

Part 1

Base Information

1. Project Title	State Highway 7 Preliminary & Environmental Engineering	
2. Project <i>Start/End</i> points or Geographic Area <i>Provide a map with submittal, as appropriate</i>	State Highway 7 (SH 7) Corridor between Brighton (US 85) and Boulder (Folsom Street) See Attachment 1 for Regional Vicinity Map	
3. Project Sponsor (<i>entity that will construct/ complete and be financially responsible for the project</i>)	Applicant: City & County of Broomfield Project Delivery: Colorado Department of Transportation	
4. Project Contact Person, Title, Phone Number, and Email	Sarah Grant, Transportation Manager, City & County of Broomfield 303-438-6385 SGrant@broomfield.org	
5. Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide applicable concurrence documentation with submittal</i>	
6. What planning document(s) identifies this project?	<input type="checkbox"/> DRCOG 2040 Fiscally Constrained Regional Transportation Plan (2040 FC RTP)	<p>See Attachment 4 for hyperlinked plans</p> <p>Boulder County Transportation Master Plan (Key Regional Corridors)</p> <ul style="list-style-type: none"> Page 15 east west corridors <p>City of Boulder Transportation Master Plan</p> <ul style="list-style-type: none"> Page 2-5 regional travel Page 5-3 Investment program Page 5-10 transit service Page 6-10 Northwest Area Mobility Study <p>Boulder Valley Comprehensive Plan</p> <ul style="list-style-type: none"> Page 36 mobility network plan (arapahoe & 55th) <p>Lafayette Comprehensive Plan</p> <ul style="list-style-type: none"> Page 28-31 opportunity parcels Page 38, 52, 62, 64, 68 goals and policies Page 100-101 implementation matrix <p>Town of Erie Comprehensive Plan</p> <ul style="list-style-type: none"> Page 11-5, 15-3 Highway 7 realignment <p>City & County of Broomfield Transportation Master Plan</p> <ul style="list-style-type: none"> Page 53 key corridor <p>Thornton Transportation Plan</p> <ul style="list-style-type: none"> Page 6 North Front Range Transportation Alternatives Feasibility Study

		<ul style="list-style-type: none"> • Page 23 Major Regional Arterial Adams County Transportation Plan, • Page 9 Traffic characteristics • Page 47, 51 Recommended roadway system improvements • Page 64 Bus route expansion • Page 67, 69, 71 Bicycle Corridor Brighton Transportation Master Plan • Page 31 transit vision map • Page 43 build out thoroughfare plan • Page 46 street design standards • Page 55 Realigning Highway 7
	<input checked="" type="checkbox"/> Other(s):	<p>CDOT Development Plan</p> <p>RTD 2014 Northwest Area Mobility Study (page 46 Arapahoe/SH 7 candidate corridor)</p> <p>RTD North Area Transportation Evaluation - part 1, part 2, part 3</p> <ul style="list-style-type: none"> • Page 32 UP railroad • Page 57 Potential station map <p>2014 CDOT SH 7 Planning & Environmental Linkage Study (no page numbers needed)</p> <p>2018 Boulder County SH 7 Planning & Environmental Linkage Study</p> <p>2018 East Arapahoe Transportation Plan</p> <p>2018 SH 7 Bus Rapid Transit Feasibility Study</p> <p>2017 CDOT US 85 Planning and Environmental Linkages (PEL) Study</p> <p>2014 CDOT North I-25, US 36 to SH 7, PEL Study</p>
<p><i>Provide link to document/s and referenced page number if possible, or provide documentation with submittal</i></p>		

7. Identify the project's key elements.

- Rapid Transit Capacity (2040 FC RTP)
- Transit Other:
- Bicycle Facility
- Pedestrian Facility
- Safety Improvements
- Roadway Capacity or Managed Lanes (2040 FC RTP)
- Roadway Operational

Grade Separation

- Roadway
- Railway
- Bicycle
- Pedestrian
- Roadway Pavement Reconstruction/Rehab
- Bridge Replace/Reconstruct/Rehab
- Study
- Design
- Other:

8. Problem Statement What specific Metro Vision-related regional problem/issue will the transportation project address?

The SH 7 corridor between Boulder and Brighton is fast becoming one of the major east/west regional arterials in the North Denver Metro Region. It is anticipated that by 2040 there will be 56,000 new residents and 38,000 new jobs on the corridor for a total of approximately 94,000 new residents and employees traveling on the corridor, a 44% increase from 2015 population and jobs. Rapid growth along the corridor on previously undeveloped lands, coupled with existing and emerging urban centers, is increasing the availability of new housing and employment opportunities. This growth is generating significant increases in travel along the corridor, resulting in new safety and reliability challenges today and in the future.

The SH 7 Preliminary & Environmental Engineering project will prepare the corridor to address a multitude of Metro Vision regional outcomes, and ultimately support objectives of all five Metro Vision themes. This Project will develop plans that primarily address the Metro Vision themes of (1) developing a connected multimodal region and (2) promote efficient and predictable patterns of development on the multimodal corridor by supporting transportation related outcomes including:

1. The regional system is well-connected and serves all modes of travel
2. The transportation system is safe, reliable, and well-maintained
3. Connected urban centers and multimodal corridor throughout the region accommodate a growing share of the region's housing and employment

The project will create preliminary and environmental engineering plans that will prepare SH 7 for timely transportation investments critical to ensuring a well-connected multimodal corridor, and support the development of a mix of uses and densities in our urban centers and future station areas that support high-quality transit. The plans will forward the goals of increasing the person trip capacity of the corridor, while serving all modes of transportation with a vision of high-quality, high-frequency transit and attractive and accessible active transportation options, creating a safer and more reliable corridor for all modes.

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

Communities on the SH 7 corridor have been planning for safety and multimodal capacity improvements for a number of years, as documented in the following plans and studies:

- 2014 SH 7 Planning & Environmental Linkage Study (US 287 to US 85)
- 2018 SH 7 Planning & Environmental Linkage Study (75th Street to US 287)
- 2018 East Arapahoe Transportation Plan (Folsom Street to 75th Street)
- 2018 SH 7 Bus Rapid Transit Feasibility Study

The 2014 & 2018 Planning Environmental Linkage (PEL) Studies and the East Arapahoe Transportation Plan (EATP) provide multimodal design recommendations for the extent of the corridor to meet the mobility needs for 2040 and beyond. This Project will take the recommendations from the previous studies and develop preliminary plan packages that will allow municipalities, counties, agencies, and developers to rapidly invest into the corridor to implement the transportation recommendations. Specific elements will include the following:

- Develop preliminary engineering for the corridor based on recommendations from the PELs and EATP. The plan will seek to achieve a sufficient level of design for projects on the corridor to allow for efficient project implementation and will identify priority projects from the plans to take to a higher level of design for accelerated investment.
- Environmental engineering will be initiated and necessary environmental clearances will be identified.
- Right-of-way (ROW) needs will be identified for the extent of the corridor allowing the responsible municipalities, counties, developers, and agencies to acquire and preserve the land necessary to build the corridor transportation improvements identified in the PELs and EATP. Some ROW may be acquired with funds as necessary.

- Utilities identification will be completed as needed.

10. What is the status of the proposed project?

In 2014 RTD completed the Northwest Area Mobility Study (NAMS) & North Area Transit Evaluation (NATE), which identified SH 7 as a candidate corridor for Bus Rapid Transit (BRT). The 2014 (US 287 to US 85) & 2018 (75th Street to US 287) SH 7 Planning and Environmental Linkage Studies and the 2018 East Arapahoe Transportation Plan (Downtown Boulder to 75th Street) were completed for the extent of the corridor, which identified multimodal concepts and recommendations. Additionally, the SH 7 Bus Rapid Transit Feasibility Study was recently completed in 2018.

This Project is the next step in the development of transportation improvements for the corridor and is critical from a timing standpoint, as development interest increases and potential funding or grant opportunities become available for implementation. The Project will provide confidence in negotiations between government entities and developers which will facilitate development outcomes consistent with local and regional goals. It is also notable to mention at the time of this writing, a ballot initiative will be presented to voters and a significant amount of funding will become available to SH 7, as the corridor is recognized by CDOT as a statewide priority. New transportation revenues would implement the plans created by this project to develop a safe and robust multimodal corridor. The timing to implement this project now is essential for the corridor.

In addition to the PEL's and East Arapahoe Transportation Plan, communities on the corridor are investing in several other collaborative planning efforts from Brighton to Boulder to support a multimodal vision. In 2014 the Northwest Area Mobility Study identified SH 7 as a candidate Bus Rapid Transit (BRT) corridor. As a follow-up, communities completed in 2018 the SH 7 Bus Rapid Transit Feasibility study which indicated that bus on shoulder operations is a viable and competitive travel option for commuters as the corridor grows. Stakeholders at the SH 7 / I-25 interchange recently have worked with CDOT and RTD to develop conceptual plans for the diverging diamond interchange replacement with a center loading transit station with a pedestrian and bicycle access mezzanine to envision a world-class Mobility Hub. These plans are being coordinated with CDOT's I-25 North Tolled Express Lanes project to reduce throw away costs if designed as separate projects. Currently, the corridor communities are kicking off a station area design effort with funding support from DRCOG, to plan for future station operations, passenger and first & final mile amenities.

Stakeholders along the corridor have been working for many years on several initiatives consistent with Metro Vision implementation strategies. This includes the creation of the State Highway 7 Coalition that invites participation from all eight jurisdictions, two TMOS: Commuting Solutions and Smart Commute Metro North, business participation from the Northwest Chamber Alliance representing three chambers of commerce, and the University of Colorado, Boulder. These quarterly meetings allow for information sharing of current staff-led projects, land development projects and collaboration among stakeholders. Through the State Highway 7 Coalition, stakeholders share information, progress of development, economic forecasts and current plans/studies that work towards a shared vision of a multimodal corridor supported by a mix of transit-supportive uses and densities.

11. Would a smaller federal funding amount than requested be acceptable, while maintaining the original intent of the project?

Yes No

If yes, define smaller meaningful limits, size, service level, phases, or scopes, along with the cost for each.

Yes, a lesser sum would still allow for transportation projects on the corridor to advance and would be extremely helpful in rapid investment into the corridor should funding become available. However, it could potentially result in some areas of the corridor not being designed to the same extent as would otherwise be possible.

A. Project Financial Information and Funding Request

1. Total Project Cost		\$10,000,000
2. Total amount of DRCOG Regional Share Funding Request <i>(no greater than \$20 million and not to exceed 50% of the total project cost)</i>	\$4,000,000	40% of total project cost
3. Outside Funding Partners (other than DRCOG Regional Share funds) List each funding partner and contribution amount.	\$\$ Contribution Amount	% of Contribution to Overall Total Project Cost
Adams County Subregion (Subregional Federal)	\$1,600,000	16%
Boulder County Subregion (Subregional Federal)	\$1,790,476	18%
Broomfield County Subregion (Subregional Federal)	\$609,524	6%
CDOT Region 1 (state/non-federal)	\$500,000	5%
CDOT Region 4 (state/non-federal)	\$500,000	5%
Adams County, Boulder County, City of Boulder, City of Brighton, City & County Broomfield, City of Lafayette, City of Thornton, Town of Erie (non-federal match) See attached letters of support/commitment and Attachment 5: Funding Partner Matrix	\$1,000,000	10%
Total amount of funding provided by other funding partners <i>(private, local, state, Subregion, or federal)</i>	\$6,000,000	

Funding Breakdown (year by year)*	<i>*The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2018.</i>				
	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds	\$1,600,000	\$3,200,000	\$2,400,000	\$800,000	\$8,000,000
State Funds	\$ 200,000	\$400,000	\$300,000	\$100,000	\$1,000,000
Local Funds	\$200,000	\$400,000	\$300,000	\$100,000	\$1,000,000
Total Funding	\$2,000,000	\$4,000,000	\$3,000,000	\$1,000,000	\$10,000,000
4. Phase to be Initiated <i>Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other</i>	Design	ENV	Other	ROW	

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. Regional significance of proposed project

WEIGHT **40%**

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

1. Why is this project regionally important?

This project is immensely important to the eight jurisdictions on the corridor, including three counties, and for the DRCOG region as a whole. The 2040 MVRTP presents the region’s vision for a multimodal transportation system needed to respond to future growth and demographic trends. Communities along the corridor have embraced this goal and are planning for a multimodal corridor of local livability and regional accessibility through a diverse mix of land uses and high-quality transit and attractive active transportation facilities. The project will create plans to allow for rapid public and private transportation investment into the corridor to alleviate current safety and mobility issues while setting the corridor up for longer term transportation investments as it grows.

As recognized in the DRCOG 2040 Metro Vision Regional Transportation Plan (MVRTP) the metro region anticipates an additional 1.1 million residents and 700,000 new jobs, and a significant proportion of growth will occur in the undeveloped areas of North Metro. The 2018 SH 7 BRT Feasibility Study cites the number of households on the corridor is anticipated to increase by 74% from approximately 50,000 to 87,000 households in 2040 (increase of 37,000 households) based on DRCOG data. Overall, the population is expected to increase from 123,000 to 179,000 by 2040 and employment on State Highway 7 is expected to increase from 90,000 to 128,000 jobs by 2040. State Highway 7 is a key corridor for growth in the North Metro region and is recognized as a part of the Metro Vision Road Network 2040.

In the North Metro Area there are few major east/west corridors. State Highway 7 is a crucial mobility corridor for mobility for passenger travel and the movement of services and goods as it provides regional access at the major crossroads of US 287, I-25, US 85, US 36 as well as the future planned transportation network improvements. These planned improvements are inherently multimodal and include: Bus Rapid Transit from Brighton to Boulder with supportive stations, a Mobility Hub with center loading platforms at the I-25/SH7 Diverging Diamond Interchange replacement located in Broomfield & Thornton, an end of line station for the N-Line at SH 7/ Colorado Blvd. in Thornton and improving existing stations in Downtown Brighton and Boulder, as well as, the Lafayette Park N Ride. There are multiple current and future efforts to study and plan for these improvements that support and complement the proposed Project.

Boulder is a major employment center in the North Denver region. More than 35,500 jobs—roughly 40% of Boulder’s total employment—are located within a half-mile of the SH 7 /East Arapahoe corridor in the City of Boulder. University of Colorado Boulder is currently embarking on major development of their east campus located on East Arapahoe Avenue which is planned to house as many students as the existing Main Campus. Ball Aerospace is expanding to add new facilities and jobs on the corridor, and up to 20,000 new single and multi-family homes are planned on the East Arapahoe corridor. Of the 2,200 development review applications in the City of Boulder in 2015, nearly 25% were within one-half mile of Arapahoe Avenue, an indication of the immediate need to plan for multimodal capacity improvements.

Emerging urban centers on the corridor have tremendous potential to develop rapidly in the coming years. Extensive office, research, education, commercial and other uses are planned for the urban centers at the I-25 and SH 7 interchange. These emerging urban centers in Broomfield and Thornton are likely to become major employment hubs by 2040 and a primary destination for approximately 23,000 commuters on the corridor. For example, Broomfield has 14,500 units approved for construction in the vicinity, with only 20% are complete at this time. Additionally, 30.3 million square feet of new commercial is approved, of which a fraction have permits issued at this time. This planned growth, particularly at the emerging urban centers on the corridor, will result in

significant new trips on the corridor. The City of Thornton has plans for transit oriented development around the future N Rail Line terminus at SH 7 / and Colorado Blvd. Brighton has plans for improvements around their downtown station area.

It is essential to develop plans now to ensure transportation facilities offer multimodal options, and have the capacity to move the people on the corridor safely, reliably, and efficiently. Based data gathered from CDOT OTIS Traffic Data explorer, it is expected that travel on the corridor is expected to increase by 13% to 30% in 2040 between Boulder and Lafayette. Within Lafayette, traffic volumes are expected to increase by 37% to 52%. It is anticipated, most of the new trips on the corridor will be generated east of Lafayette due to the rapid growth of residential land uses and new employment opportunities. Around the SH 7/ I-25 interchange volumes are expected to increase 40%-52% by 2040. Traffic east of I-25, from Thornton to Brighton is anticipated to increase by 60% by 2040. The new residents will use the east/west corridor to access major job centers in Boulder, along SH 7 and primary north/south corridors. Based on information derived from CDOT Traffic Data an average of all segments are expected to increase from 23,000 to 31,600 in 2040, an average of 37% increase in traffic on this 26-mile corridor from Brighton to Boulder.

To prepare for multimodal access and mobility, it is critical that this project clearly define corridor ROW needs prior to development so that regional multimodal capacity can be developed consistently throughout the corridor. As an example of the immediate need, the PEL describes a three pronged approach of east-west transportation through Lafayette and across US 287, splitting traffic south to South Boulder Road, along the existing SH 7/Baseline, and new northern alignment to SH 7/Arapahoe Road through Erie. Lafayette, a small community, has been proactive since the PEL study in planning, budgeting and constructing the southern leg to move traffic to South Boulder Road, then east-west through Lafayette. It is vital for the region that we invest now in corridor-wide plans to get ahead of the upcoming development so that needed ROW can be set aside with proposals to allow for the recommended capacity and safety improvements at the north fork of the three-pronged approach to US 287 and SH 7/Arapahoe Road and to acquire the needed ROW. It is important that the appropriate planning take place now at this critical intersection of these two state highways.

The Project will help drive desirable development consistent with Metro Vision goals, facilitating economic viability and more livable communities focusing on our identified urban centers. This project will allow for greater certainty for government entities and developers on the corridor in negotiating the types of desirable development that encourage a range of transportation, employment, commerce, housing, educational, cultural, and recreational opportunities and support our shared regional goals.

Developing preliminary plans now, reduces costly retrofits by encouraging appropriate transportation improvements when they are needed. We have the timely opportunity to plan for the undeveloped portions of the corridor, and save local, regional, state and federal dollars by investing in this project now to plan for needed safety improvements and the provision of consistent and well-connected multimodal facilities across the corridor. The timing of this project supports long-term fiscal responsibility.

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

Yes. This project crosses eight jurisdictions including (west to east): City of Boulder, Boulder County, City of Lafayette, Town of Erie, City & County of Broomfield, City of Thornton, Adams County and City of Brighton.

The project will provide benefits to all of the jurisdictions it crosses by preparing their stretch of corridor for transportation system investment, readying the corridor for implementation of safety improvements, high quality rapid transit, and bicycle and pedestrian facilities to increase access for active transportation modes. This project will help attract economic investment along the SH 7 corridor from developers by increasing confidence in the likelihood of transportation system investments. The Project will provide municipalities with additional leverage in negotiations with developers to encourage development consistent with goals outlined in the Metro Vision.

3. Does the proposed project cross and/or benefit another **subregion(s)**? If yes, which ones and how?
Yes, the project benefits four subregions - Adams, Broomfield, SW Weld, and Boulder.

The project will provide benefits to all of the subregions it crosses by preparing the corridor in their jurisdictions for transportation system investment with plans for construction and consistency across jurisdictions. It will prepare the corridor for safety improvements, high-quality rapid transit, and attractive bicycle and pedestrian facilities. This will help attract investment from developers and will provide subregions with additional leverage in negotiations for the types of development identified in the Metro Vision and implementation of plans developed by this project.

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

The SH 7 corridor between Boulder and Brighton is fast becoming one of the major regional arterials in the North Denver Metro Region. Corridor communities have been proactive in their planning efforts, knowing that rapid growth along the corridor, along with the availability of new housing and employment in urban centers are generating significant increases in travel along the corridor, resulting in new safety and reliability challenges today and into the future. This project develops plans that support the Metro Vision transportation related outcomes of:

1. The regional system is well-connected and serves all modes of travel
2. The transportation system is safe, reliable, and well-maintained
3. Connected urban centers and multimodal corridor throughout the region accommodate a growing share of the region's housing and employment

1. The Regional Transportation System is well-connected and serves all modes of travel:

First and foremost, the plans will prepare SH 7 for transportation investment critical to ensuring a well-connected multimodal corridor, serving all modes of transportation with a vision of high-quality, high-frequency transit and attractive and accessible active transportation options. The project will ensure timely multimodal transportation investments with consistent, corridor-wide plans.

Today, the corridor is underserved by transit and lacks high quality bicycle and pedestrian connections in many areas. Development along the corridor, particularly east of Lafayette, will generate significant new trips on the corridor. The vision of both PEL's and the EATP envision SH 7 as a multimodal corridor to provide regional access and high quality first and last mile active transportation options. SH 7 has the opportunity to capitalize on multimodal connections to the regional transportation system, with key links at US 287, I-25, US 85, US 36 as well as the future planned transportation network improvements.

Local transit service operates on the western portion of the corridor primarily in mixed traffic between Boulder and Lafayette, however, long travel times undermine the competitiveness of the mode. There are also a number of transit routes that intersect the corridor and FasTracks calls for the future the North Metro Rail Line to intersect SH 7 in Thornton at Colorado Blvd., east of I-25 and calls for the future Northwest Rail Line to intersect SH 7 in Boulder, at 63rd Street. Several studies have been undertaken to assess the feasibility of establishing BRT on SH 7 and the results indicate that it could be a highly successful service. Both PELs and the East Arapahoe Transportation Plan call for corridor improvements that will support and facilitate future BRT operating in semi-exclusive lanes for the majority of the corridor. The BRT Feasibility Study determined that these operations will prove to be competitive in the future with appropriately designed facilities. These plans will ensure a consistent shoulders and intersection queue-jump capacity that can safely provide for BRT operations.

Safe pedestrian and bike facilities on the corridor are similarly limited. They exist in some locations, but lack connectivity and fail to provide access to key institutions or services. The PELs call for separated multi use paths along the extent of the corridor to create new, low-stress, accessible to all ages and abilities regional east/west pedestrian and bike connections with first and final mile connections to institutions, employment, and services

close to the corridor, as well as, connectivity to the regional trail network and connections to parks and open spaces.

2. The transportation system is safe, reliable and well maintained:

The SH 7 Preliminary & Environmental Engineering project will prepare the corridor for investment. The design recommendations from the PEL studies were determined to meet the multimodal mobility needs of today, 2040, and beyond to increase safety, reduce congestion and improve reliability. This study will allow for rapid investment into the corridor by providing agencies with implementable plans at key locations to reduce current safety and reliability issues, while preparing other areas of the corridor for future investment when appropriate.

The corridor currently caters to vehicular travel and suffers from safety and delay issues for all modes at many locations. This study will allow for investment into facilities for all modes, enhancing the modal connectivity along the extent of the corridor. The PELs call for full width, full depth shoulders for much of the corridor that permit transit to operate outside of mixed traffic; and within Boulder the EATP call for curbside Business Access Transit lanes. This will provide enormous time benefits over transit that operates on the corridor today, and will stimulate future transit investment on the corridor in areas that are currently underserved east of Lafayette. Ultimately, the plans will provide information to develop infrastructure necessary to support high quality, rapid and reliable transit on the extent of the corridor.

Similarly, regional pedestrian and bicycle connections on the corridor are largely missing outside the western-most segment of the corridor in the City of Boulder. Currently, stretches of the corridor are extremely dangerous and nearly unrideable except for the most experienced and confident cyclists due to high traffic volumes ranging from 16,000-27,000 AADT today at posted speed limits of 45-55 MPH along the majority of the corridor, and non-existent shoulders in some sections. Designs from this project will allow for brisk investment into facilities for cyclists and pedestrians and would promote new enhanced local and regional connections for active transportation modes.

The study will prepare the corridor for investment into highway improvements, rapid transit, and bicycle and pedestrian facilities, thus increasing the people moving capacity of the highway with transportation options, reducing overall congestion and increasing reliability. Currently, the majority of corridor lacks facilities for safe travel of active modes for all ages and abilities and reliable transit options. This Project will plan for the construction of improvements that will enhance the system reliability, provide more mobility options for travelers, and ensure the long term viability of the corridor to safely and efficiently move people and goods.

3. Efficient & Predictable Development Pattern: Connecting urban centers and multimodal corridors to accommodate a growing share of region's housing and employment

Planning for these multimodal transportation investments will encourage efficient and predictable development patterns and connect our diverse communities of urban, rural and suburban neighborhoods, while connecting to existing major employment areas in Boulder and new emerging urban centers along the corridor in Broomfield, Thornton and Brighton. This Project directly supports the Metro Vision supporting objective that plans for the implementation of increasing transit and ridership within an to urban centers on the corridor and throughout the metro region, as well as enhancements to support first and final mile connectivity.

SH 7 between Brighton and Boulder is well positioned to develop as a corridor of local livability and multimodal regional access. This is due in part to current and future land use assumptions along the corridor that could capitalize on the existing downtown areas of Brighton, Lafayette and Boulder. Couple the existing downtowns and urban centers with large areas of undeveloped parcels in unincorporated areas of Adams and Boulder

Counties, Lafayette, Erie, Broomfield, Thornton and the eastside of Brighton, the corridor is poised for significant growth.

Miles of SH 7 segments have limited right of way and cannot expand to meet future capacity demand for single occupant vehicle travel. Communities along SH 7 currently have the opportunity to capitalize on new development providing a mix of uses, with a focus on appropriate density and amenities at future transit station areas and in emerging urban centers, that support high-quality transportation options to move people efficiently through the corridor. The Project will set up the corridor for multimodal investments to keep SH 7's capacity as productive as possible within the limited availability of right-of-way and encourage a mix of supportive uses and densities.

Opportunities remain to build vibrant communities along SH 7 where longer trips are reduced by providing a variety of land use and travel options along the entire corridor. With confidence that a high-quality multimodal corridor is planned for, communities can confidently invest in the density to support multi-modal infrastructure with initial development.

5. One foundation of a sustainable and resilient economy is physical infrastructure and transportation. How will the **completed** project allow people and businesses to thrive and prosper?

The completed project for the SH 7 Preliminary and Environmental Engineering study will increase developer confidence that SH 7 is a priority corridor for state and local government entities. The plan will lay the groundwork necessary for investment into high-quality mobility options for corridor travelers and will enhance connectivity to developments close to the corridor. This knowledge will ensure developers are comfortable making investments into areas along the corridor due to increased corridor person trip capacity, including high-quality multimodal mobility and access planned along the corridor and the increased likelihood of future rapid transit. The Project will also help corridor communities negotiate with developers to implement right-of-way improvements and advocate for the types of developments supported by communities and called for in the Metro Vision Plan.

As a result of this confidence, emerging urban centers will attract these new employment hubs with residential opportunities and other supporting uses that increase local livability, reducing the intensity of overall travel demand as the corridor grows. Transit-supportive densities, livable, accessible development can be pursued around planned station areas due to increased confidence that high-quality transportation options including high-frequency bus rapid transit, and attractive and well-connected walking and cycling facilities that are being planned for and will be available in the future.

Existing and new employers on the corridor can have confidence that workers will have access to safe and reliable multimodal transportation options and be able to attract and retain talent looking for these high-quality travel options. Major educational institutions such as the University of Colorado, Boulder, which is planning a major expansion on their eastern campus located on the western end of the SH 7 corridor on Arapahoe Avenue, can have confidence that both students and faculty can rely on a multi-modal corridor to access a variety of housing options for all ages, incomes, and abilities, as well as, travel choices.

The Project will prepare plans that allow for agencies to be nimble to implement critical safety and multimodal capacity improvements as new transportation revenues become available. State Highway 7 has been identified by CDOT as a key corridor for investment, should significant new revenues be available. Planning and preparing for consistent transportation improvements developed by this project is a critical step in realizing full the development potential of our emerging urban centers on the corridor to support current and new residents, as well as, current and new/expanding employers on the corridor and throughout the region.

As acknowledged in Metro Vision, the underpinnings of a sustainable and resilient economy in the region include all of the region's assets: physical infrastructure and transportation, quality of life and amenities, an education

system that supplies skilled labor and is accessible to all, the ability to attract and retain workers and innovators, a high-quality built environment, and housing options that are affordable to all ages and incomes and abilities. This Project will develop implementable plans that will prepare the corridor for economic resilience consistent with Metro Vision.

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

The PELs and EATP recommend improvements for all surface transportation modes. Currently, there are a lack of continuous, dedicated facilities to support transit, bicycle, and pedestrian modes along the corridor and the highway is inadequate to meet the existing and future mobility demand. Currently, there is no transit service east of the Lafayette Park N Ride. There are miles of segments with limited or no shoulder available for cycling and the vast majority of the corridor lacks sidewalks or off-street trail facilities for walking or bicycling.

This Project will take the recommendations from both PELs and EATP to a level of design that will allow for rapid investment into all modes resulting in new, high-quality facilities to help enhance connectivity between modes along with increasing multimodal access to goods and services on the corridor. The project will also be able to incorporate findings from the SH 7 Station Area Design Plan that is currently getting underway that will further define station locations, transit operations, right of way needs, and first and final mile facilities and amenities.

The studies and plans call for a Bus Rapid Transit service from Brighton to Boulder with bus on shoulder facilities. Full implementation will include BRT branded stations with high-quality amenities such as real-time information, ticket vending machines/off-board fare collection, and weather protection. Additionally, the studies recommend a separated multi-use trail facility from Brighton to Boulder that is accessible and attractive to all ages and abilities. The facility will appeal to a broader range of residents and employees, facilitating first and final mile, utilitarian, as well, as recreational trips, supporting our communities with healthy, active lifestyle opportunities and transportation options.

In addition to the PEL's and the EATP, corridor communities are investing and collaborating on several other complimentary plans and studies to support multimodal connectivity including the 2018 Bus Rapid Transit Feasibility Study, a conceptual plan for the I-25/SH 7 Mobility Hub in conjunction with the I-25 North Tolloed Express Lanes plans, and is currently kicking off a station area design plan for 15 BRT stations along the corridor. These concurrent and present efforts are complementary to the proposed Project to build a well-connected multimodal corridor.

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

Adams, Boulder, and Broomfield Subregions, CDOT, and local municipalities have all committed to contributed match to this project. Broomfield is sponsoring the project and CDOT Regions 1 & 4 will work collaboratively to manage the implementation of the project.

Three subregions of Adams, Boulder and Broomfield have committed a total of \$4,000,000 in federal subregional dollars to leverage a 60/40 in overmatch demonstrate the regional importance of this project for North Metro Denver.

Eight communities from all four subregions have committed \$1,000,000 in financial support of local dollars for the project including Adams County, Boulder County, City of Boulder, City of Brighton, City & County of Broomfield, City of Lafayette, City of Thornton, and the Town of Erie.

CDOT R1 and R4 have each committed \$500,000 for the project, for total of \$1,000,000 in state/non-federal funds. CDOT will ultimately managed this project should funds be awarded.

RTD has communicated concurrence and support for the project, though is unable to provide financial support at this time. RTD will be able to support the project with staff commitment.

The SH 7 Coalition, which was formalized in 2017 (Attachment 3: SH 7 Statement of Purpose), strongly supports this project. This group works collaboratively to identify and advocate for transportation improvements on State Highway 7 and to support high-quality land use development along the corridor. This project furthers the mission of the SH 7 Coalition to work collaboratively to seek funding that supports the implementation of a multimodal corridor. This group includes core members from corridor municipalities and counties, the Northwest Chamber Alliance, Commuting Solutions, Smart Commute Metro North, University of Colorado - Boulder along with participation from RTD, CDOT Region 1 and Region 4.

The US 36 Mayors and Commissioners Coalition (MCC) has also provided a letter of support for the project demonstrating the regional significance of the project.

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)**.

The project will plan for improvements that will increase the transportation system capacity and improve multimodal infrastructure and services for all, including vulnerable populations such as older adults, low-income families, minorities, and people with disabilities. Vulnerable populations are much more likely to rely on transit services and healthy, able-bodied persons will also rely on active transportation modes including walking and bicycling to access employment, everyday shopping, and services, including medical. These plans will prepare the corridor for transit and active transportation investments that support vulnerable populations to help older adults and persons with disabilities to live independently and support low-income households with affordable and safe transportation options.

Currently, living along the corridor there are:

- 16,500 adults over the age 65
- 8,900 households living in poverty
- 3,900 households without access to a vehicle
- 5,700 persons with a disability
- 4,200 linguistically challenged persons
- 20,800 children between the age 5 and 17

These households and families are most impacted by the current state of the corridor that lack transit facilities east of Lafayette and general lack of bicycle and pedestrian access along the majority of the corridor.

In addition, 85 health facilities have been identified within one mile of this corridor. Not only is City of Boulder a hub for many medical services for the region, including Boulder Community Health located on SH 7/Arapahoe Avenue, there are also numerous health facilities located in Lafayette that are currently accessible from the Lafayette Park N Ride as a local transit transfer. The City of Lafayette has a WIC Clinic at South Boulder Road and Minotaur (Boulder County Public Health). Multimodal improvements on SH7 will complement current multimodal access improvements on South Boulder Road and will increase access to Boulder County Public Health for vulnerable populations along the corridor as well as for residents within the City of Lafayette.

Currently, Children's Hospital on SH 7 in Broomfield is expanding its facility. Currently, there is no transit access to Children's Hospital for vulnerable populations to access services affordably on the eastern end of the corridor. Planning for multimodal improvements will increase access to populations that currently have severely limited transportation options. Residents of Brighton may have limited access to a variety of specialty medical services

available locally, planning the corridor for multimodal improvements will increase the available options for residents to access more affordably and conveniently medical services on the SH 7 corridor and throughout the Denver metro region.

This project will plan for capacity improvements to facilitate the future BRT transit from Brighton to Boulder which will allow for the expansion more accessible options such as Access a Ride and Call N Ride service areas for individuals that cannot access fixed route transit options. For those that have ability to use the future BRT service there is planned connectivity along the corridor allow access to RTD service network and Bustang services on the I-25 corridor from Denver to Fort Collins, increasing options and access to statewide medical services for vulnerable populations that rely the most on transit. Not only will access be improved for residents on the corridor, new access will be available to travelers from outside the metro region such as Fort Collins or other more rural communities in the north state through new access provided by facilitating transfers at I-25 Mobility Hub.

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

The project will implement the recommendations in the two PELs and the EATP to increase multimodal capacity and increase the reliability of travel time on the corridor. Ultimately, this project is planning for improvements that allow for the future implementation of BRT, including full-depth shoulders where feasible, for transit operations further increasing the corridor capability to move people efficiently. Plans will also include critical intersection improvements that improve the reliability of the corridor for high-capacity modes including queue jump lanes that will be enhanced with signal priority for transit.

The 2014 SH 7 PEL that studied US 287 to US 85 in Brighton found that if no action is taken to make operational improvements, many intersections will be over capacity in the peak PM hour in 2035. The study found that 17 of the 25 intersections studied would operate at LOS D or worse in the AM peak and 18 out of 25 intersections would operate at LOS D or worse in the PM peak. As a result of additional intersection congestion, SH7 operations will degrade, resulting in a reduction in speed and an increase in travel time. The impacts are significant enough that congestion at specific intersections will regularly cause traffic to back up beyond adjacent intersections. The study also found that the entire corridor from US 287 to US 85 is expected to have travel demand that exceeds capacity by 2020, with the exception of a few segments, demonstrating the urgency to plan for the recommended improvements now.

In the 2018 SH 7 PEL that studied from 75th Street to US 287 identified the level of service for the three signalized intersections on this segment. During AM and PM, the intersections of SH 7 / N 95th Street and SH 7 / US 287 both operate at LOS F and currently experience extreme delay that often result in queues extending over a mile from intersections. The intersection of SH 7 / N 75th Street operates at LOS C during morning peak period and LOS D during evening peak period. This existing delay will be compounded in the coming years as additional housing comes online and development takes place on the corridor. There is a lack of safe bicycle and pedestrian facilities on much of the corridor, and in areas where transit does exist, stops and stations are undeveloped and unsafe. SH 7 is primarily a two-lane highway in this segment with auxiliary lanes at major accesses and intersections; however, many accesses have no auxiliary lanes. Storage lengths for auxiliary lanes at each of the three study intersections are too short to handle peak hour demands, resulting in turning queues blocking through traffic and pose safety issues. This results in increased congestion and corridor travel time for through traffic, reducing the efficiency of the signals. The project will plan for implementation of recommendations that reduce queuing and reduce unnecessary delay on the corridor.

The 2018 East Arapahoe Transportation Plan which studied Folsom Street to 75th Street, cites that traffic volumes on the corridor have nearly doubled in the past 30 years in the City of Boulder. Approximately 47% of Boulder workers commute from other places in the region. The rate of single-occupancy vehicle (SOV) work trips for in-commuters is well above the rate for residents—80% versus 47%. If the recommendations are built, the

East Arapahoe corridor will show a 14% decrease in in vehicle miles traveled, versus a no build, increasing the reliability of the corridor with limited right of way expansion. The person carrying capacity also increases with multimodal options and that a BRT commute into Boulder starting at US 287, will only take 19 minutes, six minutes faster than without BRT and be comparable to a 17 minute drive, making the travel time of BRT competitive to driving. Planning for a multimodal corridor that supports commuters in Boulder and from outside of Boulder with non-SOV options will improve reliability as the corridor grows.

The 2018 SH 7 BRT Feasibility Study found that a commute from Brighton to Boulder BRT in dedicated lanes could anticipate a commute of 59 minutes or 76 minutes on BRT in mixed traffic compared to 80 minutes in a private automobile. A peak hour commute from Lafayette to Boulder found a commute of 27 minutes in dedicated lanes compared to 46 minutes in a private auto. These initial results show immense promise of planning for dedicated facilities for Bus Rapid Transit to move people quickly and efficiently through the corridor. These plans will prepare for BRT investments that support a multimodal corridor.

In parallel to these efforts, CDOT is planning for the replacement of the I-25/SH7 interchanges that is expected to reach failing levels of service in less than 10 years, demonstrating the timeliness of this proposed project. The proposed project plans will complement and support the interchange replacement effort to increase capacity and reliability corridor-wide as well as I-25 interchange operations.

As the corridor grows, planning for the investments that have been recommended will reduce travel time on the corridor, reduce delay, and increase reliability. Planning for corridor investments for intersection capacity, BRT lanes and complementary commuter bikeway and pedestrian improvements will support an overall reduction single occupant vehicle travel and reduce overall vehicle miles traveled on the corridor relative to anticipated growth of households and jobs that are expected by 2040.

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

Today, during peak hours along sections of the corridor not only do travelers experience significant delays but also conditions that impact safety, this project will develop the preliminary and environmental engineering for key intersections and segments to mitigate and improve safety conditions and increase travel time reliability. Safety trends were identified in the PELs and East Arapahoe Transportation Plan and summarized below.

The 2014 PEL (US 287 to US 85) identified numerous safety performance issues, during the three-year study period 2008-2010. There were 675 reported crashes on SH 7 within the project limits, with the following characteristics:

- 90 percent were property damage only (PDO) crashes
- 61 injury crashes and 2 fatal crashes. Both fatal crashes occurred in 2008 with one at an intersection (a broadside crash at Holly Street) and the other at a non-intersection location (a sideswipe opposite direction crash, east of Quebec).
- Rear-end type crashes (52 percent) were the predominant crash type, followed by broadside type crashes (15 percent).
- Some intersections along SH 7 experience higher than expected rear-end and approach turn/broadside crashes when compared to other similar facilities.
- Existing storage lengths for auxiliary lanes at some intersections are too short to handle the peak hour demands, resulting in turning queues blocking through traffic and resulting in rear-end crashes.
- Protected left turn phase movements are not included at most intersections along the corridor resulting in a high number of approach turn/broadside crashes.
- Continuous pedestrian and bicycle facilities are missing or deficient along the corridor and there is no transit access alternative to destinations along SH 7 between Lafayette and Brighton.

The 2018 PEL (75th Street to US 287) five years of crash history (2010-2014) identified 282 collisions along SH 7 within the study section, with the following characteristics:

- Majority (about 70 percent) were property damage only (PDO) crashes

- 81 injury crashes and one fatal crash
- 116 persons injured and one person killed overall. The fatal crash (a head on crash to the east of Arapahoe Road) occurred in June 2012
- A crash diagnostics analysis indicates that the three major intersections (75th Street, 95th Street, and US 287) along the study corridor have a higher than expected frequency of rear end crashes.
- The non-intersection segments of the study area experiencing a higher than expected number of both rear end and total fixed object type crashes when compared to similar rural corridors. Though, when compared to similar urban corridors, the frequency of rear-end crashes is close to the typical rate. Many of these rear end crashes that have occurred outside the intersections are likely a result of congestion and queuing from nearby intersections.
- A review of the crash history indicated that over half of the intersection rear end crashes occurred during the AM and PM commuter peak hours.

The East Arapahoe Transportation Plan analyzed 736 crashes over a three year period from 2012-2014 and identified 736 reported collisions, with the following characteristics:

- The vast majority (89%) occurred at intersections, including most crashes involving pedestrian and bicyclists.
- Most crashes (90%) involved only motor vehicles and the majority of crashes (55%) were rear end collisions.
- Approximately 70% of the crashes occurred at four intersections: 28th Street, 30th Street, Foothills Pkwy, and 55th Street. These intersections also had the highest crash rates.
- Arapahoe Avenue between 30th Street and 33rd Street experienced the highest number and rate of crashes between intersections, accounting for both traffic volumes and distance.
- The highest number of crashes involving bicyclists occurred at Arapahoe Avenue and 30th Street. Thirteen of the crashes involving bicyclists (about 33%) involved conflicts between eastbound bicycles on the north-side multi-use path and vehicles turning right onto Arapahoe Avenue from driveways or side streets.

In addition to the three studies, a report was generated from CDOT most recent five year history for the corridor from Folsom Street in Boulder to US 85 in Brighton for corridor consistency. The five year report indicates:

- 10 fatal crashes
- 724 injury collisions
- 1873 property damage only collisions
- 70 collisions involved a bicycle
- 27 collisions involved a pedestrian

In addition, since the 2014 PEL, the segment of SH 7 through Thornton, unincorporated Adams County, and Brighton has experienced a significant increase in oil and gas development. This segment of the corridor crosses the Wattenberg Field and the Niobrara shale formation, which is the state's largest oil and gas producing area. Since the start of 2015, there have been more than 400 wells proposed or developed in this area of Adams County. The truck trips generated from oil and gas development have created safety concerns and traffic conflicts along SH 7 for these communities, as the current 50-55 MPH roadway lacks adequate shoulders and does not accommodate alternative transportation modes. Safety concerns within the Adams County communities have increased significantly with the growth of heavy truck traffic that transports the necessary equipment and byproducts of oil and gas development. With this project, CDOT will evaluate current and forecasted conditions to appropriately accommodate all highway users.

Source for number of wells proposed and permitted: Adams County Weekly Oil and Gas Activity Report, <http://www.adcogov.org/oil-and-gas-information>

The 2018 SH 7 BRT Feasibility Study's Economic Development Assessment evaluated safety benefits for the proposed BRT on SH 7. The study identified that driving results in 72 times more fatalities per mile driven than bus transit (U.S. average). Assuming a shifting 42,000 vehicle miles travelled per day (10.9 million/year) to transit results in 2.55 fewer fatalities over 30 years.

The Environmental Protection Agency (EPA) estimates the value of a human life at \$9.2 million, which results in a benefit of \$23.5 million in averted fatalities over 30 years. Lesser injury and PDO collisions are not included in this value.

The project will improve safety conditions on the corridor by advancing the design of recommended safety improvements identified in the studies, while taking into account the most recent safety information, to develop preliminary engineering plans that can be implemented by private developers, or with public funds from local, state and/or federal agencies. In the case of this corridor, it is anticipated that capacity improvements could mitigate many crashes, as the high number of rear-end collision could be an indicator of the congestion issues that exist today on the corridor.

The proposed planning effort will be conducted by CDOT, who can ultimately prioritize construction of the most critical improvements based on priorities such as safety and availability of funding.

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

Yes. The proposed project creates plans that will lead to eventual multimodal capital investments that will connect the existing seven distinct urban centers on the corridor including three in Boulder, two areas of Broomfield & Thornton at the I-25/ SH 7 interchange, the terminus of the N commuter rail line at SH7/Colorado Blvd and Downtown Brighton.

The 2018 SH 7 BRT Feasibility Study cites the number of households on the corridor is anticipated to increase by 74% from approximately 50,000 to 87,000 households in 2040 (increase of 37,000 households) based on DRCOG data. Overall, the population is expected to increase from 123,000 to 179,000 by 2040 and employment on State Highway 7 is expected to increase from 90,000 to 128,000 jobs by 2040. The project will help facilitate confidence in multimodal transportation investments that will in turn help focus and facilitate planned growth in identified urban centers located on the corridor.

The 2018 SH 7 BRT feasibility Study calls for strategic growth of transit supportive densities of residents and employment with a mix of other supportive uses surrounding proposed BRT station areas, particularly those within existing DRCOG urban centers. The completed study is intended to be used as a guide to support agencies in developing a multimodal corridor that supports a range of transportation options while maximizing capacity. SH 7 Coalition communities were informed of the benefits to build transit supportive land uses and densities around identified station areas and given information to align local community development goals with the regional multimodal opportunity to prepare the corridor for high-quality, high frequency transit investments. The Coalition encourages regular coordination and information sharing to support and focus the future growth on the corridor. These activities complement the Project and support Metro Vision objectives to increase awareness of the corridors existing and planned urban footprint and coordinate regional growth priorities with local plans.

The proposed project creates implementable plans that helps development in these identified urban centers realize the full multimodal potential of corridor and encourage transit supportive mix of uses and densities in our urban centers.

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

Yes. The recommendations from the previously identified studies/plans call for multimodal improvements corridor wide. Plans will help develop implementable plans for dedicated full-depth bus on shoulder lanes, queue jumps at intersections, a commuter bikeway for active transportation modes from Brighton to Boulder and pedestrian improvements.

This project develops plans for a direct east/west multimodal corridor connecting seven existing and emerging urban centers along the corridor, as well as, there is existing and planned connectivity to the north/south multimodal corridors to US 36, US 287, I-25, N Line commuter Rail, and US 85 transit services. Currently, there are approximately 15 BRT stations under study. Additionally, the commuter bikeway will intersect with several regional bikeways and local trail connections.

The plans will prepare the corridor to improve multimodal access to US 36 BRT service in Boulder and numerous local connections. Along US 287 there is existing regional transit service that has plans for BRT as called for in the 2014 North Area Mobility Study (NAMS) as well as numerous local connections to Erie and Lafayette destinations.

CDOT is preparing plans, at I-25/ SH 7 in a parallel effort, for a state of the art Mobility Hub diverging diamond interchange with center loading stations to facilitate quick transfers between SH 7 service and I-25 regional services to Denver including RTD Longmont Express route and CDOT’s Bustang with service to Fort Collins. The design also calls for pedestrian and bicycle only mezzanine from all four quadrants of the interchange to facilitate safe and attractive access for people accessing the station.

The future N Line will terminate near SH 7 and Colorado Blvd and will have regional rail connectivity along the I-25 corridor to Denver Union Station and local access options.

Finally, the planned multimodal improvements that will facilitate high-quality BRT service will terminate in Downtown Brighton. This is extremely important to Brighton as currently, transit options are extremely limited in destinations and frequency. This project will plan for high-quality multimodal improvements that will connect Brighton to the regional multimodal system and provide more affordable transit options and destinations.

Ultimately, the plans prepared by this Project are core to efficient multimodal functions of corridor and support connectivity between corridor urban centers and to the greater region at stations and hubs that are currently being planned for in tandem.

MV objective 4

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

3. Will this project help increase mobility choices within and beyond the region for people, goods, or services?

Yes No

Describe, including supporting quantitative analysis

Yes, this project will absolutely increase mobility choice within and beyond the region for people, as well as, goods and services, by planning for 2040 mobility choice. These plans are the next step to being able to

implement improvements that will increase safe and reliable transportation options.

As an example, 2014 PEL notes that with the implementation of capacity improvements on the eastern end of the corridor in Adams County, between Colorado Blvd to US 85, travel forecasts are estimated to increase by 15-20% more than a no-build alternative demonstrating the latent vehicular travel demand for passengers and goods/services.

The plans lay the groundwork to build a robust 26-mile multimodal corridor with safer and more reliable options for transit and active transportation. As noted previously, the vast majority of the corridor has limited off-street facilities for walking and bicycling, and limited/inconsistent shoulders for cycling and no transit service on the corridor east of Lafayette. Some segments have zero shoulders or off-street facilities available for non-motorized modes of transportation. These plans lay to ground work to increase capacity of the network for all modes of transportation as well as increase access of modes of transportation for all ages, abilities and incomes.

The 2018 BRT Feasibility Study identifies that BRT transit will be a highly competitive option by 2040. The study found that a trip from Brighton to Boulder in peak hour would take 59 minutes by BRT in a dedicated lane, compared to 80 minutes in a private auto. A peak hour commute trip between Lafayette and Boulder would take 27 minutes in BRT with dedicated lanes, compared to a 46 minute private auto trip. In both scenarios, if a standard bus did not have a dedicated lane and was required to travel in mixed traffic, and was not supported with BRT station facilities, the trip would take longer than a private auto trip, signifying the importance to plan for future mobility choices now.

These preliminary engineering plans lay the foundation to improve the region's comprehensive 2040 transportation system by planning for the design of the core facilities required to deliver high-quality transit service, capacity enhancements for all modes and active transportation facilities to rapidly emerging urban centers.

[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 project will develop plans to allow for implementation of BRT in both a bus on shoulder and Business Access Transit Lanes condition, providing high-quality, high-frequency, reliable transit options that will convert single occupant vehicle trips to transit trips, improving air quality and reducing emissions and pollutants. Additionally, the plans include the provision of a commuter bikeway will allow for active transportation options as a viable first and final mile solution from BRT stations or even full trips to be taken by foot or by bicycle on the corridor.

The calculation in Part 3A (transit) estimates that 120,500 pounds of emissions would be saved daily by investing in planning for multimodal facilities.

Analysis conducted by the 2018 BRT Feasibility Study's Economic Development Assessment identified that reduction of automobile emissions from the shift of vehicle miles travelled (VMT) to transit is a benefit. the study estimated that in the first year of service 3,900 metric tons of CO2 are reduced from private automobile travel (not including a small increase from transit emissions). the cost of carbon is estimated at about \$50 per metric ton for impacts related to climate change. the reduction of CO2 emissions results in a benefit/cost savings of \$5.7 million over 30 years, assuming an annual average of approximately 11 million VMT saved

Metro Vision calls for strategic initiatives such as improving travel choice and developing infrastructure to support alternative modes to meet this goal. This project clearly prepares the corridor for investments that will reduce overall emissions, pollutants and increase air quality, compared to not planning for the recommendations

called for in the PEL and EATP.

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

Yes, this project creates plans for a connected and consistent commuter bikeway facility along SH 7 that will connect the communities from Brighton to Boulder and will have numerous connections to other regional and local active transportation facilities (both existing and planned), that will increase the accessibility of our open spaces and parks.

The corridor intersects with several existing and future alignments of at least 6 regional trails including Boulder Creek Trail, Rock Creek Trail, the Broomfield Trail, Big Dry Creek Trail, Signal Ditch Trail (future), South Platte River Trail in Brighton.

Major open spaces and parks will have accessibility from the SH 7 facilities with connecting trails such as Big Dry Creek Open Space, Preble Creek Open Land, Broomfield Open Space, Josephine Roche Open Space, Boulder County Open Space, Sombrero Marsh, and several existing and future community parks located in residential areas in the urban centers.

Metro Vision calls for strategic investment in multimodal projects to increase accessibility of our natural assets by transit, foot and bicycle. Preparing plans to allow for implementation of a consistent, connected multi-use corridor along with completing local connections at the local level supports this Metro Vision goal.

See Attachments 11 & 12 for a visual of connectivity to parks/open space and the existing bicycle 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

Yes, this project will lead to expanded opportunities for residents to lead healthy and active lifestyles by preparing plans to implement active transportation infrastructure.

Transit users often walk or cycle more than car commuters, and more likely to meet daily minimum physical activity thresholds. The commuter bikeway will allow for residents to have direct, local access to mix of land uses and destinations on the corridor, as well as numerous, regional and local trail connections. The intent is to design intersections that accommodate safe bicycle movements and high-quality pedestrian treatments. The plans will lead to a complete highway corridor that encourages, rather than discourages walking and cycling by providing off-street facilities that are more accessible and attractive to a broader segment of the population, thereby increasing opportunities for physical activity.

It is recommended that one continuous 30-minute bout of exercise can have a positive impact on physical health. According to research by U.S. Department of Health & Human Services, however, that activity accumulated in several bouts, a minimum of 10 minutes at a time, has similar health effects. Walking or bicycling as a form of transportation or walking to public transportation stations, such as bus stops, also count toward meeting the daily physical activity recommendations, according to studies (Freeland et al., 2013; Besser, Dannenberg, 2005). Overall, there is a significant 12% reduction in mortality associated with active transportation (Samitz, et al., 2011), and there is an 11% reduction in risk of cardiovascular disease associated with active transportation (Hamer, et. al., 2008; Hu, et. a., 2007).

Metro Vision calls for the region’s streets and roads to be planned designed and operated to enable safe,

convenient and comfortable travel for all ages and abilities, regardless of mode of transportation. The proposed project creates plans that will implement a complete, multimodal corridor, accessible to all ages and abilities, as recommended in the three plans/studies with options for transit, walking and cycling, providing options for residents to lead healthy and active lives.

Besser LM, Dannenberg AL. Walking to Public Transit: Steps to Help Meet Physical Activity Recommendations. American Journal of Preventive Medicine;2005;29:273-80. <http://www.ajpmonline.org/article/S0749-3797%2805%2900255-2/abstract>

Freeland AL, Banerjee SN, Dannenberg AL, Wendel AM. Walking Associated with Public Transit: Moving Toward Increased Physical Activity in the United States. American Journal of Public Health;2013;103:536-42. <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2012.300912>

Hamer M, Chida Y. Active commuting and cardiovascular risk: a meta-analytic review. Preventive Medicine; 2008;46:9–13.

Samitz G, Egger M, Zwahlen M. Domains of physical activity and all-cause mortality: systematic review and dose-response meta-analysis of cohort studies. International Journal of Epidemiology; 2011;40(5):1382–1400.

Source: <https://www.transportation.gov/mission/health/physical-activity-transportation>

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

Compared to many other major highways in the Metro region that connect identified urban centers, this corridor has disadvantage in that the majority of the corridor does not have any transit or accessible active transportation facility. This lack of access creates an access disparity for vulnerable populations on the corridor, particularly for older adults, low-income households, households without access to a vehicle, persons with a disability that do not have the ability to drive and for children too young to drive.

The numbers described earlier for vulnerable populations is anticipated to grow along with general growth in corridor as well as age over time, especially in age restricted communities that currently exist on the corridor. There are approximately 85 health facilities located on the corridor. In addition, there are many community anchor institutions located on the corridor including numerous K-12 public schools, including Pioneer Bilingual Elementary, University of Colorado Boulder, public facilities such as the Lafayette Public Library, major health institutions such as Foothills Hospital, Boulder Community Health, Children’s Hospital North Campus Community Clinic, as well as access to Brighton’s Workforce & Business Center and Brighton Branch Public Library. Cumulatively, these facilities serve thousands of people in the North Metro area.

These plans lay the ground-work to implement reliable transportation options for disadvantaged and currently underserved communities on the corridor. For example, according to the Denver Equity Atlas (Atlas), 63% of household incomes in Brighton earn 80% AMI or less in the census block that would have greatest access to these improvements. In Lafayette, surrounding the Park N Ride that will facilitate SH 7 transit operations, 66% of households live on 80% AMI or less. Additionally, in Lafayette the Atlas indicates that 18% of the population is non-white Hispanic and 16% in both Brighton and Boulder. The Atlas also indicates that in Boulder Valley District the average spending on transportation costs is over \$1,300 per student and in Brighton District \$580. Improving affordable public transportation options can increase access and reduce overall transportation costs for students.

This project is the next logical step for the corridor that plans for and prepares the corridor for the eventual

multimodal investments that will provide more reliable, accessible, affordable transportation options that will increase access to health, educational and other opportunities available in the urban centers and other nodes that could reduce income disparities for current/future residents of the corridor by increasing access to reliable transportation options.

MV objective 14

Improve the region’s competitive position.

8. Will this project help support and contribute to the growth of the region’s economic health and vitality?

Yes No

Describe, including supporting quantitative analysis

This project will prepare plans to improve the flow of people, goods/services along the corridor and throughout the region. The project plans will cover a 26.5 mile corridor connecting the three existing urban centers in Boulder to the four emerging urban centers on the corridor in Broomfield, Thornton and Downtown Brighton, as well as employment and housing concentrations in Lafayette.

The project will support the growth and expansion of at least 6 existing major industries on the corridor including: IT/software, bioscience, broadcasting & telecommunications, healthcare & wellness, financial services & energy.

The 2018 BRT Feasibility Study conducted an Economic Development Assessment in 2017 and developed forecasts of population and employment. The land use forecasts indicate that a nodal development pattern could emerge along the corridor and that this type of development is well suited to long distance commuter transit because there are more opportunities to concentrate development, and therefore, riderhip, at stations rather than dispersed along a corridor. Travel time would be competitive due to fewer stations. The 2040 Forecast identified:

- Brighton (27th Street to US85) - Population to remain constant while employment grows by 1,800 jobs
- I-25/SH 7 Interchange area - a key location for development is forecasts 11,100 residential units and 20,000 jobs
- Erie & Lafayette - forecast to grow by 8,700 and employment by 1,700
- Lafayette (119th Street to 95th Street) increase of 9,300 residents and 2,800 employees
- Boulder - increase of 5,500 residents and 18,000 jobs

This project is the next step to prepare the corridor for transportation investment to ensure the region remains competitive as the metro area continues to grow in housing and employment over the next twenty year forecast.

It is essential to develop these preliminary engineering plans and select environmental clearances to see that that the communities’ shared vision of a multimodal corridor will local livability and regional accessibility becomes a reality as land adjacent to the right of way becomes developed and should new revenues and /or grant opportunities become available.

D. Project Leveraging **WEIGHT 10%**

9. What percent of outside funding sources (non-DRCOG-allocated Regional Share funding) does this project have?	60%	80%+ outside funding sources High 60-79% Medium 59% and below Low
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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	2,126
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	123,242	90,387	213,629
2040	179,439	128,146	307,585

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	9,800
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	1,150
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	50
6. = Number of SOV one-way trips reduced per day (#3 – #4 – #5)	0	8,600
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	126,850
8. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	0	120,507

9. If values would be distinctly greater for weekends, describe the magnitude of difference:

It is not anticipated weekend transit ridership would exceed weekday ridership

10. If different values other than the suggested are used, please explain here:

Question 1: most recent available ridership for JUMP August - December 2017 runboard weekday average

Question 2: based on 2018 BRT Feasibility Study Economic Development Assessment Appx F. Information source cited was DRCOG; Economic & Planning Systems 2015 base year to 2040 forecast.

Question 3: The transit boardings for the corridor are from the 2018 SH 7 BRT Feasibility Study Travel Forecasting Analysis. The assumption is based on BRT from Brighton to Boulder with "Long JUMP" ridership with a bus on shoulder dedicated lane. It is estimated that that daily ridership on the corridor would be 9,800. See page 49 and Appendix B for the methodology.

The forecasting did not assume ridership on opening day as likely implementation of full BRT on the entire corridor would be incremental with growth and availability of BRT supporting station facilities.

Question 4 assumption is based on the 2018 BRT projected ridership of Route Pattern 1 with Long JUMP (9800) minus the BRT Route Pattern 1 projected rider ship of 8,650, which is a difference of 1,150

Question 5 assumes that since the BRT service is regional in nature, covering long distances for commuters on a

corridor that currently has limited or no off-street facilities for cyclists and pedestrians and limited shoulders for the majority of the corridor it is anticipated that a small percentage of commuters attempt walking or cycling long distances on the corridor regularly.

Question 7 assumes 50% of trips are between Boulder and Lafayette (11 miles) and the other trips are from other communities from Brighton to Boulder (26 miles). Overall trip distance average for the corridor would be 14.75 miles. This calculation is reasonable given the suggested 15 mile commute on a regional service.

B. Bicycle Use

1. Current weekday bicyclists	31
2. Population and Employment	

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	123,242	90,387	213,629
2040	179,439	128,146	307,585

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.	0	200
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)	0	100
5. = Initial number of new bicycle trips from project (#3 – #4)	0	100
6. Enter number of the new trips produced (from #5 above) that are replacing an SOV trip. (Example: {#5 X 30%} (or other percent, if justified)	0	0
7. = Number of SOV trips reduced per day (#5 - #6)	0	100
8. Enter the value of {#7 x 2 miles} . (= the VMT reduced per day) (Values other than 2 miles must be justified by sponsor)	0	200
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	0	190

10. If values would be distinctly greater for weekends, describe the magnitude of difference:

It is anticipated that the corridor would find good utilization as a commuter bikeway for utilitarian trips but also potentially a higher use on the weekends for both recreational and utilitarian trips.

It is anticipated that the corridor could possibly find weekend use to be greater than a typical weekday, similar to other CDOT monitored corridors such as US 36 Bikeway. Residents may use the facility for trips to access other trails Bikeways, trails, parks and open spaces for recreational enjoyment. The Bikeway is anticipated to facilitate a high-quality of life for residents and visitors.

11. If different values other than the suggested are used, please explain here:

Values were extracted from Strava and information from the June 2018 CDOT Strava Metro Data Analysis Summary. the SH7 corridor is identified by CDOT as "very high use"/ "high use" corridor from Boulder to Broomfield and a "medium use" corridor from Broomfield to Brighton. This is as compared to other arterial corridors analyzed in the Front Range. The study analyzed correlation of Strava users to full time counters and found a range of 3% to 30%

Strava on trail corridors.

Current utilization on the corridor varies widely, likely due to lack of connected facilities on the corridor. The highest utilization on the corridor was found in Broomfield near Lowell with 2,609 Strava trips recorded on the Highway and 761 on the adjacent path for 3,370 trips recorded in one year.

Assuming a conservative 30% utilization rate of Strava it is estimated there are approximately 11,230 annual bicycle trips under existing conditions on a segment with shoulders and an off-street facility near residential. Under these assumptions, this equates to a daily average of 31 daily trips year round today on this segment. It is likely this average is higher during Spring/summer/fall peak season and lower in winter months.

The US 36 Bikeway commuter in Broomfield currently experiences an average of about 350 weekday cyclists during peak season after 2 years since opening of the facility, as documented by an automatic counter managed by CDOT.

C. Pedestrian Use

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

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	0	0
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)	0	0
5. = Number of new trips from project (#3 – #4)	0	0
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)	0	0
7. = Number of SOV trips reduced per day (#5 - #6)	0	0
12. Enter the value of {#7 x .4 miles} . (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor)	0	0
8. = Number of pounds GHG emissions reduced (#8 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: Values for pedestrian activity are challenging to determine for the 26.5 mile corridor as pedestrian trips will be highly localized in urban centers and around future stations areas. Existing data is limited. Project will prepare plans		

to facilitate pedestrian travel along and across the corridor.

D. Vulnerable Populations

Use Current Census Data	Vulnerable Populations	Population within 1 mile
	1. Persons over age 65	
2. Minority persons		0
3. Low-Income households		8,934
4. Linguistically-challenged persons		4,247
5. Individuals with disabilities		5,774
6. Households without a motor vehicle		3,935
7. Children ages 6-17		20,805
8. Health service facilities served by project		85

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	22,950
2. 2040 ADT estimate	31,656
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: No values for future VDH are given as this Project prepares preliminary plan packages to prepare this corridor for investments that will reduce VDH upon completion of all corridor elements. The corridor is currently experiencing peak hour congestion and will continue as the land develops along the corridor. Current congestion and future travel time savings are described in the narrative in detail based on the PELs and BRT Study findings.	

F. Traffic Crash Reduction

1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians (*most recent 5-year period of data*)

Fatal crashes	10
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Serious Injury crashes	724
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Other Injury crashes	0
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Property Damage Only crashes	1873
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2. Estimated reduction in crashes applicable to the project scope (*per the five-year period used above*)

Fatal crashes reduced	0
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Serious Injury crashes reduced	0
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Other Injury crashes reduced	0
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Property Damage Only crashes reduced	0
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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*).

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

3. Average Daily User Volume	0
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Bicycle/Pedestrian/Other Facility

4. Current bicycle/pedestrian/other facility condition	Poor
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5. Describe current condition issues and how the project will address them.
The majority of the corridor east of the City of Boulder lacks consistent off-street facilities for walking and cycling. The roadway lacks consistent shoulders for cycling and several segments have no shoulders available for cycling on SH 7. The corridor will prepare plans for a connected corridor for all modes. from Brighton to Boulder.

6. Average Daily User Volume	0
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H. Bridge Improvements

1. Current bridge structural condition from CDOT
NA

2. Describe current condition issues and how the project will address them. NA	
3. Other functional obsolescence issues to be addressed by project	
4. Average Daily User Volume over bridge	0
I. Other Beneficial Variables <i>(identified and calculated by the sponsor)</i>	
1.	
2.	
3.	
J. Disbenefits or Negative Impacts <i>(identified and calculated by the sponsor)</i>	
1. Increase in VMT? <i>If yes, describe scale of expected increase</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
N/A	
2. Negative impact on vulnerable populations none anticipated	
3. Other: N/A	