

Part 1

Base Information

1. Project Title	Aurora High Line Canal Trail – East Colfax Avenue to Interstate 70
2. Project <i>Start/End</i> points or Geographic Area <i>Provide a map with submittal, as appropriate</i>	The trail begins at the intersection of East Colfax Avenue and Tower Road, extending to the north ROW of I-70. See Attachment A (Project Site Plan) and Attachment B (Regional Context)
3. Project Sponsor (<i>entity that will construct/ complete and be financially responsible for the project</i>)	City of Aurora
4. Project Contact Person, Title, Phone Number, and Email	Cindy Colip, Acting Deputy Director of Public Works, 303-739-7300, ccolip@auroragov.org
5. Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide applicable concurrence documentation with submittal</i>

What planning document(s) identifies this project?	<input checked="" type="checkbox"/> DRCOG 2040 Fiscally Constrained Regional Transportation Plan (2040 FC RTP)
	<input checked="" type="checkbox"/> Local plan: <ul style="list-style-type: none"> • City of Aurora Bicycle and Pedestrian Master Plan https://www.auroragov.org/business_services/planning/plans_and_studies/transportation_planning/bicycle_and_pedestrian_planning, pages 12-22 • City of Aurora Bicycle and Pedestrian Master Plan – Recommended Bicycle Network • DRCOG 2040 Metro Vision Transportation Plan https://drcog.org/sites/default/files/resources/ACTION%20DRAFT-2040%20MVRTP-RTC%20and%20Board%202018.pdf, pages 33-42 • Adams County Transportation Plan http://www.adcogov.org/sites/default/files/2776.pdf, pages 11-13 and 37-40 • DRCOG Active Transportation Plan • https://drive.google.com/file/d/181Zl-6KIBVpZqCpSBCR5-xNj5BZqZEoe/view?usp=sharing Appendix A Page 4
	<input checked="" type="checkbox"/> Other(s): <ul style="list-style-type: none"> • High Line Canal Community Vision Plan – Attachment C • Rocky Mountain Arsenal National Wildlife Refuge Comprehensive Management Plan https://www.fws.gov/mountain-prairie/refuges/planningPDFs/rkm_1996_cmpfinal_1site.pdf Chapter 1 (45 pages) • The Emerald Strands – Attachment D pages 11-12 & 30-31
<i>Provide link to document/s and referenced page number if possible, or provide documentation with submittal</i>	

6. Identify the project's key elements.

- Rapid Transit Capacity (2040 FC RTP)
- Transit Other:
- 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:

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

In Objectives 4, 5, 7b, and 11 the DRCOG Metro Vision Transportation Plan calls to expand and improve the region's multimodal transportation system and improve its safety, connecting residents to medical facilities, natural resources, recreation areas, and the 1,500 miles of the Greater Metro Area trail network. This project, **Aurora High Line Canal Trail – East Colfax Avenue to Interstate 70** will enhance the safety of the multimodal transportation facilities in the area as well as eliminate a significant gap in the Greater Denver Metro trail network.

1) MV Objective 4: Improve and expand the region's multimodal transportation system, services and connections.

Green Valley Ranch, Gateway, and Northeast neighborhoods to the north of I-70, including the Aerotropolis environs are essentially isolated from the Greater Denver Metro bicycle and pedestrian trail network due to the significant physical barrier created by I-70. To reach the High Line Canal Trail, Sand Creek Greenway Trail and Triple Creek Trailhead, bicyclists and pedestrians are forced to travel alongside busy roadways, make at-grade crossings of arterial roadways, and use the Tower Road interchange bridge over I-70. The unimproved maintenance trail along the High Line Canal in this area remains disconnected from the rest of the 71-mile Metro Area High Line Canal Regional Trail corridor, limiting neighborhood access to the developed trail both to the north and south of the Interstate. In addition, the area south of I-70, including Tower Triangle, Friendly Village, Altura, Lyn Knoll, and Laredo Highline neighborhoods are also isolated from the commercial centers, medical facilities, employment opportunities, and transit facilities to the north, due to the major barrier created by I-70.

2) MV Objective 5: Operate, manage and maintain a safe and reliable transportation system.

To access the commercial areas and medical care facilities north of I-70, residents of Tower Triangle, etc., who have no access to a motor vehicle and those residents who choose to walk or bicycle must use the heavily travelled Tower Road interchange bridge over I-70 alongside of busy Tower Road (24,000 ADT), making at-grade crossings in areas that have no crosswalks and are not ADA compliant, which is stressful, inconvenient and challenging from a safety perspective. Furthermore, in order to reach the major portion of the Denver Metro Trail in the area, bicyclists and pedestrians from the Green Valley Ranch neighborhood must traverse these same safety challenged routes.

In the past five years there have been two pedestrian fatalities at the interchange of I-70 and Tower Road. This project will improve safety for bicyclists and pedestrians using this dedicated facility.

3) MV Objective 7b: Connect people to natural resource or recreational areas.

Green Valley Ranch and Tower Triangle neighborhoods, as well as the entire northeast Metro Area and Aerotropolis, are disconnected from the over 1500 miles of the greater Denver Metro Area bicycle and pedestrian network, including nearby Sand Creek Greenway Trail, High Line Canal Trail, Beck Recreation Center Connector, Aurora Sports Park Connector, Triple Creek Trailhead, and the Colorado Front Range Trail, resulting in disconnection from the open space and recreation areas that are adjacent to these trails.

4) MV Objective 11: Improve transportation connections to health care facilities and service providers.

The Tower Triangle neighborhood does not contain any medical care facilities. To the north in the Green Valley Ranch neighborhood there are eight health care facilities. Households that do not have access to a motor vehicle, and elderly and disabled persons who are not able to drive are forced to use the Tower Road interchange bridge over I-70 to walk or bike to these health care facilities.

8. Define the scope and specific elements of the project.

The project will construct one of the most costly, difficult and last remaining missing segment of the High Line Canal Trail within the Metro Area. It will provide a safe, low-stress, convenient, grade-separated crossing of I-70 for pedestrians and bicyclists. The proposed 8-foot wide concrete trail will be 1.8 miles in length between East Colfax Avenue and I-70. The alignment is along the existing High Line Canal maintenance road, except for a short section between E. 22nd Place and E. 28th Avenue where the trail follows Tower Road rights-of-way in order to safely cross the Union Pacific Railroad (UPRR) and to overcome utility constraints that preclude an underpass at the northernmost intersection of the canal with Tower Road.

The north endpoint of the project will involve reconstructing the existing canal box culvert under I-70 to serve the dual purpose of accommodating the trail while continuing to convey water associated with the canal. Where the trail exits the proposed culvert, it will connect to a 1.2-mile long “north” segment of the High Line Canal Trail, which the City has planned to complete and link to Denver’s Green Valley Ranch neighborhood as a separate project before the end of this year (2019).

Overall, the TIP project will also involve eight at-grade street crossings along with ADA-compliant ramps, one at-grade crossing of the UPRR tracks, three culvert/bridge crossings of the canal, and the critical I-70 underpass. Implementation of this project will be a significant milestone in that it will result in the completion of a continuous paved trail along the entire distance of the canal through Aurora, with the exception of the final mile that will be constructed by the developer of the currently underway Painted Prairie Neighborhood project located north of Green Valley Ranch.

9. What is the status of the proposed project?

The city of Aurora engaged the services of an engineering firm to refine the proposed alignment of the trail and prepare 60% design plans with construction cost estimates as a basis for this TIP application. The purpose of undertaking that work beforehand was to have confidence that this project is feasible and to have the design advanced to a stage whereby the time that it takes to start building the trail once construction funding is secured can be minimized. The city’s goal is to expedite closure of this long-standing and most costly gap in the regional trail network as soon as possible. The engineering consultant is continuing to coordinate with stakeholders on the design of two major crossings for the trail, one being the trail underpass at I-70 and the other the at-grade crossing of the UPRR right-of-way and tracks west of Tower Road. This coordination is being done so that the preliminary design will be wrapped up and final design can proceed expeditiously. Upon receipt of TIP funding, the city of Aurora is prepared to immediately move into final design and then construct this 1.8 mile trail segment, which together with the aforementioned 1.2-mile segment to be built in 2019 (refer to question 8) will complete the High Line Canal Trail north to Green Valley Ranch.

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.

A. Project Financial Information and Funding Request

1. Total Project Cost	\$4,851,267.00	
2. Total amount of DRCOG Subregional Share Funding Request	\$3,301,267	68% 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
Conservation Trust Fund	\$1,000,000	21%
Adams County Open Space Tax	\$550,000	11%
	\$	
	\$	
	\$	
	\$	
Total amount of funding provided by other funding partners <i>(private, local, state, Regional, or federal)</i>	\$1,550,000	

Funding Breakdown (year by year)*	<i>*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.</i>				
	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds	\$	\$3,301,267	\$	\$	\$3,301,267
State Funds	\$	\$	\$	\$	\$0
Local Funds	\$650,000	\$800,000	\$100,000	\$	\$1,550,000
Total Funding	\$650,000	\$4,101,267	\$100,000	\$0	\$4,851,267
4. Phase to be Initiated <i>Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other</i>	Final Design & ROW Choose an item	Final Review, Bid & CON. Choose an item	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.



Part 2 Evaluation Criteria, Questions, and Scoring

A. Subregional significance of proposed project

WEIGHT **40%**

Provide **qualitative and quantitative** (derived from Part 4 of the application) responses to the following questions on the subregional significance of the proposed project.

1. Why is this project important to your subregion?

The project, and especially the grade-separated crossing of I-70, will have a profound impact on the subregion by providing a critical multimodal connection between the residential areas and local commercial, retail, and employment centers, thereby supporting economic vitality and work force access. In addition, it will provide safe, comfortable and low-stress multimodal access to nearby rapid transit (A Line), medical care facilities, commercial areas, library, and recreational facilities. The Tower Triangle (population 4,250) and Green Valley Ranch (population 29,000) neighborhoods, as well as the entire northeast and Aerotropolis areas, are essentially isolated from the Denver Metro Area bicycle and pedestrian trail network (see the Denver Regional DRCOG Bicycle Map, pages 33-42). Currently, due to the lack of a dedicated grade-separated crossing of I-70, pedestrians and bicyclists wishing to access the facilities across I-70 are forced to use the busy Tower Road interchange bridge over the Interstate.

The proposed project will improve access to the rail station at 40th Avenue and Airport Blvd., which is only one mile west of the project. This station serves the RTD A-Line, which connects Denver International Airport and the downtown transportation hub at Union Station and access to the R Line. In addition, there will be improved interface with RTD bus routes 169 and 15. This will expand the options for those residents who are dependent on biking, walking, and transit.

The Aurora High Line Canal Trail – East Colfax Avenue to Interstate 70, will complete an important missing section of the High Line Canal Regional Trail Corridor. The High Line Canal is a 71-mile water transportation utility that was built in the 1880's to transport water from the South Platte River at Waterton Canyon to settlers and farmers in what would eventually become the Denver Metro Area. Since the 1970's, the canal maintenance road has been gradually improved and converted into one of the nation's longest and most beautiful linear parks. It spans 11 governmental jurisdictions, and its cottonwood-shaded banks weave through residential neighborhoods, 73 different green spaces ranging from pocket parks to state parks, golf courses, cemeteries, commercial areas, and industrial lands connect to this facility. Due to the high cost of constructing an underpass at I-70, the East Colfax Avenue to I-70 segment of the trail is one of the most costly and difficult gaps to complete and is one of the last segments to be scheduled for improvements. This project will fill in a missing gap in this significant transportation and recreational resource.

The completion of this project will connect the Green Valley Ranch and Tower Triangle neighborhoods, and the entire northeast and Aerotropolis areas to the over 1,500 miles of the greater Denver Metro Area bicycle and pedestrian network, including nearby Sand Creek Greenway Trail, High Line Canal Trail, Colorado Front Range Trail, Beck Recreation Center Connector, Aurora Sports Park Connector, and Triple Creek Trailhead to the south. These trails provide multimodal access to many important regional urban centers and employment centers including Fitzsimons Innovation Community, CU Anschutz Medical Campus and Buckley Airforce Base via Sand Creek Greenway, and Gaylord Rockies Resort and Conference Center and DIA via the High Line Canal Trail to the north.

According to the pedestrian count done on the High Line Canal Trail east of Ensenada Street on February 2, 2019, there were 14 bicyclists and 36 pedestrian trips from 6 am to 6 pm on a winter weekday. In addition, there were 3 horse trips during daylight hours. Note that all count data was collected during clear weather days; however, it is to be noted that pedestrian volumes are subject to change based on outside temperature and therefore are

likely to be substantially higher during summer months. The completion of the proposed project will allow these users access to the improved section of the High Line Canal Trail north of I-70.

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

Yes. The project is located within the city of Aurora, and will connect to the currently improved trail north of 38th Avenue in the City and County of Denver. This will provide the residents of both cities, as well as Commerce City to the north, with access to the Greater Denver Metro trail network. In addition, this project will benefit many municipalities along the Canal, including Greenwood Village, Cherry Hills Village, Denver, Highlands Ranch, Centennial, Littleton and the unincorporated Douglas County. The residents will benefit from the safe, grade-separated crossing of I-70, giving them multimodal transportation access to medical, commercial, and recreation facilities north and south of I-70. This improved access will foster resident expenditures as they enjoy short bicycle/pedestrian trips on the new trail. Also, increased consumer spending by the population on clothing, equipment and gear related to trail user needs is anticipated.

According to the DRCOG Bicycle and Pedestrian Use Counts, the High Line Canal Trail in Aurora at the Iliff Street underpass sees 246 pedestrians and 475 cyclists per weekday. With the completion of the proposed segment of the High Line Canal Trail, it is estimated that 25% of those trail users will continue from the established trail onto the new section, thereby attracting and supporting tourism spending by day-trippers as well as long-distance visitors.

In addition, the residents of both Denver and Aurora will benefit from the increased opportunities for obtaining the health benefits of walking, running, and bicycling. The Canal originates at Waterton Canyon in Douglas County and runs to Green Valley Ranch in Northeast Denver, falling within one mile of more than 350,000 residents.

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

Yes. The proposed project begins at Arapahoe County, with the bulk of the project in Adams County, and ends at Denver County. By improving the regional trail network across the three counties (subregions), this project will benefit cyclists and pedestrians in all three subregions and will open up a host of transportation and recreational opportunities. The location of the project is such that users of the proposed trail link can easily travel beyond the Adams County subregion and into Arapahoe County and Denver County subregions as well as Douglas County subregion.

A major benefit will be promoting economic vitality due to an increased workforce pool. Increased multimodal accessibility will allow residents without access to a motor vehicle to have a wider range of options for employment.

Social benefits will include better access to health care, especially for those residents without access to a motor vehicle. This project will also promote a more active lifestyle by encouraging bicycle and pedestrian activity, thus benefiting the health and wellbeing of the communities.

4. How will the proposed project address the specific transportation problem described in the **Problem Statement (as submitted in Part 1, #8)?** The Project will provide a critical grade-separated crossing of I-70, a low-stress, off-street bicycle and pedestrian facility, and includes the installation of ADA compliant crosswalks at all at-grade crossings, allowing safer, more comfortable non-motor vehicle access to commercial areas, the eight medical facilities located in Green Valley Ranch, and recreation facilities. The nearby recreation facilities include Aurora Sports Park, Beck Recreation Center, Springhill Golf Course, Star K Ranch/Morrison Nature Center, Sand Creek Regional Greenway Trail, Green Valley Ranch Recreation Center, and Green Valley Ranch Golf Course. The primary industries in the area including construction, administration, hospitality, transportation and manufacturing, with a high resident to employee ratio, suggesting a majority of commuters in the area.

The Project will expand the eastern Denver Metro transportation system and will improve connectivity and safety, which, in turn, will serve all modes of travel. The Project will complete an important missing segment of the High Line Canal Trail, which will directly connect the Tower Triangle (population 4,250) and Green Valley Ranch neighborhoods (population 29,000), and the entire northeast metro area and aerotropolis environs to the over 1,500 miles of the greater Denver Metro Area bicycle and pedestrian network.

This project will provide a grade-separated crossing of I-70 from the Tower Triangle neighborhood to the medical care facilities in the Green Valley Ranch neighborhood. It will also provide safer access to the rail station at 40th Avenue and Airport Blvd., giving vulnerable populations more options for commuting to work and medical care facilities, and enjoying parks and recreation centers.

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?

Investing in new trail systems will bring a large number of benefits to the area even outside the biking and hiking communities. These benefits will extend to areas such as environment and air pollution, quality of life, and the economy. Studies are indicating that adding these new trail systems will open up new opportunities for transportation, allowing faster routes to and from work, and even eliminating the need for vehicular use. It is estimated that the year after the trail opens there will be 400 additional bicycle and pedestrian trips on the facility, and that this will increase to 1000 new trips by 2040. Trails will connect the Green Valley Ranch and Tower Triangle areas to the greater Denver Metro Area trail network, providing easier access and increasing opportunities for families and other groups to enjoy facilities.

Because of an increase in convenience, new trail systems will bring a variety of economy-boosting activities to these areas. Easy access to and from the Green Valley Ranch and Tower Triangle areas will encourage participants to take part in pedestrian and bicycle day trips, which will bring extra business to local establishments within the Gateway Park Retail Center on Tower Road between E. 32nd Avenue and E 40th Avenue.

With projected numbers showing that many people will walk or bike to work if the appropriate routes are provided, it is estimated that the creation of this new infrastructure will reduce air pollution and fuel use by as much as 152 lbs. GHG daily (431 lbs. GHG daily by the year 2040.) This will also enrich the lives of many people, helping them to be more active and adding to the overall health of the community and environment. In fact, a study commissioned by the Colorado Department of Transportation in 2000 determined that bicycling contributed \$1 billion to the economy from manufacturing, retail, tourism and bike races.

When polled about their satisfaction with current trail systems in the recently completed Arapahoe County 2017 Bicycle & Pedestrian Master Plan, Arapahoe County residents feel strongly that such improvements would impact the community and their families in a positive way. Eliminating daily stressful commutes, contributing to an active life-style, and adding more opportunities for recreation are top priorities for many residents. This new segment of the High Line Canal Trail will increase quality of life in the immediate vicinity, and it will have positive spillover effects across the Denver Metro Area.

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

One of the objectives of this project is to encourage different travel modes beyond the traditional motorized vehicle. This trail connection will remove motor vehicles from congested roadways and provide access to major public transportation hubs, such as the RTD A Line rail stop at 40th Avenue and Airport Blvd. The proposed section of trail will connect to 38th Avenue, which is a key street that leads to and from the rail line. RTD bus routes 169 and 15 along Tower Road are capable of capturing pedestrians and bicyclists who could use the trail as well as bus

transportation for their multi-modal journeys. In addition, this trail segment will directly connect two existing regional trails, giving users the opportunity to traverse the entire Denver Metro Area, and will connect people to local parks and recreation facilities, utilizing low-stress, off-street trails.

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

The Colorado Lottery and Adams County Open Space Tax are match funding partners with this project. Denver Water is the owner of the canal property.

B. DRCOG Board-approved Metro Vision TIP Focus Areas

WEIGHT **30%**

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

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

Vulnerable populations are often more reliant on transit and active transportation options rather than a motor vehicle. Many low-wage workers working at warehouse and fulfillment centers rely entirely on public transit and active transportation to access their work sites. The Project will provide a safer, more comfortable, low-stress transportation option to low-income families, households that do not have access to a motor vehicle or cannot afford a motor vehicle, and elderly and disabled persons who are still able to walk or cycle. This project will provide a grade-separated access across I-70 from the Tower Triangle neighborhood to the medical care facilities in the Green Valley Ranch neighborhood. It will also provide safer access to the Greater Denver Trail network and the rail station at 40th Avenue and Airport Blvd., giving vulnerable populations more options for commuting to work and shopping centers, accessing transit, and enjoying parks and recreation centers.

Vulnerable populations were estimated for the two neighborhoods that will most likely be affected by this project. Data obtained from [statisticalatlas.com/block-group/Colorado/Adams-County](https://www.statisticalatlas.com/block-group/Colorado/Adams-County).

Tower Triangle:

- 66 seniors over age 65
- 81 children
- 1360 minorities
- 552 households below poverty level

Green Valley Ranch:

- 1384 seniors over age 65
- 9210 children
- 9344 minorities
- 1263 households below poverty level
- 8 health care facilities
- 2 assisted living facilities
- 1 public library

On completion of this project, vulnerable populations will have the ability to access the other 68 miles of the High Line Canal Trail, and ride great distances across the Denver Metro Area on the connected trail system. This mobility option will provide greater access to medical facilities, industrial centers, rapid transit stations, recreational facilities, Denver Public Library Green Valley Ranch Branch, Marrama Elementary School, Laredo Elementary School, Hinkley High School, Lynn Knoll Elementary School, and South Middle School.

2. Describe how the project will increase reliability of existing multimodal transportation network.

As shown on the DRCOG Bicycle Facility Inventory map and the Denver Regional Bicycle Map, there is currently a 1.8-mile gap in the improved High Line Canal Trail between I-70 and East Colfax Avenue. This gap in improved trail and the lack of a safe crossing of I-70 results in a separation of the neighborhoods of Tower Triangle and Green Valley Ranch and the entire northeast area of the metro area and Aerotropolis area from the rest of the existing active transportation network of the metro area. Pedestrian and bicycle mobility by the segment of the population that is dependent upon these modes of travel is not currently reliable in this area, due to the lack of dedicated facilities to serve this purpose. The proposed connection will make a profound impact on the accessibility of the greater Denver Metro Area trail system for pedestrians and bicyclists in these neighborhoods. Furthermore, providing a grade-separated crossing of I-70 will substantially help with the safety, efficiency, and reliability of the multimodal transportation network in the area and region. By developing the trail for bicycle and pedestrian travel, and minimizing motor vehicle interaction/conflict/delay, travel time will be reduced. Similarly, the transportation network for motorists will be made more reliable by decreasing potential conflict with bicyclist and pedestrians who are currently forced to share the road.

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

The new, proposed segment of the High Line Canal Trail will connect many low-stress regional and local trail networks that are much safer and more preferred than on-street options. Furthermore, the new project will deliver an exclusive undercrossing of I-70, providing users with a safe underpass.

On February 5, 2019, Average Daily Traffic (ADT) volumes were collected for a period of 24 hours on Tower Road north of 28th Avenue. Tower Road data indicated volumes of 11,390 northbound vehicles and 12,332 southbound vehicles for a total ADT of 23,722 vehicles. A morning peak traffic hour beginning at 7:00 AM was determined with 746 northbound vehicles and 851 southbound vehicles for a total of 1,597 vehicle trips. An afternoon peak traffic hour beginning at 4:00 PM was determined with 918 northbound vehicles and 917 southbound vehicles for a total of 1,835 vehicle trips.

According to the City of Aurora Crash and Fatality Data, from 2012 to 2018 there were approximately 756 accidents on Tower Road from I-70 to East Colfax Avenue, including two bicycle fatalities at Smith Road and Tower Road, and two pedestrian fatalities at I-70 and Tower Road.

This project will provide an off-street route along Tower Road, and a grade-separated crossing of I-70 as an alternative to the Tower Road interchange bridge over I-70. The projected outcome is a reduction in both crash potential and future bicycle and pedestrian crash actualities.

Safety is of paramount concern when planning improvements for an active transportation network. The proposed I-70 underpass will be a substantial safety benefit to the cyclists/pedestrians who desire to take advantage of the local trail network. In addition, improving at-grade crossings whenever possible and installing ADA compliant crosswalks will significantly reduce the possibility of motor vehicle/pedestrian or motor vehicle/cyclist accidents. The installation of crosswalks will be a substantial safety improvement, because crosswalks do not currently exist at most of the at-grade crossings along Tower Road, except for the newly installed light/crosswalk at Tower Road and E. 28th Ave. Finally, the provision of a dedicated trail facility can greatly contribute to the public's perceived safety of walking and biking activity and providing a level-of-service A experience for users.

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

WEIGHT **20%**

Provide **qualitative and quantitative** responses (derived from Part 4 of the application) to the following items on how the proposed project contributes to Transportation-focused Objectives (in bold) in the adopted Metro Vision plan. Refer to the expanded Metro Vision Objective by clicking on links.

[MV objective 2](#)

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

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

Yes No

Describe, *including supporting quantitative analysis*

The area that the project will traverse is currently a mixture of industrial, commercial and residential development. Population and employment totals for this area are projected to be 18,200 by the year 2020, and 26,000 by the year 2040. The area has been urbanized with very few pockets of land nearby that remain undeveloped. Fortunately, the canal corridor has been protected from development and is now primed for trail purposes. The future trail is expected to become an amenity that will compliment and provide links to other land uses.

Denver International Airport is located to the northeast of this area, along with the recently opened Gaylord Rockies Resort, an identified urban center place. Consequently, the area around DIA is experiencing rapid development and growth. Extending the High Line Canal Trail, which is unquestionably one of the most important trail corridors within Denver Metro Area, to this emerging urban center is of regional significance and priority.

Expanding the High Line Canal Trail by adding the segment proposed in this project is in close alignment with the multimodal transportation objectives of the Metro Vision 2040 Plan and Aurora Places, the City’s recently adopted comprehensive plan. This segment will connect to a vast network of existing urban-level trail infrastructure, including the Sand Creek Greenway Trail and Colorado Front Range Trails. An exciting aspect of adding this small segment of the High Line Canal Trail is the exponential increase in accessibility to safe, developed trails for the area served by this trail.

Furthermore, regional greenway-oriented development can be a catalyst for growth, attracting employers and businesses due to the enhanced quality of life afforded by constructing this trail project.

[MV objective 3](#)

Increase housing and employment in urban centers.

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

Yes No

Describe, *including supporting quantitative analysis*

Construction of the segment of the High Line Canal from East Colfax Avenue to I-70 will provide multimodal connectivity to the majority of the Denver Metro Area's urban centers, housing areas, and employment centers, such as the 40th/Airport Blvd./Gateway Park Urban Center, Gaylord Rockies Resort and Convention Center (1,500 employees), Denver International Airport (35,000 employees), CU Anschutz Medical Campus and Fitzsimons Innovation Community (25,000 employees) and Colfax Corridor Urban Center, by way of the existing trail network, light rail, and commuter rail lines. It will directly connect a currently isolated section of the High Line Canal Trail, providing access to the greater Denver Metro Area trail network. In addition, the residents and employees south of I-70 will have a safe, dedicated pedestrian/bicycle crossing of I-70, which will provide easier access to the A Line commuter rail, which has an estimated 18,600 passenger trips per day and connects Denver International Airport and Denver Union Station, and the rest of the RTD commuter rail/light rail system.

The location of this project is such that users of the proposed trail link can easily travel beyond the Adams County subregion (population est. 503,167) and into the Arapahoe County (population est 643,052) and Denver County (population est. 704,621) subregions. See Attachment B, “Regional Context Map”.

[MV objective 4](#) **Improve or expand the region’s multimodal transportation system, services, and connections.**

3. Will this project help increase mobility choices within and beyond your subregion for people, goods, or services? Yes No

Describe, including supporting quantitative analysis

This project will enhance mobility choices for people within the region, primarily, the option to safely cross the Interstate 70 ROW by foot or bicycle to access area shopping centers, medical centers, and recreation centers. On completion of a grade-separated crossing of I-70, pedestrians and cyclists south of the Interstate will have a safer access to the rail station at 40th Avenue and Airport Boulevard and those north of the Interstate will have safer access to the Denver Metro trail system. Dependence on motorized vehicles is somewhat governed by the lack of alternatives. Making bicycling and walking a viable option will increase mode shift as a personal choice. US Census statistics show that there are 132 households without motor vehicle ownership within a mile of the project. Currently these residents, and others without access to a motor vehicle, are most likely to take transit to work, and will be better able to access the light rail and bus services via the improved trail connectivity.

[MV objective 6a](#) **Improve air quality and reduce greenhouse gas emissions.**

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

Describe, including supporting quantitative analysis

By linking to regional trail systems, and especially by providing a safe crossing of I-70 and East Colfax Avenue, this project will encourage local residents to walk or cycle to work, shopping centers, medical centers, and other destinations instead of using a motor vehicle. Easier, safer access to commercial and recreation facilities could significantly reduce greenhouse gas emissions by as much as 152 lbs. GHG daily (431 lbs. GHG daily by the year 2040). On the weekends, because of the vastly improved access to High Line Canal Trail and the Aurora Sports Complex, the environmental benefits would be substantially higher.

[MV objective 7b](#) **Connect people to natural resource or recreational areas.**

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

Describe, including supporting quantitative analysis

One of the major benefits of this project is the fact that it will fill in the most costly, difficult and missing link in the High Line Canal Regional Trail corridor. The High Line Canal is 71-miles that begins to the west at Waterton and winds its way through the Denver Metro Area along the High Line Canal Regional Trail corridor. Numerous other trails connect to the High Line Canal Trail at the nearby Triple Creek Trailhead, including the Sand Creek Greenway Trail, Star K Connection Trail, Triple Creek Greenway Trail, Springhill Park Trail, and Sports Park Connector Trail. On completion of the I-70 to East Colfax Avenue segment of the HLC Trail, local residents will have safe, easy access to these trails, and in turn, to nearby Beck Recreation Center, Colorado Freedom Memorial, Aurora Sports Park, Sand Creek Riparian Preserve, Springhill Golf Course and Park, Upland Park, Terrace Park, and a vast number of other open space, recreation, and park areas that are connected to the HLC Trail across the Denver Metro Area. Other nearby open space assets include Rocky Mountain Arsenal National Wildlife Refuge nearby to the north and the Plains Conservation Center to the south. These areas will also be made more accessible by trail connectivity.

Interconnectivity to the regional trail network will improve access to the preserved natural resources associated with the greenways through which the trails pass, particularly the Sand Creek Regional Greenway and Triple Creek Greenway Corridor.

[MV objective 10](#)

Increase access to amenities that support healthy, active choices.

6. Will this project expand opportunities for residents to lead healthy and active lifestyles?

Yes No

Describe, *including supporting quantitative analysis*

Investing in facilities that promote walking, biking, and other active outdoor activities by the members of a community has been shown to produce significant health benefits. It has been shown that increased physical activity, such as walking and biking, can lead to lower mortality rates by reducing the severity of the risks of many chronic diseases such as heart disease and diabetes. Based on the Demographic Statistical Analysis of the United States, approximately 800 people live within 1/4 mile of the proposed trail extension, giving them easy access to a safe, low-stress mode of outdoor physical activity.

One in four children in the State of Colorado are overweight or obese and spend only an average of four to seven minutes in unstructured, outdoor play time. The City of Aurora has recognized the urgency to make more outdoor recreation opportunities available to all residents, including those under the age of 18. There are 81 children who reside in the Tower Triangle neighborhood and 9,210 children in the Green Valley Ranch neighborhood. These children and their families will, when this project is completed, have access to the High Line Canal Trail, providing a safe, inexpensive source of exercise.

This project seeks to improve the safety, comfort, and convenience for bicyclists and pedestrians, thereby encouraging increased physical activity for both transportation and recreational purposes, which lead to healthy and active lifestyles.

[MV objective 13](#)

Improve access to opportunity.

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

Yes No

Describe, *including supporting quantitative analysis*

The proposed segment of the High Line Canal is located in Aurora, Colorado, which is the most culturally diverse city in the Denver Metro area. Aurora was recently ranked as 9th in neighborhood diversity, and as the 10th most integrated in the nation's 100 most populous cities. The median income of Aurora residents is slightly lower than that of the greater metro area. The proposed segment of trail will be a concrete surface, graded to ADA standards, and will traverse residential, commercial, and industrial areas, opening up opportunities for multimodal transportation for the residents as both consumers and employees. For example, nearby Buckley Airforce Base currently employs 2,400 civilians and 2,500 contractors along with active duty personnel. Providing reliable multimodal transportation connections to the air force base will reduce the opportunity disparities for those with limited access to a motor vehicle.

US Census data shows that there are 132 households without motor vehicle ownership within a mile of the project. Currently, these residents, and others without access to a motor vehicle are required to traverse busy Tower Road, with several at-grade crossings, in order to enjoy the opportunities and benefits of the area across I-70. The reliable transportation connections provided by this project will eliminate the obstacles and connect the residents to these opportunities, including eight medical centers, a library, a rail station, and numerous bus stops and therefore, help to reduce critical health, education, income, and opportunity disparities.

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

The World Health Organization developed the Health Economic Assessment Tool in 2009 to enable government and recreation agencies to estimate how reduced mortality resulting from an increase in physical activity can benefit the local economy. In 2014, this tool was applied to the state of Colorado, resulting in an annual estimated benefit of \$3.2 billion. (Economic and Health Benefits of Bicycling and Walking, BBC Research & Consulting, October 2016.)

Increased sales and expenditures at local business establishments by trail patrons are anticipated. Also, increased consumer spending by the population on clothing, equipment, and gear related to trail user needs is anticipated.

Population and employment totals for this area are projected to be 18,200 by the year 2020, and 26,000 by the year 2040. Maintaining a safe and reliable multimodal transportation network has been shown to be a key component in attracting and retaining employers and employees. Demonstration of commitment to upgrading and maintaining the transportation infrastructure is a catalyst for positive growth in a region. These trails are regional assets, providing great economic benefit in attracting employers, which leads to vibrant communities.

D. Project Leveraging

WEIGHT 10%

9. What percent of outside funding sources (non-DRCOG-allocated Subregional Share funding) does this project have?

32

60%+ outside funding sources High
 30-59% Medium
 29% and below Low

Part 3 Additional Considerations

The ADCOG Subregional Forum has established five additional considerations to guide project selection within the subregional process. These considerations may be used by the ADCOG Subregional Forum in the project evaluation process in combination with the above listed criteria. The five additional considerations are:

- Does the project benefit a small community, which for this process is defined as a community with a population of less than 50,000 people? No
- Is this project a suburban connector? Yes. This project will connect the Green Valley Ranch and Tower Triangle areas as well as the northeast suburban and Aerotropolis areas to the greater Denver Metro Area trail network, providing easier access and increasing opportunities for families and other groups to enjoy facilities.
- Does the project address a gap in existing service? Yes. This project will fill in the most costly, difficult and missing link in the High Line Canal Regional Trail corridor by constructing an underpass at I-70.
- Is this the logical next step of a project? Yes. The city of Aurora engaged the services of an engineering firm to refine the proposed alignment of the trail and prepare 60% design plans with construction cost estimates.

- Is the project construction ready? Yes. Upon receipt of TIP funding, the city of Aurora is prepared to immediately move into final design and then construct this 1.8 mile trail.

Applicants may provide an attachment to the application to address these additional considerations. See Attached Letters of Support.

Part 4	Project Data Worksheet – Calculations and Estimates <i>(Complete all subsections applicable to the project)</i>
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A. Transit Use	
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1. Current ridership weekday boardings	N/A
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	11000	7200	18200
2040	16500	9500	26000

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>	0	0
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>	0	0
5. Enter number of the new transit boardings (from #3 above) that were previously using other non-SOV modes (walk, bicycle, HOV, etc.) <i>(Example: {#3 X 25%} or other percent, if justified)</i>	0	0
6. = Number of SOV one-way trips reduced per day (#3 – #4 – #5)	0	0
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>	0	0
8. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	0	0
9. If values would be distinctly greater for weekends, describe the magnitude of difference:		
10. If different values other than the suggested are used, please explain here:		

B. Bicycle Use		
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1. Current weekday bicyclists:	High Line Canal Trail east of Ensenada Street	14
	High Line Canal Trail north of 14 th Drive	2

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	11000	7200	18200
2040	16500	9500	26000

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.	200	600
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)	100	300
5. = Initial number of new bicycle trips from project (#3 – #4)	100	300
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)	33	100
7. = Number of SOV trips reduced per day (#5 - #6)	67	200
8. Enter the value of {#7 x 2 miles} . (= the VMT reduced per day) (Values other than 2 miles must be justified by sponsor)	134	400
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	127.3	380
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

2. Current weekday pedestrians:	High Line Canal Trail east of Ensenada Street	36
	High Line Canal Trail north of 14 th Drive	20
3. Population and Employment		

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	11000	7200	18200
2040	16500	9500	26000

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	200	400
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)	100	200

5. = Number of new trips from project (#3 – #4)	100	200
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)	33.3	66.67
7. = Number of SOV trips reduced per day (#5 - #6)	66.67	133.33
8. Enter the value of {#7 x .4 miles} . (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor)	26.67	53.32
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	25.33	50.66
10. If values would be distinctly greater for weekends, describe the magnitude of difference: It is estimated that there will be at least a 10% increase on weekends due to improved access to the Aurora Sports Park.		
11. If different values other than the suggested are used, please explain here:		

D. Vulnerable Populations

	Vulnerable Populations	Population within 1 mile
Use Current Census Data	1. Persons over age 65	619
	2. Minority persons	7238
	3. Low-Income households	367
	4. Linguistically-challenged persons	1103
	5. Individuals with disabilities	319
	6. Households without a motor vehicle	132
	7. Children ages 6-17	2096
	8. Health service facilities served by project	8

E. Travel Delay (Operational and Congestion Reduction)

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

1. Current ADT (average daily traffic volume) on applicable segments (Tower Road)	23722
2. 2040 ADT estimate	N/A
3. Current weekday vehicle hours of delay (VHD) (before project)	N/A

Travel Delay Calculations	Year of Opening
4. Enter calculated future weekday VHD (after project)	N/A
5. Enter value of {#3 - #4} = Reduced VHD	N/A
6. Enter value of {#5 X 1.4} = Reduced person hours of delay (Value higher than 1.4 due to high transit ridership must be justified by sponsor)	N/A

<p>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></p>	N/A
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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

<p>1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians on Tower Road from E. Colfax to I-70 (<i>most recent 5-year period of data</i>)</p>		<p>Sponsor must use industry accepted crash reduction factors (CRF) or accident modification factor (AMF) practices (<i>e.g., NCHRP Project 17-25, NCHRP Report 617, or DiExSys methodology</i>).</p>
<p>Fatal crashes (There were two pedestrian fatalities at Tower Rd. and I-70, and two bicycle fatalities at Smith Rd. and Tower Rd.)</p>	18	
<p>Serious Injury crashes</p>	11	
<p>Other Injury crashes</p>	38	
<p>Property Damage Only crashes</p>	689	
<p>2. Estimated reduction in crashes <u>applicable to the project scope</u> (<i>per the five-year period used above</i>)</p>		
<p>Fatal crashes reduced (Grade-separated crossings create a 90% reduction in pedestrian fatal/injury accidents.)</p>	1.8	
<p>Serious Injury crashes reduced</p>	N/A	
<p>Other Injury crashes reduced</p>	N/A	
<p>Property Damage Only crashes reduced</p>	N/A	

G. Facility Condition

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

Roadway Pavement

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

Bicycle/Pedestrian/Other Facility

<p>4. Current bicycle/pedestrian/other facility condition</p>	N/A Choose an item
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5. Describe current condition issues and how the project will address them.
N/A

6. Average Daily User Volume N/A

H. Bridge Improvements

1. Current bridge structural condition from CDOT
N/A

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

3. Other functional obsolescence issues to be addressed by project
N/A

4. Average Daily User Volume over bridge N/A

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

- 1.
- 2.
- 3.

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

1. Increase in VMT? *If yes, describe scale of expected increase* Yes No

2. Negative impact on vulnerable populations

3. Other: