west side of Brighton Boulevard looking east
5.2.1. Ramp Design

The ramps for bridge and tunnel options meet the required ADA access requirements at this location to facilitate convenient access for wheelchair users, pedestrians with strollers, as well as pedestrians experiencing trouble negotiating stairs. A reasonable grade of the ramp connecting street level to the tunnel is important for bicyclists, wheelchairs, and other mobility-impaired users. The ramps on the east and west sides and the tunnel have a maximum grade of five percent (without requiring intermediate landings), which meets ADA design criteria.

Ramp design is the primary reason a tunnel is preferred over a bridge. A bridge would be 35 feet above grade due to clearance requirements over catenary along the RTD rail line. Due to a maximum 5% grade to meet ADA requirements, approximately 700 feet of ramp is necessary on either side of the bridge (more on the west ramp due to the negative slope toward the South Platte River). The ramp design for a tunnel would extend towards Brighton Boulevard on the west side and meet grade before meeting Brighton Boulevard which would not require any out of direction travel. The approximate ramp length for each approach to the tunnel is 300 feet. The ramp on the east side would daylight in the Coors Field parking area and immediately turn to run parallel to the railroad toward 33rd Street where a path would connect to 33rd Street and Blake Street.

The width of the pathway would be at least 10 feet clear to allow both pedestrians and bicycle riders to navigate the ramps and tunnel. A concrete surface would provide a durable, non-slip surface for the users of the tunnel and ramp.

A conceptual layout demonstrating the potential layout of the connection is shown on Figure 37 and various alternatives considered in this analysis are included in Appendix A. More detailed design will occur in future design studies if this option is advanced.
TUNNEL DESIGN CONCEPT

Figure 37: Tunnel design concept

This is not a preferred design but is intended to serve as a proof of concept for the location. Future design may be different than this concept.
5.2.2. Access to Adjacent Parcels
Tunnel or bridge construction could impact access to parcels on 31st Street between Brighton Boulevard and the rail tracks. The tunnel design accounts for this by providing a bridge over the tunnel to access the southeast parcel at Brighton and 31st Street. The tunnel under the railroad and RTD tracks would daylight briefly before the access bridge to shorten the tunnel length and provide light to tunnel users.

5.2.3. Right of Way Needs
The underpass alternative would require acquisition of property on the east side of the railroad tracks in the Coors Field Parking area with parking loss estimated at 15-35 spaces depending on the design. On the west side, property is not anticipated to be acquired but the design would have to accommodate access needs on 31st Street.

If a bridge alternative is advanced, it would have the same property acquisition needs on the east side in the Coors Field parking area but would also require property acquisition on the west side where the ramp touches down on the west side of Brighton Boulevard.

5.2.4. Railroad Coordination and Impacts
Construction of a tunnel or bridge would require railroad and RTD coordination. The construction method of the tunnel could significantly impact the active UPRR and RTD rail and would require extensive coordination. Either option would also need approval of both UPRR and RTD.

5.2.5. Additional Design and Environmental Considerations
The following are additional design and environmental considerations:

- **Utilities:** A detailed analysis of utilities was not conducted as part of this analysis. Detailed utility impacts would need to be conducted in a future phase of design.
- **Drainage:** Site drainage within the project limits would need to be delineated, designed, and collected into the City’s existing storm drainage system in accordance with the City’s Storm Drainage Design and Technical Criteria Manual. Water quality requirements will be determined in a future phase of design.
- **Vertical Clearance:** To ensure safe pedestrian and bicycle travel on the tunnel approaches and in the tunnel, sufficient vertical clearance is needed between the travel surface and the top of the tunnel. The AASHTO Bicycle Guide prescribes an eight foot minimum vertical clearance with ten feet being desirable. This project incorporates a minimum of ten feet in the design.
- **Lighting:** A well-lit facility increases a sense of security for those using the tunnel and ramps. Lighting would be provided throughout the tunnel structure and on the east and west ramps. Additional coordination with Denver Police to integrate security cameras (HALO) would need to occur, and Crime Prevention through Environmental Design (CPTED) should be considered as well.
- **Environmental Resources:** Based on a general assessment (no environmental field surveys or database searches were conducted), it is anticipated that hazardous materials would pose the greatest concern for this project. Historic resources, air quality, noise, land use, prime and unique farmland, socio-economics, visual, archaeological resources, and paleontological resources were not evaluated as part of this analysis but are not expected to result in major impacts.

5.2.6. 31st Street Improvements Cost
The total program cost is estimated to be $19 million to $24 million (expressed in 2017 dollars) for the tunnel. A bridge option would cost about 30% less than a tunnel option. Recognizing the variability in future construction costs, this estimate should be considered within a +/- ten percent variation. The estimate is comprised of three main cost categories: pre-construction costs, construction costs, and contingencies.
5.2.6.1. Preconstruction Costs
Pre-construction costs comprise right of way, relocation expenses, administrative and legal expenses, and architectural and engineering fees and are estimated to be $5 million to $6 million.

5.2.6.2. Construction Costs
Construction costs for the 31st Street Improvements are estimated to be $12 million to $15 million excluding appropriate contingencies for this level of design. These costs include civil and drainage components, pre-fabricated tunnels, utility relocations and force accounts, and construction management activities.

5.2.6.3. Contingencies
Design, change order, and project contingency appropriate for the project’s current level of design have been estimated at $2 million to $3 million, which represents around 30% of the construction cost.

Table 4 provides a breakdown of the estimated capital costs, disaggregated as per the Federal Railroad Administration’s (FRA) Standard Cost Categories.

<table>
<thead>
<tr>
<th>Table 3 Estimated Costs for a Tunnel at 31st Street</th>
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<tbody>
<tr>
<td>Pre-Construction</td>
</tr>
<tr>
<td>Construction Costs</td>
</tr>
<tr>
<td>Contingencies (30%)</td>
</tr>
<tr>
<td>2017 Program Costs</td>
</tr>
</tbody>
</table>

5.2.7. Next Steps for 31st Street Improvements
31st Street has been identified as a preferred crossing location over 33rd Street, and both bridge and tunnel options at 31st Street are feasible and should be considered in future studies. The immediate priority is to focus on improvements to 38th Street, but as long term priorities are evaluated, planning and design of a tunnel or bridge is recommended at the 31st Street location.

The purpose of identifying a long term crossing location was to keep a viable option on the table for future planning should another crossing be desired in the future. This analysis was focused on narrowing the options to facilitate future planning. The recommended long term design option (in addition to improvements at 38th Street) focuses on additional bicycle and pedestrian connectivity at 31st Street. Both tunnel and bridge options are feasible in this location and are not being removed from future consideration. Despite a bridge being a feasible option, the design overview is focused on a tunnel as it was a stakeholder preference and has several benefits compared to a bridge. Although a bridge would be approximately 30% less in cost, there are numerous advantages of a tunnel.
6. Funding Availability

The City is pursuing multiple sources to assist in funding design and construction of the primary recommended alternative on 38th Street and will continue to pursue all potentially-applicable sources of funds to move the project forward. It is anticipated that multiple sources from varying levels (local, state, and federal) will be needed. Specific funding opportunities for the 31st Street tunnel are not being explored in detail at this time.

The following analysis comprises an assessment of the opportunities which would be available to the City to access for funding and financing for improving pedestrian and bicycle connectivity across the railroad at 38th Street. Opportunities identified and discussed comprise federal discretionary grants, state transportation grants and local financing vehicles.

6.1. Project Positioning

The positioning of improving mobility at or near the existing 38th Street underpass in the RiNo neighborhood is essential for targeting specific funding and financing opportunities. With pedestrian and bicycle elements being the primary focus of the proposed improvements, the RiNo Railroad Crossing Connectivity Analysis project aligns well with funding opportunities that target active transportation projects. Similarly, the improved multimodal mobility in a rapidly developing neighborhood could make it eligible for funding under various County/City/neighborhood specific capture mechanisms if it is slated for inclusion in these Tax Increment Financing (TIF) scenarios. At the time of this report, no near term TIF funding opportunities have been identified. The improvements can be defensibly identified as key first and last mile connection to the recently opened 38th Street RTD station. In this sense, the project can be positioned as a transit related project, thereby providing it eligibility for transit related grant funding program. An example of this being Colorado Department of Transportation’s (CDOT) Funding Advancements for Surface Transportation and Economic Recovery Act of 2009 (FASTER) discretionary grant program.

6.2. Federal Sources

Projects similar to the 38th Street project would be eligible for several discretionary federal grant programs administered by the various agencies under the US Department of Transportation (DOT) umbrella. However, given the characteristics of the proposed alternative (including estimated cost, lack of at-grade interface with the rail corridor, and the completed and operational status the 38th and Blake rail station), it is unlikely to be eligible for many of these grant programs. The project would fail to meet the minimum capital expenditure (CAPEX) requirements for many of the federal discretionary grant programs for which the project would otherwise be eligible.

Grants administered by the FRA, particularly those addressing safety improvements where rail operations interface with other modes of transportation, would not be accessible as the project does not have any at-grade interface with the freight and transit rail lines (aside from passing beneath them). For federal programs that the proposed project would meet the minimum capital cost requirements (or for those that do not have minimum cost requirements), it is unlikely that the project would meet other eligibility requirements (such as removal of, or alleviation of, interface with rail infrastructure). Furthermore, the widening is unlikely to have any impact on time savings, operational efficiencies, or safety for freight and transit operators and users utilizing the rail lines above the 38th Street underpass.

Accessing the funding provided to RTD from the Federal Transit Administration (FTA) under its New Starts program is not an option for the underpass widening as construction of the University of Colorado A-Line was completed in 2016. As the University of Colorado A-Line (including the 38th and Blake station) has now been operational for more than a year, it can be assumed that all FTA funding directed towards this project has been
expended. Generally, first and last mile connections are not incorporated into FTA New Starts funding plans unless programmed in at time of funding application.

There is currently a significant amount of uncertainty around discretionary grants under the DOT umbrella including: Federal Highway Administration, FRA, FTA, etc. and certainly those which have addressed active participation in the past (such as the Transportation Investment Generating Economic Recovery (TIGER) program). Since the beginning of the 2017, there has been little guidance from the DOT agencies as to which grant programs will continue and, if they are to continue, when the next round of funding will be issued. The DOT has advised that a near term focus for discretionary grant funding will likely go to projects related to freight efficiency and improving safety along national significant freight corridors, and that less focus will be on transit, multi-modal transportation, and active transportation projects.

It should be noted that this general uncertainty about the future re-release of discretionary grant funding can be applied to several federal agencies. There is a discernable expectation that many of the discretionary grant programs which the RiNo Railroad Crossing Connectivity Analysis alternatives may be able to access in coordination with the larger development of the RiNo District and specific neighborhoods (for example, community development grants originating from the Department of Housing and Urban Development) will see their funding decrease significantly over the short to medium term.

### 6.2. State and Regional Sources

There are a number of set asides within the federal transportation dollars which are allocated to each state to fund various types of transportation related projects. Specifically, within the formulaic Surface Transportation Block Grant which the State of Colorado receives, a quantum of funding is set aside for alternatives transportation projects, which CDOT distributes through the competitive and discretionary Transportation Alternatives Program (TAP) to candidate projects across the state. The Denver Regional Council of Governments (DRCOG) also receives an allocation of this set aside which it distributes through a competitive discretionary grant program for candidate projects within the Denver metropolitan area only.

At time of writing, neither CDOT nor DRCOG has announced the latest round of funding for their respective TAP grant programs. CDOT has recently finalized the selection process for recipient projects for the fiscal years of 2018-2020 and estimates that the next round of funding for TAP grants for the fiscal years of 2020-2023 will be announced sometime in the third quarter of 2019.

DRCOG estimates that the next round of TAP administered by their organization, again for the fiscal years 2020-2023, will be announced a year earlier than CDOT, in the third quarter of 2018. In contrast to past selection processes, DRCOG plans to hold separate assessments for larger scale regional projects and smaller scale sub-regional projects, likely on a county basis. DRCOG estimates that the outreach program to respective county government to identify candidate programs for funding under the TAP program will begin in the first quarter of 2018.

The proposed widening of the approaches to the underpass at 38th Street coupled with the addition of a bike lane adjacent to the east bound vehicular lane, match with the project typology of both TAP grant programs, and would address and deliver the programs’ key sought after outcomes.

First and last mile connections to transit facilities are not often at the front and center when funding is allocated as they are generally not eligible for funding under traditional transit programs (such as RTD FasTracks) or are thought of as the responsibility of urban planning department of local government or of adjacent property owners. The 38th Street improvements adjacent to the 38th and Blake RTD station may not have been identified as such by RTD or the City, but the proximity to the RTD station coupled with 38th Street being the closest and main connection to the RiNo district makes it an important transit first and last mile connection project. This perspective is enhanced particularly when viewed alongside various city, district, and...
neighborhood zoning and strategic planning, including Denver’s transit oriented development strategy, which approved amendments for higher density development around RTD stations such as the University of Colorado A Line’s station at 38th Street and Blake Street.

Since 2009, CDOT has administered local transit grants authorized under the FASTER Act. Sixty percent of the annual allocation of the $5 million budget is awarded to RTD with the remaining $2 million awarded competitively by CDOT’s regional offices. There is no specific set aside for projects that act as first and last mile connections, with typical awards funding purchase or replacement of transit vehicles, construction of multimodal stations, and other infrastructure maintenance. Consultation with CDOT Division of Transit and Rail indicates that non transit related infrastructure projects are not likely to be prioritized for funding unless a very compelling argument supported by RTD can be made. Accordingly, to access funding for the 38th Street improvements, RTD would need to be a co-sponsor and indicate that its completion would benefit their overall operations. The next round of funding is expected to be announced in October 2017. Given that the State Senate voted to discontinue FASTER transit grants (confirmation was subsequently postponed indefinitely by the House Committee on Transportation and Energy), there is a discernable risk that there will not be further rounds of funding under this program after 2017/2018.

6.4. Local Sources

Local financing opportunities for the project alternatives would entail including the capital expenditure program tied to bond financing, with the bonds in turn serviced by municipal sales taxes and/or precinct specific property tax. Examples of the typologies of this value capture based bond financing include the City’s General Obligation Bond (GO Bond), and designated TIF districts such as the RiNo General Improvement District (GID). Generally administered by a public agency (usually the Denver Urban Redevelopment Authority, or DURA), financing through value capture mechanisms such as at the GO or designated TIF precinct target a variety of projects, not just those related to transportation infrastructure.

The project is located within the RiNo Business Improvement District (BID) and both would allow access to the GID north of the rail corridor. However, the GID does not extend below the rail corridor and thus the project alternative would not be eligible for funding from this designated district. While the BID does encompass the area of both the 38th Street and 31st Street alternatives, the focus of the funds raised through that program is largely earmarked for placemaking, branding and marketing of the RiNo district as a whole.

The 38th Street underpass widening alternative has a far lower estimated capital cost than the proposed 31st Street tunnel alternative and is a project that has been identified, reviewed, and considered by the local government for inclusion in the transportation and mobility projects to be partially financed under the City’s GO Bond. However, the 38th Street underpass widening project did not make the final cut for funding under the GO Bond. Given that programming of projects for financing from GO Bond is scheduled every ten years, the 38th Street underpass widening project will not be eligible for funds from this program in the near to medium term.

Development specific TIF districts have been approved in the RiNo District, namely developer Westfield’s proposed mix use development of the Midtown Industrial Park property. Feedback from public agency officials suggest that it is unlikely that funds from this TIF would be available for near term traffic improvements, though there may be an opportunity over the medium to long term (10 years +) after other public infrastructure needs associated with this redevelopment have been addressed.

A capital improvement project is any improvement to, or construction or acquisition of, buildings, viaducts, roads, streets, streetscape projects, pedestrian malls, plazas, designated parks, or other real property of a permanent nature. The City’s Capital Improvement Program manages the City’s annual budget process for citywide capital maintenance and development needs, develops the annual Six-Year Capital Improvement Plan,
and provides analysis for decision-making and strategic capital planning efforts with departments. In addition, NDCC is committed to looking for additional funding to work toward final design and construction.
7. Outreach with Stakeholder Groups

This analysis included multiple stakeholder group meetings with neighborhood representatives, businesses, advocacy groups and developers to gather feedback on potential design options. Meetings were held with the same groups who were part of the NDCC Master Mobility Plan process which identified this analysis as a priority. Two separate rounds of stakeholder group meetings were held during this analysis.

Figure 38: Project timeline

The stakeholder groups included:

**Community and Advocacy Group:** Two rounds of focus group meetings were held. The first was held in June of 2017 at the alternatives development phase and the second was held in September of 2017 once recommended alternatives had been identified. These meetings provided valuable insight to help shape the project alternatives. Primary feedback received during the meetings and during follow up periods included:

- 38th Street improvements are higher priority than new connectivity at other locations.
- Maintenance on 38th is important (including bird mitigation)
- Consider a bike lane on east bound 38th in addition to path enhancements
- Signage and connectivity to S Platte River Trail and 38th and Blake Station are important
- For other locations, 31st Street has a greater connectivity benefit than 33rd Street
- A tunnel is preferred over a bridge for a bicycle connection as the ramp length and out of direction travel are minimized
- When considering multiple connections, overall costs should be evaluated considering greater City and neighborhood needs
Developers and Landowners Group: Two rounds of focus group meetings were held with representatives of the surrounding development community and area landowners. These meetings were held the same day as the community and advocacy group meetings.

Primary feedback received included:

- Historic railings along 38th Street under the UPRR Bridge should not be removed
- Some concern was expressed over inconsistent width in path transition under the UPRR bridge
- Overall connection to future Washington Street bicycling plans should be considered
- Focus on bicycle connections at the 38th Street at the Walnut intersection to ensure safe crossing through the intersection
- Ensure curb ramps are adequate for bicyclists on sidewalks near 38th Street
- Clarify whether it’s legal for bicyclists to use path with pedestrians
- 31st Street is preferable over 33rd Street
- Tunnel is preferable over a bridge for bicycle connections
- Creating additional connectivity is preferable to improving existing connectivity

Stakeholder coordination will continue during future phases of design.
8. Summary

The City recognizes that the 38th Street underpass is one of only a few options across the railroad in a rapidly growing area of Northeast Denver. This analysis built upon previous recommendations and has included outreach and communication with City staff, bicycle and pedestrian advocacy organizations, and neighborhood organizations to identify a recommended alternative for improved bicycle and pedestrian connectivity near 38th Street and the railroad in the RiNo Neighborhood.

The recommended near-term alternative identified in this report recommends widening of the existing path on 38th Street under the railroad as well as additional lighting, signage and wayfinding, and striping. Benefits of this configuration include increased bicycle and pedestrian access and connectivity, increased safety, better access to surrounding destinations, and overall quality of life. The next phase following this concept analysis is to identify funding for design and construction.

This analysis narrowed the viable options for an additional crossing location, and the next step is to continue planning work to advance the options further. A preferred location for an additional bicycle/pedestrian crossing of the railroad tracks and the University of Colorado A-Line is 31st Street. Either a bridge or a tunnel is feasible, but a tunnel is preferred over a bridge due to the lower impact on the surrounding area and ease of use for bicyclists as compared to a bridge. These are the recommendations made at the time of this analysis; conditions could change with future growth and changes in land use and infrastructure over time. Future detailed analysis is needed to advance the concepts included in this analysis.
Appendix A: 31\textsuperscript{st} Street Design Concepts
**31st Street Design Concepts**

Various options for 31st Street were proposed during project management team meetings and stakeholder sessions. For reference, the evaluated alternatives are listed here.