



703 Weld County Road 37, Lochbuie, CO 80603
Phone: 303-655-9308 Fax: 303-655-9312

February 27, 2018

Ms. Melanie Sloan
Senior Transportation & Mobility Planner
Adams County Community and Economic Development
4430 South Adams County Parkway
1st Floor Suite W2123
Brighton, CO 80601-8204

Re: ADCOG Sub-regional TIP Application – Town of Lochbuie I-76/Baseline Road Interchange Improvements

Dear Melanie

Attached you will find the Town of Lochbuie's Sub-regional TIP Application to ADCOG for improvements to the I-76/Baseline Road Interchange.

The interchange serves as the front door to the Town of Lochbuie and as such represents a critical component of the Town's transportation system. Significant growth within Lochbuie and the surrounding area has resulted in the interchange reaching the end of its operational lifespan under its current configuration; during the afternoon peak period queues extend back to the I-76 mainline from the EB ramp, creating safety issues on I-76 and imparting lengthy delays to local traffic. In addition to the off-ramp queuing, westbound Baseline Road traffic turning left onto the Westbound I-76 on-ramp must wait for a gap in eastbound traffic; this issue will get much worse in the near future when trucks from the 76 Commercial development along the East Frontage Road are added to the road system.

This project would address the capacity issues at the interchange itself by signaling the I-76 westbound ramps/Baseline Road intersection, restriping the I-76 overpass to provide a center left turn lane, and signaling the I-76 eastbound ramps/Baseline Road intersection.

The project is anticipated to cost \$1.75 million, of which the Town of Lochbuie is requesting \$700,000 from ADCOG. The anticipated funding is as follows:

- Town of Lochbuie: \$200,000
- CDOT: \$150,000
- SW Weld County COG: \$700,000

- ADCOG: \$700,000

The attached application addresses all relevant DRCOG considerations for the project. In addition, the project addresses ADCOG's five additional considerations as follows:

Does the project benefit a small community, which for this process is defined as a community with a population of less than 50,000 people? Yes. The project primarily benefits the Town of Lochbuie (2017 population 6,400), and also provides benefit to residents who live in the northeast corner of the City of Brighton (2017 population 40,600).

Is this project a suburban connector? Yes. This project is a spot improvement to the interchange, but it benefits mobility along Baseline Road, which is a suburban connector for the Town of Lochbuie and the City of Brighton.

Does the project address a gap in existing service? No. This project increase the capacity of an existing interchange and does not represent a new roadway connection or a gap in transit, pedestrian or bicycle service.

Is this the logical next step of a project? Yes. The Town of Lochbuie is currently widening Baseline Road to four lanes from the interchange west to existing four lane section just west of 50th Avenue, including constructing a roundabout at the Baseline Road/West Frontage Road intersection. This project will build upon those capacity improvements by increasing the capacity at the interchange.

Is the project construction ready? Yes. The relatively straightforward nature of the improvements will only require around 6 months to complete the design phase. If funding is provided, design would occur in 2021 and construction would be completed in 2022.

Please contact me at (303) 655-9308 or [sstamey@lochbuie.org](mailto:ssstamey@lochbuie.org) if you have any questions or require additional information regarding this submittal.

Respectfully,



Steve Stamey
Town Administrator



COLORADO
Department of Transportation
Region 1

February 8, 2019

Steve Stamey
Lochbuie Town Administrator
703 Weld County Road 37
Lochbuie, CO 80603

RE: CDOT Region 1 Support Request for DRCOG TIP Subregional Call FY20-FY23

Dear Mr. Stamey,

This letter is to inform you that the Colorado Department of Transportation (CDOT) Region 1 concurs with the following Lochbuie application for the DRCOG Subregional FY20-23 TIP Call. This concurrence applies only for the I-76 and Baseline Rd Interchange Improvements project, in the event this project is selected by the Forum and DRCOG as a Subregional project in April/May 2019. If this Subregional project is awarded DRCOG funds at a later date, the local agency will need to submit a separate request for CDOT's concurrence and funding contribution at that time.

Based on CDOT's existing priorities and limited funds, CDOT Region 1 is able to provide \$150,000 of the \$200,000 requested, in the event this project is selected by the Forum and DRCOG. If the project is awarded funding outside of the initial Subregional process in spring 2019, then CDOT's funding contribution will need to be reaffirmed. Projects impacting state highways should assume that CDOT will manage the project and the local agency is responsible for payment of CDOT's work including indirect charges. Please note that per the DRCOG TIP Policy, if project costs increase on DRCOG-selected projects, sponsors must make up any shortfalls.

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

Regardless of funding source, if a local agency uses Federal and State funds in the design of a project, they must complete construction of the project within the contract term stated in the IGA, or reimburse CDOT/FHWA for the expended funds. Any cost overruns that exceed federal and state amounts listed on Exhibit C of the IGA will be the responsibility of the Local Agency.

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

http://www.coloradodot.info/business/designsupport/bulletins_manuals

Should you have any questions regarding this concurrence or if your agency would like to schedule time to meet with CDOT specialty units, please contact JoAnn Mattson at (303) 757-9866.

Sincerely,

A handwritten signature in blue ink, appearing to read "Paul Jesaitis", with a stylized flourish at the end.

Paul Jesaitis
CDOT Region 1 Transportation Director

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

APPLICATION OVERVIEW

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

- To be eligible to submit, at least one person from your agency must have attended one of the mandatory TIP training workshops (held August 8 and August 16) or a supplemental training held on September 14.
- Projects requiring CDOT and/or RTD concurrence must provide their official response with the application submittal. The CDOT/RTD concurrence request is due to CDOT/RTD no later than January 7, with CDOT/RTD providing a response no later than February 8. The form can be found [here](#).
- Any applications submitted by regional or similar agencies (TMA's), or municipalities crossing multiple subregions, must be submitted through the subregional forum based on where the majority of the project is located.
- Data to help the sponsor fill out the application, *especially Part 4*, can be found [here](#).
- If any sponsor wishes to request additional data or calculations from DRCOG staff, please submit your request to tcottrell@drcog.org no later than February 6, 2019.
- The application must be affirmed by either the applicant's City or County Manager or Chief Elected Official (Mayor or County Commission Chair) for local governments, or agency director or equivalent for other applicants.
- Further details on project eligibility, evaluation criteria, and the selection process are defined in the ***Policy on Transportation Improvement Program (TIP) Preparation: Procedures for Preparing the 2020-2023 TIP***, which can be found online [here](#).

APPLICATION FORM OUTLINE

The 2020-2023 TIP Subregional Share application contains three parts: *base project information* (Part 1), *evaluation questions* (Part 2), additional considerations (Part 3), and *data calculation estimates* (Part 4). DRCOG staff will review each forum's submitted applications for eligibility. Each forum will be responsible for making a comprehensive evaluation of all eligible applications and rank ordering their submittals to determine their recommended projects and waiting lists. Forum recommendations will be forwarded to DRCOG staff for a final recommendation to the TAC, RTC, and DRCOG Board.

Part 1 | Base Information

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

Part 2 | Evaluation Criteria, Questions, and Scoring

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

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

Section A. Subregional Significance of Proposed Projects 40%

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

Section B. Metro Vision TIP Focus Areas 30%

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

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

Section C. Consistency & Contributions to Transportation-focused Metro Vision Objectives 20%

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

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

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

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

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

Part 3 | Additional Considerations

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

Part 4 | Project Data – Calculations and Estimates

Based on the applicant's project elements, sponsors will complete the appropriate sections to estimate usage or benefit values. Part 4 is not scored, and the quantitative responses should be used to back-up the applicant's qualitative narrative.

Part 1 Base Information

1. Project Title **I-76/Baseline Road Interchange Signalization**
2. Project Start/End points or Geographic Area
Provide a map with submittal, as appropriate
I-76/Baseline Road interchange, including overpass and eastbound and westbound ramp intersections. See attached
3. Project Sponsor *(entity that will construct/ complete and be financially responsible for the project)*
Town of Lochbuie
Steve Stamey
Town Administrator
(303) 655-9308
sstamey@lochbuie.org
4. Project Contact Person, Title, Phone Number, and Email
5. Does this project touch CDOT Right-of-Way, involve a CDOT roadway, access RTD property, or request RTD involvement to operate service?

X Yes ☐ No
If yes, provide applicable concurrence documentation with submittal

☐ [DRCOG 2040 Fiscally Constrained Regional Transportation Plan \(2040 FC RTP\)](#)
☐ Local plan:
X Other(s): The project was identified in several traffic studies for planned development projects along Baseline Road and is being pursued to address current queuing issues on the eastbound off-ramp. See attached map for examples of typical queuing issues.
Provide link to document/s and referenced page number if possible, or provide documentation with submittal
7. Identify the project's key elements.

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

Grade Separation
☐ Roadway
☐ Railway
☐ Bicycle
☐ Pedestrian
☐ Roadway Pavement Reconstruction/Rehab
☐ Bridge Replace/Reconstruct/Rehab
☐ Study
X Design
☐ Transportation Technology Components
☐ Other:

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

Freeway safety and arterial congestion

The Town of Lochbuie and City of Brighton are experiencing significant growth at this time, and the I-76/Baseline Road interchange is reaching the end of its operational lifespan under its current configuration. During the afternoon peak period queues extend back to the I-76 mainline from the EB ramp, creating safety issues on I-76 and imparting

lengthy delays to local traffic. In addition to the off-ramp queuing, westbound Baseline Road traffic turning left onto the Westbound I-76 on-ramp must wait for a gap in eastbound traffic; this issue will get much worse in the near future when trucks from the 76 Commercial development along the East Frontage Road are added to the road system.

The interchange complex includes four intersections: the West Frontage Road, the Westbound I-76 Ramps, the Eastbound I-76 Ramps and the East Frontage Road. The Town is currently installing a roundabout at the West Frontage Road intersection and widening Baseline Road to 4 lanes west of the interchange to address capacity issues at those locations.

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

This project would address the capacity issues at the interchange itself by signaling the I-76 Westbound Ramps/Baseline Road intersection, restriping the I-76 overpass to provide a center left turn lane, and signaling the I-76 Eastbound Ramps/Baseline Road intersection.

10. What is the status of the proposed project?

The project is currently in the conceptual design phase. The nature of the improvements (signalization and re-striping) are relatively simple in nature, so final design for the project could be completed within 6 months.

- 11. Would a smaller DRCOG-allocated funding amount than requested be acceptable, while maintaining the original intent of the project?** ☒ Yes ☐ No

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

Partial funding would be acceptable provided it is sufficient to cover one of the project's 2 primary elements:

- Signalization of the westbound ramp
- Signalization of the eastbound ramp

A. Project Financial Information and Funding Request

1. Total Project Cost		\$1,750,000
2. Total amount of DRCOG Subregional Share Funding Request	\$700,000	40% of total project cost
3. Outside Funding Partners (other than DRCOG Subregional Share funds) List each funding partner and contribution amount.	\$\$ Contribution Amount	% of Contribution to Overall Total Project Cost
Town of Lochbuie	\$200,000	11%
CDOT	\$150,000	9%
SW Weld County Subregion	\$700,000	40%
Total amount of funding provided by other funding partners (private, local, state, Regional, or federal)	\$1,050,000	60%

Funding Breakdown (year by year)*		<i>*The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2019.</i>			
	FY 2020	FY 2021	FY 2022	FY 2023	Total
Federal Funds	\$	\$200,000	\$1,200,000	\$	\$1,400,000

State Funds	\$	\$	\$150,000	\$	\$200,000
Local Funds	\$	\$200,000	\$	\$	\$150,000
Total Funding	\$	\$400,000	\$1,350,000	\$0	\$1,750,000
4. Phase to be Initiated <i>Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other</i>		ENV, Design	Construction		

- 5. By checking this box**, the applicant's Chief Elected Official (Mayor or County Commission Chair) or City/County Manager for local governments or Agency Director or equivalent for others, has certified it allows this project request to be submitted for DRCOG-allocated funding and will follow all DRCOG policies and state and federal regulations when completing this project, if funded.

X

Part 2 Evaluation Criteria, Questions, and Scoring

A. Subregional significance of proposed project

WEIGHT **40%**

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

1. Why is this project important to your subregion?

The Town of Lochbuie is located on the west side of I-76 approximately 25 miles northeast of downtown Denver, at the outer edge of the metro area. The I-76/Baseline Road (WCR 2) interchange serves as the Town's primary access to the Interstate, and thus provide a critical regional connection between the Town and the jobs, medical facilities, commercial services and recreation that the metro area offers.

The Town of Lochbuie and City of Brighton are experiencing significant growth at this time, and the I-76/Baseline Road interchange is reaching the end of its operational lifespan under its current configuration. During the afternoon peak period queues extend back to the I-76 mainline from the EB ramp, creating safety issues on I-76 and imparting lengthy delays to local traffic. In addition to the off-ramp queuing, westbound Baseline Road traffic turning left onto the Westbound I-76 on-ramp must wait for a gap in eastbound traffic; this issue will get much worse in the near future when trucks from the 76 Commercial development along the East Frontage Road are added to the road system.

The interchange complex includes four intersections: the West Frontage Road, the Westbound I-76 Ramps, the Eastbound I-76 Ramps and the East Frontage Road. The Town is currently installing a roundabout at the West Frontage Road intersection and widening Baseline Road to 4 lanes west of the interchange to address capacity issues at those locations. This project is therefore the next logical step to providing a seamless connection between the Town and the regional freeway system

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

Yes. Baseline Road is the county line between Weld County and Adams County. The northwest and southwest quadrants of the interchange are within the Town of Lochbuie, the northeast quadrant is unincorporated Weld County, the southeast quadrant is within the City of Brighton, and the area further east and south of Baseline is unincorporated Adams County. Thus, the improvements would benefit the following municipalities:

- Weld County
- Adams County
- City of Brighton
- Town of Lochbuie

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

Yes. Baseline Road is the county line between Weld County and Adams County. Thus the project benefits the following subregions:

- ADCOG
- SW Weld County

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

This project would address the capacity issues at the interchange itself by signaling the I-76 Westbound Ramps/Baseline Road intersection, restriping the I-76 overpass to provide a center left turn lane, and signaling the I-76 Eastbound Ramps/Baseline Road intersection. The signals will eliminate the issue of queues extending back to the I-25 mainline and significantly reduce the travel delays at the ramp intersections.

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?**

As noted in #1 above, the interchange serves as the key connection between the Town of Lochbuie and metro-area jobs, medical facilities, commercial services and recreation. The improvements will eliminate delays faced by all interchange user, effectively removing any travel barriers faced by those users.

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

Not applicable. The area is located at the extreme northeast corner of the metro area, so it does not have transit service. Furthermore, the project does not include pedestrian or bicycle facilities as there are no pedestrian or bicycle attractors/generators near the interchange that generate trips via those modes.

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

This project will be jointly funded between CDOT, ADCOG, SW Weld County COG and the Town of Lochbuie, with a portion of the Town of Lochbuie's funding coming from private development.

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 Town of Lochbuie currently has no medical facilities. The nearest emergency room is located at the Platte Valley Regional Medical Center, which is a full-service hospital located off I-76 south of Bromley Lane; emergency vehicles use the interchange to access that facility, so they are currently impeded by traffic and queuing at the interchange. The improvements at the interchange will eliminate existing delays for emergency vehicles at the interchange and ensure quicker access to the hospital.

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

Not Applicable. The project addresses vehicle-focused issues and does not include multimodal elements. As noted in the response to Question A.6 above, there is no transit service in the area, and pedestrian and bicycle mode share is minimal around the interchange.

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

During the afternoon peak period, traffic at the eastbound ramp Intersection extends down the ramp and onto the I-76 mainline, creating a significant safety hazard between the stopped traffic heading to Baseline Road and the through traffic travelling at 75-80 mph on mainline I-76. The signal and turn lanes at the ramp intersection with Baseline Road will eliminate this condition.

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?

X Yes ☐ No

Describe, including supporting quantitative analysis

The Town of Lochbuie and City of Brighton are experiencing significant growth at this time, and the existing interchange is reaching the end of its operational lifespan. The Town of Lochbuie is doing their part to address this growth by widening Baseline Road to four lanes west of the interchange, and installing a roundabout at the West Frontage Road intersection. However, without improvements to the interchange, additional planned development in the area would face considerable delays at the interchange ramp terminals and create queues that regularly extend back onto the I-76 mainline. With the planned improvements, the interchange will be able to accommodate this planned growth.

Current Interchange Delay: 47 vehicle-hours per weekday

Interchange Delay with the Improvements: 17 vehicle-hours per weekday

[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

While the project is not located within an Urban Center, the planned new development in the Town of Lochbuie is primarily single family homes, and the improvements will ensure that this housing stock (over 1,000 additional homes have been approved to date that would use the interchange) will be more seamlessly connected to the jobs in the metro area.

[MV objective 4](#)

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

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

Describe, including supporting quantitative analysis

No. As noted in the response to Question A.6 above, there is no transit service in the area, and pedestrian and bicycle mode share is minimal around the interchange. As a result, the project addresses vehicle-focused issues and does not include multimodal elements.

[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

During the afternoon peak period, traffic at the Eastbound Ramp intersection queues down the ramp and results in extensive vehicle delay. In addition to the off-ramp queuing, westbound WCR 2 traffic turning left onto the Westbound I-76 on-ramp must wait for a gap in eastbound traffic; this issue will get much worse in the near future when trucks from the 76 Commercial development along the East Frontage Road are added to the road system. The turn lanes on WCR 2 across the overpass will allow westbound traffic to avoid getting stuck behind those left turning vehicles. In both cases, the delay reductions from the proposed improvements will result in a corresponding reduction in air pollution.

Current emissions at the Interchange: 6.6 kg CO, 1.3 kg NOx, 1.6 kg VOC

Interchange emissions with the Improvements: 4.5 kg CO, 0.9 kg NOx, 1.0 kg VOC

[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

No. As noted in the response to Question A.6 above, pedestrian and bicycle mode share is minimal around the interchange. As a result, the project addresses vehicle-focused issues and does not include multimodal elements.

[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

Barr Lake State Park, with its system of trails, is located off I-76 south of 144th Avenue, and nearly all Town residents use the interchange to access that facility. Thus, the project will provide improved access to recreation.

MV objective 13 **Improve access to opportunity.**

7. Will this project help reduce critical health, education, income, and opportunity disparities by promoting reliable transportation connections to key destinations and other amenities? ☒ Yes ☐ No

Describe, including supporting quantitative analysis

The project provides the following benefits:

Improved Access to Medical Facilities: The nearest emergency room is located at the Platte Valley regional medical center, a full-service hospital located off I-76 south of Bromley Lane; emergency vehicles use the interchange to access that facility. The improvements at the interchange will eliminate existing delays at the interchange and ensure quicker access to the hospital for emergency vehicles and town residents with non-emergency medical needs.

Improved Access to Employment. Nearly all of the jobs in the metro area are located south of Lochbuie (Commerce City, Downtown Denver, Aurora, DIA, etc.) so most town residents use the I-76 interchange as part of their work commute.

Improved Access to Commercial Services. Prairie Center, the major commercial center for the northeast metro area is located off I-76 south of Bromley Lane, so nearly all Town residents use the interchange to access that facility.

Improved Access to Recreation. Barr Lake State Park is located off I-76 south of 144th Avenue, so nearly all Town residents use the interchange to access that facility.

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

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

Describe, including supporting quantitative analysis

Reasonably priced housing is a critical need in the metro area. Because Lochbuie is located on the outer fringe of the metro area, home prices tend to be lower than elsewhere in the metro area. As noted above the planned new development in the Town of Lochbuie is primarily single family homes, so the improvements will ensure that this housing stock (over 1,000 additional homes have been approved to date that would use the interchange) will be more accessible and desirable to those working elsewhere in the metro area.

D. Project Leveraging

WEIGHT 10%

- | | | |
|--|-----|--|
| 9. What percent of outside funding sources (non-DRCOG-allocated Subregional Share funding) does this project have? | 20% | 60%+ outside funding sourcesHigh |
| | | 30-59%Medium |
| | | 29% and belowLow |

Part 3 Additional Considerations

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

- Does the project benefit a small community, which for this process is defined as a community with a population of less than 50,000 people?

Yes. The project primarily benefits the Town of Lochbuie (2017 population 6,400), and also provides benefit to residents who live in the northeast corner of the City of Brighton (2017 population 40,600)

- Is this project a suburban connector?

Yes. This project is a spot improvement to the interchange, but it benefits mobility along Baseline Road, which is a suburban connector for the Town of Lochbuie and the City of Brighton

- Does the project address a gap in existing service?

No. This project increase the capacity of an existing interchange and does not represent a new roadway connection or a gap in service.

- Is this the logical next step of a project?

Yes. The Town of Lochbuie is currently widening Baseline Road to four lanes from the interchange west to existing four lane section just west of 50th Avenue, including constructing a roundabout at the Baseline Road/West Frontage Road intersection. This project will build upon those capacity improvements by increasing the capacity at the interchange.

- Is the project construction ready?

The relatively straightforward nature of the improvements will only require around 6 months to complete the design phase. If funding is provided, design would occur in 2020 and construction would be completed in 2021.

Applicants should provide an attachment to the application to address these additional considerations.

Part 4 Project Data Worksheet – Calculations and Estimates

(Complete all subsections applicable to the project)

A. Transit Use

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

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	6,000	100	6,100
2040	8,900	200	9,100

Transit Use Calculations	Year of Opening	2040 Weekday Estimate
3. Enter estimated additional daily transit boardings after project is completed. <i>(Using 50% growth above year of opening for 2040 value, unless justified)</i> <i>Provide supporting documentation as part of application submittal</i>	0	0
4. Enter number of the additional transit boardings (from #3 above) that were previously using a different transit route. <i>(Example: {#3 X 25%} or other percent, if justified)</i>	0	0
5. Enter number of the new transit boardings (from #3 above) that were previously using other non-SOV modes (walk, bicycle, HOV, etc.) <i>(Example: {#3 X 25%} or other percent, if justified)</i>	0	0
6. = Number of SOV one-way trips reduced per day (#3 – #4 – #5)	0	0
7. Enter the value of {#6 x 9 miles}. (= the VMT reduced per day) <i>(Values other than the default 9 miles must be justified by sponsor; e.g., 15 miles for regional service or 6 miles for local service)</i>	0	0
8. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	0	0

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

N/A

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

This area is not served by transit.

B. Bicycle Use

1. Current weekday bicyclists

0

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	6,000	100	6,100
2040	8,900	200	9,100

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	0
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	0
5. = Initial number of new bicycle 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
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	0
9. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	0	0
10. If values would be distinctly greater for weekends, describe the magnitude of difference: There may be a few recreational bicycle trips through the interchange on the weekend (10-15 per day), but this area does not experience significant bicycle traffic.		
11. If different values other than the suggested are used, please explain here: N/A		

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	6,000	100	6,100
2040	8,900	200	9,200

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: N/A		
10. If different values other than the suggested are used, please explain here: There are no pedestrian generators/attractors in the vicinity of the interchange, so there is no pedestrian traffic across it.		

D. Vulnerable Populations

	Vulnerable Populations	Population within 1 mile
Use Current Census Data	1. Persons over age 65	415
	2. Minority persons	3,460
	3. Low-Income households	685 out of 1,750
	4. Linguistically-challenged persons	615
	5. Individuals with disabilities	690
	6. Households without a motor vehicle	70 out of 1,750
	7. Children ages 6-17	1,830
	8. Health service facilities served by project	0

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	7,500 AWDT on overpass
--	------------------------

2. 2040 ADT estimate	19,700 AWDT
3. Current weekday vehicle hours of delay (VHD) (before project)	47 hrs

Travel Delay Calculations		Year of Opening
4. Enter calculated future weekday VHD (after project)		17 hrs
5. Enter value of {#3 - #4} = Reduced VHD		30 hrs
6. Enter value of {#5 X 1.4} = Reduced person hours of delay (Value higher than 1.4 due to high transit ridership must be justified by sponsor)		42 hrs
7. After project peak hour congested average travel time reduction per vehicle (includes persons, transit passengers, freight, and service equipment carried by vehicles). If applicable, denote unique travel time reduction for certain types of vehicles		24 seconds per vehicle through the interchange
8. If values would be distinctly different for weekend days or special events, describe the magnitude of difference. Congestion is currently not an issue at the interchange on the weekends. There are no special events in the area that generate significant traffic.		
9. If different values other than the suggested are used, please explain here:		

F. Traffic Crash Reduction

1. Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians (most recent 5-year period of data)		Sponsor must use industry accepted crash reduction factors (CRF) or accident modification factor (AMF) practices (e.g., NCHRP Project 17-25, NCHRP Report 617, or DiExSys methodology).
Fatal crashes	0	
Serious Injury crashes	1	
Other Injury crashes	5	
Property Damage Only crashes	40	
2. Estimated reduction in crashes applicable to the project scope (per the five-year period used above) CRF = 0.44 (CRF Clearinghouse value for signalization, all crash types and severity)		
Fatal crashes reduced	0	
Serious Injury crashes reduced	0.4	
Other Injury crashes reduced	2.2	
Property Damage Only crashes reduced	17.6	

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	Good
2. Describe current pavement issues and how the project will address them.	

There are no current pavement issues that need to be addressed by the project

3. Average Daily User Volume

7,500 AWDT

Bicycle/Pedestrian/Other Facility

4. Current bicycle/pedestrian/other facility condition

Good

5. Describe current condition issues and how the project will address them.

Bicycles and pedestrians use the existing 8-10-foot wide paved shoulders on the overpass and will continue to do so with the project. The re-striped bridge will have 4 foot paved shoulders to accommodate pedestrians and bicyclists

6. Average Daily User Volume

10-15 bicyclists
on summer
weekends

H. Bridge Improvements

1. Current bridge structural condition from CDOT

Good

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

There are no current condition issues with the bridge.

3. Other functional obsolescence issues to be addressed by project

The bridge will be restriped to 3 lanes to address left turn queuing issues across the structure. To address capacity issues at the ramp terminal intersections, both will be signalized.

4. Average Daily User Volume over bridge

7,500 AWDT

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

1.

2.

3.

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

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

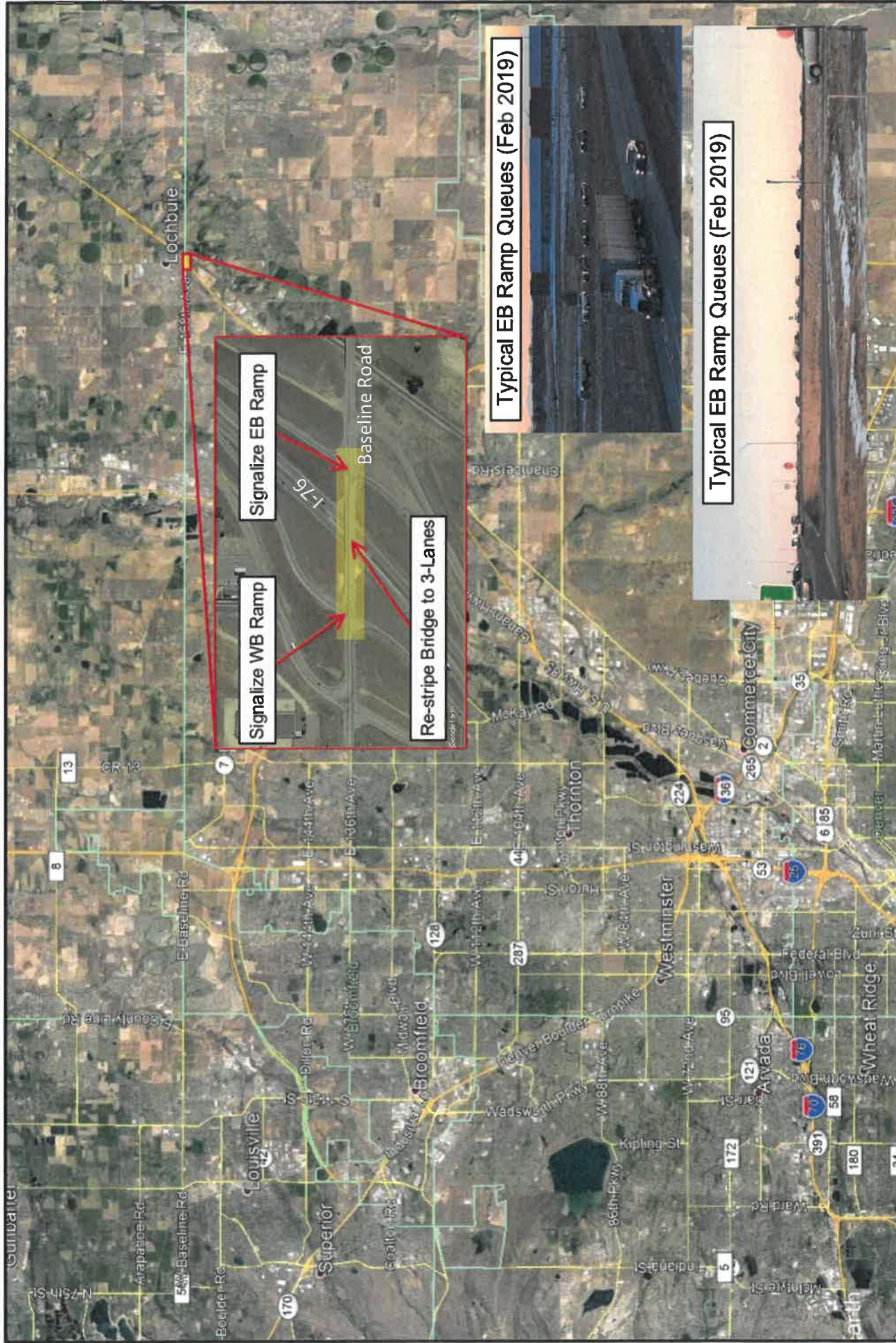
☐ Yes ☒ No

2. Negative impact on vulnerable populations

None.

3. Other:

None



Town of Lochbuie I-76/Baseline Road Interchange Improvements



Traffic Study identifying signals needs



Revised Traffic Impact Study

76 Commerce Center

Brighton, Colorado

Prepared for:

Ware Malcomb

Kimley»Horn



REVISED TRAFFIC IMPACT STUDY

Original Submittal Date: September 15, 2017
1st Revision Submittal Date: November 22, 2017
2nd Revision Submittal Date: January 26, 2018

76 Commerce Center

Brighton, Colorado

Prepared for
Ware Malcomb
990 S. Broadway
Suite 230
Denver, CO 80209

Prepared by
Kimley-Horn and Associates, Inc.
Curtis D. Rowe, P.E., PTOE
4582 South Ulster Street
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Denver, Colorado 80237
(303) 228-2300



January 2018

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

At full build out, 76 Commerce Center is expected to generate approximately 2,846 daily weekday trips with 238 of these trips occurring during morning peak hour and 240 trips occurring during the afternoon peak hour.

Distribution of site traffic on the street system was based on the area street characteristics, existing traffic patterns, demographic information, anticipated surrounding development areas, and the proposed access system for the project. Assignment of project traffic was based upon the trip generation described previously and the distributions developed. The traffic assignment was added to the background traffic volumes to determine future traffic with the project.

Based on the analysis presented in this report, Kimley-Horn believes the proposed 76 Commerce Center development will be successfully incorporated into the existing and future roadway network. The proposed project development and expected traffic volumes resulted in the following recommendations:

Existing Traffic Condition Improvements

- It was found that the WCR-2 and I-76 Eastbound Ramp intersection warrants alternative control based on existing traffic volumes. It is recommended that the Town of Lochbuie coordinate with CDOT to consider signalization of this intersection in the near-term future. In addition, the eastbound off ramp approach should include a separate northbound left turn and through/right turn lanes on the ramp as well as an eastbound left turn lane when signalization occurs.
- The I-76 Eastbound and Westbound Ramp intersections at Bromley Lane were both found to have operational issues and require control improvements to accommodate existing traffic volumes. It is recommended that the City of Brighton coordinate with CDOT to consider signalization of these intersections in the near-term future as well. When this occurs, separate left turn and shared through/right turn lanes should be considered for the offramp approaches. Likewise, eastbound and westbound left turn lanes should be considered to prevent left turning vehicles from blocking the through movements. The left turn lanes along Bromley Lane will require restriping of the bridge by reducing the existing shoulders.

2020 Buildout Traffic Condition Improvements

- With the I-76 East Frontage Road access intersections, it is recommended that southbound left turn lanes be constructed to meet CDOT standards and requirements when warranted at all three accesses. Based on the 35 mile per hour posted speed limit, these southbound left turn lanes should be constructed with lengths of 75 feet of storage plus a 120-foot taper (10 to 1 taper ratio).
- It is recommended that all project access approaches to the adjacent public streets be stop controlled and that R1-1 "STOP" signs be installed for all driveway approaches to the public street. One lane exiting approaches should be sufficient at all project driveways.
- It is recommended that the WCR-2 and I-76 Westbound Ramp intersection be signalized. With this improvement, it is recommended that the westbound off ramp southbound approach include separate left turn and through/right turn lanes on the ramp as well as a westbound left turn lane when signalization occurs. The left turn lanes along WCR-2 will require restriping of the bridge by reducing the existing shoulders.
- It is recommended that the intersection of Bridge Street/160th Avenue and I-76 E Frontage Road be converted from two-way stop control to all-way stop control by buildout in 2020.

2040 Long-Term Horizon Traffic Condition Improvements

- The intersection of WCR-2 and I-76 E Frontage Road should provide a northbound right turn lane and a westbound left turn lane by 2040.
- A separate eastbound left turn lane should be implemented at the intersection 160th Avenue and I-76 E Frontage Road in order to achieve acceptable levels of service under all way stop control in 2040.
- The intersection of Bromley Lane and I-76 E Frontage Road was also found to require control improvements in 2040. It is recommended that the City of Brighton coordinate with CDOT to consider a roundabout or signal control at this intersection by the long-term future.

Additional Traffic Study identifying signals needs



Traffic Impact Study

Lochbuie Center Lochbuie, Colorado

Prepared for:

Flywheel Holdings, LLC
c/o The Bromley Companies, LLC

Kimley»Horn



T R A F F I C I M P A C T S T U D Y

Lochbuie Center

Lochbuie, Colorado

Prepared for
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8301 East Prentice Avenue
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March 2018

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network. The proposed project development and expected traffic volumes resulted in the following recommendations:

Existing Traffic Condition Improvements

- The WCR 2 and I-76 Eastbound Ramp intersection was found to require control improvements to accommodate existing traffic. It is recommended that the Town of Lochbuie work with CDOT to consider signalization of this intersection in the near-term future. Improving the northbound approach to provide a designated northbound left turn lane should be considered when this intersection is signalized. Likewise, the WCR-2 bridge over I-76 should be redesignated providing three lanes with separate left turn lanes striped for left turns onto the I-76 on ramps.

2018 Phase 1 Traffic Condition Improvements

- With development of phase 1 of the Lochbuie Center project, it is recommended that a new full movement access along WCR 2 be constructed to align with Bonanza Boulevard. With this construction, a westbound left turn and an eastbound right turn lane are recommended to be constructed/designated along WCR 2 at Bonanza Boulevard. The existing roadway includes a striped median but will be improved to provide a raised median by 2019. A new westbound left turn lane at the WCR 2 and Bonanza Boulevard intersection is recommended to include a length of 200 feet plus 120-foot taper. The eastbound right turn lane at the WCR 2 and Bonanza Boulevard intersection should be constructed with 180 feet of storage plus a 120-foot taper. In addition, this intersection of WCR 2 and Bonanza Boulevard should be signalized in 2018.
- Independent of the Lochbuie Center project, it is recommended that the Town of Lochbuie consider construction of a separate southbound left turn lane at the WCR 2 and Bonanza Boulevard intersection. After signalization, a separate southbound left turn lane will allow for the north-south movements to operate more efficiently.

2020 Phase 2 Traffic Condition Improvements

- The WCR 2 corridor between 50th Avenue to the west and the W I-76 Frontage Road to the east is planned to be improved to provide two lanes in each direction with a raised median by 2019. A two-lane roundabout with a westbound to northbound by-pass lane will also be

center, of WCR 2. Based on the 50 mile per hour posted speed limit along the I-76 Frontage Road, these distances meet the minimum CDOT sight distance standards for driveway spacing. All three accesses along I-76 Frontage Road are recommended to operate with stop control with the installation of R1-1 "STOP" signs on the southeast-bound approach to the Frontage Road. Likewise, the southeast-bound approaches can function acceptably with a single approach lane; however, separate left turn and right turn lanes are proposed for the Wagon Trail Avenue and Bonanza Boulevard approaches to improve operations.

- With the I-76 Frontage Road access intersections, it is recommended that northbound left turn lanes be constructed along the Frontage Road to meet CDOT standards and requirements at all three accesses. Based on the 50 mile per hour posted speed limit, these northbound left turn lanes are recommended to include a length of 320 feet plus 180-foot taper for all three intersections. The I-76 Frontage Road through lane transitions around the left turn lanes should include transition tapers of 50 to 1 based on the posted speed limit through the proposed new intersections. To avoid continuous through lane transitions, it may be preferred that the I-76 Frontage Road be constructed as a three-lane roadway between WCR 2 and the southern access intersection of Wagon Trail Avenue.
- It is recommended that southbound right turn lanes be constructed to meet CDOT standards and requirements at all three accesses along the I-76 W Frontage Road. Based on the 50 mile per hour posted speed limit, the southbound right turn lanes are recommended to include a length of 320 feet plus 180-foot tapers.
- With the I-76 W Frontage Road southern access, it is recommended that an eastbound to southbound right turn acceleration lane be constructed to meet CDOT standards and requirements. The overall required length for the eastbound right turn to southbound acceleration lane is 580 feet of transition storage plus a 180-foot taper.

2022 Traffic Condition Improvements

- The WCR 2 and I-76 Westbound Ramp intersection was found to require control improvements to accommodate projected 2022 traffic volumes. It is recommended that the Town of Lochbuie work with CDOT to consider signalization of this intersection. A designated southbound left turn lane should be provided when the WCR 2 and I-76 Westbound Ramp

intersection becomes signalized. Likewise, the WCR-2 bridge over I-76 should be redesignated providing three lanes with separate left turn lanes striped for left turns onto the I-76 on ramps.

2040 Traffic Condition Improvements

- By 2040, additional improvements may be needed to maintain acceptable level of service at the I-76 Westbound Ramp intersection. These include two westbound through lanes and a westbound left turn lane. It is believed that the existing WCR 2 bridge over Interstate 76 is only wide enough to accommodate three lanes, so bridge widening may be needed.
- Additional improvements may also be needed at the I-76 Eastbound Ramp intersection, which include northbound dual left turn lanes, an eastbound left turn lane, and two westbound through lanes. As previously discussed, it is believed that the existing WCR 2 bridge over Interstate 76 is only wide enough to accommodate three lanes so bridge widening may be needed to convert WCR 2 to a five-lane roadway.
- It is understood that regional improvements in the area are being planned by the City of Brighton to include a possible new I-76 interchange with Bridge Street. If this interchange were constructed, improvement needs at the WCR 2 interchange may be reduced. This should be further studied by CDOT to determine improvement timing of this WCR 2 interchange for both ramp intersections.

General Recommendations

- All on-site and off-site roadway, signing, striping, and signal improvements should be incorporated into the Civil Drawings, and conform to Town of Lochbuie, CDOT, and/or Weld County standards as well as the Manual on Uniform Traffic Control Devices – 2009 Edition (MUTCD).

February 8, 2019

Steve Stamey
Lochbuie Town Administrator
703 Weld County Road 37
Lochbuie, CO 80603

RE: CDOT Region 1 Support Request for DRCOG TIP Subregional Call FY20-FY23

Dear Mr. Stamey,

This letter is to inform you that the Colorado Department of Transportation (CDOT) Region 1 concurs with the following Lochbuie application for the DRCOG Subregional FY20-23 TIP Call. This concurrence applies only for the I-76 and Baseline Rd Interchange Improvements project, in the event this project is selected by the Forum and DRCOG as a Subregional project in April/May 2019. If this Subregional project is awarded DRCOG funds at a later date, the local agency will need to submit a separate request for CDOT's concurrence and funding contribution at that time.

Based on CDOT's existing priorities and limited funds, CDOT Region 1 is able to provide \$150,000 of the \$200,000 requested, in the event this project is selected by the Forum and DRCOG. If the project is awarded funding outside of the initial Subregional process in spring 2019, then CDOT's funding contribution will need to be reaffirmed. Projects impacting state highways should assume that CDOT will manage the project and the local agency is responsible for payment of CDOT's work including indirect charges. Please note that per the DRCOG TIP Policy, if project costs increase on DRCOG-selected projects, sponsors must make up any shortfalls.

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

Regardless of funding source, if a local agency uses Federal and State funds in the design of a project, they must complete construction of the project within the contract term stated in the IGA, or reimburse CDOT/FHWA for the expended funds. Any cost overruns that exceed federal and state amounts listed on Exhibit C of the IGA will be the responsibility of the Local Agency.

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

http://www.coloradodot.info/business/designsupport/bulletins_manuals

Should you have any questions regarding this concurrence or if your agency would like to schedule time to meet with CDOT specialty units, please contact JoAnn Mattson at (303) 757-9866.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Paul Jesaitis', with a stylized flourish at the end.

Paul Jesaitis
CDOT Region 1 Transportation Director

I-76 Interchange Measures of Effectiveness

	2018 Existing		Existing	2018 Improved		Improved	
	AM	PM	Total	AM	PM	Total	Savings
Hours of Delay	7	20	47	3	7	17	30
Total Travel Time (hr)	20	32	52	10	19	29	23
Vehicles	2405	1957		2405	1957		
Delay per vehicle	29.9	58.9		15.0	35.0		23.9
CO (kg)	1.93	2.46	6.85	0.97	1.76	4.49	2.36
NOx (kg)	0.38	0.48	1.34	0.19	0.34	0.87	0.47
VOC (kg)	0.45	0.57	1.59	0.22	0.41	1.04	0.55

Network Totals

Number of Intersections	2
Control Delay / Veh (s/v)	11
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	11
Total Delay (hr)	7
Stops / Veh	0.36
Stops (#)	866
Average Speed (mph)	22
Total Travel Time (hr)	20
Distance Traveled (mi)	432
Fuel Consumed (gal)	28
Fuel Economy (mpg)	15.6
CO Emissions (kg)	1.93
NOx Emissions (kg)	0.38
VOC Emissions (kg)	0.45
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	9.6

Network Totals

Number of Intersections	2
Control Delay / Veh (s/v)	7
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	7
Total Delay (hr)	3
Stops / Veh	0.21
Stops (#)	297
Average Speed (mph)	25
Total Travel Time (hr)	10
Distance Traveled (mi)	253
Fuel Consumed (gal)	14
Fuel Economy (mpg)	18.2
CO Emissions (kg)	0.97
NOx Emissions (kg)	0.19
VOC Emissions (kg)	0.22
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	55
Performance Index	3.6

Network Totals

Number of Intersections	2
Control Delay / Veh (s/v)	37
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	37
Total Delay (hr)	20
Stops / Veh	0.42
Stops (#)	822
Average Speed (mph)	12
Total Travel Time (hr)	32
Distance Traveled (mi)	399
Fuel Consumed (gal)	35
Fuel Economy (mpg)	11.3
CO Emissions (kg)	2.46
NOx Emissions (kg)	0.48
VOC Emissions (kg)	0.57
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	22.0

Network Totals

Number of Intersections	2
Control Delay / Veh (s/v)	12
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	12
Total Delay (hr)	7
Stops / Veh	0.37
Stops (#)	724
Average Speed (mph)	21
Total Travel Time (hr)	19
Distance Traveled (mi)	399
Fuel Consumed (gal)	25
Fuel Economy (mpg)	15.8
CO Emissions (kg)	1.76
NOx Emissions (kg)	0.34
VOC Emissions (kg)	0.41
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	63
Performance Index	8.6