APPLICATION OVERVIEW

What: The Call for Projects for the FY 2024-2027 Regional Transportation Operations and Technology Set-Aside
Funding Available: at least $16,000,000
Call Dates: June 1, 2023 until July 7, 2023, 5 pm
Application Submittals: submit the items below to Jerry Luor (jluor@drcog.org)

1. REQUIRED: a **single PDF document** containing 1) this application (**before saving to PDF, press Ctrl-A to select all, and F9 to update all formulas**), 2) one location map/graphic, 3) cost estimate (your own or the CDOT cost estimate form), 4) CDOT/RTD concurrence response (if applicable), 5) completed CDOT SEA-Local Agency Template, 6) project support form(s), and 7) any required documentation based on the application text (i.e., FHWA emissions calculators). Please DO NOT attach additional cover pages, embed graphics in the application, or otherwise change the format of the application form.
2. OPTIONAL: Submit **one additional** PDF document containing any supplemental materials, if applicable.
3. REQUIRED: Submit a single zipped GIS shapefile of your project. At a minimum, the shapefile should consist of project limits and planned equipment locations.

Other Notable items:

- Eligibility: Projects must align with the eligibility guidelines in the *Policies for FY2024-2027 TIP Set-Aside Programs*. Proposed work on roadways must primarily be located on the DRCOG Regional Roadway System to be eligible for funding (the DRCOG RRS can also be viewed within the DRCOG Data Tool).
- Call-for-Projects Pre-Application Webinar: To be eligible to submit an application, at least one person from your agency must have attended the Regional Transportation Operations and Technology Set-Aside Pre-Application Webinar on April 26, 2023.
- Application Data: To assist sponsors in filling out the application, DRCOG has developed the DRCOG Data Tool. A link to the instructions is also included. Additionally, sponsors may download datasets to run their own analyses from this same site.
- Project Affirmation: The application must be affirmed by either the applicant's City or County Manager, Chief Elected Official (Mayor or County Commission Chair) for local governments, or agency director or equivalent for other applicants.
- Evaluation Process: DRCOG staff will post all applications. DRCOG staff will assemble an evaluation panel to review and make recommendations for funding, including a ranked waiting list. The recommended list of projects will be presented to the Regional Transportation Operations Working Group and Advanced Mobility Partnership Working Group prior to action by the DRCOG committees and Board.
- If you have any questions or need assistance, contact gmackinnon@drcog.org or jluor@drcog.org.

APPLICATION FORMAT

The Regional Transportation Operations and Technology set-aside application contains two parts: *project information* and *evaluation questions*.

Project Information

Applicants enter **foundational** information for the *project/program/study* (hereafter referred to as *project*), including a problem statement, project description, and concurrence documentation from CDOT and/or RTD, if applicable. This section is not scored.

Evaluation Questions

This part includes four sections (A-E) for the **applicant to provide qualitative and quantitative responses** to use for scoring projects. The checkboxes and data entry fields should guide the applicant's responses. They are not directly scored but provide context as reviewers consider the full response to each question. Applicants may access the DRCOG Data Tool as well as other relevant data resources.

Scoring Methodology: Each section will be scored on a scale of 0 to 5, relative to other applications received. All questions will be factored into the final score, with any questions left blank receiving 0 points. The four sections are weighted and scored as follows:

Section A. Deployment of RTO&T Initiatives in RTO&T Strategic Plan 30%

Projects will be evaluated on the degree to which they address a significant subregional problem or benefit people throughout the subregion. Relevant quantitative data should be included within narrative responses.

5	The project implements or advances several **Primary** initiatives.
4	The project implements or advances one **Primary** initiative
3	The project implements or advances several **Secondary** initiatives.
2	The project implements or advances one **Secondary** initiative.
1	The project implements or advances one or more **Tertiary** initiatives.
0	The project implements no initiatives.

Section B. Regional Impact of Proposed Project 25%

Projects will be evaluated on the degree to which they address a significant subregional problem or benefit people throughout the subregion. Relevant quantitative data should be included within narrative responses.

5	The project benefits will **substantially** address a **major** subregional problem and benefit people and businesses in multiple communities.
4	The project benefits will **significantly** address a **major** subregional problem primarily benefiting people and businesses in one community.
3	The project benefits will either **moderately** address a **major** subregional problem or **significantly** address a **moderate**-level subregional problem.
2	The project benefits will **moderately** address a **moderate**-level subregional problem.
1	The project benefits will address a **minor** subregional problem.
0	The project does not address a subregional problem.

Section C. Metro Vision Regional Transportation Plan Priorities 25%

The TIP set-aside's investments should implement the 2050 Metro Vision Regional Transportation Plan (2050 MVRTP) regional project and program investment priorities, which contribute to addressing the Board-adopted Metro Vision objectives and the federal performance-based planning framework required by the Federal Highway Administration and Federal Transit Administration as outlined in current federal transportation legislation and regulations. Therefore, projects will be evaluated on the degree to which they address the six priorities identified in the 2050 MVRTP: safety, active transportation, air quality, multimodal mobility, freight, and regional transit. It is anticipated that projects may not be able to address all six priorities, but it's in the

applicant's interest to address as many priority areas as possible. Relevant quantitative data is required to be included within narrative responses. The table below demonstrates how each priority area will be scored.

5	The project provides demonstrable **substantial** benefits in the 2050 MVRTP priority area and is determined to be in the **top fifth** of applications based on the magnitude of benefits in that priority area.
4	The project provides demonstrable **significant** benefits in the 2050 MVRTP priority area.
3	The project provides demonstrable **moderate** benefits in the 2050 MVRTP priority area and is determined to be in the **middle fifth** of applications based on the magnitude of benefits in that priority area.
2	The project provides demonstrable **modest** benefits in the 2050 MVRTP priority area.
1	The project provides demonstrable **slight** benefits in the 2050 MVRTP priority area and is determined to be in the **bottom fifth** of applications based on the magnitude of benefits in that priority area.
0	The project does not provide demonstrable benefits in the 2050 MVRTP priority area.

Section D. Financial Leveraging 5%

Scores are assigned based on the percent of other non-federal funding sources.

Score	% non-Federal Funds
5	36% and above
4	31 - 35.9%
3	26 - 30.9%
2	21 - 25.9%
1	17.21 - 20.9%*
0	17.21%

*(includes 100% eligible projects with no match)

Section E. Project Readiness 15%

Be sure to answer ALL questions. While "Yes" answers will generally reflect greater readiness, opportunities are given to provide additional details to assist reviewers in fully evaluating the readiness of your project.

5	**Substantial** readiness is demonstrated and all known obstacles that are likely to result in project delays have been mitigated.
4	**Significant** readiness is demonstrated and several known obstacles that are likely to result in project delays have been mitigated.
3	**Moderate** readiness is demonstrated and some known obstacles that are likely to result in project delays have been mitigated.
2	**Slight** readiness is demonstrated and some known obstacles that are likely to result in project delays have been mitigated.
1	**Few** mitigation or readiness activities have been demonstrated.
0	**No** mitigation or readiness activities have been demonstrated.

Project Information

1. Project Title	**V2X communication devices (RSU) deployment for supporting ATSPM & advance operations**
2. Project Location *Provide a map, as appropriate (see Page 1)*	Start point: W Colfax Ave at Sheridan Blvd End point: To Lincoln Ave on W Colfax and to Quincy St on Sheridan Blvd OR Geographic Area: West and SW Denver area – see map
3. Project Sponsor *(entity that will be financially responsible for the project)*	Transportation Operations

4. Project Contact Person:

Name: John Yu	Title: Senior engineer
Phone: 720-865-3176/303-588-5129	Email: john.yu@denvergov.org

5. Required Concurrence and Project Support: Does this project touch CDOT Right-of-Way, involve a CDOT roadway, connect to a CDOT system, access RTD property, or request RTD involvement to operate service? Does this project directly involve other local agency partners.	☒ Yes ☐ No *If yes, provide a completed Peer Agency Support Form for each partner.*

6. What planning document(s) identifies this project? *Provide link to document(s) and referenced page number if possible, or provide documentation in the supplement*	If this project is listed in the DRCOG 2050 Metro Vision Regional Transportation Plan (2050 MVRTP), provide the staging period: NA, but follows DRCOG RTO&O Strategic Plan (Feb/2023)	
	Local/Regional plan:	Planning Document Title: Connected Vehicle Strategic Framework Adopting agency (local agency Council, CDOT, RTD, etc.): City and County of Denver, Transportation Engineering/Operations Provide date of adoption by council/board/commission, if applicable: January 15, 2024
	Please describe public review/engagement to date:	NA. Denver CV Strategic Framework will engage city leaders and DOTI executives
	Other pertinent details:	RSU deployment will support DRCOG RTO&T Strategic Plan

7. Identify the project's **key phases and the anticipated schedule of phase milestones**.
(phases and dates should correspond with the "Phase to be Initiated" in the Funding Breakdown table below)

Phases to be included: Three	**Major phase milestones**: Phase 1: Procure & deploy devices (05/2025) Phase 2: Data path/ATSPM data repository (01/2026) Phase 3: Reporting/closure (07/2026)	**Anticipated completion date (based on October 2023 DRCOG approval date)**: (08/2026)
	☐ Preconstruction ☐ Construction ☒ Both	
REQUIRED FOR ALL PHASES	Intergovernmental Agreement (IGA) executed with CDOT/RTD (Assumed process is 4-9 months; any work performed before execution is NOT reimbursable)	07/2024
☒Design	Design contract Notice to Proceed (NTP) issued (if using a consultant):	10/2024
	Design scoping meeting held with CDOT (if no consultant):	NA
	FIR (Field Inspection Review):	NA
	FOR (Final Office Review):	NA
☐Environmental	Environmental contract Notice to Proceed (NTP) issued (if using a consultant):	Enter Date

	Environmental scoping meeting held with CDOT (if no consultant):	Enter Date
☐Right-of-Way	Initial set of ROW plans submitted to CDOT:	Enter Date
	Estimated number of parcels to acquire: Enter Number	
	ROW acquisition completed:	Enter Date
☐Construction	Required clearances:	Enter Date
	Project publicly advertised:	Enter Date
☐Study	Kick-off meeting held after consultant NTP (or internal if no consultant):	Enter Date
☒Equipment Purchase (Procurement)	RFP/RFQ/RFB (bids) issued:	01/2025
☒Other Phase not Listed Describe: Configuring RSU devices to support ATSPM	First invoice submitted to CDOT/RTD:	03/2025

8. **Problem Statement:** What specific subregional problem/issue will the transportation project address?

This project will deploy IoT devices (RSU) that will help Denver expand the limited capacity to collect and use ATSPM data by: 1. Refining the data path; 2. Data store in repository (EDM/AWS); 3. Develop analytic and reporting; 4. Install devices that are agnostic and interoperable; & 5. Open up the option to sharing data.

9. Identify the project's **key elements**. A single project may have multiple project elements.

Roadway

- ☒Operational Improvements
- ☐General Purpose Capacity (2050 MVRTP)
- ☐Managed Lanes (2050 MVRTP)
- ☐Pavement Reconstruction/Rehab
- ☐Bridge Replace/Reconstruct/Rehab

Grade Separation

- ☐Roadway
- ☐Railway
- ☐Bicycle
- ☐Pedestrian

Regional Transit[1]

- ☐Rapid Transit Capacity (2050 MVRTP)
- ☐Mobility Hub(s)
- ☐Transit Planning Corridors
- ☐Transit Facilities (Expansion/New)

☐ **Safety Improvements**

Active Transportation Improvements

- ☐Bicycle Facility
- ☐Pedestrian Facility

☐ **Air Quality Improvements**

☐ **Improvements Impacting Freight**

Multimodal Mobility (i.e., accommodating a broad range of users)

- ☐Complete Streets Improvements

☐ **Study**

☒ **Other**, briefly describe: ATSPM data path and data storage/repository

[1]For any project with transit elements, the sponsor must coordinate with RTD to ensure RTD agrees to the scope and cost. Be sure to include RTD's concurrence in your application submittal.

10. Define the **scope** and **specific elements** of the project (including any elements checked in #9 above).
DO NOT include scope elements that will not be part of the DRCOG funded project or your IGA scope of work (i.e., adjacent locally funded improvements or the project merits and benefits). Please keep the response to this question tailored to details of the scope only and no more than five sentences.

Project scope is to deploy 45 CV2X RSU (Roadside Unit) on south Sheridan Blvd and W Colfax Ave. Purpose of the project is to collect Automated Traffic Signal Performance Measures (ATSPM) data and support Active Traffic Demand Management (ATDM) system. The objective to the use of RSU devices and software to automatically collect speed, arrival on red, back of the queue, and occupancy to create an active/responsive traffic operation. In addition, some additional benefits of the project are:

- Implement a CV RSU infrastructure that are interoperable
- Address safety and efficiency on HIN Corridor of Opportunity that serves a diverse user group
- Create a transportation system that will reduce energy consumption and improve air quality - environmental sustainability
- Data stored in Denver cloud and can be shared

11. What is the current status of the proposed scope as defined in Question 10 above? *Note that overall project readiness is addressed in more detail in Section E below.*

The current status of the proposed scope is to build on Denver's current ATCMTD connected vehicle (CV) program. We have already deployed 107 RSU and 45 Onboard Units (OBE) on vehicles and are poised to deploy an additional 26 RSU and 90 OBUs. We made great strides on the CV proof-of-concept that included a successful communication 'handshake' between equipped vehicles and infrastructure, and developed a data path and repository (EDM/AWS) where data are aggregated, stored, analyzed, and ingested (reporting).

12. Would a smaller DRCOG-allocation than requested be acceptable, while maintaining the original intent of the project? ☒ Yes ☐ No

*If yes, smaller meaningful limits, size, service level, phases, or scopes, along with the cost, **MUST** be defined.*

Smaller DRCOG funding request: $1,500.000.00

Outline the differences between the scope outlined above and the reduced scope: $1.5 million eliminates the 15% contingency on this project. If the cost of deploying and supporting 45 RSU and software exceeds $1.5 million, Denver will request that the number of devices deploy be reduced.

Project Financial Information and Funding Request (All funding amounts in $1,000s)

To update the formulas below, enter your information, highlight the formulas, and press F9 or right-click and select Update Field.

Total amount of Federal Funding Request (in $1,000's) *(Not to exceed **82.79% of the total project cost**)*	**$1700**	**100.00%** of total project cost
Match Funds (in $1,000's) List each funding source and contribution amount.	**Contribution Amount**	**% Contribution to Overall Project Total**
NA – no match needed to deploy RSU	$Match Amount	0.0%
Click or tap here to enter text.	$Match Amount	0.0%
Click or tap here to enter text.	$Match Amount	0.0%
Click or tap here to enter text.	$Match Amount	0.0%
Click or tap here to enter text.	$Match Amount	0.0%
Click or tap here to enter text.	$Match Amount	0.0%

Total Match *(private, local, state, regional, or federal)*	$ 0	0.0%
Project Total	$ 0	

Funding Breakdown (in $1,000s) (by program year)[1] (Total funding should match the Project Total from above)
To update the formulas below, enter your information, highlight the formulas (or Ctrl-A), and press F9. OR close and reopen the file.

	FY 2024	FY 2025	FY 2026	FY 2027	Total
DRCOG Requested Funds	$850	$850	$Enter Amount	$Enter Amount	$ 0
CDOT or RTD Supplied Funds[2]	$Enter Amount	$Enter Amount	$Enter Amount	$Enter Amount	$ 0
Local Funds (Funding from sources other than DRCOG, CDOT, or RTD)	$Enter Amount	$Enter Amount	$Enter Amount	$Enter Amount	$ 0
Total Funding	$ 0	$ 0	$ 0	$ 0	$ 0
Phase to be Initiated	Design	Other	Select Phase	Select Phase	
Notes:	1. Fiscal years are October 1 through September 30 (e.g., FY 2024 is October 1, 2023 through September 30, 2024). The proposed funding plan is not guaranteed if the project is selected for funding. While DRCOG attempts to accommodate applicants' requests, final funding will be assigned at DRCOG's discretion. Funding amounts must be provided in year of expenditure dollars using a recommended 3% inflation factor. 2. Only enter funding in this line if CDOT and/or RTD specifically give permission via concurrence letters or other written source.				
Affirmation:	By checking this box, the applicant's Chief Elected Official (Mayor or County Commission Chair/City or County Manager/Agency Director) has certified it allows this application to be submitted for potential DRCOG-allocated funding and will follow all local, DRCOG, state, and federal policies and regulations if funding is awarded. ☒				

Evaluation Questions

A. Deployment of RTO&T Initiatives in RTO&T Strategic Plan

WEIGHT **30%**

Select the initiatives to be deployed or advanced by this proposed project. It is possible to select more than one initiative.

Primary initiatives	
Develop a Regional Situational Awareness platform.	☒
Develop processes to share traffic camera view and control between jurisdictions and public safety.	☐
Develop a Regional Performance Monitoring Data Archive platform.	☒
Develop strategies and processes to coordinate performance-based management.	☒
Deploy additional supporting transportation surveillance and control systems and infrastructure.	☒
Develop Traffic Incident Management standard operating procedures.	☐
Standardize and implement transit signal priority performance management and system optimization procedures.	☐
Secondary initiatives	
Develop evacuation and recovery plans and exercises.	☐
Develop processes to coordinate traveler information messaging across the region.	☐
Develop active work zone monitoring and management in the field.	☐
Deploy additional safety-focused technology applications	☐
Expand the Regional Performance Monitoring Data Archive platform.	☒
Expand the Regional Situational Awareness platform.	☒
Expand transit signal priority deployment.	☐
Tertiary initiatives	
Develop a Regional Multimodal Traveler Information platform.	☐
Develop a process to monitor regional parking availability, capacity and pricing.	☐
Develop a multimodal trip planner and reservation/ payment system.	☐
Develop and deploy dynamic ride-sharing.	☐
Develop and implement curbside management standards.	☐
Develop continuity of operations plans.	☐

Describe how this project will deploy, advance or achieve the selected initiatives.

RSU connected vehicle technology has evolved into a reliable source of traffic data that can be leveraged to situational awareness and surveillance. Additionally, the CV data are piped to the EDM, a data repository, for ingestion, analysis, and sharing.

The Regional Transportation Operations and Technology Strategic Plan emphasizes a data management concept that requires interagency information sharing. Describe in detail how this project will share data with other regional entities.

Part of Denver's CV program included a connected TMC component known as the EDM. There exists a pipeline to collect data from the RSU and integrate this data into the EMD for analysis and sharing. From the EDM, a firewall rule can be put into place for data sharing between the regions.

B. Regional Impact of Proposed Project

WEIGHT **25%**

*Provide **qualitative and quantitative** responses to the following questions on the subregional impact of the proposed project. Be sure to provide all required information for each question. Quantitative data from is available from the DRCOG Data Tool.*

1. Why is this project regionally important? *Relevant quantitative data in your response is required.*

West Denver is home to a diverse group of demographic including 20% in the low-income group, 33% of people of color, 13% senior and 16% under 18. Additionally, there are 9% with disability and 32% are of households with cost burden. This project will help to invigorate the area by stimulating economic growth by making the transportation network efficient, responsive, and thus inviting to businesses.

2. How will the proposed project address the specific transportation problem described in the **Problem Statement** *(as submitted in Project Information, #8)*? *Relevant quantitative data in your response is required.*

The addition of the RSU IoT devices within Denver will fill a gap in the CV traffic data collection. The data collected for this area will help to boost the area's economic growth by making the transportation network efficient and safe. This is accomplished by collecting ATSPM data to help plan and implement much needed work in traffic operational and strategy.

3. Does the proposed project benefit multiple municipalities and/or subregions? If yes, which ones and how? Also describe any funding partnerships *(other subregions, regional agencies, municipalities, private, etc.)* established in association with this project.

Since SH 95 (Sheridan) borders with Lakewood and also is a state highway, both Lakewood and CDOT will benefit from the ATSPM data collected from RSU deployed on this corridor. Likewise, CDOT can benefit from RSU deployed on Colfax Avenue - US 40.

4. Disproportionately Impacted and Environmental Justice Communities
This data is available in the DRCOG Data Tool. *Completing the below table and referencing relevant quantitative data in your response is required.*

To update the formulas below, enter your information, highlight the formulas (or Ctrl-A), and press F9. OR close and reopen the file.

	DI & EJ Population Groups	Number within ½ mile	% of Total	Regional %
Use 2015-2019 American Community Survey Data (***Use a 0.5 mile buffer distance***) [Equity data tab]	a. Total population	177990	-	-
	b. Total households	69128	-	-
	c. Individuals with low-income	54133	!Zero Divide	20%
	d. Individuals of color	83256	!Zero Divide	33%
	e. Adults age 60 and over	31856	!Zero Divide	13%
	f. Youth under 18	31866	!Zero Divide	16%
	g. Individuals with limited English proficiency	12900	!Zero Divide	3%
	h. Individuals with a disability	20342	!Zero Divide	9%
	i. Households that are housing cost-burdened	28791	!Zero Divide	32%
	j. Households without a motor vehicle	11263	!Zero Divide	5%

For Lines c. – i. use definitions in the DRCOG Title VI Implementation Plan. For Line j., as defined in C.R.S. 24-38.5-302(3)(b)(I): "'cost-burdened' means a household that spends more than thirty percent of its income on housing."

Describe how this project will improve access and mobility for each of the applicable disproportionately impacted and environmental justice population groups identified in the table above, *including the required quantitative analysis:*

The use of RSU to collect ATSPM data will be a much richer data set. This data set will provide transportation planners and designers an insight into the transportation growth, pattern, or operation deficiencies in the area. Therefore, with this rich data set, this portion of SH 95 US 40 will experience a refinement and improvement in mobility due to the availability of traffic data.

5. How will this project move the subregion toward achieving the shared regional transportation outcomes established in Metro Vision in terms of…

- Land Use, community, urban development, housing, employment? *(Improve the diversity and livability of communities. Contain urban development in locations designated for urban growth and services. Increase housing and employment in urban centers. Diversify the region's housing stock. Improve the region's competitive position.)*
  - An efficient and safe transportation corridor is the first step in revitalizing a plighted area. The improved transportation network will help to serve a diverse and marginalized group.

- Multimodal transportation, safety, reliability, air quality? *(Improve and expand the region's multimodal transportation system, services, and connections. Operate, manage, and maintain a safe and reliable transportation system. Improve air quality and reduce greenhouse gas emissions. Reduce the risk of hazards and their impact.)*
  - ATSPM data is used to improve traffic operational efficiency. The goal is to service all modes of transportation and with a heighten safety in mind. Additionally, fewer idle cars mean better air quality, thus improving the quality of life for the residents of the area. Lastly, CV technology can also be used for other roles such as transit signal priority, assigning traffic signal queue jumps, dissemination of pedestrian safety message and TIM.

- Connection/accessibility to particular locations supporting healthy and active choices? *(Connect people to natural resource and recreational areas. Increase access to amenities that support healthy, active choices. Improve transportation connections to health care facilities and service providers. Improve access to opportunity.)*
  - A better and improved transportation network will bridge the accessibility gap experience by marginalized groups and CV/RSU will be a major part of that solution.

6. Items marked with an asterisk (*) below are available in the DRCOG Data Tool.

- Is there a DRCOG designated urban center within ½ mile of the project limits?*
  ☐ Yes ☒ No If yes, please provide the name: Click or tap here to enter text.
- Does the project connect two or more urban centers?*
  ☐ Yes ☒ No If yes, please provide the names: Click or tap here to enter text.
- Is there a transit stop or station within ½ mile of the project limits?*
  Bus stop: ☒ Yes ☐ No If yes, how many: Within the project limit, over a dozen
  Rail station: ☒ Yes ☐ No If yes, how many: 1 - Decatur station
- Is the project in a locally-defined priority growth and development area and/or an area with zoning that supports compact, mixed-use development patterns and a variety of housing options?
  ☒ Yes ☐ No
  If yes, provide a link to the relevant planning document: No plans available, but Federal Blvd is a priority growth corridor
  If yes, provide how the area is defined in the relevant planning document:

Provide households and employment data* [Population and Employment tab]	2020	2050
Jobs within ½ mile	168974	221431
Households within ½ mile	69128	97904

Describe how this project will improve transportation options in and between key geographic areas including DRCOG-defined urban centers, multimodal corridors, mixed-use areas, Transit Oriented Development (transit near high-density development), or locally defined priority growth areas, *including the required quantitative analysis*:

An improved transportation system

7. Describe how this project will improve **access** and **connections** to key employment centers or subregional destinations. In your answer, define the key destination(s) and clearly explain how the project improves **access** and/or **connectivity**.

Transit operation is reliable in an efficient transportation network

8. Congestion Mitigation Process Mobility Score

Completing the below table and referencing relevant quantitative data in your response is required. ***In the DRCOG Data Tool, use a 0.02 mile buffer distance.***

Provide congestion mobility parameters* [Congestion Mobility Score tab]	**2021**
Sum: length-weighted score	252.27
Sum: miles	30.83
Congestion Mobility Score	!Zero

(The Congestion Mobility Score will automatically calculate based on values entered. If this has not updated, select the box and click F9)

1

C. Metro Vision Regional Transportation Plan Priorities

WEIGHT **25%**

- ***Qualitative and quantitative*** *responses are REQUIRED for the following items on how the proposed project contributes to the project and program investment priorities in the adopted 2050 Metro Vision Regional Transportation Plan.* ***To be considered for full points, you must fully answer all parts of the question, including incorporating quantitative data into your answer****. (see scoring section for details). Quantitative data from is available from the DRCOG Data Tool.*
- *Checkboxes and data tables help to provide context and guide responses, but do not account for the full range of potential improvements and are not directly scored, but are required to be completed.*
- *Not all proposed projects will necessarily be able to answer all questions, however it is in the applicant's interest to address as many priority areas as possible.*

Multimodal Mobility	**Provide improved travel options for all modes.** (drawn from 2050 MVRTP priorities; federal travel time reliability, infrastructure condition, & transit asset management performance measures; & Metro Vision objective 4) Examples of Project Elements: combinations of improvements that support options for a broad range of users, such as complete streets improvements, or an interchange project that incorporates transit and freight improvements, etc.

- What modes will project improvements directly address?
  ☒Walking ☒ Bicycling ☒ Transit ☒ SOV ☒ Freight ☐ Other: Click or tap here to enter text.
- List the elements of this project which will address the above modes (i.e., sidewalk, shared use path, bus stop improvements, new general purpose or managed lanes, etc.): Transportation data - ATSPM
- Will the completed project be a complete street as described in the Regional Complete Streets Toolkit? Complete Streets Typology is available in the DRCOG Data Tool.
  ☐ Yes ☒ No If yes, describe how it implements the Toolkit's strategies in your response. Click or tap here to enter text.
- Does this project improve travel time reliability and reduce delay?
  ☐ Yes ☒ No
- Does this project improve asset management of roadway infrastructure, active transportation facilities, and/or transit facilities or vehicle fleets?
  ☐ Yes ☒ No
- Does this project implement resilient infrastructure that helps the subregion mitigate natural and/or human-made hazards?
  ☐ Yes ☒ No

Question: Describe how this project will help increase mobility choices for people, goods, and/or services. Please include quantitative information, including any items referenced above, in your response. *Note that the proposed roadway operational improvements must be primarily on the DRCOG Regional Roadway System and/or Regional Managed Lanes System.*

Better managed and efficient transportation corridor

Question: Describe how this project will help improve asset reliability and availability. Please include quantitative information in your response (for example, reduce mean time to repair and increase mean time between failures).

NA

Question: Describe how this project will reduce delays and improve travel time reliability. Please include quantitative information in your response (for example, vehicle-hours traveled and travel time index).

Better use of traffic signal time

Air Quality	**Improve air quality and reduce greenhouse gas emissions.** (drawn from 2050 MVRTP priorities; state greenhouse gas rulemaking; federal congestion & emissions reduction performance measures; Metro Vision objectives 2, 3, & 6a) Examples of Project Elements: active transportation, transit, or TDM elements; vehicle operational improvements; electric vehicle supportive infrastructure; etc.

- Does this project reduce congestion?
  ☒ Yes ☐ No
- Does this project reduce vehicle miles traveled (VMT)?
  ☐ Yes ☒ No
- Does this project reduce single-occupant vehicle (SOV) travel?
  ☐ Yes ☒ No

Emissions Reduced *(kg/day)*	CO	NOx	VOCs	PM 10	CO_2e
	Enter Data	Enter Data	Enter Data	Enter Data	Enter Data

Use the FHWA CMAQ Calculators or a similar reasonable methodology to determine emissions reduced. Base your calculations on the year of opening. Please attach a screenshot of your work (such as the FHWA calculator showing the inputs and outputs) as part of your submittal packet.
Note: if not using the FHWA Calculators, please describe your methodology and sources in your narrative below.

Question: Describe how this project helps reduce congestion and air pollutants, including but not limited to carbon monoxide, ground-level ozone precursors, particulate matter, and greenhouse gas emissions. Please include quantitative information, including any items referenced above, in your response.

Fewer idle cars from a better managed traffic operation and thus less pullutants

Regional Transit	**Expand and improve the subregion's transit network.** (drawn from 2050 MVRTP priorities, Coordinated Transit Plan, RTD's Regional Bus Rapid Transit Feasibility Study) Examples of Project Elements: transit lanes, station improvements, etc. Note: For any project with transit elements, the sponsor must coordinate with RTD to ensure RTD agrees to the scope and cost. Be sure to include RTD's concurrence in your application submittal.

Items marked with an asterisk (*) below are available in the DRCOG Data Tool.

- Does this project implement a portion of the regional bus rapid transit (BRT) network (as defined in the 2050 MVRTP)?*
  ☐ Yes ☒ No If yes, which specific corridor will this project focus on: Click or tap here to enter text.
- Does this project involve a regional transit planning corridor (as defined in the 2050 MVRTP)?*
  ☒ Yes ☐ No If yes, which specific corridor will this project focus on: Sheridan and Colfax
- Does this project implement a mobility hub (as defined in the 2050 MVRTP)?
  ☐ Yes ☒ No
- Does this project improve connections between transit and other modes?
  ☐ Yes ☒ No If yes, please describe in your response.
- Does this project improve transit travel time reliability?
  ☒ Yes ☐ No If yes, please describe in your response.
- Does this project add and/or improve transit access to or within a DRCOG-defined urban center?*
  ☐ Yes ☒ No

Question: Describe how this project improves connections to or expands the subregion's transit system, as outlined in the 2050 MVRTP. Also describe how this project improves transit travel time reliability. Please include quantitative information, including any items referenced above, in your response. *Note that rapid transit improvements must be on the Regional Rapid Transit System.*

TSP and also efficient traffic operation

Safety	**Increase the safety for all users of the transportation system.** (drawn from 2050 MVRTP priorities, Taking Action on Regional Vision Zero, CDOT Strategic Transportation Safety Plan, & federal safety performance measures) Examples of Project Elements: bike/pedestrian crossing improvements, vehicle crash countermeasures, traffic calming, etc.

Items marked with an asterisk (*) below are available in the DRCOG Data Tool.

- Does this project address a location on the DRCOG High-Injury Network or Critical Corridors or corridors defined in a local Vision Zero or equivalent safety plan?*
  ☒ Yes ☐ No
- Does this project implement a safety countermeasure listed in the countermeasure glossary?
  ☐ Yes ☒ No
- Will this project result in a reduction of average roadway clearance time and incident clearance time and/or secondary incidents?
  ☐ Yes ☒ No
- Will this project result in a reduction of first responder struck-bys?
  ☐ Yes ☒ No

Provide the current number of crashes involving motor vehicles, bicyclists, and pedestrians* *(using the 2016-2020 period – **in the DRCOG Data Tool, use a 0.02 mile buffer distance**)* [Crash Severity 2016-2020 tab] *NOTE: if constructing a new facility, report crashes along closest existing alternative route*		Sponsor must use industry accepted crash modification factors (CMF) or crash reduction factor (CRF) practices *(e.g., CMF Clearinghouse, NCHRP Report 617, or DiExSys methodology).*
Fatal crashes	1	
Serious Injury crashes	5	
Other: Non-Serious Injury and Property Damage Only crashes	432	
Estimated reduction in crashes applicable to the project scope *(per the five-year period used above)*		Provide the methodology and sources below:
Fatal crashes reduced	Enter Data	Click or tap here to enter text.
Serious Injury crashes reduced	Enter Data	
Other: Non-Serious Injury and Property Damage Only crashes	Enter Data	

Question: Describe how this project will implement safety improvements (roadway, active transportation facility, etc.), particularly improvements in line with the recommendations in Taking Action on Regional Vision Zero. Please include quantitative information, including any items referenced above, in your response. *Note that any improvements on roadways must be primarily on the DRCOG Regional Roadway System.*

Better managed corridor

Question: Describe how this project will reduce average incident duration, secondary incidents and first responder struck-bys. Please include quantitative information in your response. *A "responder struck-by" incident is a collision between a motor vehicle in transit and a responder working a roadway incident. The responder may be a nonmotorist, an occupant of a stopped response vehicle or an unoccupied response vehicle.*

NA

Freight	**Maintain efficient movement of goods within and beyond the subregion.** (drawn from 2050 MVRTP priorities; Regional Multimodal Freight Plan; Colorado Freight Plan, federal freight reliability performance measure; Metro Vision objective 14) Examples of Project Elements: bridge improvements, improved turning radii, increased roadway capacity, etc.

Items marked with an asterisk (*) below are available in the DRCOG Data Tool.

- Is this project located in or impact access to a Freight Focus Area?*
  ☐ Yes ☒ No If yes, please provide the name: Click or tap here to enter text.
- If this project is located in a Freight Focus Area does it address the relevant Needs and Issues identified in the Plan (see text located within each Focus Area)?
  ☐ Yes ☒ No If yes, please describe in your response below.
- Is the project located on the Tier 1 or Tier 2 Regional Highway Freight Vision Network?*
  ☒ Yes ☐ No
- Check any items from the Inventory of Current Needs which this project will address:
  ☐ Truck Crash Location ☐ Rail Crossing Safety (eligible locations)
  ☐ Truck Delay ☐ Truck Reliability ☐ Highway Bottleneck
  ☐ Low-Clearance or Weight-Restricted Bridge
  Please provide the location(s) being addressed: Click or tap here to enter text.
- Does this project include any innovative or non-traditional freight supportive elements (i.e., curb management strategies, cargo bike supportive infrastructure, etc.)?
  ☐ Yes ☒ No If yes, please describe in your response below.

Question: Describe how this project will improve the efficient movement of goods. In your response, identify those improvements identified in the Regional Multimodal Freight Plan, include quantitative information, and include any items referenced above. *Note that any improvements on roadways must be primarily on the DRCOG Regional Roadway System*.

NA

Active Transportation	**Expand and enhance active transportation travel options.** (drawn from 2050 MVRTP priorities; Denver Regional Active Transportation Plan; & Metro Vision objectives 10 & 13) Examples of Project Elements: shared use paths, sidewalks, regional trails, grade separations, etc.

Items marked with an asterisk (*) below are available in the DRCOG Data Tool.

- Does this project close a gap or extend a facility on a Regional Active Transportation Corridor or locally-defined priority corridor?*
  ☐ Yes ☒ No
- Does this project improve pedestrian accessibility and connectivity in a pedestrian focus area?*
  ☐ Yes ☒ No
- Does this project improve active transportation choices in a short trip opportunity zone?*
  ☐ Yes ☒ No
- Does this project include a high-comfort bikeway (like a sidepath, shared-use path, separated bike lane, bicycle boulevard)?
  ☐ Yes ☒ No If yes, please describe in your response.

Bicycle Use

NOTE: if constructing a new facility, report bike usage along closest existing alternative route

To update the formulas below, enter your information, highlight the formulas (or Ctrl-A), and press F9. OR close and reopen the file.

1.	Current Average Single Weekday Bicyclists:	NA	
	Bicycle Use Calculations	**Year of Opening**	**2050 Weekday Estimate**
2.	Enter estimated additional average weekday one-way bicycle trips on the facility after project is completed.	Enter Data	Enter Data
3.	Enter number of the bicycle trips (in #2 above) that will be diverting from a different bicycling route. (Example: **{#2 X 50%}** *or other percent, if justified on line 10 below)*	Enter Data	Enter Data
4.	= Initial number of new bicycle trips from project (#2 – #3)	0	0
5.	Enter number of the new trips produced (from #4 above) that are replacing a trip made by another non-SOV mode (bus, carpool, vanpool, walking, etc.). (Example: **{#4 X 30%}** *(or other percent, if justified on line 10 below)*	Enter Data	Enter Data
6.	= Number of SOV trips reduced per day (#4 - #5)	0.00	0.00
7.	Enter the value of **{#6 x 2 miles}**. (= the VMT reduced per day) *(Values other than 2 miles must be justified by sponsor on line 10 below)*	Enter Data	Enter Data
8.	= Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	0.00	0.00
9.	If values would be distinctly greater for weekends, describe the magnitude of difference: NA		
10.	If different values other than the suggested are used, please explain here: NA		

Pedestrian Use

NOTE: if constructing a new facility, report pedestrian usage along closest existing alternative route

To update the formulas below, enter your information, highlight the formulas (or Ctrl-A), and press F9. OR close and reopen the file.

1.	Current Average Single Weekday Pedestrians (including users of non-pedaled devices such as scooters and wheelchairs):	NA	
	Pedestrian Use Calculations	**Year of Opening**	**2050 Weekday Estimate**
2.	Enter estimated additional average weekday pedestrian one-way trips on the facility after project is completed	Enter Data	Enter Data
3.	Enter number of the new pedestrian trips (in #2 above) that will be diverting from a different walking route (Example: **{#2 X 50%}** *or other percent, if justified on line 10 below)*	Enter Data	Enter Data
4.	= Number of new trips from project (#2 – #3)	0	0
5.	Enter number of the new trips produced (from #4 above) that are replacing a trip made by another non-SOV mode (bus, carpool, vanpool, bike, etc.). (Example: **{#4 X 30%}** *or other percent, if justified on line 10 below)*	Enter Data	Enter Data
6.	= Number of SOV trips reduced per day (#4 - #5)	0.00	0.00
7.	Enter the value of **{#6 x .4 miles}**. (= the VMT reduced per day) *(Values other than .4 miles must be justified by sponsor on line 10 below)*	Enter Data	Enter Data

8.	= Number of pounds GHG emissions reduced (#7 x 0.95 lbs.)	0.00	0.00
9.	If values would be distinctly greater for weekends, describe the magnitude of difference: NA		
10.	If different values other than the suggested are used, please explain here: NA		

Question: Describe how this project helps expand the active transportation network, closes gaps, improves comfort, and/or improves connections to key destinations, particularly improvements in line with the recommendations in the Denver Regional Active Transportation Plan. Please include quantitative information, including any items referenced above, in your response.

NA

D. Financial Leveraging

WEIGHT **5%**

What percent of outside funding sources (non-federal funds) does this project have? *(Match percentage will automatically calculate based on values entered in the Funding Request table. If this has not updated, select the box to the right and click F9.)* [*includes 100% eligible projects with no match]	Enter score: **0** **0.0%**	36%+ outside funding sources ..... 5 31 - 35.9%..... 4 26 - 30.9%..... 3 21 - 25.9%..... 2 17.21 - 20.9%*..... 1 17.21%..... 0

E. Project Readiness

WEIGHT **15%**

Provide responses to the following items to demonstrate the readiness of the project. DRCOG is prioritizing those projects that have a higher likelihood to move forward in a timely manner and are less likely to experience a delay.

Subsection 1. Avoiding Pitfalls and Roadblocks

a. Has a licensed engineer (CDOT, consultant, local agency, etc.) reviewed the impact the proposed project will have on utilities, railroads, ROW, historic and environmental resources, etc. and have those impacts and pitfalls been mitigated as much as possible to date before this submittal?

☒ Yes ☐ No ☐ N/A (for projects which do not require engineering services)

If yes, please type in the engineer's name below which certifies their review and that impacts have been evaluated and mitigated as much as possible before your application is submitted:

John Yu and David DiGiacomo

Please describe the status to date on each, including 1) anticipated/known pitfalls/roadblocks, and 2) mitigation activities taken to date:

- Utilities: No conflict
- Railroad: No RR crossings
- Right-of-Way: No ROW need
- Environmental/Historic: No impact
- Other: NA

b. Have additional project risks been identified?

☒ Yes ☐ No ☐ N/A

If yes, please provide a brief description of the known risks and planned mitigation activities.

Cybersecurity

c. Is this application for a single project phase only (i.e., design, environmental, ROW acquisition, construction only, study, equipment purchase, etc.)?

☒ Yes ☐ No

If yes, are the other prerequisite phases complete? ☐ Yes ☒ No ☐ N/A

d. Will this project seek a Finding in the Public Interest as part of equipment procurement?

☐ Yes ☒ No

If yes, please provide an explanation of the need for a Finding in the Public Interest. Do not reference specific products trade names.

NA

e. Has all required ROW been identified? ☐ Yes ☐ No ☒ N/A

Has all required ROW already been acquired and cleared by CDOT? ☐ Yes ☐ No ☒ N/A

Is existing equipment within ROW? ☒ Yes ☐ No ☐ N/A

Will subsurface utility engineering be a factor in this project? ☐ Yes ☒ No

Has subsurface utility engineering been accounted for in the project scoping, phasing and estimate? ☐ Yes ☐ No ☒ N/A

f. Based on the current status provided in Project Information, question 11, do you foresee being able to execute your IGA by October 1 of your first year of funding (or if requesting first year funding, beginning discussions on your IGA as soon as possible), so you can begin your project on time?

☒ Yes ☐ No

Does your agency have the appropriate staff available to work on this project? ☒ Yes ☐ No

If yes, are they knowledgeable with the federal-aid process? ☒ Yes ☐ No ☐ N/A

g. Have other stakeholders in your project been identified and involved in project development?

☒ Yes ☐ No ☐ N/A

If yes, who are the stakeholders?
David DiGiacomo

Please provide any additional details on any of the items in Subsection 1, if applicable.
NA

Subsection 2. Local Match Availability

a. Is all the local match identified in your application currently available and not contingent on any additional decisions, and if a partnering agency is also committing match, do you have a commitment letter?

☐ Yes ☒ No

Please describe:
No matching required

b. Is all funding for this project currently identified in the sponsor agency's Capital Improvement Program (CIP)?

☐ Yes ☒ No

Please describe:
NA

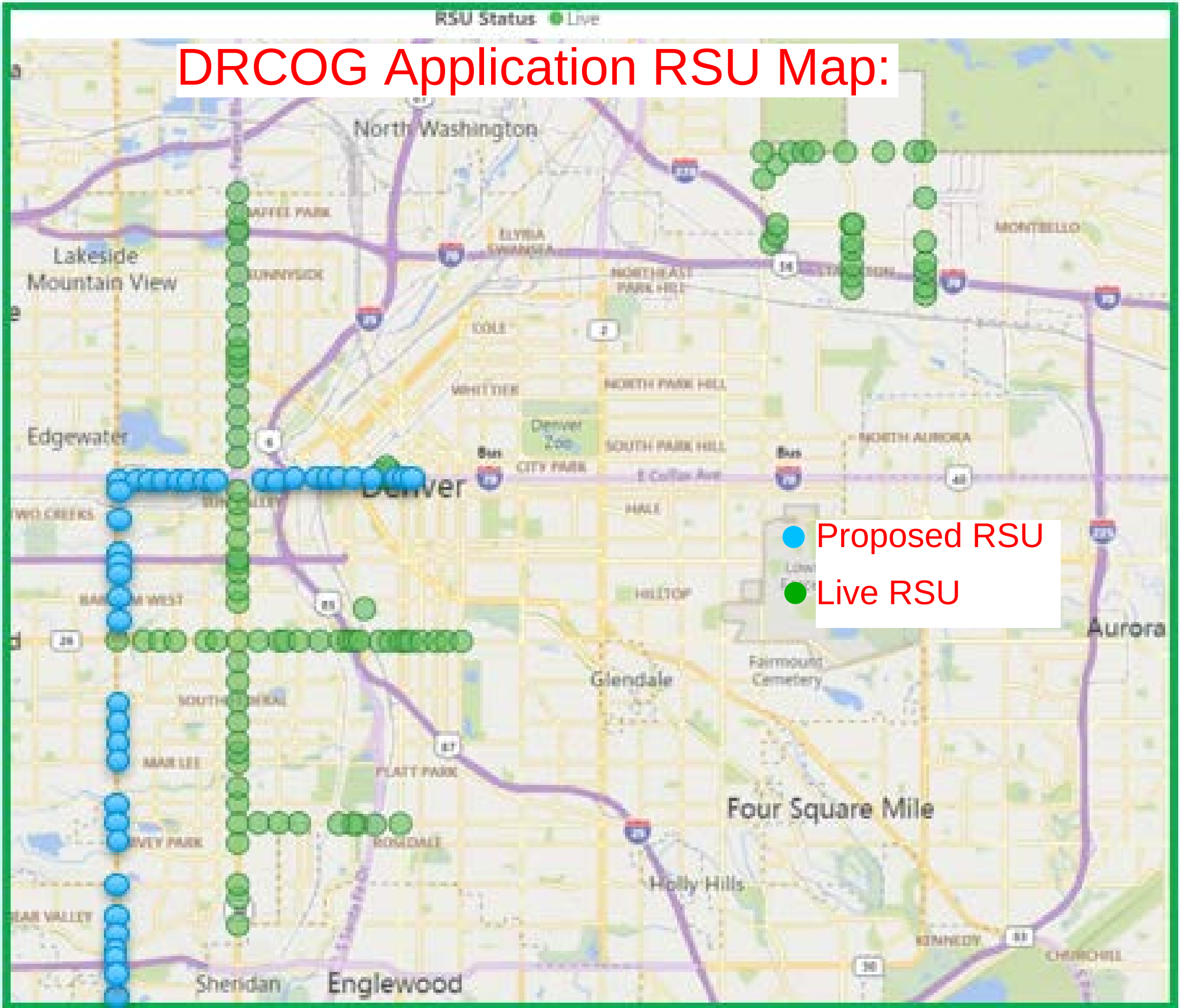
Subsection 3. Systems Engineering Analysis Documentation

Systems Engineering Analysis (SEA) is a federally required process for deployment of transportation technology projects using funds from the Highway Trust Fund. CDOT established and administers a formal SEA process for transportation technology projects in the state, including local agency projects.

Please complete at least the first seven sections of the required SEA-Local Agency Template. Submit the completed form with this application.

Submit completed applications to jluor@drcog.org no later than 5pm on July 7, 2023.

Prior to submitting, press Ctrl+A to select all, then press F9 to update all formulas. You can then print to PDF.


RSU Status Live
DRCOG Application RSU Map:
North Washington
Lakeside
Mountain View
Edgewater
Denver
Glendale
Four Square Mile
Holly Hills
Aurora
Sheridan
Englewood
Proposed RSU
Live RSU

FY24-27 DRCOG RTO&O STBG Cost Estimate: V2X Communication Device (RSU) Deployment for supporting ATCMTD/Advance Traffic Operations

Description	Unit Cost	Quantity	Federal FY24-27	Local Match	Total Cost
Project Management/Consultant	$ 450,000.00	1	$ 450,000.00	$ -	$ 450,000.00
Implementation and installation per location	$ 5,000.00	45	$ 225,000.00	$ -	$ 225,000.00
RSU device and shipping cost	$ 8,500.00	45	$ 382,500.00	$ -	$ 382,500.00
RSU Device License	$ 2,000.00	45	$ 90,000.00	$ -	$ 90,000.00
Controllers/Switches/ancillary equipment	$ 6,500.00	45	$ 292,500.00	$ -	$ 292,500.00
Central Server Expansion	$ 100,000.00	1	$ 100,000.00	$ -	$ 100,000.00
Software Updates, improvements and/or integration	$ 85,000.00	1	$ 85,000.00	$ -	$ 85,000.00
RSU software support and set up	$ 75,000.00	1	$ 75,000.00	$ -	$ 75,000.00
CONSTRUCTION TOTAL			$ 1,700,000.00	$ -	$ 1,700,000.00

			Federal FY24-27	Local Match	Total Cost
Funding Total			$ 1,360,000.00	$ 340,000.00	$ 1,700,000.00

Requirement: The systems engineering analysis (SEA) process is required per 23 CFR 940. The SEA is the project delivery process for the technology element of the project. If the project does not have technology, the project still needs documentation that the scope was evaluated and no additional SEA documentation is required beyond section two of this form. As a matter of policy, CDOT has committed to following the intent and requirements of the SEA process for all transportation projects, regardless whether the project is state or federally funded.

Purpose: The SEA is intended to help design a robust and sustainable technology system. The SEA prompts discussions during design with stakeholders and is intended to document those critical discussions. Since technology does require maintenance and has relatively short life cycles, the SEA also helps projects plan for how to keep the system maintained and operating after construction is completed.

Who is responsible: The local agency will be required to complete this form. This form shall be submitted to CDOT a minimum of two weeks prior to the FOR meeting. It must be reviewed and approved prior to receiving CDOT Concurrence to Advertise for construction. The ITS & Network Services Branch needs at least two weeks to review documents.

Section 1 - Project Overview
1.1 Local Public Agency Project Manager and Contact Information John Yu; john.yu@denvergov.org; 720-865-3176/303-588-5129
1.2 Consultant Project Manager and Contact Information (☐ N/A) TBD
1.3 CDOT Project Manager and Contact Information TBD
1.4 Project Location, Route Beginning and Ending MM, or Nearest Intersection Colorado SH 95 from US 40 to Dartmouth Avenue and US 40 to Lincoln Street
1.5 Project Description, Title, and Type of Work – This should include identification of the problem and the purpose of the project Procure & deploy 45 roadside units & associated licenses/software; Title: V2X communication devices

(RSU) deployment for supporting ATSPM & advance operations; Type of Work: Install RSU devices on traffic signal mast arm for the purpose of collecting traffic data to support ATSPM/Advance traffic operations
1.6 CDOT Project Number and Sub Account Code TBD
1.7 Federal-Aid ☒ Yes ☐ No
1.8 Is the project within CDOT's Right of Way (ROW)? ☒ Yes ☐ No
1.9 Funding and Source of Each (Including State and Federal) DRCOG FY24-27 Surface Transportation Block Grant Set-Aside; Request $1.7 million, no match require
1.10 Fiscal Year of Funding: FY24-27

Section 2 - SEA Required?
Federal Requirement: 23 CFR 940.11 Project Implementation
2.1 Are there any technology elements included in the scope of the project? The National Regulation (23 CFR 940) defines ITS as "electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system." An ITS project is "any project that in whole or in part funds the acquisition of technologies or systems of technologies that provide or significantly contribute to the provision of one or more ITS user services as defined in the National ITS Architecture." Technology includes any type of device or system that is used to improve the roadways. This could include, but is not limited to, intelligent transportation systems devices. Examples are CCTV, DMS, VTMS, VSL, wrong way detection, RWIS, connected vehicles, non-traditional signals (click on link to understand which signals projects require an SEA), on board equipment in vehicles, and anything that has to be communicated to ATMS or other traffic management systems. Additionally, creating or modifying systems and software that impacts the roadway is included in the SEA classification. If there is still confusion on what is classified as technology, please reach out to the ITS & Network Services Branch. ☒ Yes ☐ No

If the answer to 2.1 is **"yes"** then a **SEA is required**.

If the answer to 2.1 is **"no"** then a **SEA is not required** and the rest of this form does not need to be completed, but Sections 1 and 2 will need to be submitted for documentation purposes.

2.2 Which SEA process should be followed?

☐ Yes	☒ No	Will the system be owned, operated, or maintained by CDOT?
☐ Yes	☒ No	Does the project involve CDOT technology assets?
☐ Yes	☒ No	Will the project connect to the CDOT network?
☒ Yes	☐ No	Will the project be on CDOT right of way?
☐ Yes	☒ No	Does the project involve multiple municipalities?

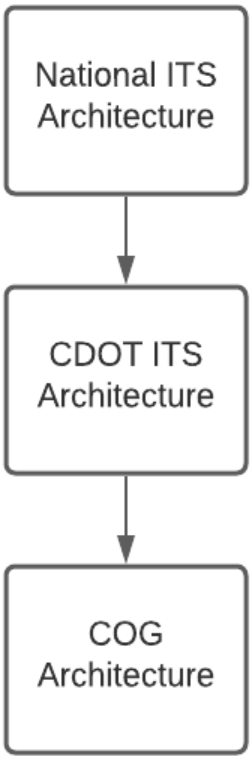
If "**yes**" is selected for any of the above questions, then the Robust SEA Process needs to be followed and this form is no longer applicable.

If "**no**" is selected for all questions, then completing this entire form will fulfill the 23 CFR 940 requirements for local agency projects only.

Section 3 - ITS Architecture Conformance

Federal Requirement: 23 CFR 940.11(c)(1) - "Identification of portions of the regional ITS architecture being implemented (or if a regional ITS architecture does not exist, the applicable portions of the National ITS Architecture)"

Per 23 CFR 940, every project has to comply with an ITS Architecture Plan. For background information, there is a National ITS Architecture Plan that is maintained by FHWA. The National Architecture Plan consists of Service Packages that identifies a problem that needs to be solved or a certain application of a technology. A service package states the basic requirements the project must achieve to create consistency. CDOT is then required to select the service packages from the National ITS Architecture Plan that will assist in fulfilling CDOT's technology vision and make them CDOT specific. From there the local Council of Governments (COG's) have to make their ITS Architectures as well. The local agencies should



use the COG's architecture plan if one exists. If one does not, the CDOT Architecture Plan should be followed.

Service packages are critical to identify as part of compiling required SEA documentation. Service packages focus on how the technology is being used rather than specific devices. For example, there is no Dynamic Message Sign (DMS) service package. It will be critical to understand the intent of use for the DMS in order to determine the applicable service package(s). A DMS could fall within the TM06 Traffic Information Dissemination if the intent is to provide drivers with information. If a DMS is being installed as part of a tunnel, then it could fall under TM24 Tunnel Management. The key is focusing on what application the DMS is being used in. It is possible for a project to fall within multiple service packages. Please reach out to the ITS & Network Services Branch with any questions.

3.1 Which architecture plan will be used?

☐ National ITS Architecture ☐ CDOT ITS Architecture

☒ COG

3.2 If using a COG/MPO/TPR Architecture Plan, what COG? N/A for using the National or CDOT Architecture Plan.

DRCOG

3.3 List service packages that will be implemented on this project:

1. SU01.02
2. DM01.04

To add additional service packages click in the line item 2 box and hit enter.

Section 4 - Procurement	
Federal Requirement: 23 CFR 940.11(c)(5) Procurement options	
4.1 State the procurement method for the project. ☒ Competitively Bid	☐ Sole Source
4.2 If 4.1 is competitively bid, then what kind is the project delivery method? ☐ Design, Bid, Build ☐ Construction Manager/General Contractor	☐ Design Build ☒ Other (Please specify)On-Call professional services; MPO on RSU

Section 5 - Alternative Analysis

Federal Requirement: 23 CFR 940.11(c)(4) - Analysis of alternative system configurations and technology options to meet requirements

Instructions: Document alternatives considered. When thinking of alternatives it is important to consider maintenance resources and costs into the selected alternative. An alternative can also include not implementing the project. More rows can be added as needed.

Alternative Title	Alternative Description	Selected (Yes/No)	Reason
Installation	Expand the existing RSU devices within the CCD for collecting CV data to support ATSMP	Yes	Enhance the RSU devices within CCD and expand the devices use case in other application
No Action	Do not expand the existing set of RSU already deployed within CCD	No	CV technology and it's application will meet Denver's goal of a safe and efficient transportation network

To add additional rows, right click on a row, select "insert", select "row below"

Section 6 - Roles & Responsibilities

Federal Requirement: 23 CFR 940.11(c)(2) - Identification of participating agencies roles and responsibilities

Instructions: Determine roles and responsibilities of the proposed technology system throughout the entire life cycle. More rows can be added as needed.

Agency	Role/Position	Contact Info	Phase*	Responsibility
Denver	Project Management	John Yu	Design/Construction	Overall PM including overseeing consultants
Denver	Operation	John Yu	Operations	Oversee RSU monitoring requirements
Denver	Sponsor	David DiGiacomo	Operations	Sponsor and support for the grant
CDOT	Sponsor	TBD	Design	Oversight of project during design and authorize deployment of system on infrastructure on CDOT ROW/infrastructure

*Phase: Design, Construction, Operations

To add additional rows, right click on a row, select “insert”, select “row below”

Section 7 - Requirements & Corresponding Standards

Federal Requirement: 23 CFR 940.11(c)(3) Requirements definitions and 23 CFR 940.11(c)(6) Identification of applicable ITS standards and testing procedures

Instructions: Determine the functional requirements of the system and how these requirements will be implemented. Implementation could be specifications or included in the general design of the system. More rows can be added as needed.

Functional Requirement	How is the requirement included in the project? Spec, plan set, etc
Use of RSU to capture CV data and integrate into Denver’s EMD for ingestion, analysis, and reporting	Device communication and networking configuration, mapping, etc.

To add additional rows, right click on a row, select “insert”, select “row below”

Section 8 - Devices & System
Federal Requirement: 23 CFR 940.11(c)(6) Identification of applicable ITS standards and testing procedures and 23 CFR 940.11(c)(7) Procedures and resources necessary for operations and management of the system
8.1 Is a list or a map with all of the proposed devices attached? ☐ Yes ☐ No
8.2 Determine how each device type installed or modified on the project will be specified, tested, and operation of the devices documented. If the project is a whole system, then there may need to be a system wide test as well to ensure all devices are working together properly. More rows can be added as needed.

Device and system type included in project	Is there a supporting specification(s)? If yes, give specification title.	Is there a supporting test document? If yes, give testing procedure title.	Is this device documented in a Standard Operating Procedure (SOP) Document? If yes, give SOP title.	Is this device documented in a Maintenance Plan document? If Yes, give maintenance plan title.
CV2X CV roadside units	From the vendor (Commsignia)	In development – CCD CV Strategic Plan	Yes, Denver TMC Standard Operating Procedure	In development – CCD CV Strategic Plan

To add additional rows, right click on a row, select “insert”, select “row below”

Section 9 - FHWA Involvement
9.1 Has FHWA classified this project as a Project of Division Involvement (PODI) and requires involvement in the review of SEA documents? ☐ Yes ☒ No

Section 10 - Schedule	
10.1 Design Start Date: 10/2024	10.2 AD date: 07/2024
10.3 Construction Start: 01/2025	10.4 Construction completion: 01/2026
10.5 Relationship to other Federal, State, and local projects and phases. Tip: Does this project depend on another project to operate successfully? Is this project one of a series or projects for a phased approach? NA – this is a stand along project. However, Denver will leverage the lessons learned from the previous FHWA ATCMTD CV grant and build on the work that was started from that grant. These included device communication, software updates, technology upgrade, device configuration, network configuration, etc.	