

City of Boulder

SH7/Arapahoe Avenue Bridge Replacement Project



2020-2023 DRCOG Transportation Improvements Program
(TIP) Subregional Share Project Application Form

Part 1

Base Information

1. Project Title	SH7/East Arapahoe Ave Bridge Replacement
2. Project Start/End points or Geographic Area <i>Provide a map with submittal, as appropriate</i>	38 th /Marine Street to SH157/Foothills Parkway - <i>A map is included at the end of this application.</i>
3. Project Sponsor (entity that will construct/ complete and be financially responsible for the project)	City of Boulder
4. Project Contact Person, Title, Phone Number, and Email	Gerrit Slatter, Principal Transportation Projects Engineer, 303-441-1978, slatterg@bouldercolorado.gov

5. Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service? Yes No
If yes, provide applicable concurrence documentation with submittal

6. What planning document(s) identifies this project?	<input checked="" type="checkbox"/> DRCOG 2040 Fiscally Constrained Regional Transportation Plan (2040 FC RTP)
	<input checked="" type="checkbox"/> Local plan: City of Boulder Transportation Master Plan, East Arapahoe Transportation Plan
	<input checked="" type="checkbox"/> Other(s): Northwest Area Mobility Study, SH7 Planning and Environmental Linkages Study Colorado Dept of Transportation Bridge Enterprise Structure List
	<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: <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 type="checkbox"/> Bicycle <input type="checkbox"/> Pedestrian <input type="checkbox"/> Roadway Pavement Reconstruction/Rehab <input checked="" type="checkbox"/> Bridge Replace/Reconstruct/Rehab <input type="checkbox"/> Study <input type="checkbox"/> Design <input type="checkbox"/> Transportation Technology Components <input type="checkbox"/> Other:
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8. **Problem Statement** What specific Metro Vision-related subregional problem/issue will the transportation project address?
 SH7/East Arapahoe is one of Boulder's busiest travel corridors, connecting Boulder to I-25/Brighton and connecting the 40,000 employees who work in the corridor to destinations throughout the city. Recognizing the need to provide better travel options for commuters and for the greater number of people who will be working and living in the corridor over the coming years, the City has adopted the East Arapahoe Transportation Plan (EATP). The EATP sets out a long-range vision, with safety, access, and mobility improvements that can be phased incrementally and in coordination with the SH 7 Coalition communities to create a regional multimodal corridor with high-quality/high-frequency bus rapid transit (BRT), a regional bikeway, pedestrian improvements and first and final mile supportive

infrastructure. SH 7 is also identified as a planned transit corridor in the 2040 Metro Vision Regional Transportation Plan.

The proposed bridge replacement project is an early action item to realizing the EATP vision. The existing westbound bridge (CDOT Structure No. D-15-AQ) was constructed in 1938 and is a FASTER eligible bridge with a sufficiency rating of 51.90. The eastbound bridge was constructed in 1966. This project would advance the EATP near term action items to enhance safety, access and multimodal connections within the SH7/East Arapahoe corridor with a new bridge and multi-use path facilities on both sides of the roadway.



From Arapahoe Avenue bridge over Boulder Creek looking east.

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

The project would reconstruct the SH 7/Arapahoe Avenue bridge over Boulder Creek, replacing two existing twin bridges, both of which lack adequate pedestrian facilities and one of which CDOT has classified as structurally deficient.

The new bridge will be designed to safely carry the 28,000 vehicles that cross it today and provide pedestrian and bicycle facilities along both sides of the bridge and connections to the Boulder Creek multi-use path. The new bridge would be designed and constructed to meet AASHTO and ADA design guidelines and to be consistent with the City of Boulder’s East Arapahoe Transportation Plan, enhancing access and connections to the well-used Boulder Creek multiuse path and on-street pedestrian, bicycle and transit connections. The new bridge will also enhance the bicycle and pedestrian underpass crossing below it by improving sightlines and underpass crossing width.

The concept plan and project cost estimate are included at the end of this application.

10. What is the status of the proposed project?

The East Arapahoe Transportation Plan was accepted by the Boulder City Council in August 2018 and conceptual level plans have been developed for this section of the project.

11. 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		\$6,000,000
2. Total amount of DRCOG Subregional Share Funding Request	\$4,200,000	70% of total project cost
3. Outside Funding Partners (other than DRCOG Subregional Share funds) List each funding partner and contribution amount.	\$\$ Contribution Amount	% of Contribution to Overall Total Project Cost
City of Boulder	\$1,800,000	30%
	\$	
	\$	
	\$	
	\$	
	\$	
Total amount of funding provided by other funding partners <i>(private, local, state, Regional, or federal)</i>	\$1,800,000	30%

Funding Breakdown (year by year)*	*The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2019.				
	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds	\$	\$210,000	\$840,000	\$3,150,000	\$4,200,000
State Funds	\$	\$	\$	\$	\$0
Local Funds	\$	\$90,000	\$360,000	\$1,350,000	\$1,800,000
Total Funding	\$0	\$300,000	\$1,200,000	\$4,500,000	\$6,000,000
4. Phase to be Initiated <i>Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other</i>	Choose an item	Design	Acquisition	Construction	

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

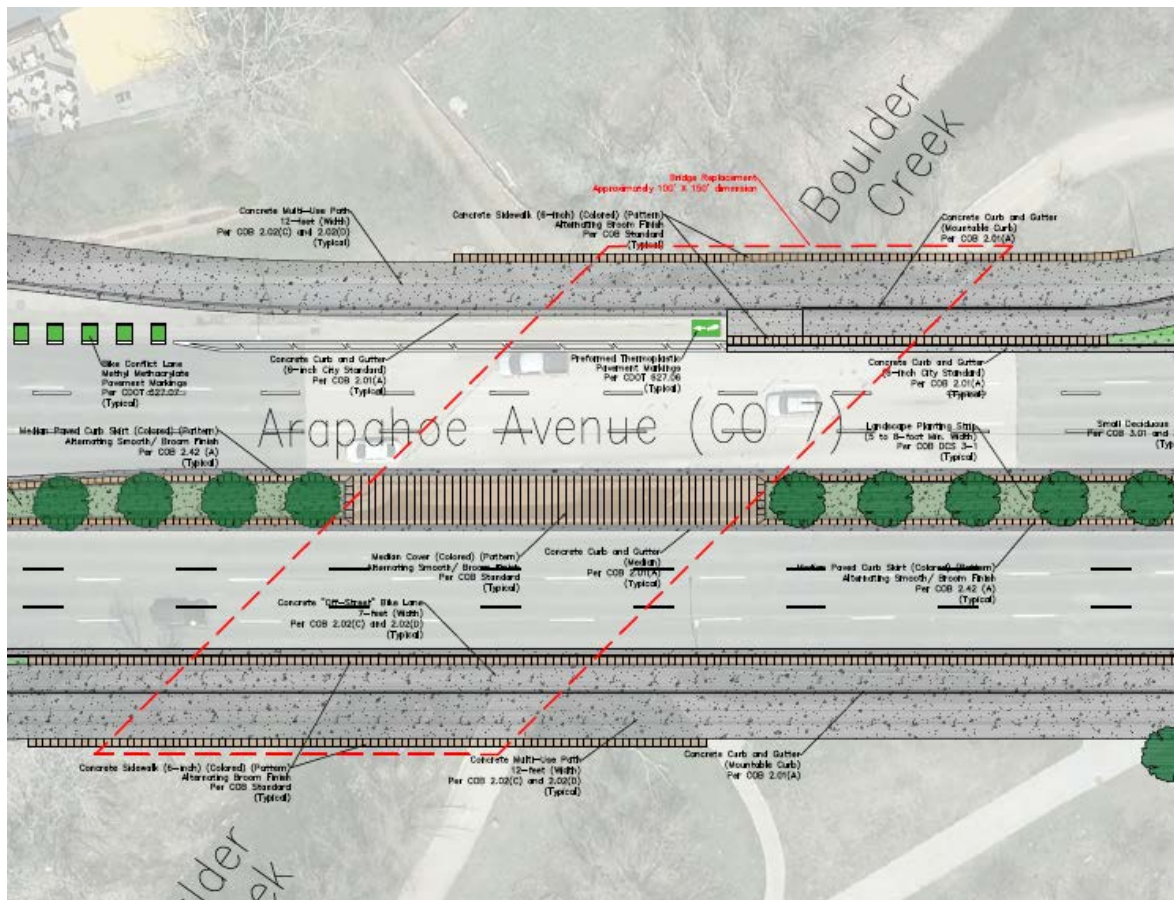
WEIGHT **40%**

Provide **qualitative and quantitative** (derived from Part 3 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?

SH7/Arapahoe Avenue SH7/Arapahoe Avenue is a key east-west corridor in the City of Boulder serving regional and local travel needs. SH 7/East Arapahoe Avenue connects Boulder to I-25/Brighton connecting the 40,000 employees who work in the corridor to destinations throughout the city including access to corridor businesses, Boulder Community Health main hospital campus, University of Colorado and the 29th Street Retail Center. This project intersects with the Boulder's Greenway System and the Boulder Creek path.

This project's improvements support the Boulder County subregion and its focus on multimodal network, regional connections and safety. The new, reconstructed bridge replaces a bridge that is considered structurally deficient and in need of replacement and lacks adequate pedestrian and bicycling infrastructure. The multi-use paths will provide improved bicycling and pedestrian facilities designed for a wider range of ages and abilities. Providing infrastructure in good maintenance condition with facilities designed for a wide range of bicycle and pedestrian user types will support safer and more comfortable travel for all travel modes accessing regional and local transit services as well as planned future BRT services.



Concept Drawing for the Arapahoe Bridge Replacement; a complete set and cost estimate are in the attachments

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

Yes, Arapahoe Avenue/SH7 is a major east-west travel corridor connecting Boulder to Brighton and benefits residents and employees accessing the local and regional transit services connecting the many corridor

communities together with an improved multimodal transportation network serving regional and local travel needs.

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

Yes, the project's benefits support the first and final mile access to transit benefiting the residents and employees of Boulder, Broomfield and Adams subregions.

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

The project would advance the EATP near term action items to enhance safety, access and multimodal connections within the SH7/East Arapahoe corridor by replacing an aging and structurally deficient bridge with a new bridge with multi-use path facilities on both sides of the roadway.

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?

This project fulfills economic sustainability goals by increasing safety access and connections for all travel modes which benefits local businesses through improved transportation for customers, goods, services and employees. As evidenced by transportation investments along other city corridors including 30th Street, north of Arapahoe Avenue, and the US 36/28th Street corridor, private dollars follow public investment. Additionally, as evidenced by the past federal stimulus efforts, construction of transportation infrastructure is considered a good mechanism for stimulating local economies through the creation of direct construction jobs and supporting positions and the purchases of goods and services.

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

The project includes multi-use paths on both sides of the roadway and improvements to the bicycle and pedestrian underpass crossing for Boulder Creek Greenway path and Arapahoe Avenue which will improve sightlines and underpass crossing width.

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

The project has had extensive community engagement in the development of the recommended design. The City of Boulder has been working with the Colorado Department of Transportation on this corridor and a near term pavement resurfacing project on Arapahoe Avenue in Boulder. These improvements will optimize the investment that CDOT will be making and discussions will continue to see if there are opportunities to minimize construction impacts or costs. A request for project funding match was made to CDOT but they are unable to provide a match at this time.

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)**.

This section of SH7/Arapahoe Avenue serves over 28,000 daily vehicles (including local and regional transit buses) and over 1,500 daily bicyclists and pedestrians. Improvements to this bridge crossing will support continuous safe travel and maintain important transportation infrastructure in good functional and operational condition.

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

This project will increase reliability of the existing multimodal transportation network by expanding the options to a wider range of current and potential users and providing transportation infrastructure in good functional and operational condition.

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

This SH7/Arapahoe Avenue project’s components of multi-use path travel comfort and security for users of a wider range of ages and abilities. As shown in Part 3 Section F, it is anticipated that there will be reduction of 1 Serious injury crash and 6 other injury crashes from these improvements.

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?

Yes No

Describe, including supporting quantitative analysis

The SH7/East Arapahoe bridge replacement project is within the City of Boulder’s Area 1 Planning Area, as defined [Boulder in the Valley Comprehensive Plan](#) which fully supports growth where urban-level infrastructure already exists and/or there are plans in place for infrastructure and service expansion. Consistent with the BVCP, the urban level infrastructure has been planned to accommodate any and all future redevelopment.

[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

The SH7/East Arapahoe bridge replacement project is within the central and east Boulder residential areas which has higher density residential uses along the corridor and links to regional transit service.

[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

The SH7/Arapahoe Avenue bridge replacement project includes multi-use paths on both sides of the roadway which will provide clear and direct multimodal connections to the existing and adjacent pedestrian, bicycle and transit stop facilities and services and are within the Boulder urban center.

[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*

The SH7/Arapahoe Avenue project supports and encourages the shift towards active transportation which supports a reduction in greenhouse gas (GhG) emissions.

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*

This project expands the connection from the intersecting Boulder Greenways system to and from the SH7/Arapahoe Avenue corridor and allows residents and visitors to easily access this walking and bicycling path system through the multimodal network.

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*

The improvements supports the active transportation modes of walking and bicycling.

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*

Providing a multimodal transportation network that is designed to appeal to residents, employees and visitors of a wider range of ages and abilities connecting is anticipated to promote reliable transportation connections to local and regional transit service and key destinations and employers along SH7/Arapahoe Avenue including Boulder Community Health, Ball Aerospace, the central Boulder business district and nearby Flatirons Business Park and University of Colorado.

MV objective 14 **Improve the region’s competitive position.**

8. Will this project help support and contribute to the growth of the subregion’s economic health and vitality? Yes No

Describe, *including supporting quantitative analysis*

The project’s multi-use path system connections to local and regional transit increases options for residents and employees to this employment center which includes regional employers such as the University of Colorado, Boulder Community Health, Ball Aerospace and the Flatirons Business Park.

D. Project Leveraging

WEIGHT 10%

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

Project Data Worksheet – Calculations and Estimates

(Complete all subsections applicable to the project)

A. Transit Use

1. Current ridership weekday boardings	0
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	0	0	0
2040	0	0	0

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

1. Current weekday bicyclists	1,030
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	30,262	48,684	78,946
2040	31,545	61,220	92,765

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.	78	788
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)	39	394
5. = Initial number of new bicycle trips from project (#3 – #4)	39	394
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)	12	118
7. = Number of SOV trips reduced per day (#5 - #6)	27	276
8. Enter the value of {#7 x 2 miles} . (= the VMT reduced per day) (Values other than 2 miles must be justified by sponsor)	54	552
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	51	524
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)	410
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	30,262	48,684	78,946
2040	31,545	61,220	92,765

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	10	102
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)	5	51
5. = Number of new trips from project (#3 – #4)	5	51
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)	1	15
7. = Number of SOV trips reduced per day (#5 - #6)	4	36
12. Enter the value of {#7 x .4 miles} . (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor)	1	14

8. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	0	13
9. If values would be distinctly greater for weekends, describe the magnitude of difference:		
10. If different values other than the suggested are used, please explain here:		

D. Vulnerable Populations

Use Current Census Data	Vulnerable Populations	Population within 1 mile
	1. Persons over age 65	2,817
2. Minority persons	9,565	
3. Low-Income households	3,866	
4. Linguistically-challenged persons	755	
5. Individuals with disabilities	3,415	
6. Households without a motor vehicle	2,015	
7. Children ages 6-17	2,531	
8. Health service facilities served by project	18	

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 <i>(Value higher than 1.4 due to high transit ridership must be justified by sponsor)</i>	0
7. After project peak hour congested average travel time reduction per vehicle (includes persons, transit passengers, freight, and service equipment carried by vehicles). <i>If applicable, denote unique travel time reduction for certain types of vehicles</i>	0
8. If values would be distinctly different for weekend days or special events, describe the magnitude of difference.	
9. If different values other than the suggested are used, please explain here:	

F. Traffic Crash Reduction

1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians (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	1	
Other Injury crashes	6	
Property Damage Only crashes	21	
2. Estimated reduction in crashes applicable to the project scope (per the five-year period used above)		
Fatal crashes reduced	0	
Serious Injury crashes reduced	1	
Other Injury crashes reduced	0	
Property Damage Only crashes reduced	0	

G. Facility Condition

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

Roadway Pavement

1. Current roadway pavement condition	Choose an item
2. Describe current pavement issues and how the project will address them.	
3. Average Daily User Volume	0

Bicycle/Pedestrian/Other Facility

4. Current bicycle/pedestrian/other facility condition	Choose an item
5. Describe current condition issues and how the project will address them.	
6. Average Daily User Volume	0

H. Bridge Improvements

1. Current bridge structural condition from CDOT	
2. Describe current condition issues and how the project will address them.	
3. Other functional obsolescence issues to be addressed by project	
4. Average Daily User Volume over bridge	0

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

1.

2.

3.

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

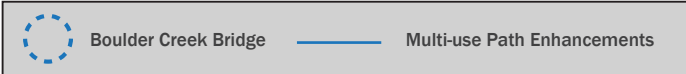
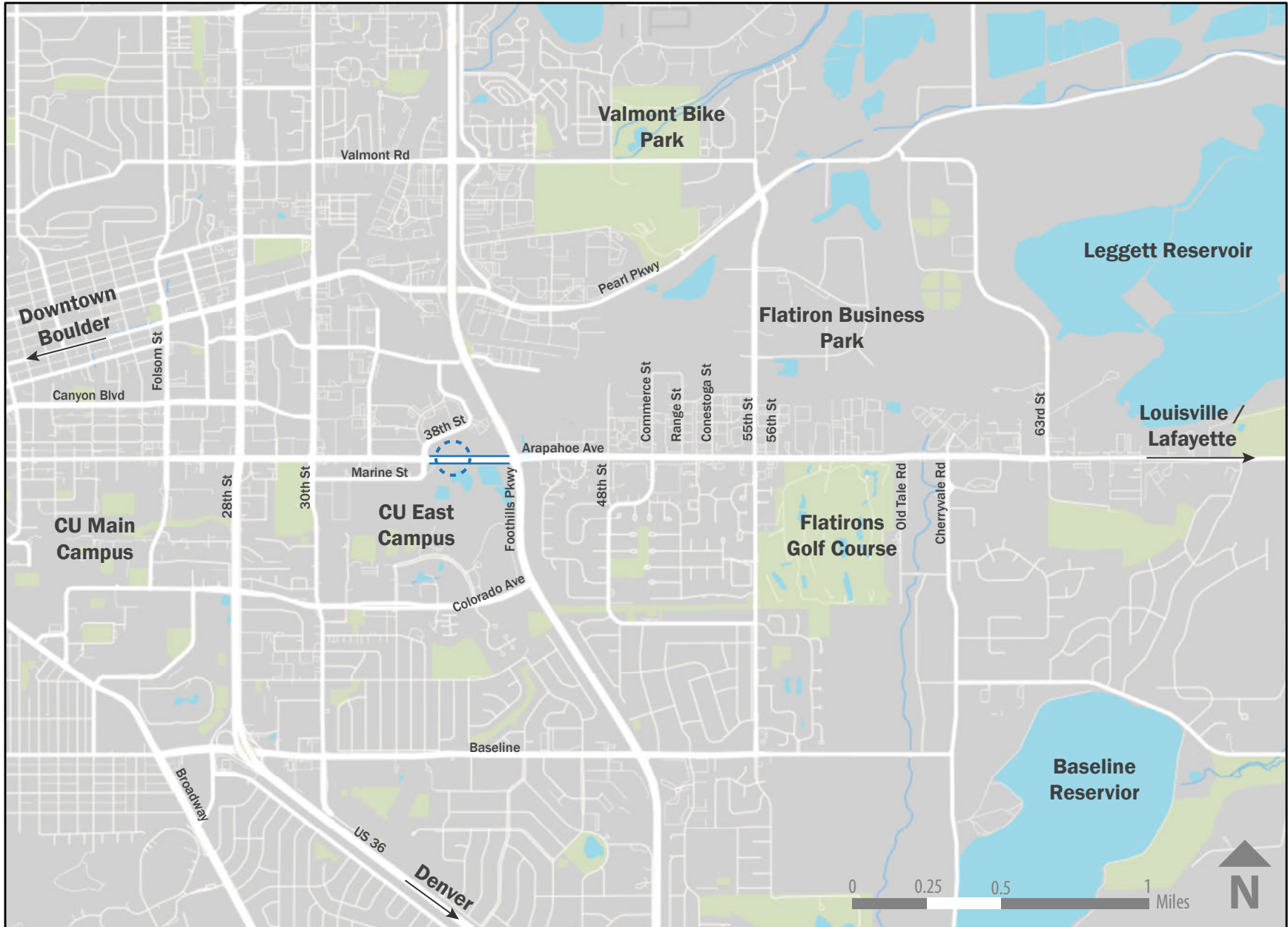
1. Increase in VMT? *If yes, describe scale of expected increase*

Yes No

2. Negative impact on vulnerable populations

3. Other:

SH 7 / Arapahoe Ave + Boulder Creek Bridge Improvements





COLORADO
Department of Transportation
Region 4

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

February 7, 2019

Gerrit Slatter
City of Boulder
1101 Arapahoe Avenue - 3F
Boulder, CO 80302

Arapahoe Avenue Bridge Replacement at Boulder Creek (1)

Dear Mr. Slatter,

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 City of Boulder application for the DRCOG Sub-Regional FY20-23 TIP Call. This applies only to the Arapahoe Avenue Bridge Replacement at Boulder Creek 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 Kloberdanz
Kateyn Triggs
Karen Schneiders



From: Quinn, Chris <Chris.Quinn@RTD-Denver.com>
Sent: Friday, February 8, 2019 4:19 PM
To: Slatter, Gerrit <SlatterG@bouldercolorado.gov>
Cc: Stiffler, Natalie <StifflerN@bouldercolorado.gov>; Van Meter, Bill <Bill.VanMeter@RTD-Denver.com>; Sirois, William <William.Sirois@RTD-Denver.com>
Subject: RE: City of Boulder Request for CDOT Support - DRCOG TIP support

Gerrit,

This email is to provide RTD's concurrence with the City of Boulder's TIP application requests. If funding is awarded for the Table Mesa or Downtown Boulder Transit Center projects, we will want to work closely with the City on the design details of these projects.

Please contact me if you would like to discuss further.

Thanks

Chris

Chris Quinn
Project Manager
Regional Transportation District
Suite 700
1560 Broadway
Denver, CO 80202
(303) 299-2439
chris.quinn@rtd-denver.com

From: Slatter, Gerrit <SlatterG@bouldercolorado.gov>
Sent: Monday, January 07, 2019 3:24 PM
To: Quinn, Chris <Chris.Quinn@RTD-Denver.com>
Cc: Stiffler, Natalie <StifflerN@bouldercolorado.gov>
Subject: City of Boulder Request for CDOT Support - DRCOG TIP support

Chris,

Please see attached the request for support documents for the City of Boulder for the DRCOG TIP process. Please let me know if you have any questions.

Thanks,

Gerrit Slatter, PE, PTOE
Principal Engineer – Transportation Capital Projects



City of Boulder
Transportation

Ph: (303) 441-1978
slatterg@BoulderColorado.gov
Public Works Department
1101 Arapahoe Ave, 3rd Floor
Boulder, CO 80306



GENERAL NOTES

1. The project would reconstruct the SH7 / Arapahoe Avenue Bridge over Boulder Creek, replacing two existing twin bridges, both of which lack adequate pedestrian facilities and one which CDOT has classified as structurally deficient. The existing westbound bridge (CDOT Structure No. D-15-AQ) was constructed in 1938 and is a FASTER eligible bridge with a sufficiency rating of 51.90. The east bound bridge was constructed in 1966.
2. The new bridge will be designed to safely carry 28,000 vehicles that cross it today and provide pedestrian and bicycle facilities along both sides of the bridge and connections to the Boulder Creek multiuse path. The new bridge would be designed and constructed to meet AASHTO and ADA design guidelines and to be consistent with the City of Boulder's East Arapahoe Transportation Plan, enhancing access and connections to the well-used Boulder Creek multi-use path and on-street pedestrian, bicycle and transit connections.

LEGEND

- Concrete Surface
- Concrete Surface (Color)
- Truncated Domes
- Deciduous Tree
- Landscape Areas

PROJECT NAME AND ADDRESS

Arapahoe Avenue over Boulder Creek Bridge Replacement

SHEET TITLE

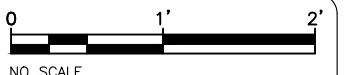
Plan View

PROJECT NUMBER

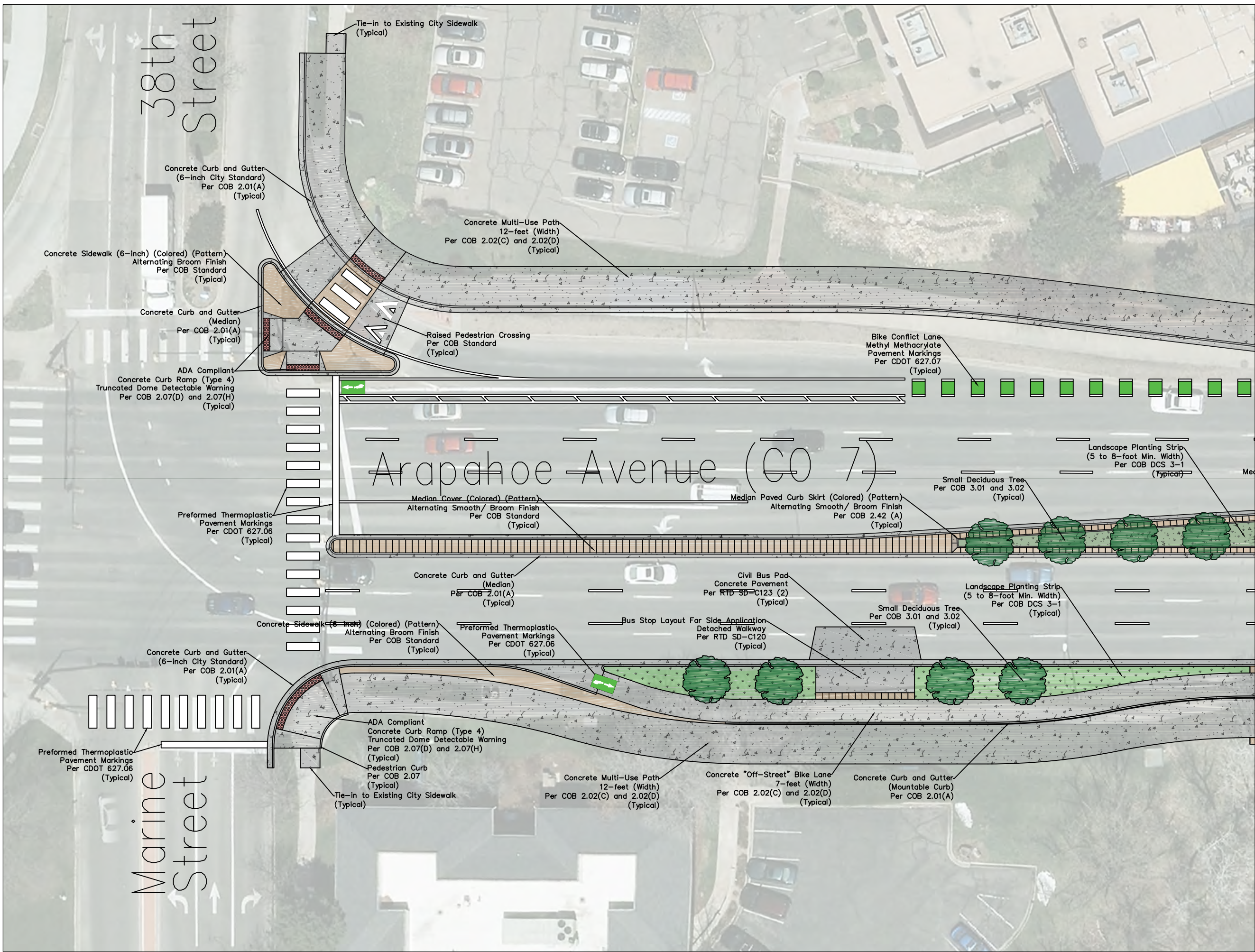
DATE
2/22/2019

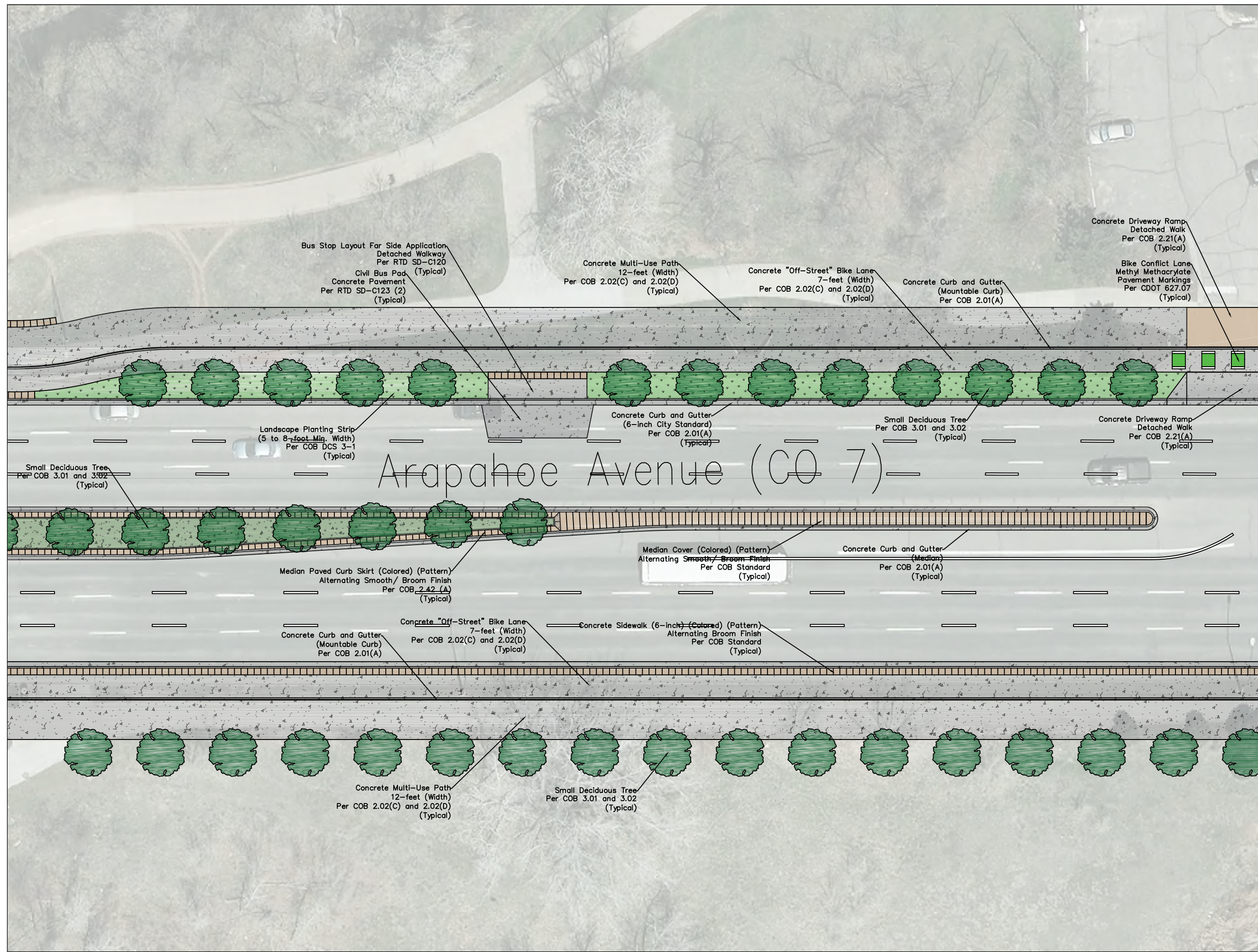
SHEET NO.

1 of 5



NO SCALE 16





GENERAL NOTES

1. The project would reconstruct the SH7 / Arapahoe Avenue Bridge over Boulder Creek, replacing two existing twin bridges, both of which lack adequate pedestrian facilities and one which CDOT has classified as structurally deficient. The existing westbound bridge (CDOT Structure No. D-15-AQ) was constructed in 1938 and is a FASTER eligible bridge with a sufficiency rating of 51.90. The east bound bridge was constructed in 1966.
2. The new bridge will be designed to safely carry 28,000 vehicles that cross it today and provide pedestrian and bicycle facilities along both sides of the bridge and connections to the Boulder Creek multiuse path. The new bridge would be designed and constructed to meet AASHTO and ADA design guidelines and to be consistent with the City of Boulder's East Arapahoe Transportation Plan, enhancing access and connections to the well-used Boulder Creek multi-use path and on-street pedestrian, bicycle and transit connections.

LEGEND

- Concrete Surface
- Concrete Surface (Color)
- Truncated Domes
- Deciduous Tree
- Landscape Areas

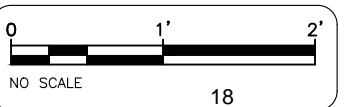
PROJECT NAME AND ADDRESS

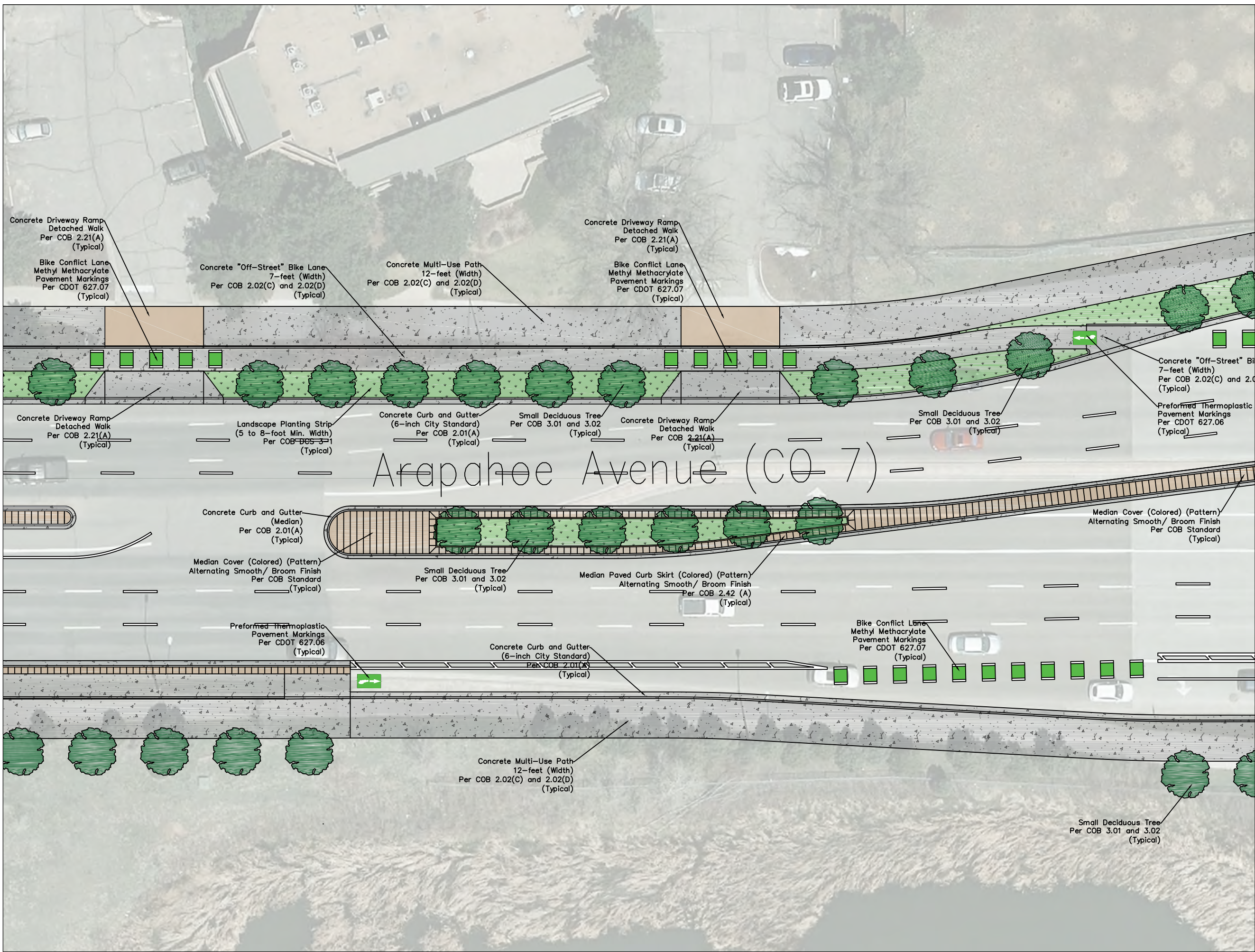
Arapahoe Avenue over Boulder Creek Bridge Replacement

SHEET TITLE

Plan View

PROJECT NUMBER	SHEET NO.
DATE	3 of 5
2/22/2019	





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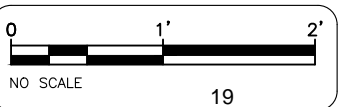
PROJECT NAME AND ADDRESS

Arapahoe Avenue over Boulder Creek Bridge Replacement

SHEET TITLE

Plan View

PROJECT NUMBER	SHEET NO.
DATE	4 of 5
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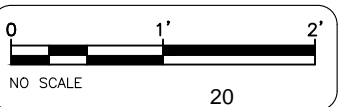
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	Deciduous Tree
	Landscape Areas

PROJECT NAME AND ADDRESS
 Arapahoe Avenue over Boulder Creek Bridge Replacement

SHEET TITLE
 Plan View

PROJECT NUMBER	SHEET NO.
	5 of 5
DATE	
2/22/2019	



CITY OF BOULDER
SH 7/Boulder Creek Bridge: west of Foothills Parkway

CONSTRUCTION COSTS		
Roadway/Path Cost Estimate (RCE)	\$2,250,000.00	
Mobilization	\$225,000.00	Assumes 10% of RCE above
Signal Replacement		Assumes \$200k per intersection
Traffic Control	\$337,500.00	Assumes 15% of RCE above
Landscaping/Irrigation Improvements	\$45,000.00	Assumes 2% of RCE above
Private Landscaping Restorations		
Roadway/Path Lighting Upgrades	\$112,500.00	Assumes 5% of RCE above
Functional Art	\$22,500.00	Assumes 1% of RCE above
City Utility Relocations		included in above cost
Flood Mitigation Costs		na
Wetland Mitigation Costs		na
Miscellaneous	\$225,000.00	Assumes 10% of RCE above
Construction Cost Estimate (CCE):	\$3,218,000.00	
Inflation (5.0%/year):	\$160,900.00	Year 1
Inflation (5.0%/year):	\$168,900.00	Year 2
Inflation (5.0%/year):	\$177,400.00	Year 3
Inflation (5.0%/year):	\$186,300.00	Year 4
Total Construction Estimate:	\$3,912,000.00	65% of total project budget

DESIGN PHASE COSTS		
Civil & Structural Design	\$482,700.00	Assumes 15% of CCE above
Landscape Architecture/Urban Design	\$64,400.00	Assumes 2% of CCE above
Geotechnical Engineering	\$32,200.00	Assumes 1% of CCE above
Electrical/Lighting Engineering	\$32,200.00	Assumes 1% of CCE above
Traffic Engineering	\$32,200.00	Assumes 1% of CCE above
Design Phase Potholing	\$64,400.00	Assumes 2% of CCE above
Design Surveying	\$64,400.00	Assumes 2% of CCE above
ROW Plans		na
ROW/Easement Costs		na
ROW Acquisition Consultant		na
Appraisal Costs		na
City Salaries (Design Phase)	\$80,500.00	Assumes 2.5% of CCE above
Wetland Evaluation/Design Costs		na
Flood Evaluation/Design Costs		na
Miscellaneous	\$32,200.00	Assumes 1% of CCE above
Subtotal:	\$885,000.00	
Inflation (5.0%/year):	\$44,300.00	Year 1
Inflation (5.0%/year):	\$46,500.00	Year 2
Inflation (5.0%/year):	\$48,800.00	Year 3
Total Design Phase Estimate:	\$1,025,000.00	17% of total project budget

CONSTRUCTION ADMINISTRATION COSTS		
Construction Management	\$160,900.00	Assumes 5% of CCE above
Material Testing	\$32,200.00	Assumes 1% of CCE above
Design Services During Construction	\$32,200.00	Assumes 1% of CCE above
City Salaries (Const. Phase)	\$160,900.00	Assumes 5% of CCE above
CDOT Charges	\$32,200.00	Assumes 1% of CCE above
Forestry Charges		na
Printing/Advertising	\$1,500.00	Nominal
Miscellaneous	\$32,200.00	Assumes 1% of CCE above
Subtotal:	\$452,000.00	
Inflation (5.0%/year):	\$22,600.00	Year 1
Inflation (5.0%/year):	\$23,700.00	Year 2
Inflation (5.0%/year):	\$24,900.00	Year 3
Inflation (5.0%/year):	\$26,200.00	Year 4
Total Const. Admin. Estimate:	\$549,000.00	9% of total project budget

TOTAL - ALL PHASES ABOVE:	\$5,486,000.00
Contingency 10%:	\$549,000.00
GRAND TOTAL BUDGET ESTIMATE:	\$6,035,000.00

Project	Population 2020*	Jobs 2020*	Population 2040*	Jobs 2040*
Interim Downtown Boulder Station Improvements	37,463	40,860	38,410	44,763
30th St Improvements (Arapahoe Ave/SH7 - Boulder Creek)	40,432	45,355	42,627	55,859
Hop Transit Service Extension	40,195	59,777	45,241	76,375
Table Mesa Park-n-Ride Access	23,661	5,592	23,659	5,768
SH7/Arapahoe Avenue Multi-Use Path and Transit Stop Improvements	37,916	54,656	39,777	69,926
SH7/Arapahoe Avenue Bridge Replacement at Boulder Creek	30,262	48,684	31,545	61,220

* Data based on DRCOG projections model. Reported data is for all TAZ within 1 mile of project boundary. TAZ that are partially and wholly inside the 1 mile distance are included in the sum.

Vulnerable Populations Data- COB TIP Grant Applications

	30th Street Improvements	HOP Transit Service Expansion	SH7/Arapahoe Avenue Bridge Replacement at Boulder Creek	SH7/Arapahoe Avenue	Downtown Boulder Station Improvements	Table Mesa park-n-Ride Multi Use Path and Access Improvements
Total Population	46568	40398	38157	43855	41776	30900
Households	17846	15830	14282	17055	15697	12123
Person over age 65 within 1 mile	3423	3616	2817	4008	3047	3880
Minority persons within 1 mile	10591	9495	9565	11015	7344	5428
Household Poverty	5024	3173	3866	4277	4356	1601
Linguistically-challenged persons within 1 mile	835	1014	755	925	650	359
Individuals with disabilities within 1 mile	4011	2997	3415	3690	3117	3117
Households without a motor vehicle within 1 mile	2351	1710	2015	2243	1578	723
Children ages 6-17 within 1 mile	2641	3433	2531	3101	2535	3217
CDPHE Health Facilities	12	21	18	19	16	8
*Figures based on DRCOG provided census data						

City of Boulder - 2019 TIP Application Data Sources

Project	30th St Improvements (Arapahoe Ave/SH7 to Boulder Creek)
Bicycle Use	City of Boulder - Turning Movement Count Program
	30th St Corridor Study - Bicycle Data
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Pedestrian Use	City of Boulder - Turning Movement Count Program
	30th St Corridor Study - Pedestrian Data
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Traffic Crash Reduction	City of Boulder Police Department - Transportation Crash Database

Project	SH7/Arapahoe Ave Improvements (38th St to Cherryvale Rd)
Bicycle Use	City of Boulder - Turning Movement Count Program
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Pedestrian Use	City of Boulder - Turning Movement Count Program
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Traffic Crash Reduction	City of Boulder Police Department - Transportation Crash Database
	CMF ID 9250 - Install Shared Path

Project	SH7/Arapahoe Ave Boulder Creek Bridge Replacement
Bicycle Use	City of Boulder - Turning Movement Count Program
	City of Boulder - 38th/Arapahoe Av Multi-Use Path Permanent Counter
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Pedestrian Use	City of Boulder - Turning Movement Count Program
	City of Boulder - 38th/Arapahoe Av Multi-Use Path Permanent Counter
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Traffic Crash Reduction	City of Boulder Police Department - Transportation Crash Database
	CMF ID 9250 - Install Shared Path

Project	Table Mesa Park-n-Ride Access Improvements
Bicycle Use	City of Boulder - Turning Movement Count Program
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Pedestrian Use	City of Boulder - Turning Movement Count Program
	City of Boulder - Travel Diaries
	City of Boulder - Transportation Master Plan
Traffic Crash Reduction	City of Boulder Police Department - Transportation Crash Database