City Of Boulder
Community and Environmental Assessment Process

SH7/East Arapahoe Road Multi-Use Path
and
Transit Stops Project

August 2021

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EXECUTIVE SUMMARY

The SH7/East Arapahoe Road Multi-Use Path and Transit Stops Project is located on Arapahoe Road between Marine Street and Cherryvale Road (Figure 1). In 2019, the City of Boulder applied for and received federal funding for this project, which has a total budget of $1.9 million and is composed of federal ($760 thousand) and city ($1.14 million) transportation funds. In 2016, the City adopted the East Arapahoe Transportation Plan (EATP). The plan sets out a long-range vision to create a regional multimodal corridor along SH 7/East Arapahoe Avenue with high-quality/high frequency bus rapid transit (BRT), a regional bikeway, multi-use path, and first and final mile supportive infrastructure. The elements of the plan are intended to be phased incrementally. This project will advance the near-term action items of the EATP by addressing existing deficiencies, such as missing segments of multi-use path on either side of SH 7/Arapahoe Avenue, upgrading narrow sidewalks to wider multi-use paths, and upgrading transit stops that lack infrastructure, such as concrete pads, trash receptacles and shelters. Figure 1 illustrates the segments and bus stop locations along SH7/Arapahoe that this project will improve.

Figure 1: SH7/East Arapahoe Road Multi-Use Path and Transit Stops Project

The Community and Environmental Assessment Process (CEAP) is a formal review process to consider the impacts of public development projects. The purpose of the CEAP is to assess potential impacts of conceptual project design options to inform the selection and refinement of a preferred design. The CEAP provides the opportunity to balance multiple community goals in the design of a capital project by assessing a project against the policies outlined in the BVCP and departmental master plans. This CEAP report provides an evaluation of design options for each element of the project, including the width of the multiuse path, buffer materials, transit amenities and unsignalized street crossing treatments.

Multiuse Path and Buffer Width Options - Based on the city's Design and Construction Standards, the desired cross-section for these improvements is a 12 ft. wide multi-use path, separated from vehicle lanes by an 8 ft. wide landscaped buffer. While much of the corridor has ample right-of-way to construct this desired cross section, there are areas where constrained right-of-way will necessitate the consideration of design options that prioritize how much space is dedicated to the width of the multiuse path vs. the width of the buffer. Including the desired cross-section where space is unconstrained (Option 1) and modified cross-sections where space is constrained, (Options 2 and 3), the design options are as follows:

Option 1: wide path (12 ft. width) and wide buffer (8 ft. width)
Option 2: narrower path (8 – 10 ft. width) and wider buffer (5 – 8 ft. width)
Option 3: wider path (10 – 12 ft. width) and narrower buffer (2 – 5 ft. width)

Buffer Material Options - The buffer area separating people walking and biking on the multi-use path from traffic can be designed with various plantings and materials. The buffer area can include more traditional landscaping like grass and trees, which provides shade and visual interest, but typically has higher maintenance costs, or landscaping that may include native plantings and xeriscape, which typically has a lower cost to maintain. Where space is very constrained, the buffer may be designed with hardscape materials which has no maintenance cost aside from multi-use path maintenance. Design options include:

Option 1: grass and trees
Option 2: native plantings and xeriscape, which is lower maintenance
Option 3: hardscape, such as colored or stamped concrete, which is little to no maintenance

Additional Design Treatments – In addition to multiuse path and buffer improvements, this project calls for additional design treatments to improve safety and comfort for travelers along Arapahoe Avenue. These treatments include:

Transit Stop Enhancements – Transit stop enhancements can include a number of features, including bus shelters, seating, trash receptacles and bicycle racks, all of which are intended to improve the experience for transit passengers waiting for, or disembarking from a bus. A number of factors are considered when determining placement of these enhancements, including the amount of space available, the daily volume of passenger activity, and proximity to existing or planned bicycle routes and/or facilities.

Unsignalized Crossing Enhancements – The city is committed to the Transportation Master Plan Vision Zero goal which seeks to eliminate fatal and serious injury collisions by improving safety for people using all modes of travel. With this goal in mind, the project team assessed all unsignalized pedestrian crossings along the corridor, which included side streets and driveways, to determine if the installation of crossing treatments would reduce vehicular,

pedestrian and bicyclist conflicts. Where feasible, enhancements could include raised crosswalks, curb extensions, and tighter corners.

Preferred Design Option

The preferred design option prioritizes the desired cross section of a 12-foot multiuse path and 8-foot landscaped buffer where it can be accommodated within existing public right of way. In limited segments of the corridor east of Eisenhower Drive, the multiuse path narrows to 10-feet in width and the buffer width varies between 2-feet and 8-feet to contain improvements within public right of way.

In the buffer area separating the multiuse path from the roadway, the preferred design option is trees with xeriscape ground cover. These landscape materials can be accommodated throughout much of the corridor. However, where the buffer narrows to between 2 and 8-feet in width, landscape materials such as lower shrubs and xeriscape groundcover will be considered and determined in the preliminary engineering phase of this project. Where the buffer narrows even further, to 2-feet or less, hardscape materials will be used and are generally expected to be stamped and colored concrete.

The preferred design option best balances all of the safety, modal and project features outlined in the characteristics table as well as public preferences shared via BeHeardBoulder and public meetings. The preferred option also meets the policy objectives in the BVCP and meets the goals of the TMP.

As the project moves into the next phase of implementation, the preferred design option will be used for the basis of preliminary and final design. Where the preferred design option is not feasible due to budget and other considerations, refinements may necessitate a narrower cross section. Design refinements will be minimized to the extent possible to achieve the preferred design option.

City Of Boulder
Community and Environmental Assessment Process

1. Project Description and Location

The SH7/East Arapahoe Road Multi-Use Path and Transit Stops Project is located on Arapahoe Road between Marine Street and Cherryvale Road (Figure 1).

Figure 1: SH7/East Arapahoe Road Multi-Use Path and Transit Stops Project

2. Project Background, Purpose and Need

In 2019, the City of Boulder applied for and received federal funding for this project, which has a total budget of $1.9 million and is composed of federal ($760 thousand) and city ($1.14 million) transportation funds. In 2016, the City adopted the East Arapahoe Transportation Plan (EATP). The plan sets out a long-range vision to create a regional multimodal corridor along SH 7/East Arapahoe Avenue with high-quality/high frequency bus rapid transit (BRT), a regional bikeway, multi-use path, and first and final mile supportive infrastructure. The elements of the plan are intended to be phased incrementally. This project will advance the near-term action items of the EATP by addressing existing deficiencies, such as missing segments of multi-use path on either side of SH 7/Arapahoe Avenue, upgrading narrow sidewalks to wider multi-use paths, providing a greater buffer between pedestrians and moving vehicles, and upgrading transit stops that lack infrastructure, such as shelters, seating, concrete pads, trash receptacles and bicycle racks. Figure 1 illustrates the segments and bus stop locations along SH7/Arapahoe that this project will improve.

Currently, substandard sidewalks and gaps in the multiuse path network make it difficult for pedestrians, cyclists and transit users to safely and comfortably access residences, business and transit along Arapahoe Avenue, thereby reducing mobility. These enhancements will address existing deficiencies, such as missing

segments of multiuse path on either side of SH 7/Arapahoe Avenue, upgrading narrow sidewalks to wider multiuse paths, and improving transit stops that lack infrastructure, such as shelters, seating and other amenities that create a comfortable waiting environment for bus passengers.

3. Project Design Options

This CEAP considers design options related to two important components of the project: (a) the width of the multiuse path and the width of the buffer area separating people walking and biking on the multiuse path from traffic and (b) the material of the buffer area. Additionally, several bus stop enhancements and unsignalized crossing improvements were considered as part of the project planning and design to be constructed as part of the SH7/East Arapahoe Road Multi-Use Path and Transit Stops Project but are not evaluated through the CEAP. Each option within the CEAP was assessed using the CEAP impact checklist and a supplementary set of evaluation criteria developed specifically for this project that look at factors such as the user experience, visual characteristics, and maintenance requirements. A table assessing each CEAP option using these evaluation characteristics is included following the option descriptions.

Multiuse Path and Buffer Width Options - Based on the city's Design and Construction Standards, the desired cross-section for these improvements is a 12 ft. wide multi-use path, separated from vehicle lanes by an 8 ft. wide landscaped buffer. While much of the corridor has ample right-of-way to construct this desired cross section, there are areas where constrained right-of-way will necessitate the consideration of design options that prioritize how much space is dedicated to the width of the multiuse path vs the width of the buffer. Including the desired cross-section where space is unconstrained (Option 1) and modified cross-sections where space is constrained, (Options 2 and 3), the design options are as follows:

Option 1: wide path (12 ft. width) and wide buffer (8 ft. width)
Option 2: narrower path (8 – 10 ft. width) and wider buffer (5 – 8 ft. width)
Option 3: wider path (10 – 12 ft. width) and narrower buffer (2 – 5 ft. width)

EAST ARAPAHOE MULTIUSE PATH & TRANSIT STOP ENHANCEMENTS DESIGN OPTION CHARACTERISTICS			
√ = Has This Characteristic			
Multiuse Path Options	**Option 1: Wide Multiuse Path & Wide Buffer 12 ft. Path 8 ft. Buffer**	**Option 2: Narrow Multiuse Path & Wide Buffer 8 – 10 ft. Path 5 – 8 ft. Buffer**	**Option 3: Wide Multiuse Path & Narrow Buffer 10 – 12 ft. Path 2 – 5 ft. Path**
			
Pedestrians & Bicyclists			
Provides greater sense of comfort and safety from moving traffic	√	√	
Provides more space on the path to separate people walking and biking	√		√
Community Input			
BeHeardBoulder Questionnaire	Where right-of-way is limited, preference evenly split between Option A (importance of greater separation from traffic while walking and biking) and Option B (importance of more multiuse path space for walking and biking)		
Public Meeting			

<u>Buffer Material Options</u> - The buffer area separating people walking and biking on the multi-use path from traffic can be designed with various plantings and materials. The buffer area can include more traditional landscaping like grass and trees, which provides shade and visual interest, but typically has higher maintenance costs, or landscaping that may include native plantings and xeriscape, which typically has a lower cost to maintain. Where space is very constrained, the buffer may be designed with hardscape materials which has no maintenance cost aside from multi-use path maintenance. Design options include:

Option 1: grass and trees
Option 2: native plantings and xeriscape, which is lower maintenance
Option 3: hardscape, such as colored or stamped concrete, which is little to no maintenance

EAST ARAPAHOE MULTIUSE PATH & TRANSIT STOP ENHANCEMENTS DESIGN OPTION CHARACTERISTICS			
√ = Has This Characteristic			
Buffer Material Options	**Option 1: Trees & Grass**	**Option 2: Trees & Xeriscape Ground Cover**	**Option 3: Hardscape**
			
Comfort & Visual Interest			
Provides shade for people walking, biking, and waiting for transit	√	√	
Provides visual interest for all travelers	√	√	
Maintenance			
Requires higher maintenance	√		
Requires lower maintenace		√	
Requires little to no maintenance			√
Community Input			
BeHeardBoulder Questionnaire	Less support	Most support	Least support
Public Meeting			

Additional Design Treatments – In addition to multiuse path and buffer improvements, this project calls for additional design treatments to improve safety and comfort for travelers along Arapahoe Avenue. These treatments include:

Transit Stop Enhancements – Transit stop enhancements can include a number of features, including bus shelters, seating, trash receptacles and bicycle racks, all of which are intended to improve the experience for transit passengers waiting for, or disembarking from a bus. A number of factors are considered when determining placement of these enhancements, including the amount of space available, the daily volume of passenger activity, and proximity to existing or planned bicycle routes and/or facilities.

Unsignalized Crossing Enhancements – The city is committed to the Transportation Master Plan Vision Zero goal which seeks to eliminate fatal and serious injury collisions by improving safety for people using all modes of travel. With this goal in mind, the project team assessed all unsignalized pedestrian crossings along the corridor, which included side streets and driveways, to determine if the installation of crossing

treatments would reduce vehicular, pedestrian and bicyclist conflicts. Where feasible, enhancements could include raised crosswalks, curb extensions, and tighter corners.

4. Preferred Design Option

The preferred design option prioritizes the desired cross section of a 12-foot multiuse path and 8-foot landscaped buffer where it can be accommodated within existing public right of way. In limited segments of the corridor east of Eisenhower Drive, the multiuse path narrows to 10-feet in width and the buffer width varies between 2-feet and 8-feet to contain improvements within public right of way.

In the buffer area separating the multiuse path from the roadway, the preferred design option is trees with xeriscape ground cover. These landscape materials can be accommodated throughout much of the corridor. However, where the buffer narrows to between 2 and 8-feet in width, landscape materials such as lower shrubs and xeriscape groundcover will be considered and determined in the preliminary engineering phase of this project. Where the buffer narrows even further, to 2-feet or less, hardscape materials will be used and are generally expected be stamped and colored concrete.

The preferred design option best balances all of the safety, modal and project features outlined in the characteristics table as well as public preferences shared via BeHeardBoulder and during public meetings. This option also meets the policy objectives in the BVCP and meets the goal of the TMP.

As the project moves into the next phase of implementation, the preferred design option will be used for the basis of preliminary and final design. Where the preferred design option is not feasible due to budget and other considerations, refinements may necessitate a narrower cross section. Design refinements will be minimized to the extent possible to achieve the preferred design option.

The construction period is estimated to be six months beginning with private utility relocations work followed by the multi-use path and transit stops project construction.

Figures 2 through 6 on the following pages show the preferred design option.

Figure 2: Preferred Design Option (Marine St. – West of Foothills Parkway)

Figure 3: Preferred Design Option (East of Foothills Parkway: MacArthur Drive – west of Eisenhower Drive)

Figure 4: Preferred Design Option (Eisenhower Drive – West of 55th Street)

Figure 5: Preferred Design Option (West of 55th Street – Flatirons Golf Course)

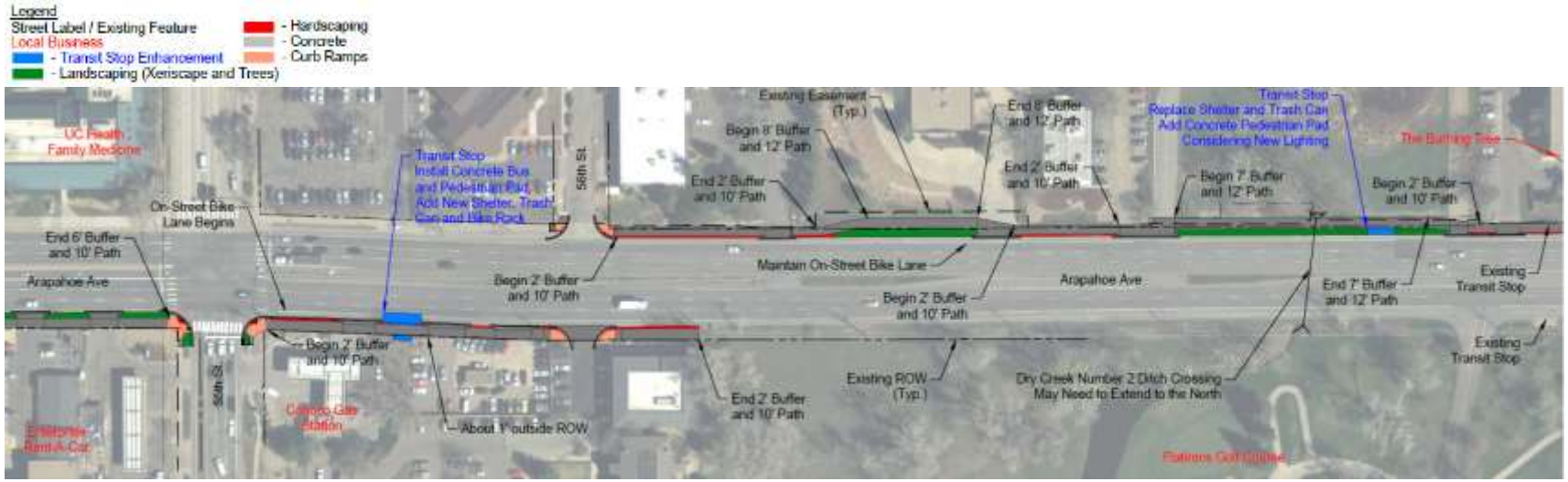

Figure 6: Preferred Design Option (Flatirons Golf Course – Boulder Creek Path at South Boulder Creek)

5. Permits, Wetlands Protection and Habitat Encroachment

Construction of the project components may require the following permits:

- Colorado Department of Public Health and Environment Colorado Stormwater Discharge Permit (Construction Activity General Permit and Stormwater Management Plan)
- City of Boulder Floodplain Development Permit
- Colorado Department of Public Health and Environment Colorado Construction Dewatering Permit
- City of Boulder construction dewatering discharge agreement.

6. Public Input to Date

Information on the project is available on the project webpage and two virtual public meetings were held in Spring 2021. During the first meeting, held on March 17, 2021, project staff introduced the purpose of the project and solicited input on the design options under consideration. A BeHeardBoulder questionnaire was also open between March 12 and May 18, 2021, soliciting feedback on design options. At the second virtual public meeting, held on May 26, 2021, project staff shared results of public input and presented the preferred design option. Information on the project and the public meeting was distributed to 1,891 residents, property owners, businesses and other interested parties through a direct mailing. The City of Boulder distributed this information in both English and Spanish through their city email groups and social media.

Feedback on the project and the design options was received at the public meeting and through the project webpage and social media sites. The first public meeting included 26 participants, excepting city staff. The presentation was offered in English and Spanish with Spanish interpretation, though the interpretation was not well utilized. Staff also posted pre-recorded videos in English and Spanish to the city's social media accounts and the city website.

A significant amount of public feedback was gained through a BeHeardBoulder questionnaire, through which 48 participants shared their views of the design options. Feedback from the questionnaire reflected what was shared in the public meeting: participants appeared to equally value multi-use path width and a significant buffer from traffic where feasible, and preferred lower-maintenance landscaping to higher or "no" maintenance landscaping. This feedback tracked with the preferred cross-section from the city's Design and Construction Standards that staff presented during the meeting and in the recording.

During the second online public meeting on May 26, staff presented the preferred design option, which includes a 12 ft. multi-use path and 8 ft. buffer with trees and xeriscape cover. The presentation also covered those segments of the corridor where the buffer and/or multi-use path would be narrower due to constrained right-of-way. The meeting was attended by 13 participants, excluding staff. Feedback regarding the preferred design option focused on where path improvements could not be added during the project (e.g., on existing bridges and adjacent to the Flatirons Golf Course), and impacts to existing landscaping at the corner of Arapahoe Ave. and 48th St. Feedback on the preferred design option was generally positive.

7. Staff Project Manager

This project is being managed by the City of Boulder's Public Works Department – Transportation Division. Brian Wiltshire is the Project Manager for this project. Ryan Noles and Jean Sanson provide assistance with public outreach and involvement and drafting the CEAP document.

8. Other Consultants or Relevant Contacts
HDR Inc, a current on-call consultant for the City of Boulder composed of engineers, architects, planners, and scientists is the prime civil engineering consultant development the designs and plans for the project. CDOT Region 4 Local Agency Project staff are involved with the federal aid and NEPA review aspects of the project.

Goals Assessment

1. Using the BVCP and department master plans, describe the primary city goals and benefits that the project will help to achieve:

a. Community Sustainability Goals – How does the project improve the quality of economic, environmental and social health with future generations in mind?

The Boulder Valley Comprehensive Plan (BVCP) and Transportation Master Plan (TMP) call for a multimodal transportation system with accessible and safe travel options and connections. The proposed multiuse path and transit stop enhancement project supports the master plans' goals by improving the facilities for all modal users, as included in the TMP.

*The project helps the city achieve its **economic** goals by improving walking, bicycling, driving and transit access along Arapahoe Avenue and to key destinations and employers such as Boulder Community Health, Ball Aerospace, the nearby Flatirons Business Park and University of Colorado.*

*This project helps the city achieve its **environmental** goals by providing safer and more comfortable access and connections to the larger bicycle, pedestrian and transit network. In addition to addressing current needs along this corridor, this project is anticipated to decrease single-occupant vehicle use which would reduce and minimize the use of non-renewable energy resources and greenhouse gas emissions.*

*This project helps the city achieve its **social** sustainability goals by improving the transportation options for all members of the community to use and improving public safety along Arapahoe Avenue.*

b. BVCP Goals related to:

> ***Built Environment** – The city's goal is to evolve toward a compact, interconnected urban form that helps ensure the community's environmental health, social equity and economic vitality. It also supports cost-effective infrastructure and facility investments, a high level of multimodal mobility and easy access to employment, recreation, shopping and other amenities, as well as a strong image of Boulder as a distinct community. The project improvements are in support of these goals for an interconnected urban form providing multimodal mobility and easy access to employment, shopping, and educational activities.*
>
> ***Urban Services -** The proposed project helps to implement the goals and objectives of the TMP by providing safer and more comfortable access and connections for people walking, bicycling, and using transit.*
>
> ***Natural Environment** – This section of the BVCP recognizes that the natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected and is the framework within which growth and development take place. This CEAP analysis of the project alternatives provides information on the various design options and their potential impacts on the adjacent natural resources, such as trees and landscaping and these factors have been considered in the selection of the preferred alternative. The landscaping plans will be focused on native and low water tree species, shrubs and plants.*
>
> *The project's pedestrian, bicycle and transit connections can support the environmental health of the community by facilitating alternative modes of transportation and shift single occupant trips to biking and walking thereby reducing vehicle miles traveled and associated greenhouse gases. This shift can also protect water and air quality through reduction of mobile source emissions of pollutants and can work to help achieve the city's energy and climate goals by providing safe and convenient modes of transportation to areas throughout East Boulder and throughout the city.*

Economy *– The policies in this section of the BVCP support the following goals related to maintaining a sustainable and resilient economy:*

-Strategic Redevelopment and Sustainable Employment
-Diverse Economic Base
-Quality of Life
-Sustainable and Resilient Business Practices
-Job Opportunities, Education and Training

This project supports a sustainable and resilient economy with funding and construction of Urban Infrastructure increases access and connections for a number of travel modes. Providing a multimodal transportation network that is designed to appeal to residents, employees and visitors of a wider range of ages and abilities is anticipated to promote reliable transportation connections to 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.

Transportation *– The BVCP and TMP support the maintenance and development of a balanced transportation system that achieves Vision Zero goals and supports all modes of travel, making the system more safe and efficient in carrying travelers, while increasing non- single-occupant vehicle trips. This project helps to provide a safer multimodal transportation system with an investment in high quality pedestrian, bicycle and transit infrastructure.*

Housing*- The new and improved pedestrian, bicycle and transit passenger facilities will provide safer and more comfortable access and connections along the Arapahoe corridor for residents of nearby neighborhoods such as Eisenhower, Arapahoe Ridge, Park Mosaic, and Cherryvale residential communities. The project may increase the use of walking, bicycling, and transit, thereby possibly decreasing household transportation costs.*

Community Well Being and Safety *– The policies in this section of the BVCP relate to Human Services; Social Equity; Safety and Community Health; and Community Infrastructure and Facilities. The multiuse path, buffer and transit stop enhancements will provide safer and more comfortable access for all users of Arapahoe Avenue.*

c. Describe any regional goals (potential benefits or impacts to regional systems or plans?)

This project helps to fulfill the vision set out in the East Arapahoe Transportation Plan which is part of a larger regional initiative to provide multimodal facilities along the extent of State Highway (SH) 7/Arapahoe Avenue between Boulder and I-25/Brighton. SH7 is a high priority regional multimodal corridor in the Northwest Area Mobility Study

(NAMS).

SH7/Arapahoe Avenue is identified as a regional Active Transportation Corridor in the Denver Regional Council of Governments Regional Transportation Plan and this project improves safety and access for pedestrians, bicyclists and transit users along this corridor.

2. Is this project referenced in a master plan, subcommunity or area plan? If so, what is the context in terms of goals, objectives, larger system plans, etc.? If not, why not?
This project is identified in the City of Boulder Transportation Master Plan and it supports the goals of the TMP by improving safety and connectivity in the bicycle, pedestrian and transit system.

3. Will this project be in conflict with the goals or policies in any departmental master plan and what are the trade-offs among city policies and goals in the proposed project alternative? (e.g. higher financial investment to gain better long-term services or fewer environmental impacts)
This project will not be in conflict with the goals or policies or any other departmental master plan.

4. List other city projects in the project area that are listed in a departmental master plan or the CIP.
The Transportation Master Plan identifies the East Arapahoe Transportation Plan, and associated multimodal improvements, of which this project is a first phase of implementation. There are not any other city projects identified in the CIP that are in the project area.

5. What are the major city, state, and federal standards that will apply to the proposed project? How will the project exceed city, state, or federal standards and regulations (e.g. environmental, health, safety, or transportation standards)?
The project will comply with all required city, state and federal permits and meet or exceed the city and national standards (AASHTO and NACTO) for the development of multiuse path and transit facilities.

6. Are there cumulative impacts to any resources from this and other projects that need to be recognized and mitigated?
There are none identified at this time.

Impact Assessment

Using the attached checklist, identify the potential short or long-term impacts of the project alternatives.

Use +, - or 0 in the checklist table to indicate impacts, benefits and no changes for each alternative.

+ indicates a positive effect or improved condition
- indicates a negative effect or impact
0 indicates no effect

Categories on the Checklist Table indicating positive or negative impacts (+ or –) should answer the Checklist Questions following the table in full.

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Checklist

+ Positive effect
- Negative effect
0 No effect

SH7/East Arapahoe Road Multi-Use Path and Transit Stop Project	MU Path & Buffer Width Option 1	MU Path & Buffer Width Option 2	MU Path & Buffer Width Option 3	Buffer Material Option 1	Buffer Material Option 2	Buffer Material Option 3
A. Natural Areas or Features						
1. DISTURBANCE TO SPECIES, COMMUNITIES, HABITAT, OR ECOSYSTEMS DUE TO:						
a. Construction activities	**0**	**0**	**0**	**0**	**0**	**0**
b. Native vegetation removal	**0**	**0**	**0**	**0**	**0**	**0**
c. Human or domestic animal encroachment	**0**	**0**	**0**	**0**	**0**	**0**
d. Chemicals (including petroleum products, fertilizers, pesticides, herbicides)	**0**	**0**	**0**	**0**	**0**	**0**
e. Behavioral displacement of wildlife species (due to noise from use activities)	**0**	**0**	**0**	**0**	**0**	**0**
f. Habitat removal	**0**	**0**	**0**	**0**	**0**	**0**
g. Introduction of non-native plant species in the site landscaping	**0**	**0**	**0**	**0**	**0**	**0**

SH7/East Arapahoe Road Multi-Use Path and Transit Stop Project	MU Path & Buffer Width Option 1	MU Path & Buffer Width Option 2	MU Path & Buffer Width Option 3	Buffer Material Option 1	Buffer Material Option 2	Buffer Material Option 3
h. Changes to groundwater or surface runoff	0	0	0	0	0	0
i. Wind erosion	0	0	0	0	0	0
2. Loss of mature trees or significant plants?	0	0	0	0	0	-
B. Riparian Areas/Floodplains						
1. Encroachment upon the 100-year, conveyance ore high hazard flood zones?	-	-	-	-	-	-
2. Disturbance to or fragmentation of a riparian corridor?	0	0	0	0	0	0
C. Wetlands						
1. Disturbance to or loss of a wetland on site?	0	0	0	0	0	0
D. Geology and Soils						
1. a. Impacts to unique geologic or physical features?	0	0	0	0	0	0
b. Geologic development constraints?	0	0	0	0	0	0
c. Substantial changes in topography?	0	0	0	0	0	0
d. Changes in soil or fill material on the site?	0	0	0	0	0	0
e. Phasing of earth work?	0	0	0	0	0	0
E. Water Quality						
1. Impacts to water quality from any of the following?						
a. Clearing, excavation, grading or other construction activities	-	-	-	-	-	-
b. Change in hardscape	-	-	-	0	0	-
c. Change in site ground features	0	0	0	0	0	0
d. Change in storm drainage	-	-	-	0	0	-
e. Change in vegetation	0	0	0	0	0	0
f. Change in pedestrian and vehicle traffic	0	0	0	0	0	0
g. Pollutants	0	0	0	0	0	0
2. Exposure of groundwater contamination from excavation or pumping?	0	0	0	0	0	0

SH7/East Arapahoe Road Multi-Use Path and Transit Stop Project	MU Path & Buffer Width Option 1	MU Path & Buffer Width Option 2	MU Path & Buffer Width Option 3	Buffer Material Option 1	Buffer Material Option 2	Buffer Material Option 3
F. Air Quality						
1. Short or long term impacts to air quality (CO2 emissions, pollutants)?						
a. From mobile sources?	+	+	+	+	+	+
b. From stationary sources?	0	0	0	0	0	0
G. Resource Conservation						
1. Changes in water use?	0	0	0	-	+	0
2. Increases or decreases in energy use?	0	0	0	0	0	0
3. Generation of excess waste?	0	0	0	0	0	0
H. Cultural/Historic Resources						
1. a. Impacts to a prehistoric or archaeological site?	0	0	0	0	0	0
b. Impacts to a building or structure over fifty years of age?	0	0	0	0	0	0
c. Impacts to a historic feature of the site?	0	0	0	0	0	0
d. Impacts to significant agricultural land?	0	0	0	0	0	0
I. Visual Quality						
1. a. Effects on scenic vistas or public views?	+	+	+	+	+	+
b. Effects on the aesthetics of a site open to public view?	+	+	+	+	+	+
c. Effects on views to unique geologic or physical features?	0	0	0	0	0	0
d. Changes in lighting?	0	0	0	0	0	0
J. Safety						
1. Health hazards, odors, or radon?	0	0	0	0	0	0
2. Disposal of hazardous materials?	0	0	0	0	0	0
3. Site hazards?	0	0	0	0	0	0
K. Physiological Well-being						

SH7/East Arapahoe Road Multi-Use Path and Transit Stop Project	MU Path & Buffer Width Option 1	MU Path & Buffer Width Option 2	MU Path & Buffer Width Option 3	Buffer Material Option 1	Buffer Material Option 2	Buffer Material Option 3
1. Exposure to excessive noise?	0	0	0	0	0	0
2. Excessive light or glare?	0	0	0	0	0	0
3. Increase in vibrations?	0	0	0	0	0	0
L. Services						
1. Additional need for:						
a. Water or sanitary sewer services?	0	0	0	0	0	0
b. Storm sewer/Flood control features?	0	0	0	0	0	0
c. Maintenance of pipes, culverts and manholes?	0	0	0	0	0	0
d. Police services?	0	0	0	0	0	0
e. Fire protection services?	0	0	0	0	0	0
f. Recreation or parks facilities?	0	0	0	0	0	0
g. Library services?	0	0	0	0	0	0
h. Transportation improvements/traffic mitigation?	-	-	-	0	0	0
i. Parking?	0	0	0	0	0	0
j. Affordable housing?	0	0	0	0	0	0
k. Open space/urban open land?	0	0	0	0	0	0
l. Power or energy use?	0	0	0	0	0	0
m. Telecommunications?	0	0	0	0	0	0
n. Health care/social services?	0	0	0	0	0	0
o. Trash removal or recycling services?	0	0	0	0	0	0
M. Special Populations						
1. Effects on:						
a. Persons with disabilities?	+	+	+	+	+	+
b. Senior population?	+	+	+	+	+	+
c. Children or youth?	+	+	+	+	+	+

SH7/East Arapahoe Road Multi-Use Path and Transit Stop Project	MU Path & Buffer Width Option 1	MU Path & Buffer Width Option 2	MU Path & Buffer Width Option 3	Buffer Material Option 1	Buffer Material Option 2	Buffer Material Option 3
d. Restricted income persons?	+	+	+	+	+	+
e. People of diverse backgrounds (including Latino and other immigrants)?	+	+	+	+	+	+
f Neighborhoods	+	+	+	+	+	+
g. Sensitive populations located near the project (e.g. schools, hospitals, nursing homes)?	+	+	+	+	+	+
N. Economy						
1. Utilization of existing infrastructure?	**0**	**0**	**0**	**0**	**0**	**0**
2. Effect on operating expenses?	-	-	-	-	-	-
3. Effect on economic activity?	+	+	+	+	+	+
4. Impacts to businesses, employment, retail sales or city revenue?	+	+	+	+	+	+

CHECKLIST QUESTIONS

Note: The following questions are a supplement to the CEAP checklist. Only those questions indicated on the checklist are to be answered in full.

A. Natural Areas and Features

1. Describe the potential for disturbance to or loss of significant: species, plant communities, wildlife habitats, or ecosystems via any of the activities listed below. (Significant species include any species listed or proposed to be listed as rare, threatened or endangered on federal, state, county lists.)

    a. Construction activities
    b. Native Vegetation removal
    c. Human or domestic animal encroachment
    d. Chemicals to be stored or used on the site (including petroleum products, fertilizers, pesticides, herbicides)
    e. Behavioral displacement of wildlife species (due to noise from use activities)
    f. Introduction of non-native plant species in the site landscaping
    g. Changes to groundwater (including installation of sump pumps) or surface runoff (storm drainage, natural stream) on the site
    h. Potential for discharge of sediment to any body of water either short term (construction-related) or long term

    For all options project staff will be redirecting a portion of the groundwater or surface water runoff. Short term discharge will be treated by installing Best Management Practices (BMPs) according to the Colorado Stormwater Discharge Permit. Long term discharge will be treated by the installation of water quality structures according to Municipal Separate Storm Sewer System (MS4) requirements.

    i. Potential for wind erosion and transport of dust and sediment from the site

2. Describe the potential for disturbance to or loss of mature trees or significant plants.

    If potential impacts have been identified, please provide any of the following information that is relevant to the project:

    - A description of how the proposed project would avoid, minimize, or mitigate identified impacts.

- A habitat assessment of the site, including: 1. a list of plant and animal species and plant communities of special concern found on the site; 2. a wildlife habitat evaluation of the site.
- Maps of the site showing the location of any Boulder Valley Natural Ecosystem, Boulder County Environmental Conservation Area, or critical wildlife habitat.

For all options, project staff will consult with an arborist to assess the condition of existing trees in the preliminary design phase of the project. Where feasible, the project will avoid impacts to mature and healthy trees; and where not practical, the project will replace trees at a minimum ratio of 1:1. Buffer material Option 3, which is a concrete surface, will result in the planting of fewer trees. Overall, the project will result in significantly more trees than what currently exists.

B. Riparian Areas and Floodplains

1. Describe the extent to which the project will encroach upon the 100-year, conveyance or high hazard flood zones.

A City of Boulder Floodplain Development Permit will be obtained for any of the options prior to construction and the result will not create a negative effect on the existing Boulder Creek and South Boulder Creek floodplains. The project will encroach on the 100-year floodplain conveyance zone.

2. Describe the extent to which the project will encroach upon, disturb, or fragment a riparian corridor: (This includes impacts to the existing channel of flow, streambanks, adjacent riparian zone extending 50 ft. out from each bank, and any existing drainage from the site to a creek or stream.)

If potential impacts have been identified, please provide any of the following information that is relevant to the project:

- A description of how the proposed project would avoid, minimize, or mitigate identified impacts to habitat, vegetation, aquatic life, or water quality.
- A map showing the location of any streams, ditches and other water bodies on or near the project site.
- A map showing the location of the 100-year flood, conveyance, and high hazard flood zones relative to the project site.

C. Wetlands

1. Describe any disturbance to or loss of a wetland on site that may result from the project.

   If potential impacts have been identified, please provide any of the following information that is relevant to the project:

   - A description of how the proposed project would avoid, minimize, or mitigate identified impacts.
   - A map showing the location of any wetlands on or near the site. Identify both those wetlands and buffer areas which are jurisdictional under city code (on the wetlands map in our ordinance) and other wetlands pursuant to federal criteria (definitional).

D. Geology and Soils

1. Describe any:

   a. impacts to unique geologic or physical features;
   b. geologic development constraints or effects to earth conditions or landslide, erosion, or subsidence;
   c. substantial changes in topography; or
   d. changes in soil or fill material on the site that may result from the project.

   If potential impacts have been identified, please provide the following:

   - A description of how the proposed project would avoid, minimize, or mitigate identified impacts.
   - A map showing the location of any unique geologic or physical features, or hazardous soil or geologic conditions on the site.

E. Water Quality

1. Describe any impacts to water quality that may result from any of the following:

   a. Clearing, excavation, grading or other construction activities that will be involved with the project;

For all options, there will be potential impacts from these activities but these will be mitigated through the water quality Best Management Practices (BMPs) outlined in the stormwater pollution prevention plan. Additionally, due to Municipal Separate Storm Sewer System (MS4) requirements, the project is installing up to five permanent water quality structures (four within the existing storm drainage system) which will

capture pollutants before they would be discharged to Boulder or South Boulder Creek.

b. Changes in the amount of hardscape (paving, cement, brick, or buildings) in the project area;
c. Permanent changes in site ground features such as paved areas or changes in topography;

For all options, there will be a slight increase in the amount of impervious surface due to the additional concrete for the multiuse path. In regard to buffer material options, Option 3 will have even slightly more hardscape with the use of concrete, as opposed to the vegetative buffers for Options 1 and 2.

d. Changes in the storm drainage from the site after project completion;

See response to E1a above.

e. Change in vegetation;
f. Change in pedestrian and vehicle traffic;
g. Potential pollution sources during and after construction (may include temporary or permanent use or storage of petroleum products, fertilizers, pesticides, or herbicides).

2. Describe any pumping of groundwater that may be anticipated either during construction or as a result of the project. If excavation or pumping is planned, what is known about groundwater contamination in the surrounding area (1/4 mile in all directions from the project) and the direction of groundwater flow?

If potential impacts have been identified, please provide any of the following that is relevant to the project:

- A description of how the proposed project would avoid, minimize, or mitigate impacts to water quality.
- Information from city water quality files and other sources (state oil inspector or the CDPHE) on sites with soil and groundwater impacts within 1/4 mile radius of project or site.
- If impacts to site are possible, either from past activities at site or from adjacent sites, perform a Phase I Environmental Impact Assessment prior to further design of the project.
- Groundwater levels from borings or temporary peizometers prior to proposed dewatering or installation of drainage structures.

F. Air Quality

1. Describe potential short or long term impacts to air quality resulting from this project. Distinguish between impacts from mobile sources (VMT/trips) and stationary sources (APEN, HAPS).

For all options, the emissions from construction equipment would have a short term effect on air quality during construction. The effects of the emissions would be negligible because of the small number of short term emission sources.

The manufacture and use of resources for the construction can provide some short-term impacts to air quality at the manufacture site or construction site. The general types of construction and construction elements are similar for all options.

The long term impacts to mobile source air quality for all options in all segments is expected to positive one with an increase in the use of bicycling and walking. In the DRCOG TIP application it was estimated that there would be an annual emissions reduction of approximately 43 lbs of CO2 from this project.

G. Resource Conservation

1. Describe potential changes in water use that may result from the project.

    a. Estimate the indoor, outdoor (irrigation) and total daily water use for the facility.
    b. Describe plans for minimizing water use on the site (Xeriscape landscaping, efficient irrigation system).

Buffer material Option 1, which includes trees and grass cover, would require a greater amount of water use than Option 2, which calls for xeriscape ground cover and trees and Option 3, which is harscaped. For all options, where the buffer space is landscaped, project staff will develop landscaping plans that reduce water usage.

2. Describe potential increases or decreases in energy use that may result from the project.

    a. Describe plans for minimizing energy use on the project or how energy conservation measures will be incorporated into the building design.
    b. Describe plans for using renewable energy sources on the project or how renewable energy sources will be incorporated into the building design?
    c. Describe how the project will be built to LEED standards.

3. Describe the potential for excess waste generation resulting from the project.

If potential impacts to waste generation have been identified, please describe plans for recycling and waste minimization (deconstruction, reuse, recycling, green points).

H. Cultural/Historic Resources

1. Describe any impacts to:

   a. a prehistoric or historic archaeological site;
   b. a building or structure over fifty years of age;
   c. a historic feature of the site such as an irrigation ditch; or
   d. significant agricultural lands that may result from the project.

If potential impacts have been identified, please provide the following:

- A description of how the proposed project would avoid, minimize, or mitigate identified impacts.

I. Visual Quality

1. Describe any effects on:

   a. scenic vistas or views open to the public;
   b. the aesthetics of a site open to public view; or
   c. view corridors from the site to unique geologic or physical features

   that may result from the project.

For all options, the project will be a benefit to the quality of public views and aesthetic of the East Arapahoe streetscape. Buffer material Option 3 will have less of a benefit to visual quality because it lacks the vertical natural features (trees) included in Options 1 and 2.

J. Safety

1. Describe any additional health hazards, odors, or exposure of people to radon that may result from the project.

2. Describe measures for the disposal of hazardous materials.

3. Describe any additional hazards that may result from the project. (Including risk of explosion or the release of hazardous substances such as oil, pesticides, chemicals or radiation)

If potential impacts have been identified, please provide the following:

- A description of how the proposed project would avoid, minimize, or mitigate identified impacts during or after site construction through management of hazardous materials or application of safety precautions.

K. Physiological Well-being

1. Describe the potential for exposure of people to excessive noise, light or glare caused by any phase of the project (construction or operations).

2. Describe any increase in vibrations or odor that may result from the project.

If potential impacts have been identified, please provide the following:

- A description of how the proposed project would avoid, minimize, or mitigate identified impacts.

L. Services

1. Describe any increased need for the following services as a result of the project:

a. Water or sanitary sewer services
b. Storm sewer / Flood control features
c. Maintenance of pipes, culverts and manholes
d. Police services
e. Fire protection
f. Recreation or parks facilities
g. Libraries
h. Transportation improvements/traffic mitigation
i. Parking
j. Affordable housing
k. Open space/urban open land
l. Power or energy use
m. Telecommunications
n. Health care/social services
o. Trash removal or recycling services

2. Describe any impacts to any of the above existing or planned city services or department master plans as a result of this project. (e.g. budget, available parking, planned use of the site, public access, automobile/pedestrian conflicts, views)

For all options, the project will increase service needs required to maintain the multiuse path and buffer. The project will also impact the need for transportation signage and striping to avoid conflicts between automobiles and pedestrians and cyclists.

M. Special Populations

1. Describe any effects the project may have on the following special populations:

   a. Persons with disabilities
   b. Senior population
   c. Children or Youth
   d. Restricted income persons
   e. People of diverse backgrounds (including Latino and other immigrants)
   f. Sensitive Populations located near the project (e.g. adjacent neighborhoods or property owners, schools, hospitals, nursing homes)

   If potential impacts have been identified, please provide the following:

   - A description of how the proposed project would avoid, minimize, or mitigate identified impact.
   - A description of how the proposed project would benefit special populations.

For all options, the project would benefit special populations by providing more safe, comfortable, and accessible pedestrian, bicycle and transit facilities. In the DRCOG TIP application it was estimated that the project is located within 1 mile of the following vulnerable populations:

Vulnerable Populations	Population within 1 mile
Persons over age 65	4,008
Minority persons	11,015
Low-Income households	4,277
Linguistically-challenged persons	925
Individuals with disabilities	3,690
Households without a motor vehicle	2,243
Children ages 6-17	3,101
Health service facilities served by project:	19

N. Economic Vitality

1. Describe how the project will enhance economic activity in the city or region or generate economic opportunities?

2. Describe any potential impacts to:
   a. businesses in the vicinity of the project (ROW, access or parking),
   b. employment,
   c. retail sales or city revenue and how they might be mitigated.

For all options, the project will provide a safer and more comfortable experience for all travelers and will improve access to the numerous businesses, residential neighborhoods, and institutions along the East Arapahoe corridor, including, but not limited to the University of Colorado East Campus, Boulder Community Health, Ball Aerospace, and a number of smaller businesses adjacent to the project.