Pa	art 1	Base Inf	orma	nation				
1.	Project Title			US 6 a	and H	eritage Road Interchang	e Design	
2.	2. Project Start/End points or Geographic Area Provide a map with submittal, as appropriate				-	ersection of US 6 and He led location map)	ritage Road/Jefferson County Parkway	
3.	Project Spor	NSOr (entity that applete and be fina the project)		City of	f Gold	den		
4.		tact Person, Ti ber, and Email		Dan H 303-38			r, <u>dhartman@cityofgolden.net</u> ,	
5.	•	•	_	•		lve a CDOT roadway, t to operate service?	Yes No If yes, provide applicable concurrence documentation with submittal -Attached	
			∑ <u>D</u> F	COG 204	10 Reg	gional Transportation Pla	n (2040 RTP)	
6.	6. What planning document(s) identifies		⊠ Lo plan:			ty of Golden Plan for US	S 6 and SH 93	
	this project?	project?	⊠ Ot	ther(s): WestConnect PEL				
		_	https:	//www.co	odot.	gov/library/studies/west	connect-coalition-pel-study/final-	
							en CDOT and the City on adoption of the	
7.	Identify the	project's key 6						
	Grade Separation Rapid Transit Capacity (2040 FCRTP) Transit Other: Bicycle Facility Pedestrian Facility Safety Improvements Roadway Capacity or Managed Lanes (2040 FCRTP) Roadway Operational Grade Separation Roadway Railway Pedestrian Roadway Pavement Reconstruction/Rehab Bridge Replace/Reconstruct/Rehab Study Design Transportation Technology Components			ent Reconstruction/Rehab Reconstruct/Rehab				
8.	Dother: Problem Statement What specific Metro Vision-related subregional problem/issue will the transportation project address? The intersection of US 6 and Heritage Road is a major bottleneck within the Jefferson County Subregion and along US 6, which is part of the DRCOG Regional Roadway System. US 6 motorists currently experience an average delay of 2.2 minutes per vehicle during the PM peak hour at Heritage Road (65% higher than LOS F threshold). The proposed grade separation will effectively eliminate delay to US 6 motorists. This delay reduction will also result in a proportional amount of emissions reduction, thereby improving air quality in the Jefferson County Subregion. Over a 25-year period, CO2 emissions will be reduced by 1,250 metric tons, NOx emissions will be reduced by 270							

tons and VOC will be reduced by 325 tons. The project will also address an existing safety problem by grade-separating the major movements at the intersection. Five-year crash reduction projections indicate 22 fewer PDO crashes, 2 fewer serious injury crashes and 5 other injury crashes. Similar to the recently completed US 6/19th Street interchange project, the Heritage Road interchange will benefit pedestrians and bicyclists by creating an enlarged overpass that reduces conflicts between pedestrians, bicyclists and motor vehicles.

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

Conduct preliminary engineering to convert the at-grade intersection to a grade-separated interchange consistent with recommendations from Golden's Plan for the US 6 / SH 93 Corridor and the WestConnect PEL. Complete right-of-way needs assessment (project footprint anticipated to remain within only current government-owned property) and subsurface utility engineering and identify and seek necessary environmental clearances.

10. What is the status of the proposed project?

The Project Concept is agreed upon in the WestConnect PEL and by CDOT, Golden, and Jefferson County. Golden has done a preliminary right-of-way evaluation and some preliminary environmental documentation. No formal design work has been completed.

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

Yes	\boxtimes	No
1 63	$V \setminus$	IVC

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

The design process to convert an at-grade intersection to an interchange is best completed as a single project. The Interchange Approval Request and Environmental documentation required to accompany the project are time sensitive. Completing the entire design at one time eliminates the need to re-visit/re-evaluate parts of the project at a later date, which would increase overall cost and design schedule.

A. Project Financial Information and Funding Request

1.	Total Project Cost	\$3,000,000	
2.	Total amount of DRCOG Subregional Share Funding Request	80% of total project cost	
3.	Outside Funding Partners (other than DRCOG Subregional Share funds) List each funding partner and contribution amount.	\$\$ Contribution Amount	% of Contribution to Overall Total Project Cost
	City of Golden	\$450,000	15%
	Jefferson County	\$150,000	5%
		\$	
		\$	
		\$	
		\$	
To	rtal amount of funding provided by other funding partners (private, local, state, Regional, or federal)	\$600,000	

*The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG will do everything it can to accommodate the applicants' request, final funding will be

assigned at DRCOG's discretion within fiscal constraint. Funding amounts must be provided in year of expenditure dollars using an inflation factor of 3% per year from 2019.						
	FY 2023	Total				
Federal Funds	\$600,000	\$1,800,000	\$	\$	\$2,400,000	
State Funds	\$	\$	\$	\$	\$0	
Local Funds	\$150,000	\$450,000	\$	\$	\$600,000	
Total Funding	\$750,000	\$2,250,000	\$0	\$0	\$3,000,000	
4. Phase to be Initiated Choose from Design, ENV, ROW, CON, Study, Service, Equip. Purchase, Other	Design	Design, ENV/ROW	Choose an item	Choose an item		

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



Part 2 Evaluation Criteria, Questions, and Scoring

A. Subregional significance of proposed project

WEIGHT

40%

Provide <u>qualitative and quantitative</u> (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 WestConnect PEL project and the realization that the answer for improved mobility on the west side is a combination of operational and capacity improvements along the C-470, US 6, and SH 93 corridors was a breakthrough that can help a coalition of communities seek implementation opportunities that work on both a regional and local perspective. As one of the first discrete elements of WestConnect that may be feasible to fund, this project will provide travel-time savings and reliability at a key location within the corridor while providing a building block for the long-term vision for the entire corridor.

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

As noted in the WestConnect PEL, the benefits of the project will accrue to all of the partner jurisdictions and areas, including Douglas County, Jefferson County, Lakewood, Golden, Arvada and other communities to the north.

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

Yes. The project benefits the Douglas County and Boulder County sub-regions as shown in the WestConnect PEL. The project is located along the C-470/US 6/SH 93 corridor along the west side of the DRCOG region. The corridor is the primary connection between the Douglas County and Boulder County sub-regions. By reducing delay and increasing travel time reliability at the project intersection, travel between the Douglas County and Boulder County sub-regions is improved.

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

The design and ultimate construction of this interchange will address a defined congestion point for local and regional traffic along the WestConnect corridors. The existing average delay for US 6 travelers in the PM peak hour is 2.2 minutes per vehicle (level of service F), which would be reduced to essentially 0 minutes after interchange construction. In aggregate, preliminary estimates show that over a 25 year period the interchange would reduce vehicle delay by over 8,500,000 hours and reduce fuel consumption by approximately 18,000,000 gallons. (Data Source: 2017 US 6/Heritage Road TIGER grant application calculations).

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 design and ultimate construction of this interchange will remedy a defined congestion point for local and regional traffic along the WestConnect corridors. The substantial reduction in average vehicle delay (see #4 above) after interchange construction will provide a significant benefit to both people and businesses. Based on experience with the US 6 and 19th Street project, queuing during peak hours, especially in the eastbound direction, should be significantly reduced. Access, safety, and travel efficiency for vehicles, bicycles, and pedestrians passing through the area or accessing the adjacent Jefferson County government complex, office buildings, medical facilities, retail businesses, and residential areas will all be dramatically improved.

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

The project will improve connectivity by all modes to the nearby RTD W Line end of line station. The interchange will also provide a safe convenient connection between the neighborhood to the south and the Jefferson County Government Center for bikes and pedestrians by removing the need for them to cross US 6 traffic. The interchange will reduce vehicle delay benefitting local bus service and vehicle access to parking facilities at the rail station.

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

The primary partners in the project are CDOT, Jefferson County, and Golden. CDOT had included the full construction project on their list for 2018 ballot measure Proposition 110, and continues to consider the project a priority. Golden and Jeffco will jointly fund the local match of the design phase and will consider funding any needed local match for the future construction.

B. DRCOG Board-approved Metro Vision TIP Focus Areas

WEIGHT

30%

Provide <u>qualitative and quantitative</u> (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 immediate vicinity of the specific intersection of US 6 and Heritage Road includes four health service facilities (Centura, Panorama Medical, Acel Rehabilitation Center, and VA medical office), the Jefferson County Human Services Department and the Jefferson County Workforce Center. Access to those plus the larger adjacent Jefferson County government complex is critical to vulnerable populations. The proposed grade-separated interchange will provide relief of vehicular congestion and improved safety for vehicles, pedestrians, and bicyclists will significantly benefit these groups.

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

The variability of congestion and vehicle delay at this intersection has a major impact on the predictability of our local Flex Route/Call and Ride service, as well as for the 47,500 vehicles a day passing thru the intersection. Reducing or eliminating the peak hour delays and full day unpredictability of the intersection operations will be a substantial benefit.

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

The conversion of an at-grade intersection to a grade-separated interchange improves the safety for all modes of travel. Based on crash modification factor reasarch, the conversion to grade separation can be expected to provide a 57 percent reduction in injury crashes and a 36 percent reduction in all crashes. In addition, the grade separation reduces the exposure of pedestrians and bicyclsts to high speed/high volume traffic flows. Similar to the recent at-grade to grade-separated conversion at US 6/19th Street, which had a history of pedestrian and bicycle collisions, a grade-separated interchange can be designed to specificially serve non-motorized modes of travel. Since the US 6/19th Street interchange completion in 2017, there have been no reported pedestrian or bicycle crashes at the new interchange. Similar results would be expected at the US 6/Heritage Road interchange.

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. Contain urban development in locations designated for urban growth and services. MV objective 2 1. Will this project help focus and facilitate future growth in locations where urban-level Xes No infrastructure already exists or areas where plans for infrastructure and service expansion are in place? Describe, including supporting quantitative analysis The project is located within the Golden Urban Growth Area and is surrounded by Areas of Significant change as documented in the Golden Comprehensive Plan. The project is immediately adjacent to a major government employer and government services. The project improves the reliability of US 6 which will provide for reliable transit service and multimodal connections to government services. 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 Xes No and between urban centers, or other key destinations? Describe, including supporting quantitative analysis The project will enhance existing connections for vehicles, pedestrians and bicycles to regional trail facilities (the US 6 / C-470 trail passes directly through the intersection and Clear Creek Trail is nearby) and the adjacent Jefferson County Government Center. For pedestrians, the proposed interchange will enhance connectivity between the adjacent office and medical buildings and the RTD W line Jefferson County Government Station; which is a short walk from the proposed interchange along the US 6 trail. Improve or expand the region's multimodal transportation system, services, and MV objective 4 connections. 3. Will this project help increase mobility choices within and beyond your subregion for people, goods, or services? Describe, including supporting quantitative analysis The project will enhance pedestrian and bicycle connections across US 6 to regional trail facilities and the Jefferson County Government Center. In addition, increased travel-time reliability at the intersection will enhance reliability of local and regional transit service in the area and along the US 6 corridor. 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? Describe, including supporting quantitative analysis Based on the analysis developed for the 2017 TIGER grant application, over a 25-year period the project is expected to reduce gasoline consumption by over 18,000,000 gallons. Carbon dioxide (CO2) emissions will be reduced by 1,250 metric tons. Nitrus Oxide (NOx) emissions will be reduced by 270 tons. Volitile Organic Compounds (VOC) will be reduced by 325 tons. The overall benefits equate to approximately \$60 million over the 25-year period.

	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? Describe, including supporting quantitative analysis						
	The project improves pedestrian and bicycle connections across US 6 to and from the existing US 6 / C-470 regional trail which passes directly through the intersection. This trail in turn provides direct access to popular nearby open spaces such as Lookout Mountain, Chimney Gulch Trail, Clear Creek Canyon, and City of Golden recreational facilities such as Splash!, Fossil Trace Golf Course, the whitewater park along Clear Creek, and other local parks.						
	MV objective 10	Increase access to amenit	ties that support he	ealthy, active choices.			
6.		pand opportunities for resi		ny and active lifestyles?	Yes No		
	The project is not expected to create new opportunities for healthy and active choices. However, it will enhance existing pedestrian and bicycle facilities and connections, which should expand opportunities for walking and cycling for trail users that are currently afraid to cross US 6.						
	MV objective 13	Improve access to opport	unity.				
7.	by promoting reliable transportation connections to key destinations and other amenities?						
	Describe, including supporting quantitative analysis The project will create more reliable and safer multi-modal connections to the Jefferson County Government Center, RTD W Line end-of-line station, and regional trail system. It will also increase travel-time reliability within the corridor. While the project will improve vehicular transit within the corridor, it will also lessen the burden assigned to non-motorized modes by removing the need to cross a 6-lane wide high volume/high speed facility.						
	MV objective 14	Improve the region's com	petitive position.				
8.	Will this project he health and vitality?	lp support and contribute t	o the growth of the	e subregion's economic	⊠ Yes ☐ No		
	Describe, including supporting quantitative analysis						
	The project will provide travel-time reliability at the intersection, removing an existing bottleneck which currently restricts the economic health of the corridor. Existing high levels of delay and high-exposure bicycle and pedestrian connections reduce the economic potential surrounding the project area as well as regionally along the US 6 corridor.						
D.	Project Levera	ging			WEIGHT 10%		
9.	•	utside funding sources ated Subregional Share project have?	20%	60%+ outside funding so 30-59% 29% and below	Medium		

Part 3

Project Data Worksheet – Calculations and Estimates

(Complete all subsections applicable to the project)

A. Transit Use

1. Current ridership weekday boardings 0

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	5,772	6,339	12,111
2040	6,574	7,333	13,907

Transit Use Calculations	Year of Opening	2040 Weekday Estimate
 Enter estimated additional daily transit boardings after project is completed. (Using 50% growth above year of opening for 2040 value, unless justified) Provide supporting documentation as part of application submittal 	0	0
4. Enter number of the additional transit boardings (from #3 above) that were previously using a different transit route. (Example: {#3 X 25%} or other percent, if justified)	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.) (Example: {#3 X 25%} or other percent, if justified)	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) (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)	0	0
8. = Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	0	0

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

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

B. Bicycle Use

1. Current weekday bicyclists 100

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	5,772	6,339	12,111
2040	6,574	7,333	13,907

	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.	10	27
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)	5	14
5.	= Initial number of new bicycle trips from project (#3 – #4)	5	13
6.	Enter number of the new trips produced (from #5 above) that are replacing an SOV trip. (Example: {#5 X 30%} (or other percent, if justified)	1	4
7.	= Number of SOV trips reduced per day (#5 - #6)	4	9
8.	Enter the value of {#7 x 2 miles} . (= the VMT reduced per day) (Values other than 2 miles must be justified by sponsor)	8	18
9.	= Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	7.6	17.1

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

Weekend use is approximately three times greater than average weekday use. The US 6 trail to Golden/Lookout mountain traverses the intersection and experiences greater usage on the weekends

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

C. Pedestrian Use

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

110

2. Population and Employment

Year	Population within 1 mile	Employment within 1 mile	Total Pop and Employ within 1 mile
2020	5,772	6,339	12,111
2040	6,574	7,333	13,907

	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	11	29
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)	6	15
5.	= Number of new trips from project (#3 – #4)	5	14
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)	2	4
7.	= Number of SOV trips reduced per day (#5 - #6)	3	10

12. Enter the value of {#7 x .4 miles}. (= the VMT reduced per day) (Values other than .4 miles must be justified by sponsor)	1.2	4	
8. = Number of pounds GHG emissions reduced (#8 x 0.95 lbs.)	1.1	3.8	
9. If values would be distinctly greater for weekends, describe the magnitude of difference:			
10. If different values other than the suggested are used, please explain here:			

D. Vulnerable Populations Vulnerable Populations Population within 1 mile **1.** Persons over age 65 954 **Use Current** 2. Minority persons 1207 Census Data **3.** Low-Income households 1238 4. Linguistically-challenged persons 727 **5.** Individuals with disabilities 874 **6.** Households without a motor vehicle 187 7. Children ages 6-17 1333 **8.** Health service facilities served by project

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	47,500
2. 2040 ADT estimate	53,500
3. Current weekday vehicle hours of delay (VHD) (before project)	750

	Travel Delay Calculations	Year of Opening
4.	Enter calculated future weekday VHD (after project)	54
5.	Enter value of {#3 - #4} = Reduced VHD	696
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)	975
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	US 6 2.2 min/vehicle Heritage Rd 2.1 min/vehicle

8. If values would be distinctly different for weekend days or special events, describe the magnitude of difference.

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

F. Traffic Crash Reduction

1.	 Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians (most recent 5-year period of data) 		
	Fatal crashes	0	
	Serious Injury crashes	4	Sponsor must use industry
	Other Injury crashes	9	accepted crash reduction factors
	Property Damage Only crashes	59	(CRF) or accident modification
2.	Estimated reduction in crashes <u>applicable to the project scope</u> (per the five-year period used above)		factor (AMF) practices (e.g., NCHRP Project 17-25, NCHRP
	Fatal crashes reduced	0	Report 617, or DiExSys methodology).
	Serious Injury crashes reduced	2	377
	Other Injury crashes reduced	5	
	Property Damage Only crashes reduced	22	

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

Fair

Roadway Pavement

1	Current roadway pavement condition	
⊥.	Current roadway pavement condition	

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

Currently, inside shoulders are minimal or do not exist. This condition does not allow for emergency parking or area for driver avoidance maneuvers. All pavement in vicinity of existing intersection will be reconstructed for conversion to interchange. Roadway typical section will be improved to provide appropriate shoulder and lane widths for a US highway facility.

3. Average Daily User Volume 47,500

Bicycle/Pedestrian/Other Facility

4.	Current bicycle/pedestrian/other facility condition	Fair

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

Existing intersection has long pedestrian and bicycle crossings across a six-lane wide high volume/high speed highway. Non-motorized users are also required to cross sweeping high-speed right turn lanes. A pedestrian or bicycle is required to conduct three separate crossings in order to cross the intersection. The project will grade-separate the intersection, eliminating the crossings of US 6 and simplifying the crossings of the ramp terminals. The level of exposure for pedestrians and bicycles will be reduced significantly.

6. Average Daily User Volume	210
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н.	Bridge Improvements	
1.	Current bridge structural condition from CDOT N/A	
2.	Describe current condition issues and how the project will address them. N/A	
3.	8. Other functional obsolescence issues to be addressed by project N/A	
4.	Average Daily User Volume over bridge	0
I.	Other Beneficial Variables (identified and calculated by the sponsor)	
1.	Based on after-project results from the near-by US 6/19 th Street interchange conversion, noise levels adjacent to the intersection will be reduced with the conversion to an interchange. The interchange will include a lid/cover type bridge (similar to the one at the nearby US 6 / 19 th Street interchange) providing pedestrian scale amenities over US 6.	
2.	Pedestrians and bicycles will no longer need to cross US 6 at-grade or cross against high left-turn volumes. The	
3.		
J.	Disbenefits or Negative Impacts (identified and calculated by the sponsor)	
1.	Increase in VMT? If yes, describe scale of expected increase	Yes No
2.	Negative impact on vulnerable populations	
3.	Other:	