

2020–2023 Transportation Improvement Program (TIP) Boulder County Subregional Share Project Application Form

APPLICATION OVERVIEW

The **Subregional Share Call for Projects** will **open on January 2, 2019**, with applications **due no later than 3 p.m. on February 27, 2018** to [your subregional forum](#).

- To be eligible to submit, at least one person from your agency must have attended one of the mandatory TIP training workshops (held August 8 and August 16) or a supplemental training held on September 14.
- Projects requiring CDOT and/or RTD concurrence must provide their official response with the application submittal. The CDOT/RTD concurrence request is due to CDOT/RTD no later than January 7, with CDOT/RTD providing a response no later than February 8. The form can be found [here](#).
- Any applications submitted by regional or similar agencies (TMA's), or municipalities crossing multiple subregions, must be submitted through the subregional forum based on where the majority of the project is located.
- Data to help the sponsor fill out the application, *especially Part 3*, can be found [here](#).
- If any sponsor wishes to request additional data or calculations from DRCOG staff, please submit your request to tcottrell@drcog.org no later than February 6, 2019.
- The application must be affirmed by either the applicant's City or County Manager or Chief Elected Official (Mayor or County Commission Chair) for local governments, or agency director or equivalent for other applicants.
- Further details on project eligibility, evaluation criteria, and the selection process are defined in the ***Policy on Transportation Improvement Program (TIP) Preparation: Procedures for Preparing the 2020-2023 TIP***, which can be found online [here](#).

APPLICATION FORM OUTLINE

The 2020-2023 TIP Subregional Share application contains three parts: *base project information* (Part 1), *evaluation questions* (Part 2), and *data calculation estimates* (Part 3). DRCOG staff will review each forum's submitted applications for eligibility. Each forum will be responsible for making a comprehensive evaluation of all eligible applications and rank ordering their submittals to determine their recommended projects and waiting lists. Forum recommendations will be forwarded to DRCOG staff for a final recommendation to the TAC, RTC, and DRCOG Board.

Part 1 | Base Information

Applicants will enter **foundational** information for their *project/program/study* (hereafter referred to as *project*) in Part 1, including a Problem Statement, project description, and concurrence documentation from CDOT and/or RTD, if applicable. Part 1 will not be scored.

Part 2 | Evaluation Criteria, Questions, and Scoring

This part includes four sections (A-D) for the **applicant to provide qualitative and quantitative responses** to use for scoring projects. The outcomes from Part 3 should guide the applicant's responses in Part 2.

Scoring Methodology: Each section will be scored using a scale of *High-Medium-Low*, relative to other applications received. The four sections in Part 2 are weighted and scored as follows:

Section A. Subregional Significance of Proposed Projects.....40%

High	The project will significantly address a clearly demonstrated major subregional problem and benefit people and businesses from multiple subregions.
Medium	The project will either moderately address a major problem or significantly address a moderate-level subregional problem.
Low	The project will address a minor subregional problem.

Section B. Metro Vision TIP Focus Areas30%

High	The project will significantly improve the safety and/or security, significantly increase the reliability of the transportation network, and benefit a large number and variety of users (including vulnerable populations*).
Medium	The project will moderately improve the safety and/or security, moderately increase the reliability of the transportation network, and benefit a moderate number and variety of users (including vulnerable populations*).
Low	The project will minimally improve the safety and/or security, minimally increase the reliability of the transportation network, and benefit a limited number and variety of users (including vulnerable populations*).

**Vulnerable populations include: Individuals with disabilities, persons over age 65, and low-income, minority, or linguistically-challenged persons.*

Section C. Consistency & Contributions to Transportation-focused Metro Vision Objectives20%

Metro Vision guides DRCOG’s work and establishes shared expectations with our region’s many and various planning partners. The plan outlines broad outcomes, objectives, and initiatives established by the DRCOG Board to make life better for the region’s residents. The degree to which the outcomes, objectives, and initiatives identified in Metro Vision apply in individual communities will vary. Metro Vision has historically informed other DRCOG planning processes, such as the TIP.

High	The project will significantly address Metro Vision transportation-related objectives and is determined to be in the top third of applications based on the magnitude of benefits.
Medium	The project will moderately address Metro Vision transportation-related objectives and is determined to be in the middle third of applications based on the magnitude of benefits.
Low	The project will slightly or not at all address Metro Vision transportation-related objectives and is determined to be in the bottom third of applications based on the magnitude of benefits.

Section D. Leveraging of non-Subregional Share funds (“overmatch”)10%

Scores are assigned based on the percent of outside funding sources (non-Subregional Share).

% of Outside Funding (non-Subregional Share)	High	60% and above
	Medium	30-59%
	Low	29% and below

Part 3 | Project Data – Calculations and Estimates

Based on the applicant’s project elements, sponsors will complete the appropriate sections to estimate usage or benefit values. Part 3 is not scored, and the quantitative responses should be used to back-up the applicant’s qualitative narrative.

Part 1

Base Information

1. Project Title	Marshall Road (SH 170) Underpass		
2. Project <i>Start/End</i> points or Geographic Area <i>Provide a map with submittal, as appropriate</i>	US 36 Davidson Mesa Underpass to south of Marshall Road		
3. Project Sponsor (<i>entity that will construct/ complete and be financially responsible for the project</i>)	Town of Superior		
4. Project Contact Person, Title, Phone Number, and Email	Alex Ariniello, Public Works Director, 303-499-3675x111, alexa@superiorcolorado.gov		
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>		
6. What planning document(s) identifies this project?	<input type="checkbox"/> DRCOG 2040 Fiscally Constrained Regional Transportation Plan (2040 FC RTP)		
	<input checked="" type="checkbox"/> Local plan:	Superior Trails Plan	
	<input type="checkbox"/> Other(s):		
	<i>Provide link to document/s and referenced page number if possible, or provide documentation with submittal</i>		
7. Identify the project's key elements .			
<input type="checkbox"/> Rapid Transit Capacity (2040 FC RTP) <input type="checkbox"/> Transit Other: Transit Priority Lanes <input checked="" type="checkbox"/> Bicycle Facility <input checked="" type="checkbox"/> Pedestrian Facility <input checked="" type="checkbox"/> Safety Improvements <input type="checkbox"/> Roadway Capacity or Managed Lanes (2040 FC RTP) <input type="checkbox"/> Roadway Operational		Grade Separation <input type="checkbox"/> Roadway <input type="checkbox"/> Railway <input checked="" type="checkbox"/> Bicycle <input checked="" type="checkbox"/> Pedestrian <input type="checkbox"/> Roadway Pavement Reconstruction/Rehab <input type="checkbox"/> Bridge Replace/Reconstruct/Rehab <input type="checkbox"/> Study <input type="checkbox"/> Design <input type="checkbox"/> Other:	
8. Problem Statement	What specific Metro Vision-related regional problem/issue will the transportation project address? <i>The Marshall Road Underpass project will address regional multi-use trail connections along the US 36 multi-modal corridor. It will improve transportation safety and security by providing a grade separated trail crossing of a busy high-speed highway. Marshall Road (SH 170) carries 6,000 vehicles per day at this crossing and the speed limit is 50 mph. The project thus directly relates to the DRCOG Metro Vision Theme of "A Connected Multimodal Region" with Outcomes</i> <ul style="list-style-type: none"> <i>The regional transportation system is well-connected and serves all modes of travel.</i> <i>The transportation system is safe, reliable and well-maintained.</i> 		

9. Define the **scope** and **specific elements** of the project. *This project would construct an underpass of Marshall Road to accommodate a 10 ft.-wide multi-use concrete trail connecting the US 36 Davidson Mesa underpass to Marshall Road.*

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

11. Would a smaller federal 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	\$1,800,000	
2. Total amount of DRCOG Subregional Share Funding Request (no greater than \$20 million and not to exceed 50% of the total project cost)	\$1,440,000	80% of total project cost
3. Outside Funding Partners (other than DRCOG Regional Share funds) List each funding partner and contribution amount.	\$ Contribution Amount	% of Contribution to Overall Total Project Cost
Town of Superior	\$360,000	20%
Total amount of funding provided by other funding partners (private, local, state, Subregion, or federal)	\$360,00	20%

Funding Breakdown (year by year)*

**The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2018.*

	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds (Regional)	\$0	\$300,000	\$1,140,000	\$0	\$1,440,000
Federal Funds (Subregional)	\$0	\$0	\$0	\$0	\$0
State Funds	\$0	\$0	\$0	\$0	\$0
Local Funds	\$0	\$60,000	\$300,000	\$0	\$360,000

Total Funding	\$0	\$360,000	\$1,440,000	\$0	\$1,800,000
4. Phase to be Initiated <i>Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other</i>		Design	CON		
5. By checking this box, the applicant’s Chief Elected Official (Mayor or County Commission Chair) or City/County Manager for local governments or Agency Director or equivalent for others, has certified it allows this project request to be submitted for DRCOG-allocated funding and will follow all DRCOG policies and state and federal regulations when completing this project, if funded.					<input checked="checked" type="checkbox"/>

Part 2 Evaluation Criteria, Questions, and Scoring

A. Regional significance of proposed project

WEIGHT **40%**

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

1. Why is this project regionally important? As Figure A illustrates the Marshall Road Underpass is located at the junction of two regional multi-use trails. The US 36 Bikeway is a concrete 12-ft. wide multi-use trail connecting the City of Boulder and communities along the US 36 Corridor. Perpendicular to this is a developing multi-use trail that runs northeast through Louisville and into Lafayette. Several grade-separated underpasses have been built or are in planning to provide a safe route to access open space and recreational amenities. Southwest of Marshall Road is an extensive network of trails on Superior, Boulder and Boulder County Open Space lands extending to Eldorado Canyon State Park on the west and connecting to Jefferson County on the south. The Marshall Road underpass will connect these two trail networks with a safe crossing of a high-speed highway.
2. Does the proposed project cross and/or benefit multiple **municipalities**? If yes, which ones and how? The Marshall Road underpass will provide a safe trail connection between the Louisville and Superior trail networks. These trail networks also connect to trail networks in Lafayette and Boulder, providing benefits to residents in those communities.
3. Does the proposed project cross and/or benefit another **subregion(s)**? If yes, which ones and how? City & County of Broomfield residents can use the US 36 Bikeway and the Marshall Road underpass to access the Superior and Boulder County trail networks southwest of the project.
4. How will the proposed project address the specific transportation problem described in the **Problem Statement** (as submitted in Part 1, #8)? Currently, users of the US 36 Davidson underpass must cross Marshall Road (SH 170) to access the Superior and Boulder County trail network located southwest of Marshall Road. Near this location, SH 170 is posted at 50 mph and the traffic volume is 6,000 vehicles per day presenting a potentially dangerous at-grade crossing. The project will provide a safe grade separation of Marshall Road, eliminating the vehicle-bicycle conflicts.
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? The project will provide a safe pedestrian and bike connection for nearby residential, employment, retail and recreation areas facilitating trip making by alternative modes, which use less energy than vehicular modes.
6. How will connectivity to different travel modes be improved by the proposed project? The project will improve the safety of bicycle and pedestrian trail users.
7. Describe funding and/or project partnerships (other subregions, regional agencies, municipalities, private, etc.) established in association with this project. The attached letters of support from Boulder County and the City of Louisville indicate support of the project. Superior will be the lead agency but the local match will be split among these partners.

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)**. *Nearby vulnerable trail users will now have safer access to recreational opportunities.*
2. Describe how the project will **increase reliability of existing multimodal transportation network**. *Trail users will now be able to reliably cross Marshall Road without having to wait for an acceptable gap in a high volume, high speed traffic flow.*
3. Describe how the project will **improve transportation safety and security**. *The project will provide a grade-separated underpass of Marshall Road eliminating vehicle/trail user crossing conflicts on this high-speed highway.*

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

WEIGHT

20%

Provide **qualitative and quantitative** responses (derived from Part 3 of the application) to the following items on how the proposed project contributes to Transportation-focused Objectives (in bold) in the adopted Metro Vision plan. Refer to the expanded Metro Vision Objective by clicking on links.

[MV objective 2](#)

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

1. Will this project help focus and facilitate future growth in locations where urban-level infrastructure already exists or areas where plans for infrastructure and service expansion are in place? *The trail will serve existing jurisdictions where infrastructure is in place.* ☒ Yes ☐ No

[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? *The project will provide multi-use trail connections between Superior, Louisville and Boulder County trail networks.* ☒ Yes ☐ No

[MV objective 4](#)

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

3. Will this project help increase mobility choices within and beyond the region for people, goods, or services? *The project provides multi-use trail connections between Superior, Louisville and Boulder County trail networks thereby encouraging use of non-motorized modes of transportation.* ☒ Yes ☐ No

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? <i>The project is expected to reduce greenhouse gas emissions by 72.87 lbs. per day upon project opening; and 143.26 lbs. per day in 2040. See Part 3 B & C for greenhouse gas emission reduction calculations.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MV objective 7b	Connect people to natural resource or recreational areas.	
8.	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? <i>As Figure A illustrates the Marshall Road Underpass is located at the junction of two regional multi-use trails. The US 36 Bikeway is a concrete 12-ft. wide multi-use trail connecting the City of Boulder and communities along the US 36 Corridor. Perpendicular to this is a developing multi-use trail that runs northeast through Louisville and into Lafayette. Several grade-separated underpasses exist or are in planning to provide a safe route to access open space and recreational amenities. Southwest of Marshall Road is an extensive network of trails on Superior, Boulder and Boulder County Open Space lands extending to Eldorado Canyon State Park on the west and connecting to Jefferson County on the south. The Marshall Road underpass will connect these two trail networks with a safe crossing of a high-speed highway.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MV objective 10	Increase access to amenities that support healthy, active choices.	
5.	Will this project expand opportunities for residents to lead healthy and active lifestyles? <i>By providing a safe underpass that connects several trail networks residents of Louisville and Superior will now have access to many miles of safe multi-use trails connecting to many recreational opportunities.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MV objective 13	Improve access to opportunity.	
6.	Will this project help reduce critical health, education, income, and opportunity disparities by promoting reliable transportation connections to key destinations and other amenities? <i>The project will provide a safe trail crossing of a busy highway.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MV objective 14	Improve the region's competitive position.	
7.	Will this project help support and contribute to the growth of the region's economic health and vitality? <i>By providing a safe underpass that connects several trail networks, residents of Louisville and Superior will now have access to many miles of safe multi-use trails connecting to many recreational opportunities which will contribute to the region's attractiveness as a place to live and work.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

D. Project Leveraging

WEIGHT **10%**

8. What percent of outside funding sources (non-DRCOG-allocated Regional Share funding) does this project have?	20%	80%+ outside funding sources High 60-79% Medium 59% and below Low
---	-----	---

Part 3

Project Data Worksheet – Calculations and Estimates

(Complete all subsections applicable to the project)

A. Transit Use

- Current ridership weekday boardings
- Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020			
2040			

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>		
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>		
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>		
6. = Number of SOV one-way trips reduced per day (#3 – #4 – #5)		
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>		
8. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)		
9. If values would be distinctly greater for weekends, describe the magnitude of difference:		
10. If different values other than the suggested are used, please explain here:		

B. Bicycle Use

1. Current weekday bicyclists – 300 bicyclists

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	1,749	4,290	6,039
2040	4,022	5,713	9,735

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.	300	400
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)	250	300
5. = Initial number of new bicycle trips from project (#3 – #4)	50	100
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)	15	30
7. = Number of SOV trips reduced per day (#5 - #6)	35	70
8. Enter the value of {#7 x 2 miles} . (= the VMT reduced per day) (Values other than 2 miles must be justified by sponsor)	70	140
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	66.5	133
10. If values would be distinctly greater for weekends, describe the magnitude of difference:		
11. If different values other than the suggested are used, please explain here:		

C. Pedestrian Use

1. Current weekday pedestrians (include users of all non-pedaled devices)

50

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	1,749	4,290	6,039
2040	4,022	5,713	9,735

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	50	75
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)	25	37
5. = Number of new trips from project (#3 – #4)	25	38
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)	8	11
7. = Number of SOV trips reduced per day (#5 - #6)	17	27
12. Enter the value of {#7 x .4 miles} . (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor)	6.7	10.8
8. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	6.37	10.26
9. If values would be distinctly greater for weekends, describe the magnitude of difference:		
10. If different values other than the suggested are used, please explain here:		

D. Vulnerable Populations

Use Current Census Data	Vulnerable Populations	Population within 1 mile
	1. Persons over age 65	297
	2. Minority persons	632
	3. Low-Income households	15
	4. Linguistically-challenged persons	0
	5. Individuals with disabilities	102
	6. Households without a motor vehicle	28
	7. Children ages 6-17	207
	8. Health service facilities served by project	3

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	0
2. 2040 ADT estimate	0
3. Current weekday vehicle hours of delay (VHD) (before project)	0

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

F. Traffic Crash Reduction

1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians (most recent 5-year period of data)		Sponsor must use industry accepted crash reduction factors (CRF) or accident modification factor (AMF) practices (e.g., NCHRP Project 17-25, NCHRP Report 617, or DiExSys methodology).
Fatal crashes	0	
Serious Injury crashes	0	
Other Injury crashes	4	
Property Damage Only crashes	0	
2. Estimated reduction in crashes <u>applicable to the project scope</u> (per the five-year period used above)		
Fatal crashes reduced	0	
Serious Injury crashes reduced	0	
Other Injury crashes reduced	2	
Property Damage Only crashes reduced	0	

G. Facility Condition

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

Roadway Pavement

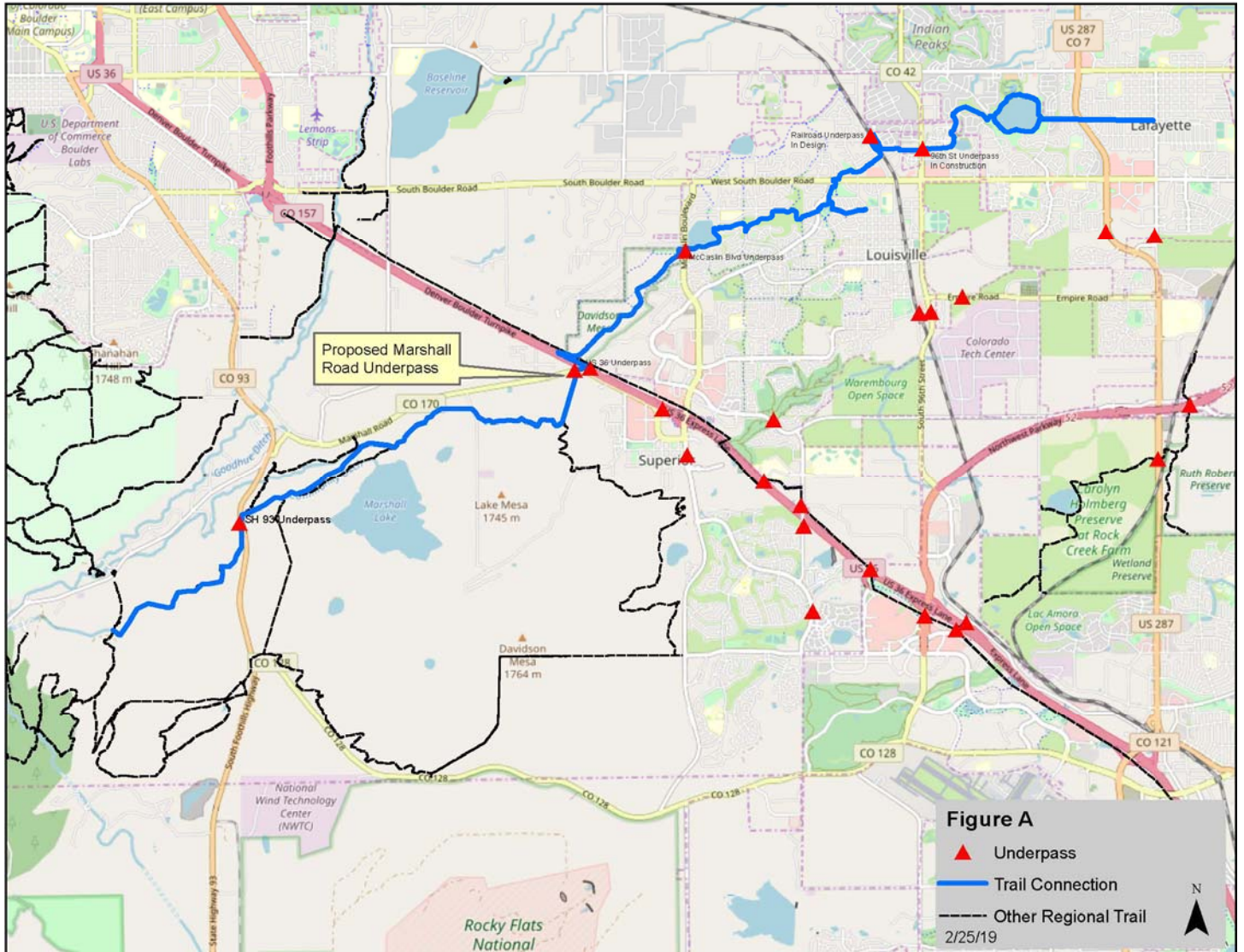
1. Current roadway pavement condition	
2. Describe current pavement issues and how the project will address them.	
3. Average Daily User Volume	

Bicycle/Pedestrian/Other Facility

4. Current bicycle/pedestrian/other facility condition	Choose an item
--	----------------

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

Marshall Underpass Regional Trail Context Map

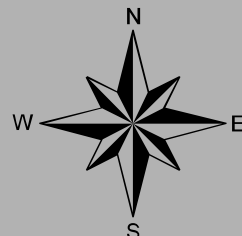


Marshall Underpass Conceptual Drawing

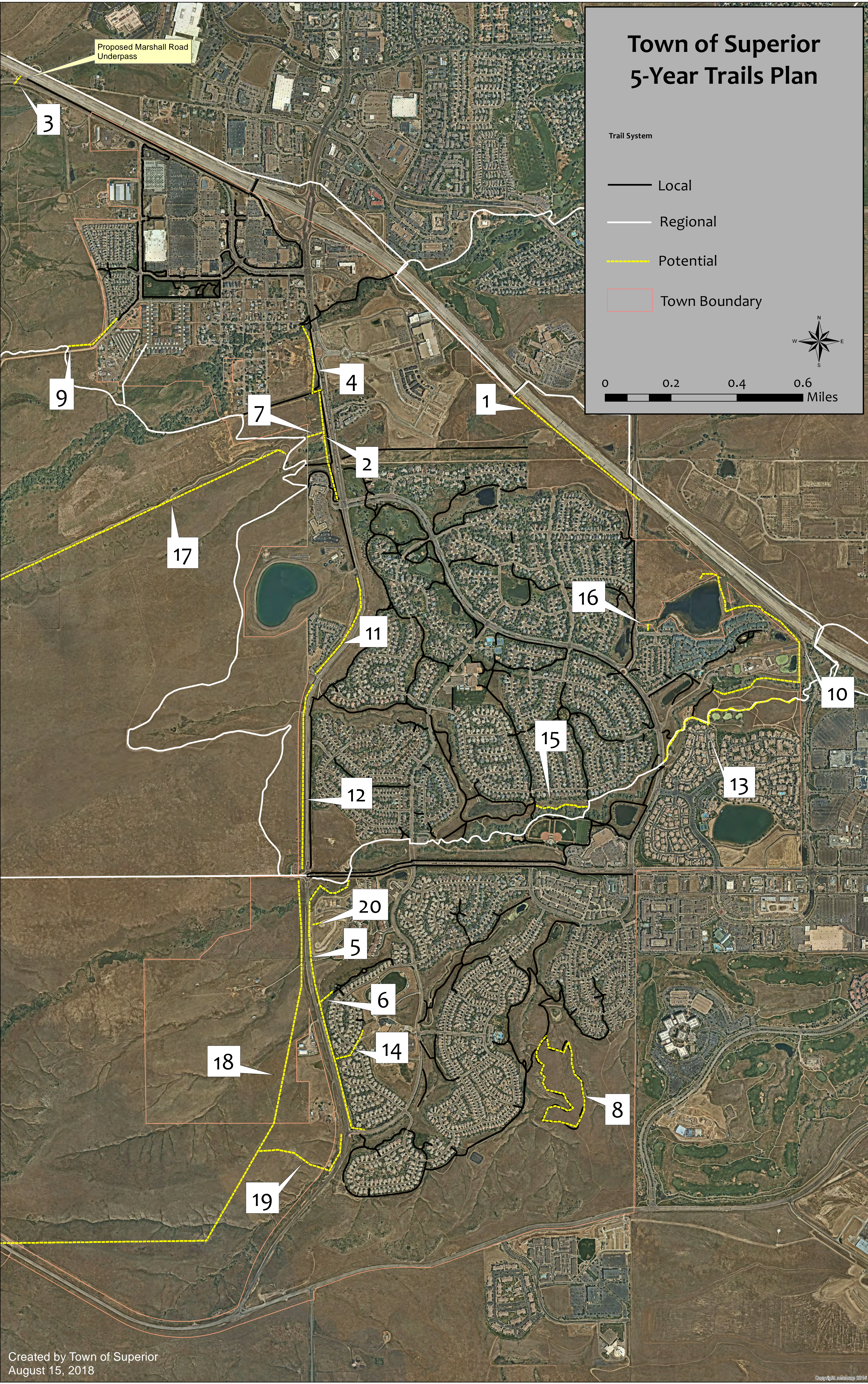


Town of Superior 5-Year Trails Plan

- Trail System
- Local
 - Regional
 - Potential
 - Town Boundary



0 0.2 0.4 0.6 Miles





COLORADO
Department of Transportation
Region 4

Regional Director's Office
10601 W. 10th Street
Greeley, CO 80634-9000

February 7, 2019

Alex Ariniello
Town of Superior
1124 E. Coal Creek Drive
Superior, CO 80027

Marshall Road Underpass at Davidson Mesa

Dear Mr. Ariniello,

RE: CDOT Region 4 Support Request for DRCOG TIP Sub-Regional Call FY20-23

This letter is to inform you that the Colorado Department of Transportation (CDOT) Region 4 staff concurs with the following Town of Superior application for the DRCOG Sub-Regional FY20-23 TIP Call. This applies only to the Marshall Road Underpass at Davidson Mesa project, in the event it is selected by DRCOG as a sub-regional project around Summer 2019. If this project is awarded DRCOG funds at a later date, the Local Agency (LA) will need to re-affirm CDOT's concurrence at that time.

This concurrence is conditionally granted, based on the scope as described. CDOT does, however, retain final decision-making authority for all improvements and changes within CDOT's right of way. As the project progresses, the LA will need to work closely with CDOT Region staff to ensure CDOT's continued concurrence.

This project must comply with all CDOT and/or FHWA requirements, including those associated with clearance for right of way, utilities and environmental. All costs associated with clearances, including right of way acquisition, utilities relocation and environmental mitigation measures, such as wetland creation, must be included in the project costs. CDOT staff will assist in determining which clearances are required for your project. The *CDOT Local Agency Manual* includes project requirements to assist with contracting, design and construction, accessed at: http://www.coloradodot.info/business/designsupport/bulletins_manuals.

Should you have any questions regarding this concurrence, or if your agency would like to schedule time to meet with a member of the CDOT Specialty Unit, please contact Karen Schneiders at (970) 350-2172.

Sincerely,

Johnny Olson, P.E.
Region 4 Transportation Director

JWO:KAS:mbc
cc: Todd Cottrell, DRCOG
Long Nguyen
Katrina Klobberdanz
Kateyn Triggs
Karen Schneiders



February 18, 2019

Dear DRCOG and Boulder County Subregional TIP Forum,

The City of Louisville would like to share our support and financial commitment for the Town of Superior's proposed TIP project to develop an underpass at Marshall Road. The US 36 Davidson Mesa Underpass is an important regional trail connection that currently connects Louisville's trail system, including the popular Davidson Mesa Open Space trails, to the Town of Superior and City of Boulder trails to the west. Many cyclists coming off the US 36 bikeway also use the underpass to make connections on to Marshall Road.

The US 36 Davidson Mesa Underpass currently brings visitors onto Marshall Road at grade, at a high speed location (50 mph posted speed), which creates a high potential for safety issues and bicycle/vehicle conflict.

This multimodal project will allow cyclists and pedestrians to safely cross Marshall Road, and will eventually provide a link to planned regional trail connections directly south on the Boulder County Parks and Open Space properties, including the Mayhoffer Single Tree and Coalton Trails, and the Coal Creek Regional Trail.

The City will contribute \$90,000 to the development of this underpass if TIP funding is awarded, and urges DRCOG and the Boulder County Subregional TIP forum to support this project for TIP funding.

Sincerely,



Heather Balser
City Manager



DATE: February 26, 2019

TO: Alex Ariniello, PE Public Works Director

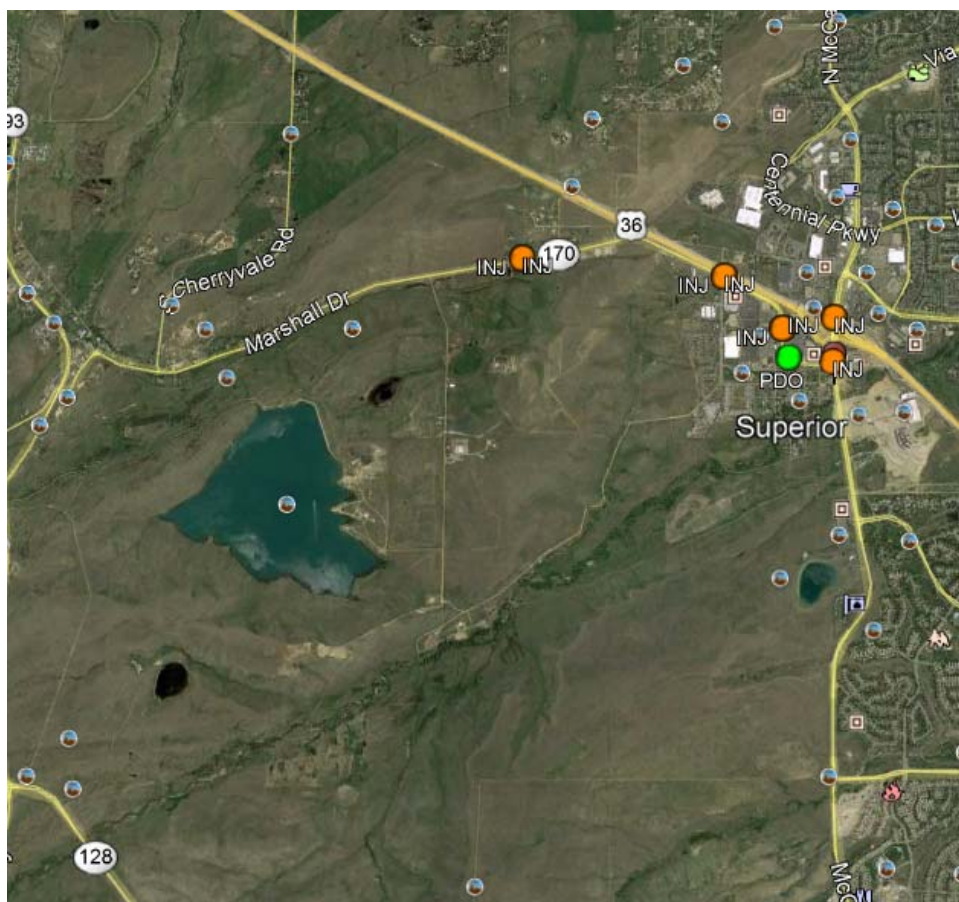
FROM: Jake Kononov, PE DiExSys

SUBJECT: Safety Assessment Report in Support of DRCOG TIP Application for Multipurpose Trail Underpass under SH170A

Attached for your review is a copy of the Safety Assessment Report for the above referenced project. The observations and recommendations in this report are based on the analysis of 5 years of crash history and review of Google Earth Images. The Town is advised to verify through field survey the observations made in this report regarding physical features, roadside characteristics, and traffic control devices in the study area.

Should any questions arise concerning this report or if further assistance is needed, please do not hesitate to contact me at 303-910-1401

Safety Assessment Report In Support of DRCOG TIP Application Marshall Road Underpass (SH170A)



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City and County of Denver Public Works – Traffic Engineering Services.



This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 409, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 409 are cited below:

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 409.



STATEMENT OF PHILOSOPHY

The efficient and responsible investment of resources in addressing safety problems is a difficult task. Since crashes occur on all roadways in use, it is inappropriate to say of any roadway that it is safe. However, it is correct to say that roadways can be built to be safer or less safe. Road safety is a matter of degree. When making decisions effecting road safety it is critical to understand that expenditure of limited available funds on improvements in places where it prevents few injuries and saves few lives can mean that injuries will occur and lives will be lost by not spending them in places where more crashes could have been prevented¹. It is the Town's of Superior objective to maximize crash reduction within the limitations of available budgets by making road safety improvements at locations where it does the most good or prevents the most crashes.

INTRODUCTION

The primary intent of this project is to construct multipurpose underpass under SH170A and link it with existing system of trails. In connection with project an opportunity exists to improve pedestrian and bicycle safety on SH170A.

Between 1/1/2012 and 12/31/2016 (5 year study period) 2 pedestrian and 2 bicycle crashes occurred on SH170A MP 0.00-6.97 (**Figure 1**). All 4 of them involved collision with a vehicle (**Figure 2**).

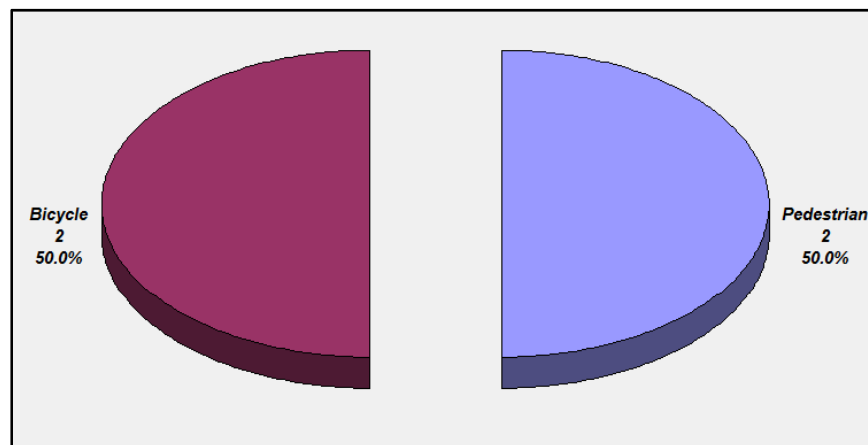
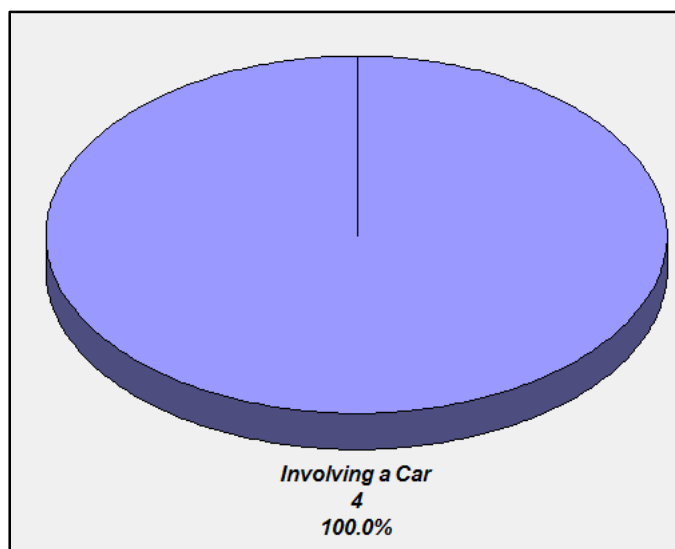


Figure 1

¹ Hauer, E., (1999) Safety Review of Highway 407: Confronting Two Myths. TRB



Only 2 bicycle crashes (MP 5.01 and MP 5.99), **however**, can potentially be remedied by constructing proposed underpass under SH170A between approximately MP 5.50 and MP 5.60 (**Figure 3**). Both of these bicycle crashes resulted in injury.

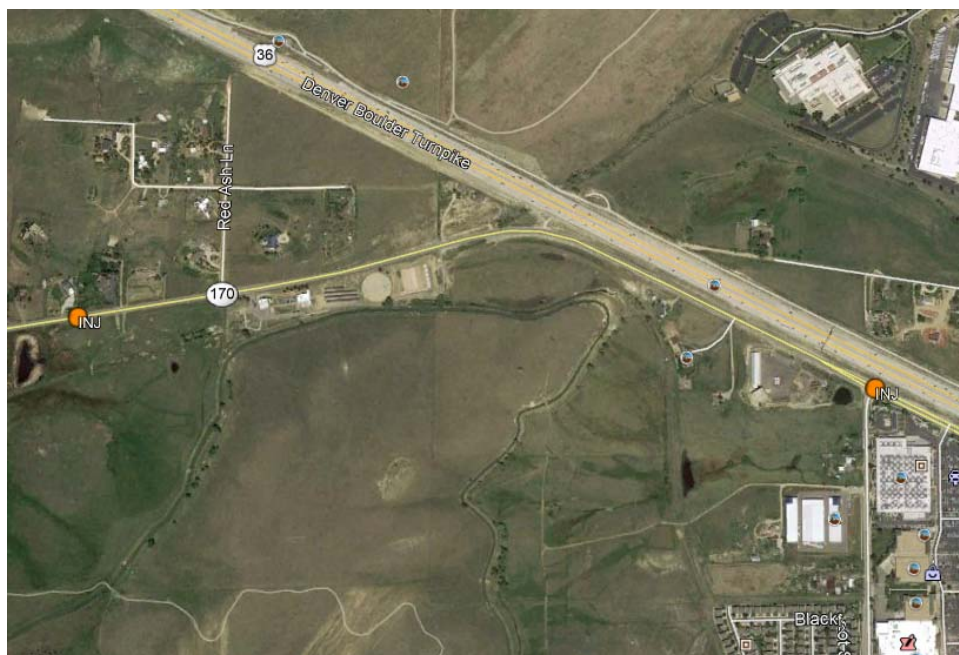



Figure 3 Locations of Bicycle Crashes Susceptible to Correction by Constructing an Underpass under SH170A



Assuming that constructing an underpass and creating a separation between vehicular and pedestrian/bicycle traffic will result in complete crash prevention we conducted a Benefit/Cost analysis relating benefits of crash reduction to cost of construction. It shows if the underpass can be constructed for \$300,000 the resulting ratio of benefits of crash reduction to cost of construction (B/C) is 2:1 (**Figure 4**). Breakeven point analysis shows that expenditure of up to up \$600,000 can be justified purely from the safety standpoint (**Figure 5**).



CDOT

COLORADO

Department of Transportation

Colorado Department of Transportation

DiExSys™ Roadway Safety Systems

Economic Analysis Report

02/22/2015

Job #: 2019022211585

Location: 170A

Begin: 0.00

End: 6.97

From: 01/01/2012

To: 12/31/2016

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors		Other Information	
PDO:	0	Weighted PDO:	0.00	100%:CRF for PDO	Cost of PDO: \$ 10,400
INJ:	2 2:Injured	Weighted INJ:	0.49	100%:CRF for INJ	Cost of INJ: \$ 98,300
FAT:	0 0:Killed	Weighted FAT:	0.00	100%:CRF for FAT	Cost of FAT: \$ 1,724,300
		B/C Weighted Year Factor:	5.00	100%:Weighted CRF	Interest Rate: 5%
				AADT Growth Factor:	2.0%
				Service Life:	20
				Capital Recovery Factor:	0.080
Cost: \$ 300,000				Annual Maintenance/Delay Cost:	\$ 0
From: 01/01/2012					
To: 12/31/2016		Days: 1827			

Benefit Cost Ratio: 2.01

(B/C Based on Injury Numbers : PDO/Injured/Killed)

Type of Improvement: UNDERPASS UNDER SH170

Special Notes: BIKE AND PED ONLY CRASHES CONSIDERED

Figure 4 B/C Analysis for Underpass SH170A


		Colorado Department of Transportation DiExSys™ Roadway Safety Systems Economic Analysis Report			02/22/2015
Colorado Department of Transportation		Job #:			2019022211585
Location: 170A		Begin: 0.00	End: 6.97	From: 01/01/2012	To: 12/31/2016
Benefit Cost Ratio Calculations					
Crashes		Projected Crashes and Reduction Factors		Other Information	
PDO:	0	Weighted PDO:	0.00	100%:CRF for PDO	Cost of PDO: \$ 10,400
INJ:	2	Weighted INJ:	0.49	100%:CRF for INJ	Cost of INJ: \$ 98,300
FAT:	0	Weighted FAT:	0.00	100%:CRF for FAT	Cost of FAT: \$ 1,724,300
		B/C Weighted Year Factor:	5.00	100%:Weighted CRF	Interest Rate: 5%
				AADT Growth Factor:	2.0%
				Service Life:	20
				Capital Recovery Factor:	0.080
Cost: \$ 600,000				Annual Maintenance/Delay Cost:	\$ 0
From: 01/01/2012					
To: 12/31/2016		Days: 1827			
Benefit Cost Ratio: 1.00		(B/C Based on Injury Numbers : PDO/Injured/Killed)			
Type of Improvement: UNDERPASS UNDER SH170					
Special Notes: BIKE AND PED ONLY CRASHES CONSIDERED					

Figure 5 Breakeven Point Analysis for Underpass SH170A