

AGENDA

TRANSPORTATION ADVISORY COMMITTEE

Monday, December 19, 2016

1:30 p.m.

1290 Broadway

Independence Pass Board Room - Ground floor, West side

1. Call to Order
2. Public Comment
3. November 28, 2016 TAC Meeting Summary
(Attachment A)

ACTION ITEMS

4. Discussion on amendments to the 2016-2021 Transportation Improvement Program.
(Attachment B) Todd Cottrell
5. Discussion of actions proposed by DRCOG staff regarding 2016-2021 Transportation Improvement Program (TIP) project delays for FY 2016.
(Attachment C) Todd Cottrell
6. Discussion of the application and project selection process for the Regional Traffic Operations (RTO) Improvement Program.
(Attachment D) Greg MacKinnon
7. Discussion on updates to the Transportation Planning in the Denver Region.
(Attachment E) Douglas Rex
8. Discussion on the draft 2040 Metro Vision Regional Transportation Plan.
(Attachment F) Jacob Riger

INFORMATIONAL ITEMS

9. Briefing on Electric Vehicle Smart Fleets program
(Attachment G) Robert Spotts and Janna West-Heiss, Denver Metro Clean Cities Coordinator,
American Lung Association in Colorado

ADMINISTRATIVE ITEMS

10. Member Comment/Other Matters
11. Next Meeting – January 23, 2017
12. Adjournment

Persons in need of auxiliary aids or services, such as interpretation services or assisted listening devices, are asked to contact DRCOG at least 48 hours in advance of the meeting by calling (303) 480-6744.



ATTACHMENT A

MEETING SUMMARY TRANSPORTATION ADVISORY COMMITTEE Monday, November 28, 2016

MEMBERS (OR VOTING ALTERNATES) PRESENT:

Jeanne Shreve	Adams County
Kimberly Dall	Adams County-City of Brighton
Dave Chambers	Arapahoe County-City of Aurora
Travis Greiman	Arapahoe County-City of Centennial
Tom Reed	Aviation
George Gerstle	Boulder County
Heather Balsler	Boulder County-City of Louisville
Steve Klausing	Business
Tom Schomer	Broomfield, City and County
Jeff Sudmeier (Alternate)	Colorado Dept. of Transportation, DTD
Janice Finch	Denver, City and County
Ryan Billings (Alternate)	Denver, City and County
Douglas Rex	Denver Regional Council of Governments
Art Griffith	Douglas County
John Cotten (Vice Chair)	Douglas County-City of Lone Tree
Rick Pilgrim	Environment
Greg Fischer	Freight
Dave Baskett (Alternate)	Jefferson County-City of Lakewood
Steve Durian	Jefferson County
Hank Braaksma	Non RTD Transit
Bill Sirois (Alternate)	Regional Transportation District
Sylvia Labrucherie	Senior
Aylene McCallum (Alternate)	TDM/Nonmotorized

OTHERS PRESENT:

Kent Moorman (Alternate)	Adams County-City of Thornton
Mac Callison (Alternate)	Arapahoe County-City of Aurora
Bryan Weimer (Alternate)	Arapahoe County
Flo Raitano (Alternate)	Denver Regional Council of Governments
Tom Reiff (Alternate)	Douglas County-Town of Castle Rock
Mike Salisbury (Alternate)	Environment
Aaron Bustow (Alternate Ex-Officio)	Federal Highway Administration
Larry Squires (Ex-Officio)	Federal Transit Administration
Debra Baskett (Alternate)	Jefferson County-City of Westminster

Public: Cathy Cole, Steve Markovetz, Karen Schneiders, CDOT; Faye Estes, Douglas County; Steve Stanish, Town of Frederick; Brook Svoboda, City of Northglenn; Amanda Brimmer, RAQC

DRCOG staff: Jacob Riger, Steve Cook, Todd Cottrell, Robert Spotts, Melina Dempsey, Brad Calvert, Mark Northrop, Casey Collins

Call to Order

Vice Chair John Cotten called the meeting to order at 1:30 p.m.

Public Comments

There were no public comments.

Summary of October 24, 2016 Meeting

The meeting summary was accepted.

ACTION ITEMS

Discussion on amendments to the 2016-2021 Transportation Improvement Program.

Todd Cottrell presented the two proposed amendments.

Sponsor	TIP ID	Proposed Amendments	
Denver	New Project	Denver Smart City Program	Newly-awarded federal grant project using FAST Act <i>Advanced Transportation & Congestion Management Technologies Deployment</i> (ATCMTD) program funds to fund \$6 million for new transportation technologies that will help reduce congestion and improve safety within Denver. (\$6 million local match)
Northglenn	2012-079	North Metro Rail 112 th Ave Corridor Improvements	Adjust scope to reflect intersection improvements along 112 th Ave, in addition to a minor trail extension. This Second Commitment in Principle project scope change was agreed to by all North Metro Corridor partners.

George Gerstle MOVED to recommend to the Regional Transportation Committee amendments to the *2016-2021 Transportation Improvement Program*. The motion was seconded and the motion passed unanimously.

There were no comments made.

Discussion of air quality conformity modeling for the 2040 Metro Vision Regional Transportation Plan.

Jacob Riger presented a request to conduct the federally-required air quality conformity modeling for the regional roadway and rapid transit system in the 2040 MVRTP. This includes the network of projects contained in the 2040 fiscally constrained RTP, as well as subsequent RTP project amendments. Two minor modifications requested by the City of Thornton in this cycle are also included.

Rich Pilgrim MOVED to recommend to the Regional Transportation Committee the *2040 Metro Vision Regional Transportation Plan* fiscally constrained roadway capacity projects and rapid transit networks to be modeled for air quality conformity. The motion was seconded and passed unanimously.

Mr. Riger noted the public review draft of the 2040 MVRTP document will be brought to the committee in December. The 2040 MVRTP is anticipated for adoption in early 2017.

Discussion on draft *Transportation Planning in the Denver Region*.

Doug Rex presented the review draft of the DRCOG planning process document that was last updated in 2011. The document describes the transportation planning policies and procedures; details the cooperation and interrelationships of the three planning partners (DRCOG, CDOT, and RTD); and identifies key regional planning products.

Updated information includes revisions to incorporate the new federal surface transportation act (FAST Act) and new planning regulations for performance management, along with other edits.

Comments:

Janice Finch noted references to the Metropolitan Planning Agreement (MPA) in the document. Mr. Rex noted the MPA is currently under review by planning partners and is expected to be acted on by the Board in early 2017. The MPA will supersede the Memorandum of Agreement upon approval.

George Gerstle was concerned the document removes several references to TDM and Metro Vision that were previously in the document. He felt this version places less emphasis on consistency with Metro Vision. He questioned whether a change to the TIP process would impact the document. Doug Rex noted the document can be amended when needed, and the document is a procedural, rather than a policy document.

Art Griffith suggested clarifying references to CDOT's selection of projects for DRCOG's TIP.

Janice Finch suggested mentioning the Board Work Sessions.

George Gerstle felt some reference to TAC assisting the Board should be included in the TAC Responsibilities row listed in the table on page 14. Steve Klausing agreed.

Jeanne Shreve noted that RTD is now including the FasTracks Annual Program Evaluation (APE) in its Strategic Budget Plan. She asked when APE information would be brought through DRCOG committees. George Gerstle agreed and also asked this be brought through the DRCOG committee process.

Jeff Sudmeier provided several comments:

- On page 14, Exhibit 4, Board Membership – suggested rewriting the description of Governor appointees.
- On page 28, Step 3, CDOT project selection – correct the 3rd sentence.
- On page 48, Exhibit 22, Section 6 - change MOA to MPA
- He said he will provide staff with more minor edits.

Janice Finch questioned the PEL section on page 38. She and Debra Baskett felt the PEL narrative should be given more emphasis.

Art Griffith suggested beefing up Exhibit 15 (Categories of Environmental Study) and specifying NEPA actions vs. environmental study processes.

Doug Rex asked the committee to provide any additional comment to Jacob Riger by December 9. Staff will bring the revised document back to the December TAC meeting.

INFORMATIONAL ITEMS

Briefing on FY 2016 Annual Listing of Federal Projects (ALOP).

Todd Cottrell presented the federally-required fiscal year report that lists all obligated projects in MPO region for a given year. In the DRCOG region, \$335 million was obligated on 49 projects in federal fiscal year 2016.

Briefing on CDOT de-federalization pilot program and updates to the Local Agency Manual.

Steve Markovetz, CDOT Local Agency Area Engineer, presented an overview of CDOT's de-federalization pilot program and the Local Agency Manual update.

The meeting was adjourned at 2:36 p.m. The next meeting is scheduled for December 19, 2016.

ATTACHMENT B

To: Chair and Members of the Transportation Advisory Committee

From: Todd Cottrell, Senior Transportation Planner
303 480-6737 or tcottrell@drcog.org

Meeting Date	Agenda Category	Agenda Item #
December 19, 2016	Action	4

SUBJECT

DRCOG's transportation planning process allows for Board-approved amendments to the current Transportation Improvement Program (TIP), taking place on an as-needed basis. Typically, these amendments involve the addition or deletion of projects, or adjustments to existing projects and do not impact funding for other projects in the TIP.

PROPOSED ACTION/RECOMMENDATIONS

DRCOG staff recommends approval of the proposed amendments because they comply with the Board-adopted [TIP Amendment Procedures](#).

ACTION BY OTHERS

N/A

SUMMARY

The TIP projects to be amended are shown below and listed in Attachment 1. The proposed policy amendments to the [2016-2021 Transportation Improvement Program](#) have been found to conform with the State Implementation Plan for Air Quality.

- CDOT is piloting a statewide de-federalization program with five local agency projects that swaps out federal funds and replaces them with state funds in an attempt to reduce the burden to local agencies in constructing projects through CDOT.

Four DRCOG-allocated federally-funded projects (shaded below) are part of the program. The STP-Metro and CMAQ federal funding from these projects will be replaced with state RAMP funding from the I-25 managed lanes project. The I-25 managed lanes project will in turn receive the DRCOG-allocated federal funds.

- 2016-017 Westerly Creek Trail to Toll Gate Creek Trail Connector
- 2016-025 Ralston Rd Reconstruction: Yukon St to Upham St
- 2016-037 Washington Ave Complete Streets
- 2016-043 RidgeGate Pkwy Widening: Havana St to Lone Tree City Limits
- 2016-055 I-25: 120th Ave to SH-7 Managed Lanes

- **2016-059 C-470 Managed Toll Express Lanes: Wadsworth to I-25**
Swap funding between Bonds/Loans and state RAMP funding to update to the current estimate prior to the TIFIA closing in late January.

PREVIOUS DISCUSSIONS/ACTIONS

N/A

PROPOSED MOTION

Move to recommend to the Regional Transportation Committee the attached amendments to the *2016-2021 Transportation Improvement Program* (TIP).

ATTACHMENT

1. Proposed TIP amendments

ADDITIONAL INFORMATION

If you need additional information, please contact Todd Cottrell, Senior Transportation Planner, Transportation Planning and Operations at 303 480-6737 or tcottrell@drcog.org.

2016-017: Replace DRCOG-allocated federal funding with state RAMP funding as part of CDOT’s statewide de-federalization pilot program

Existing

Title: Westery Creek Trail to Toll Gate Creek Trail Connector

Project Type: Bicycle and Pedestrian Projects (New)

TIP-ID: 2016-017

STIP-ID:

Open to Public: 2019

Sponsor: Aurora

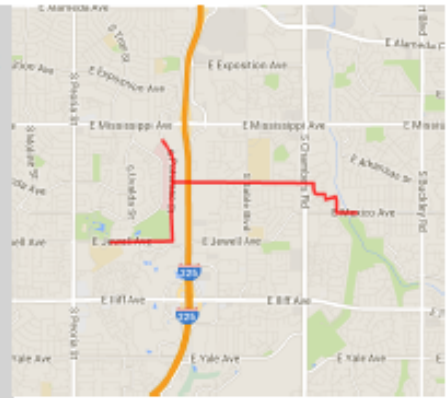
Project Scope

This project provides bike/pedestrian inter-connections between Westery Creek trail, Toll Gate Creek trail, and the Florida LRT Station. The project includes two major segments:
East of the Florida Station:

- A Florida LRT Station 3-car kiss-n-ride area on both the north and south sides of Abilene St.
- A diagonal bike/pedestrian crossing at Florida Ave. and Abilene St.
- Reconfigure Florida Ave. to include an 11ft barrier separated (with candle stick delineators), bi-directional cycle track between the Florida LRT Station and Chambers Rd. Bulb-outs will also be constructed at the intersections.
- East of Chambers Rd, the cycle track will transition to sharrows on Helena Cir to Idalia Ct.
- From there, a 12 ft wide concrete path will be constructed along the west bank of Toll Gate Creek southward to Mexico Ave.
- The existing Mexico Ave. overpass over Toll Gate Creek will be upgraded to include a 12 ft concrete path, connecting to the existing Toll Gate Creek trail with a pedestrian/cyclist activated signal.
- Replacement of sidewalks less than 6 ft to 6 ft.

West of the Florida Station:

- Construction a 12 ft wide multi-use bi-directional bike/pedestrian path between the Florida Station west landing and Potomac St.
- Consolidation of two existing crossings to one controlled HAWK signal crossing of Potomac St.
- Construction of a new elevated 12 ft wide two-way cycle track on the west side of Potomac St between the HAWK signal south to the northeast corner of the Jewell Wetlands and on the north side of Jewell Ave between the west end of the Jewell Wetlands and Tucson St.
- Install on-street bicycle lanes between the HAWK signal and Louisiana Ave.
- Way finding signage with distance and destination information and bike racks for at least 20 bikes within 1/2 mile of the project.
- Potomac St will be converted from four lanes to two, with a two-way left turn lane (TWLTL).
- Traffic signal improvements and pedestrian-scale ADA/AASHTO compliant lighting will also be constructed as part of the project.



Affected Municipality(ies)	Affected County(ies)	Project Phases	
Aurora	Arapahoe	Year	Phase
		2017	Initiate Environmental
		2017	Initiate Design
		2017	Initiate ROW
		2018	Initiate Construction

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal (CMAQ)		\$0	\$2,501	\$6,006	\$0	\$0		
State		\$0	\$0	\$0	\$0	\$0		
Local		\$0	\$626	\$2,502	\$0	\$0		
Total	\$0	\$0	\$3,127	\$8,508	\$0	\$0	\$0	\$11,635

Revised Funding Table

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
State (RMP)		\$0	\$2,501	\$6,006	\$0	\$0		
Local		\$0	\$626	\$2,502	\$0	\$0		
Total	\$0	\$0	\$3,127	\$8,508	\$0	\$0	\$0	\$11,635

ATTACHMENT 1

Policy Amendments – December 2016

2016-2021 Transportation Improvement Program

2016-025: Replace DRCOG-allocated federal funding with state RAMP funding as part of CDOT's statewide de-federalization pilot program

Existing

Title: **Ralston Rd Reconstruction: Yukon St to Upham St**

Project Type: **Roadway Reconstruction**

TIP-ID: **2016-025**

STIP-ID:

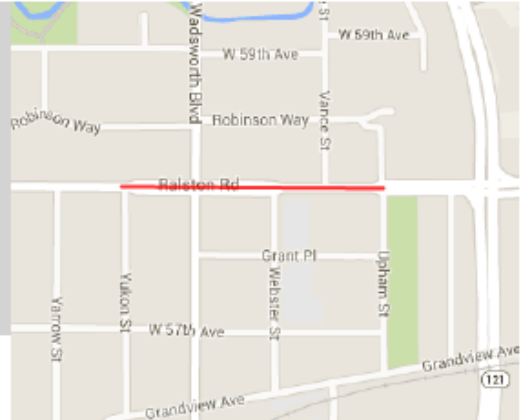
Open to Public: **2019**

Sponsor: **Arvada**

Project Scope

This project reconstructs Ralston Rd from Upham St to Yukon St. The project will also include the following:

- Widening the existing sidewalks to a minimum width of 8 ft with a landscaped buffer where feasible
- protected roadway crossings, new or improved traffic signal interconnections, ITS infrastructure, and bicycle detection and racks/lockers
- Transit amenities and bus pads



Affected Municipality(ies)	Affected County(ies)	Project Phases	
Arvada	Jefferson	Year	Phase
		2016	Initiate Environmental
		2016	Initiate Design
		2018	Initiate ROW
		2018	Initiate Construction

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal (STP-M)		\$286	\$0	\$1,617	\$0	\$0		
State		\$0	\$0	\$0	\$0	\$0		
Local		\$72	\$0	\$404	\$0	\$0		
Total	\$0	\$358	\$0	\$2,021	\$0	\$0	\$0	\$2,379

Revised Funding Table

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
State (RMP)		\$286	\$0	\$1,617	\$0	\$0		
Local		\$72	\$0	\$404	\$0	\$0		
Total	\$0	\$358	\$0	\$2,021	\$0	\$0	\$0	\$2,379

ATTACHMENT 1

Policy Amendments – December 2016

2016-2021 Transportation Improvement Program

2016-037: Replace DRCOG-allocated federal funding with state RAMP funding as part of CDOT's statewide de-federalization pilot program

Existing

Title: **Washington Ave Complete Streets**

Project Type: **Bicycle and Pedestrian Projects (New)**

TIP-ID: **2016-037**

STIP-ID:

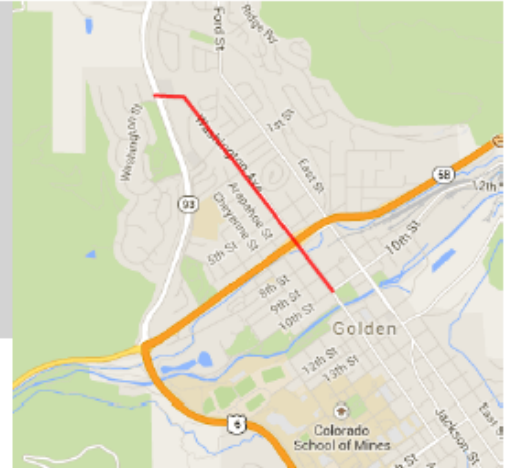
Open to Public: **2018**

Sponsor: **Golden**

Project Scope

This project reconstructs Washington Ave from CO 93 to 10th St to include a curb-separated 4 ft wide bike facility and 8 ft wide sidewalk, where permitted.

Intersection safety improvements, ADA/AASHTO compliant lighting, transit supporting amenities, and way-finding signage with destination and distance information will be included.



Affected Municipality(ies)	Affected County(ies)	Project Phases	
Golden	Jefferson	Year	Phase
		2016	Initiate Environmental
		2016	Initiate Design
		2017	Initiate Construction

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal (STP-M)		\$345	\$2,700	\$0	\$0	\$0		
State		\$0	\$0	\$0	\$0	\$0		
Local		\$90	\$686	\$0	\$0	\$0		
Total	\$0	\$435	\$3,386	\$0	\$0	\$0	\$0	\$3,821

Revised Funding Table

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
State (RMP)		\$345	\$2,700	\$0	\$0	\$0		
Local		\$90	\$686	\$0	\$0	\$0		
Total	\$0	\$435	\$3,386	\$0	\$0	\$0	\$0	\$3,821

ATTACHMENT 1

Policy Amendments – December 2016

2016-2021 Transportation Improvement Program

2016-043: Replace DRCOG-allocated federal funding with state RAMP funding as part of CDOT's statewide de-federalization pilot program

Existing

Title: **RidgeGate Pkwy Widening: Havana St to Lone Tree City Limits**

Project Type: **Roadway Capacity**

TIP-ID: **2016-043**

STIP-ID:

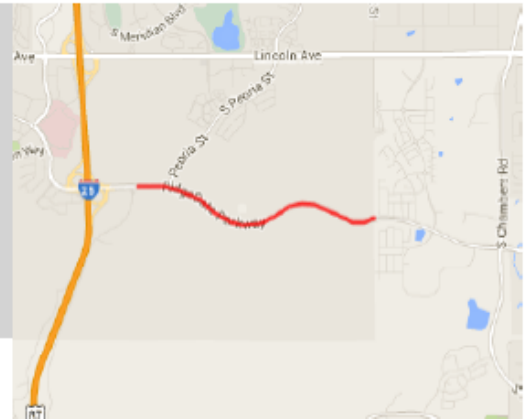
Open to Public: **2020**

Sponsor: **Lone Tree**

Project Scope

This project will widen Ridgeway Pkwy from Havana St to the Lone Tree city limits from 2 to 4 lanes. Features include:

- Raised medians
- Left turn lanes at signalized intersections
- A separated cycle track bike detection
- Bike and transit amenities
- New sidewalks of a minimum width of 8 ft



Affected Municipality(ies)	Affected County(ies)	Project Phases	
Lone Tree	Douglas	Year	Phase
		2018	Initiate Design
		2019	Initiate Construction

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal (STP-M)		\$0	\$0	\$1,400	\$5,000	\$0		
State		\$0	\$0	\$0	\$0	\$0		
Local		\$0	\$0	\$3,400	\$12,200	\$0		
Total	\$0	\$0	\$0	\$4,800	\$17,200	\$0	\$0	\$22,000

Revised Funding Table

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
State (RMP)		\$0	\$0	\$1,400	\$5,000	\$0		
Local		\$0	\$0	\$3,400	\$12,200	\$0		
Total	\$0	\$0	\$0	\$4,800	\$17,200	\$0	\$0	\$22,000

2016-055: Replace state RAMP funding with DRCOG-allocated federal funding as part of CDOT's statewide de-federalization pilot program

Existing

Title: **I-25: 120th Ave to SH-7 Managed Lanes**

Project Type: **Roadway Capacity**

TIP-ID: **2016-055**

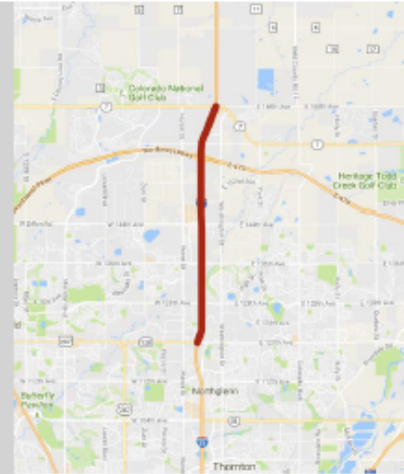
STIP-ID:

Open to Public: **2020**

Sponsor: **CDOT Region 1**

Project Scope

This project will extend the existing and under construction managed lanes project (TIPID 2012-073), utilizing existing and new ROW. The project will result in one new managed lane in each direction from the current project's northern terminus near 120th Ave to SH-7. Project will resurface the entire stretch, add traffic management, sound wall, tolling/ITS equipment and safety, bridge and drainage improvements.



Affected Municipality(ies)	Affected County(ies)
Broomfield	Adams
Thornton	Broomfield
Westminster	
Unincorporated	

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
Federal (BR)		\$0	\$979	\$0	\$0	\$0		
Federal (Hazard)		\$2,000	\$4,500	\$0	\$0	\$0		
Federal (Water Qlty)		\$1,100	\$0	\$0	\$0	\$0		
State		\$0	\$0	\$0	\$0	\$0		
State (Bond/Loans)		\$0	\$25,000	\$0	\$0	\$0		
State (RMP)		\$44,000	\$2,000	\$0	\$0	\$0		
State (Safety)		\$3,000	\$0	\$0	\$0	\$0		
State (Surface)		\$0	\$0	\$0	\$12,000	\$0		
Local		\$0	\$0	\$0	\$0	\$0		
Total	\$11,000	\$50,100	\$32,479	\$0	\$12,000	\$0	\$0	\$105,579

Revised Funding Table

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$1,100	\$0	\$0	\$0	\$0		
Federal (BR)		\$0	\$979	\$0	\$0	\$0		
Federal (CMAQ)		\$0	\$2,501	\$6,006	\$0	\$0		
Federal (Hazard)		\$2,000	\$4,500	\$0	\$0	\$0		
Federal (STP-M)		\$631	\$2,700	\$8,017	\$0	\$0		
State		\$0	\$0	\$0	\$0	\$0		
State (Bond/Loans)		\$0	\$25,000	\$0	\$0	\$0		
State (RMP)		\$24,145	\$2,000	\$0	\$0	\$0		
State (Safety)		\$3,000	\$0	\$0	\$12,000	\$0		
State (Surface)		\$0	\$0	\$0	\$0	\$0		
State (Water Qlty)		\$0	\$0	\$0	\$0	\$0		
Local		\$0	\$0	\$0	\$0	\$0		
Total	\$11,000	\$30,876	\$37,680	\$14,023	\$12,000	\$0	\$0	\$105,579

ATTACHMENT 1

Policy Amendments – December 2016

2016-2021 Transportation Improvement Program

2016-059: Increase Bonds/Loans funding (separating out the TIFIA loan portion) and decrease state RAMP funding.
 Total project funding will not change

Existing

Title: **C-470 Managed Toll Express Lanes: Wadsworth to I-25**

Project Type: **Roadway Capacity**

TIP-ID: **2016-059**

STIP-ID:

Open to Public:

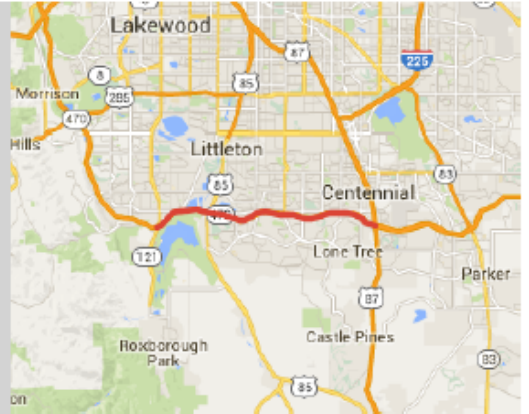
Sponsor: **CDOT Region 1**

Project Scope

One tolled express lane in each direction on C-470. WB between I-25 and approximately Wadsworth and EB between approximately Platte Canyon and I-25, with auxiliary lanes in required locations. Safety and operational improvements between I-25 and Quebec St. Improvements to ramps including direct-connect ramps at I-25 and C-470.

Affected County(ies)

Arapahoe
 Douglas
 Jefferson



Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
State (Bond/Loans)		\$0	\$44,000	\$90,000	\$104,700	\$0		
State (Faster-S)		\$0	\$2,000	\$0	\$0	\$0		
State (RMP)		\$0	\$32,630	\$60,000	\$0	\$0		
State (Safety)		\$0	\$6,300	\$0	\$0	\$0		
Local		\$0	\$10,000	\$0	\$0	\$0		
Total	\$7,370	\$0	\$94,930	\$150,000	\$104,700	\$0	\$0	\$357,000

Revised Funding Table

Amounts in \$1,000s	Prior Funding	FY16	FY17	FY18	FY19	FY20-21	Future Funding	Total Funding
Federal		\$0	\$0	\$0	\$0	\$0		
Federal (TIFIA)		\$0	\$0	\$60,000	\$46,000	\$0		
State		\$0	\$0	\$0	\$0	\$0		
State (Bond/Loans)		\$0	\$85,000	\$100,000	\$0	\$0		
State (Faster-S)		\$0	\$2,000	\$0	\$0	\$0		
State (RMP)		\$0	\$25,330	\$15,000	\$0	\$0		
State (Safety)		\$0	\$6,300	\$0	\$0	\$0		
Local		\$0	\$10,000	\$0	\$0	\$0		
Total	\$7,370	\$0	\$128,630	\$175,000	\$46,000	\$0	\$0	\$357,000

ATTACHMENT C

To: Chair and Members of the Transportation Advisory Committee
From: Todd Cottrell, Senior Transportation Planner
303 480-6737 or tcottrell@drcog.org

Meeting Date	Agenda Category	Agenda Item #
December 19, 2016	Action	5

SUBJECT

This action concerns delayed projects or project phases that were scheduled to receive Fiscal Year 2016 TIP funding.

PROPOSED ACTION/RECOMMENDATIONS

Staff recommends approval of proposed actions regarding FY 2016 project delays.

ACTION BY OTHERS

NA

SUMMARY

The *FY 2016-2021 Policy on TIP Preparation* document identifies expectations for project initiation and policy for addressing delays for projects/phases with DRCOG-allocated federal funding. Timely initiation of TIP projects/phases is an important objective of the Board. Delays, for whatever reason, tie up scarce federal funds that could have been programmed to other ready projects/phases.

At the end of FY 2016 (September 30, 2016), DRCOG staff reviewed the implementation status of DRCOG-selected projects/phases with CDOT and RTD. DRCOG staff discussed with the sponsors the reason(s) for the delays and to hear action plans demonstrating the sponsor's commitment to timely initiation.

The TIP Project Delays Report for FY 2016 summarizes the reasons for delays and actions proposed by sponsors to get projects to ad or a particular phase(s) initiated. The report includes DRCOG staff recommendations for committee and Board consideration.

PREVIOUS BOARD DISCUSSIONS/ACTIONS

NA

PROPOSED MOTION

Move to recommend to the Regional Transportation Committee actions proposed by DRCOG staff regarding *2016-2021 Transportation Improvement Program (TIP)* project delays for Fiscal Year 2016.

ATTACHMENT

1. TIP Project Delays Report for FY 2016

ADDITIONAL INFORMATION

If you need additional information, please contact Todd Cottrell, Senior Transportation Planner at 303-480-6737 or tcottrell@drcog.org.

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

A. POLICY

The FY2016 TIP Project Delays Report reviews project phases funded in the 2016-2021 TIP. The report is based on procedures established in the 2016-2021 *Policy on Transportation Improvement Program (TIP) Preparation*, adopted July 14, 2014, with amendments accordingly. The policy states that “**implementation of an entire project or single project phase (if project has federal funding in more than one year) may be delayed only once by the project sponsor.**” The objective of this delay policy is to minimize the number of projects delayed and improve the efficiency of spending federal dollars.

B. PROCESS

To implement the policy, the following steps were taken:

1. At the beginning of October (coinciding with the beginning of the new federal fiscal year), DRCOG staff requested that CDOT and RTD conduct a comprehensive review of all STP-Metro, CMAQ, and Transportation Alternatives Program (TAP) projects that had been selected by DRCOG to receive and begin expending TIP funds in FY2016. The review also includes projects/phases that were previously on the FY2015 project delays report.
2. CDOT and RTD review all such project phases, identifying those that have not been initiated, and therefore delayed.
3. Those project phases that were delayed for a second year (first year delay was in FY2015) became ineligible to receive further federal funding reimbursement unless the DRCOG Board granted a variance to continue. One project was brought to the Board in October 2016 and is discussed in Section C below.
4. In late-October, DRCOG staff notified first year delayed project/phase sponsors and requested a discussion regarding the delay. These projects are discussed in Section D.

C. SECOND YEAR DELAY (FY2015) PROJECT SEEKING A VARIANCE TO CONTINUE

1. Centennial

Name: *Smoky Hill Rd and Himalaya St Intersection Roadway Operational Improvements*

TIP ID: 2012-090

Project Phase: Initiate Construction

FY2015 federal funding: \$475,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48528>

This project went before the Board in October to seek a variance to continue the project. A variance was granted for 120 days, meaning Centennial will need to advertise the project no later than January 29, 2017. Centennial currently anticipates to advertise the project in early January.

Recommendation—*Continuously monitor the progress of this project through project advertisement.*

- If Centennial is unable to advertise before January 29, 2017, they must stop all future federal reimbursement payment requests retroactive to September 30, 2016.

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

D. FIRST YEAR DELAY (FY2016) PROJECTS SEEKING APPROVAL TO CONTINUE

1. Aurora

Name: 23rd Ave. Bike/Ped Path at Fitzsimons Station

TIP ID: 2016-018

Project Phase: Initiate Construction

FY2016 Federal funding: \$1,492,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/47526>

This project received its concurrence to ad in early November.

Recommendation— *Since the project is no longer delayed, no conditions are placed upon it.*

2. Aurora

Name: Metro Center Station Area Bike/Ped Connector Facility

TIP ID: 2016-005

Project Phase: Initiate Construction

FY2016 Federal funding: \$1,832,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48511>

This project received its concurrence to ad in early November.

Recommendation— *Since the project is no longer delayed, no conditions are placed upon it.*

3. Bike Denver

Name: Ambassador Program

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate Other

FY2016 Federal funding: \$248,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

Bike Denver reports the project has been delayed due to staff turnover. Now that a new Executive Director has been hired, the project is moving forward. It's anticipated an invoice can be submitted to CDOT in January.

Recommendation—*DRCOG staff recommends the delay be approved subject to the following condition:*

- Bike Denver and CDOT staff continue to aggressively pursue activities leading towards an invoice being submitted no later than the end of January 2017. If unachievable, Bike Denver and DRCOG staff shall discuss this project at the first of each month beginning in February 2017, until an invoice has been submitted.
-

4. Boulder County

Name: Real-Time Transit Signage Project

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate Procurement

FY2016 Federal funding: \$258,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

Boulder County reports the project has been delayed due to continued discussions with RTD on project specifications. The IGA is still in process but is anticipated to be executed in December, with an RFP released in January 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Boulder County and CDOT staff continue to aggressively pursue IGA execution and release of the RFP no later than the end of January 2017. If unachievable, Boulder County and DRCOG staff shall discuss this project at the first of each month beginning in February 2017, until the RFP is released.

5. **Boulder Transportation Connections TMA**

Name: TDM Program Partnership

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate Other

FY2016 Federal funding: \$160,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

Boulder Transportation Connections TMA reports the project has been delayed due to staffing changes. They're currently working on the IGA scope and risk assessment, and anticipate executing an IGA and submitting an invoice no later than March 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Boulder Transportation Connections TMA and CDOT staff continue to aggressively pursue IGA execution so that an invoice can be submitted no later than the end of March 2017. If unachievable, Boulder Transportation Connections TMA and DRCOG staff shall discuss this project at the first of each month beginning in April 2017, until an invoice is submitted.

6. **Centennial**

Name: Arapahoe Rd: I-25 to Parker Next Steps Operations Study

TIP ID: 2016-046

Project Phase: Initiate Study

FY2016 Federal funding: \$400,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/47488>

Centennial reports this study has been delayed due to limited staff resources. CDOT is in the process of reviewing the RFP and anticipate the study kickoff meeting to be held in April 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Centennial and CDOT staff continue to aggressively pursue the study kickoff no later than the end of April 2017. If unachievable, Centennial and DRCOG staff shall discuss this study at the first of each month beginning in May 2017, until the kickoff meeting has taken place.

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

7. Centennial

Name: *Upgraded Signal Controllers and Cabinets on Dry Creek Rd*

TIP ID: 2016-004 (RTO Pool)

Project Phase: Initiate Procurement

FY2016 Federal funding: \$222,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48579>

Centennial reports the project has been delayed due to CDOT's IGA process. Centennial contacted CDOT to begin the process in October 2015, but didn't receive a response until July 2016. The IGA was finally executed in August and currently the RFP is in the final stages. It's anticipated to be released no later than March 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Centennial and CDOT staff continue to aggressively pursue the release of the RFP no later than the end of March 2017. If unachievable, Centennial and DRCOG staff shall discuss this project at the first of each month beginning in April 2017, until procurement has taken place.

8. CDOT

Name: *Upgrade Communications on Federal Blvd*

TIP ID: 2016-004 (RTO Pool)

Project Phase: Initiate Procurement

FY2016 Federal funding: \$302,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48579>

CDOT reports the project has been delayed due to ROW issues. CDOT is currently identifying funding to purchase the ROW easements before a RFP can be released. CDOT anticipates to be able to complete the ROW purchases in March 2017 and release the RFP by July 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following conditions:

- Continue communication between CDOT and DRCOG on project status.
- CDOT staff continue to aggressively pursue the release of the RFP no later than the end of July 2017. If unachievable, CDOT and DRCOG staff shall discuss this project at the first of each month beginning in August 2017, until procurement has taken place.

9. Commerce City

Name: *North Metro Rail 72nd Ave and Colorado Blvd Station Sidewalks*

TIP ID: 2012-080

Project Phase: Initiate Environmental, Design, and ROW

FY2016 Federal funding: \$185,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/47690>

Commerce City reports the project has been delayed due to staff changes. The IGA has been executed, and NTP for the environmental and design consultant has been given. Draft ROW plans are being worked on and are anticipated to be finalized for CDOT review by July 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following conditions:

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

- Continue communication between Commerce City and DRCOG on project status.
 - Commerce City and CDOT staff continue to aggressively pursue draft ROW plans no later than July 2017. If unachievable, Commerce City and DRCOG staff shall discuss this project at the first of each month beginning in August 2017, until ROW plans have been turned in.
-

10. Commerce City

Name: *Route 62: Central Park Station to 60th Ave/Dahlia Transfer Station*

TIP ID: 2016-039

Project Phase: Initiate Service

FY2016 Federal funding: \$453,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48530>

Commerce City reports that service has been delayed due to construction work needed to accommodate buses on parts of the new route. It's anticipated the new service will begin on January 16, 2017, as part of the new RTD service adjustments.

Recommendation—*DRCOG staff recommends the delay be approved subject to the following condition:*

- Commerce City and RTD staff continue to aggressively pursue starting the bus service no later than January 16, 2017. If unachievable, Commerce City, RTD, and DRCOG staff shall discuss this project at the first of each month beginning in February 2017, until the service begins.
-

11. Community Cycles

Name: *Community Multi-modal Transportation Center*

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate Other

FY2016 Federal funding: \$124,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

Community Cycles reports they are currently working with CDOT to initiate the IGA, which is anticipated for February 2017. The first invoice would be expected to following the next month in March 2017.

Recommendation—*DRCOG staff recommends the delay be approved subject to the following condition:*

- Community Cycles and CDOT staff continue to aggressively pursue an executed IGA so that an invoice can be submitted no later than March 2017. If unachievable, Community Cycles and DRCOG staff shall discuss this project at the first of each month beginning in April 2017, until an invoice can be submitted.
-

12. Denver

Name: *Upgrade Controllers, Communication and Install UPS - CBD*

TIP ID: 2016-004 (RTO Pool)

Project Phase: Initiate Procurement

FY2016 federal funding: \$1,029,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48579>

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

Denver reports the project has been delayed due to additional work that was needed on the IGA scope. Both CDOT and Denver are currently working on the IGA, but execution is not anticipated until July 2017. The RFP is being worked on concurrently and is also scheduled for July 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following conditions:

- Continue communication between Denver and DRCOG on project status.
 - Denver and CDOT staff continue to aggressively pursue IGA execution and release of the RFP no later than July 2017. If unachievable, Denver and DRCOG staff shall discuss this project at the first of each month beginning in August 2017, until the IGA has been executed and the RFP has been released.
-

13. Denver

Name: *Travel Time Monitoring Expansion on 56th, Federal, and Hampden*

TIP ID: 2016-004 (RTO Pool)

Project Phase: Initiate Procurement

FY2016 federal funding: \$273,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48579>

Denver reports the project has been delayed due to additional work that is needed on the IGA scope. The IGA was executed on December 1, and it's anticipated the RFP will be released in September 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following conditions:

- Continue communication between Denver and DRCOG on project status.
 - Denver and CDOT staff continue to aggressively pursue release of the RFP no later than September 2017. Denver and DRCOG staff shall discuss this project at the first of each month beginning in July 2017, until the RFP is released.
-

14. Denver

Name: *National Western Center Parking and Transportation Management Study*

TIP ID: 2007-089 (STAMP/UC Pool)

Project Phase: Initiate Study

FY2016 federal funding: \$200,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48586>

Denver reports the study has been delayed due to the IGA process with RTD. It's anticipated the IGA will be executed in January 2017, and the study kick-off will be held in May 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Denver and RTD staff continue to aggressively pursue execution of the IGA working towards the study kick-off no later than May 2017. If unachievable, Denver and DRCOG staff shall discuss this study at the first of each month beginning in June 2017, until the study kick-off meeting has been held.
-

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

15. Downtown Denver Partnership

Name: TDM Program Partnership

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate

FY2016 federal funding: \$160,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

Downtown Denver Partnership reports the project has been delayed due to continued project cost discussions after the IGA was executed in April 2016. These cost approvals were needed to be able to invoice. The rates were finally approved in November, and invoicing is anticipated to begin by the end of December.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Downtown Denver Partnership and CDOT staff continue to aggressively pursue submitting an invoice no later than January 2017. If unachievable, Downtown Denver Partnership and DRCOG staff shall discuss this project at the first of each month beginning in February 2017, until an invoice has been submitted.

16. eGo Carshare

Name: Multi-modal Access Pass Marketing Campaign and Fleet Expansion

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate

FY2016 federal funding: \$112,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

This project submitted an invoice in November.

Recommendation— Since the project is no longer delayed, no conditions are placed upon it.

17. Northglenn

Name: North Metro Rail 112th Ave Corridor Improvements

TIP ID: 2012-079

Project Phase: Initiate Environmental, Design, ROW

FY2016 federal funding: \$99,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/47676>

Northglenn reports the project has been delayed due to a re-scoping request approved by the Board in December. Northglenn is in the process of working on the IGA. They also anticipate to give the NTP for the environmental and design consultant in March 2017, and have draft ROW plans in to CDOT by September 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- Northglenn and CDOT staff continue to aggressively pursue the initiation of pre-construction project elements no later than September 2017. Northglenn and DRCOG staff shall discuss this project at the first of each month beginning in April 2017, until the IGA is executed, NTP has been given for the environmental and design phases, and the ROW plans have been turned in to CDOT.

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

18. RTD

Name: 16th St Mall Reconstruction: Arapahoe St to Lawrence St

TIP ID: 2016-028

Project Phase: Initiate Design

FY2016 federal funding: \$2,399,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/47498>

RTD reports the project has been delayed due to additional work required as part of the environmental process. RTD is not expected to complete environmental until mid to late 2017. It's anticipated that NTP can be given for design by October 2017.

****Note:** If NTP for design is given after October 15, 2017, this project phase will be delayed for a second year and RTD will need to appear before the DRCOG Board to seek a variance to continue**

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- RTD and CDOT staff continue to aggressively pursue the initiation of design no later than September 2017 to avoid a second year delay on this phase. RTD and DRCOG staff will discuss this project at the first of each month beginning in July 2017, until design has started.

19. RTD

Name: SH-119 BRT NEPA Analysis: Boulder to Longmont

TIP ID: 2016-050

Project Phase: Initiate Study

FY2016 federal funding: \$1,000,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48233>

RTD reports the study has been delayed due to internal budget issues that has now been addressed. An RFP is anticipated to be released in mid-December, with the kick-off meeting taking place no later than March 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- RTD staff continue to aggressively pursue study kick-off no later than March 2017. If unachievable, RTD and DRCOG staff shall discuss this study at the first of each month beginning in April 2017, until the kick-off meeting has taken place.

20. RTD

Name: Bike-n-Ride Storage Facilities: Aurora and East Line

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate Procurement

FY2016 federal funding: \$300,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

RTD reports the project has been delayed due to the fact that RTD has only been the project sponsor since May 2016. An RFP leading to procurement is anticipated to be released by March 2017.

ATTACHMENT 1

TIP PROJECT DELAYS REPORT

End of Fiscal Year 2016

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- RTD staff continue to aggressively pursue releasing a RFP leading towards procurement no later than March 2017. If unachievable, RTD and DRCOG staff shall discuss this project at the first of each month beginning in April 2017, until the RFP has been released.
-

21. RTD

Name: *Bike-n-Ride Shelters: Broomfield/Sheridan Stations*

TIP ID: 1997-097 (TDM Pool)

Project Phase: Initiate Procurement

FY2016 federal funding: \$259,000

<http://www3.drcog.org/Trips/Project/2016-2021/details/48544>

Similar to the project listed above, RTD reports the project has been delayed due to the fact they have only been the project sponsor since May. An RFP leading to procurement is anticipated to be released by March 2017.

Recommendation—DRCOG staff recommends the delay be approved subject to the following condition:

- RTD staff continue to aggressively pursue releasing a RFP leading towards procurement no later than March 2017. If unachievable, RTD and DRCOG staff shall discuss this project at the first of each month beginning in April 2017, until the RFP has been released.

ATTACHMENT D

To: Chair and Members of the Transportation Advisory Committee

From: Greg MacKinnon, Regional Transportation Operations Program Manager
303-480-5633 or gmackinnon@drcog.org

Meeting Date	Agenda Category	Agenda Item #
December 19, 2016	Action	6

SUBJECT

This item concerns the project selection for the Regional Transportation Operations (RTO) Improvement Program of the Regional Transportation Operations Pool (TIP ID 2016-004) identified in the 2016-2021 Transportation Improvement Program.

PROPOSED ACTION/RECOMMENDATIONS

DRCOG staff recommends approval of the proposed project selection process.

ACTION BY OTHERS

[December 7, 2016](#) - The RTO Working Group, comprised of transportation operations staff from regional partners and local governments, affirmed the proposed project selection process.

SUMMARY

The 2016-2021 Transportation Improvement Program (TIP) includes for the Regional Transportation Operations Pool, which will implement technology and process improvements that improve the capability of transportation operators to provide safe and reliable transportation operations in a well-connected region.

The RTO Improvement Program will fund traffic signal system capital improvements, traffic signal timing improvements, and other advanced technology projects.

The TIP allocates \$4.2 million of Congestion Mitigation/Air Quality (CMAQ) funds each for fiscal years 2018 and 2019. The RTO Working Group will assemble the RTO Improvement Program (targeting 4 to 6 years) with the understanding that funding will remain at a similar level over that period, and the RTO Improvement Program will retain funds not used by projects completed in previous fiscal years.

Overall Proposed Project Application and Selection Process

The proposed project application and selection process will be incorporated into the development of the RTO Improvement Program document. The proposed overall steps in the process are as follows:

- DRCOG committees and Board approve the application and selection process.
- DRCOG issues a call for projects.
- Project sponsors prepare application(s) for submission.
- DRCOG staff reviews and conducts initial draft ranking project applications.
- The RTO Working Group meets to review and discuss the project applications list. Through consensus, the RTO Working Group revises and affirms the project priority list.

- DRCOG staff completes the RTO Improvement Program document (including project priority list).
- The RTO Improvement Program document is presented to the RTO Working Group for consensus and confirmation.
- The RTO Improvement Program document is brought before the DRCOG committees for recommendation and Board for approval.

Application

The draft DRCOG RTO Improvement Program project application form (Attachment 1) will gather the information required to evaluate benefits, while conforming to state and federal requirements specific to transportation technology projects and CMAQ guidance. All technology projects eligible for CMAQ funding on the DRCOG-designated Regional Roadway System are eligible for submission. There is no limit to the number of applications that may be submitted.

Extending from the draft DRCOG Metro Vision Outcomes 4 and 5, the RTO Working Group has the following goal and objectives:

Goal: *Provide safe and reliable transportation operations for all users.*

1. Increase trip travel time reliability on freeways and arterials for all modes
2. Reduce overall traveler stops and delay due to traffic control operations
3. Reduce average incident duration
4. Reduce occurrence of secondary incidents

The application collects the following information regarding the project:

- Problem definition and an explanation of how the project will address the problem
- Estimation of project benefits both in terms of CMAQ benefits¹ and improvements in performance measures associated with the above objectives
- A detailed project engineering estimate.²
- Initial documentation that satisfies the federal Systems Engineering Analysis requirements (*Code of Federal Regulations, Title 23, Part 940 – Intelligent Transportation System Architecture and Standards*).

¹ The project sponsors are required to determine the CMAQ benefits using the framework prepared for the RTO Working Group (Attachment 2).

² The project sponsors are required to determine the project engineering estimate using the template (Attachment 3) provided with the application form.

For each complete application, points will be assessed as follows to determine the initial ranking of projects:

Scoring Element	Description	Scoring Range
Project Location/Congestion	Weighted average of DRCOG's current Congestion Mitigation Program Scores on roadways included in project	0 – 20
Regional Operations Strategy/Initiative deployed ³	Scoring based on the highest priority regional transportation operations strategy to be implemented by the project	5 – 30
CMAQ Benefits/Cost Effectiveness	The ratio of CMAQ benefits to project cost for all project is compared. The results are ordered and proportional points are assigned with 15 assigned for the top project.	1 – 15
Estimated Project Impact	The percentage improvement in performance measures are ordered and proportional points are assigned with 15 assigned for the top project.	1 – 15

PREVIOUS DISCUSSIONS/ACTIONS

N/A

PROPOSED MOTION

Move to recommend to the Board of Directors the proposed project selection process for the 2018-2023 Regional Transportation Operations Improvement Program.

ATTACHMENTS

1. Draft DRCOG RTO Improvement Program Project Application form
2. DRCOG CMAQ Benefits Study Methodology Guidelines for Data Parameters and Application to Projects
3. Engineer's Detailed Estimate Method.xlsx

ADDITIONAL INFORMATION

If you need additional information, please contact Greg MacKinnon, Regional Transportation Operations Program Manager, at 303-480-5633 or gmackinnon@drcog.org.

³ RTO Working Group has determined a list of strategies and initiatives (contained in Attachment 1) that describe the intended approach to advance the regional transportation operations goal and objectives.

DRCOG RTO Improvement Program Project Application

Contact

Name: Click or tap here to enter text.
Phone: Click or tap here to enter text.
E-Mail: Click or tap here to enter text.

Section 1 Project Information

Title: Click or tap here to enter text.

Location Map

Please attach a map illustrating the project location and the project limits.

Congestion Score

Using the attached CMP database determine the weighted-average of the congestion score for the roadway links in your project and enter it here.

Click or tap here to enter text.

Project Schedule

Please attach a Gantt-style project schedule including the design, procurement and construction milestones relative to date that the IGA execution with CDOT is complete.

Estimate

Please use the attached estimate template (with consideration for Attachment A) to prepare the project estimate. Please summarize here.

State	\$
Federal	\$
Non-federal	\$ _____
Total	\$

Description

Please provide an overview description of the project.
 Click or tap here to enter text.

Nature of Work

- Scoping
 Design Software / Integration
 Construction
 Operations
 Evaluation
 Planning
 Maintenance (Equipment Replacement)
 Other

If Other explain: Click or tap here to enter text.

Relationship to other projects and phases

If this project has relationships to other projects or phases, describe it here:
 Click or tap here to enter text.

Need

Please describe and quantify the need or problem to be addressed by the project.
 Click or tap here to enter text.

DRCOG RTO Improvement Program Project Application

Please describe how the project will address the problem.
Click or tap here to enter text.

Program Objectives

Identify the program objectives this project will address.

- Increase trip travel time reliability on freeways and arterials for all modes
- Reduce overall traveler stops and delay due to traffic control operations
- Reduce average incident duration
- Reduce occurrence of secondary incidents

Performance Measures

Identify the associated program performance measure results to be improved.

- Travel Time index (TTI)
- Planning Time Index (PTI)
- Transit on-time reliability
- Average roadway clearance time
- Average incident clearance time
- Number of secondary incidents

DRAFT

DRCOG RTO Improvement Program Project Application

Program Strategies and Initiatives

This list of strategies and initiatives was developed and confirmed by the Regional Transportation Operations Working Group. Identify the strategies and initiatives that this project will implement. Provide brief descriptive text justifying the selection. Note that the initiatives under each strategy are listed in a general priority order. Projects implementing the same strategy will be differentiated by the number and priority of initiatives implemented.

Employ consistent incident management processes		30 points
Establish and maintain a Regional Incident Management Program	<input type="checkbox"/>	Click or tap here to enter text.
Expand traffic monitoring capabilities and infrastructure	<input type="checkbox"/>	Click or tap here to enter text.
Expand incident management data sharing between public safety agencies and transportation operations	<input type="checkbox"/>	Click or tap here to enter text.
Establish shared monitoring and operational data sharing between jurisdictions	<input type="checkbox"/>	Click or tap here to enter text.
Employ consistent interagency communications protocols	<input type="checkbox"/>	Click or tap here to enter text.
Employ consistent regional traveler information strategies	<input type="checkbox"/>	Click or tap here to enter text.
Employ performance measurement systems to optimize services provided to the public	<input type="checkbox"/>	Click or tap here to enter text.
Expand transportation operators' situational awareness		25 points
Expand traffic monitoring capabilities and infrastructure	<input type="checkbox"/>	Click or tap here to enter text.
Establish shared monitoring and operational data sharing between jurisdictions	<input type="checkbox"/>	Click or tap here to enter text.
Establish regional coordination for work zone planning	<input type="checkbox"/>	Click or tap here to enter text.
Establish regional coordination for major weather events	<input type="checkbox"/>	Click or tap here to enter text.
Establish regional coordination for special event management	<input type="checkbox"/>	Click or tap here to enter text.
Expand data warehouse and data management processes	<input type="checkbox"/>	Click or tap here to enter text.
Coordinate regional, multimodal traveler information		20 points
Expand traffic monitoring capabilities and infrastructure	<input type="checkbox"/>	Click or tap here to enter text.
Establish shared monitoring and operational data sharing between jurisdictions	<input type="checkbox"/>	Click or tap here to enter text.
Consolidate traveler information data to serve as a source of user's improved situational awareness	<input type="checkbox"/>	Click or tap here to enter text.
Develop and implement coordinated traveler information strategies to support regional	<input type="checkbox"/>	Click or tap here to enter text.

DRCOG RTO Improvement Program Project Application

coordination for incident management, work zones, special events, and major weather events		
Expand traveler information access, capabilities, coverage, and partnerships	<input type="checkbox"/>	Click or tap here to enter text.
Employ good interjurisdictional transportation operations coordination and cooperation for all modes		15 points
Maintain interjurisdictional traffic signal timing coordination program	<input type="checkbox"/>	Click or tap here to enter text.
Establish shared monitoring between jurisdictions	<input type="checkbox"/>	Click or tap here to enter text.
Establish and expand multimodal signal operations support implementations	<input type="checkbox"/>	Click or tap here to enter text.
Implement traffic signal control strategies that support incident response, event management, and work zone coordination.	<input type="checkbox"/>	Click or tap here to enter text.
Develop and implement coordinated traveler information strategies to support regional coordination for incident management, work zones, special events, and major weather events	<input type="checkbox"/>	Click or tap here to enter text.
Employ performance measurement systems to optimize services provided to the public	<input type="checkbox"/>	Click or tap here to enter text.
Coordinate management of freeway and arterial operations		10 points
Expand traffic monitoring capabilities and infrastructure	<input type="checkbox"/>	Click or tap here to enter text.
Establish shared monitoring between jurisdictions	<input type="checkbox"/>	Click or tap here to enter text.
Deploy work zone monitoring and management systems	<input type="checkbox"/>	Click or tap here to enter text.
Develop and implement coordinated traveler information strategies to support regional coordination for incident management, work zones, special events, and major weather events	<input type="checkbox"/>	Click or tap here to enter text.
Employ performance measurement systems to optimize services provided to the public	<input type="checkbox"/>	Click or tap here to enter text.
Provide multimodal traveler support		5 points
Develop and implement coordinated traveler information strategies to support regional coordination for incident management, work zones, special events, and major weather events	<input type="checkbox"/>	Click or tap here to enter text.
Support implementation of dynamic ride-sharing	<input type="checkbox"/>	Click or tap here to enter text.
Implement support for bicycle roadway operations	<input type="checkbox"/>	Click or tap here to enter text.

DRCOG RTO Improvement Program Project Application

Section 2 Alternatives Analysis

Please describe the alternative concepts considered and document the analysis that resulted in selection of this project. A separate document may be attached.

Click or tap here to enter text.

Section 3 Benefits Assessment

Using the framework documents attached to this application, estimate the CMAQ benefits that will result from this project. Attach the analysis and enter the results here.

Click or tap here to enter text.

Estimate the improvement in the performance measures selected in Section 1.

Click or tap here to enter text.

Section 4 Regional ITS Architecture

Identify the portion of the Regional Architecture being implemented. Please include the following from the Regional Architecture:

- Data Flow Diagram
- List of project stakeholders
- List of project roles and responsibilities
- List of project functional requirements
- List of standards related to the project

Does the regional architecture need to be revised due to the project? No Yes

DRCOG RTO Improvement Program Project Application

Section 5 Brief Systems Engineering Plan

Identify the status of the project systems engineering documentation. Documents to be modified or prepared should also be identified in project schedule. Existing documents should be attached.

	Existing	To be Modified	To be Completed	Comments:
Concept of Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Validation Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Traceability Matrix	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
System Functional Requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Detailed Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Operations & Maintenance Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Testing and Evaluation Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Click or tap here to enter text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Click or tap here to enter text.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.
Click or tap here to enter text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click or tap here to enter text.

Section 6 Procurement

Procurement method **Check all that apply

- Construction Contract
 Request for Proposal
 Invitation to Bid
 State Price Agreement Contract
 Other
 Click or tap here to enter text.

DRCOG RTO Improvement Program Project Application

Section 7 Operations and Maintenance

Prepare an estimate of the additional cost of operations and maintenance considered over the life cycle of the new equipment/system. Illustrate the basis of the cost estimate (e.g. each piece of equipment will require 2 hours of preventative maintenance per year; operator monitoring each device will amount to 20 hours over the year, etc.). Attach the estimate (showing basis and assumptions) and enter the total here.

Click or tap here to enter text.

Identify the stakeholder(s) responsible for maintenance and operations (including funding responsibility).

Click or tap here to enter text.

Section 8 Agreements

List any agreements needed or utilized for this project

Click or tap here to enter text.

DRAFT

DRCOG RTO Improvement Program Project Application

Attachment Checklist

- Project location map
- Project schedule
- Project engineering estimate
- Alternative Concepts Analysis
- Project Benefits Assessment
- Performance Measures Improvement Estimate
- Existing Systems Engineering Documents
- Operations & Maintenance Life Cycle Estimate

DRAFT

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DRCOG RTO Improvement Program Project Application

Attachments

DRAFT

DRCOG RTO Improvement Program Project Application

Attachment A

Eligible for 100% Federal Share
<p>Traffic signal system</p> <p>Traffic signal controllers</p> <p>Traffic signal cabinets (varying specifications)</p> <p>UPS for traffic signal controllers/cabinets</p> <p>Traffic signal communications equipment at intersections</p> <p>Traffic signal communications medium between intersections and between intersections and TMC</p> <p>Traffic signal communications equipment at TMC</p> <p>TSP field equipment, firmware, and software</p> <p>System/advance detectors (expressly for signal timing coordination purposes)</p> <p>Communications equipment and medium between TMCs (for primary use of traffic signal coordination)</p>

DRAFT

**DRCOG CMAQ Benefits Study Methodology
Guidelines for Data Parameters and Application to Projects**

Prepared for

Denver Regional Council of Governments
Transportation Planning and Operations

Prepared by



September 2016

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1. CMAQ Program Purpose

The primary focus of the Congestion Mitigation Air Quality (CMAQ) program is air quality improvement, reflecting the requirements placed on the transportation sector by the Clean Air Act Amendments of 1990 to help meet national air quality goals. The CMAQ program provides flexible federal funding from the Federal Highway Administration (FHWA) for States to use in nonattainment areas and maintenance areas to help them address air quality concerns from transportation sources. The Denver Regional Council of Governments (DRCOG) administers the CMAQ program in the Denver metro area (DRCOG Metropolitan Planning Area). CMAQ funding is allocated to **projects that contribute to a reduction in emissions** for the following greenhouse gases and pollutants in the DRCOG Metropolitan Planning Area:

- Nitrogen Oxides (NOX) and Volatile Organic Compounds (VOC), which is Ozone, due to non-attainment area status, and
- Carbon Monoxide (CO) and Particulate Matter (PM-10) due to maintenance area status.

In addition, DRCOG also measures Carbon Dioxide (CO₂) to respond to the DRCOG Board commitment to reducing greenhouse gases.

Although the FHWA does not specify that States use a particular emissions reduction methodology, it does stipulate that States make sure determinations of air quality benefits are credible and based on a reproducible and logical analytical procedure, and that emissions to be reported in a consistent fashion across projects to allow accurate comparison during project selection and prioritization¹. In addition, FHWA also requires that States use the latest Motor Vehicle Emissions Simulator (MOVES) emissions model developed by the Environmental Protection Agency to estimate fuel consumption and emissions of greenhouse gases and other pollutants.

2. Overview of CMAQ Benefits Study

In the early CMAQ years, traffic signal retiming projects were the prevalent type of projects and DRCOG (including local stakeholders) developed a standard methodology to identify project related emissions reductions. However, as Transportation Systems Management & Operations (TSM&O) projects, such as; travel time monitoring, C2C between two signal control systems, regional data warehouse, and other projects such as bicycle detection, transit and other “soft” projects (defined in Section 6) have become more prevalent and mainstream, project sponsors have struggled with how to identify and calculate emissions reductions for these types of projects. DRCOG noticed that there was no consistency how project sponsors reported project related air quality and emissions benefits, which was primarily due to not having clear and well defined guidance. Also, in many cases input data needed to calculate air quality and emissions benefits was not readily available and/or accessible to project sponsors. This resulted in frustration to project sponsors struggling to comply with this project requirement to calculate emissions benefits, and to DRCOG having to evaluate a wide range of project methodologies and then select and prioritize projects based on disparate project information. Therefore, DRCOG initiated the CMAQ Benefits Study Project to identify and/or develop a consistent process and methodology that project sponsors could easily apply to a broad range of operational projects to identify project related emission reductions.

The goal of the CMAQ Benefits Study was to **develop a simple, consistent and uniform approach** that can be used by project sponsors to determine projected project emissions/air quality benefits prior to project implementation and actual project emissions/air quality benefits after project implementation, and that

¹ The Colorado Department of Transportation Congestion Mitigation & Air Quality Program 2007-2008 Report.

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can be applied equivalently to all types of present and future projects. The terms consistent, simple and uniform within the context of this CMAQ Benefits Study process were defined as follows:

- **Consistent** – Conforming regularly to the same pattern or principle.
 - Project sponsors know what is expected and that project requirements will be applied in a like manner.
- **Simple** – To make easier or less complex being not complicated.
 - The process is easily understood by project sponsors and input data are readily available and accessible.
- **Uniform** – Unchanging and regular application or process.
 - Project sponsors understand that the same requirements apply to all projects.

3. Literature Research Regarding Existing Emissions Tools

A literature search was conducted to identify what types of tools were available to calculate air quality and emissions benefits and to evaluate the practicality and usefulness of the tools in conjunction with the goal of the CMAQ Benefits Study. The literature search, which is attached as **Appendix A**, revealed there are a number of tools that, although primarily calculate project cost/benefit, can be used to calculate air quality emissions benefits. The tools are categorized into three groups that have the following characteristics:

- Sketch Planning Tools – typically use spreadsheets or simply structured databases, and are intended to provide relatively easy and fast analysis of the particular transportation systems management & operations (TSM&O) strategy and often require relatively limited input data.
- Post Processing Tools – more complex and generally include customized interfaces and analysis processes and are intended to link with travel demand models, simulation models or Highway Performance Monitoring System (HPMS) databases, and require more specific data and additional effort to configure and operate.
- Multiresolution/Multiscenario Tools – most complex and require integration of multiple analysis tools such as, combining the analysis capabilities of a travel demand model with a simulation model and requires much broader types of data that may not be readily available.

In conjunction with the CMAQ Benefits Study goals, the following criteria were developed to guide and determine the level of effort that would be applied for further consideration of the tool.

- The level of effort and expertise required by the agency to use the tool including if specialized training and/or software is needed and/or additional agency IT support.
- Data required by the tool and its accessibility and availability.
- Level of accuracy must be commensurate with project requirements and needs.

Based on the project goals and criteria, Post Processing and Multiresolution/Multiscenario tools were excluded from further and more in-depth review and consideration, and the literature search focused on the six Sketch Planning Tools that were identified. Upon further review of the tools, Tool for Operations Benefit/Cost (TOPS-BC) was selected to perform a proof of concept analysis because:

- It addressed most of the typically recognized TSM&O strategies, such as; traveler information, traffic incident management, ramp metering systems, CCTV, advanced traffic demand management, etc.
- It can be used to calculate emissions benefits.
- It was developed and is supported by FHWA.

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- Other Sketch Planning Tools were either no longer supported, only applied to very limited strategies, such as; employer based TDM programs, freeway service patrol, converting freeway lanes to toll facilities or required user to input California area-specific data.

4. TOPS-BC Proof of Concept

TOPS-BC was developed to provide support and guidance to conduct benefit/cost analysis of a wide range of TSM&O strategies. It is structured in a modular format (tabs) that identifies certain TSM&O strategies to calculate cost and to calculate benefits. In performing the proof of concept the first step was to align the 13 projects that were selected as part of the DRCOG FY14-FY17 ITS Pool Program as closely as possible with the relevant TOPS-BC module cost and benefit tabs (see **Attachment A**). One project was not able to be aligned because there was no relevant TSM&O strategy and two projects were aligned with TSM&O strategies that were less than ideally relevant due to TSM&O strategy limitations. Following this an assessment of the required cost and benefit data inputs was performed to identify the number of data inputs, the potential source and owner of data, the accessibility of the data to project sponsors and the level of difficulty that project sponsors would likely encounter to access the data. There was nine cost data inputs and 76 benefit data inputs for a total of 85 cost/benefit data inputs. Although many of the benefit data inputs allowed for use of available default data, the default data was as of 2010. The level of difficulty that project sponsors would likely encounter in accessing the data inputs was determined based on the following:

- Easy – input is readily available in system or records
- Moderate – in a system, but no direct access
- Difficult – not in a system or unknown

Thirty eight data inputs were determined as Easy, 19 data inputs were determined as Moderate and 28 data inputs were determined as Difficult (see **Attachment B**, which can be accessed by “clicking” on the paperclip that is displayed on the upper left-side of this document). Also, it was determined there was potentially 18 different sources that might have to be used to get the data, for which a source could not be identified for 16 data inputs (see **Attachment C**) and at least eleven different owners of the data (see **Attachment D**).

TOPS-BC can be used to formulate a very comprehensive project cost analysis including, lifecycle capital and operations and maintenance costs, average annual cost, forecasted stream of cost and the net present value of the costs and project benefit analysis including, hours of travel saved, hours of non-recurring delay saved, fuel savings and number of crashes reduced and value of reduced crashes resulting in a project cost/benefit ratio. However, the project sponsor would still need to extract certain data inputs to calculate project related air quality and emissions benefits. Also, based on using TOPS-BC for this exercise, it was determined that TOPS-BC would require that project sponsors spend a significant amount of time reviewing and learning the TOPS-BC User’s Manual, and working with the tool to understand it and become proficient in applying it to projects. In addition, the tool does not contain modules for “soft” projects, which is very concerning as these types of projects have increased, and are expected to continue to increase over the coming years.

Therefore, based on these findings it was decided that TOPS-BC did not meet the goal of the CMAQ Benefits Study and should not be used to calculate project related air quality and emissions benefits, but using TOPS-BC revealed that there was a small, yet essential, number of data input parameters that could be applied to any project to calculate air quality and emissions benefits.

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5. Emissions Reduction Data Parameters

Emissions/air quality benefits and fuel consumption benefits only result due to an increase in average speed of traffic or conversely a reduction in stopped delay, which in both cases result in a reduction in link travel time. To assist project sponsors to identify and calculate projected emissions benefits for projects submitted as part of the DRCOG ITS Pool Program, the following data parameters, which are essential to calculate emissions benefits for any project, were identified:

- Segment(s) and/or Corridor(s) Length
- Impact Period for Project (daily and annual)
- Traffic Volumes
- Current Speed or Stopped Delay (existing condition)
- Estimated Increase in Average Speed or Reduction in Stopped Delay (projected for after condition)

6. Project Process to Determine Emissions Reduction and Related Data Parameters

As shown in Section 5, the emissions reduction data parameters are fundamental in order to determine emissions/air quality benefits. However, prior to calculating emissions/air quality benefits it is imperative to carefully articulate the purpose of the project so that it is clear what the project will accomplish, and to determine and define the project impact landscape, both in terms of scope (project benefits) and geographical area (extent of the project), as this is an essential first step to confirm that the project is viable and to identify the appropriate increase in speed or reduction of stopped delay value to estimate emissions/air quality benefits. **Figure 1** shows the described process with additional explanation below.

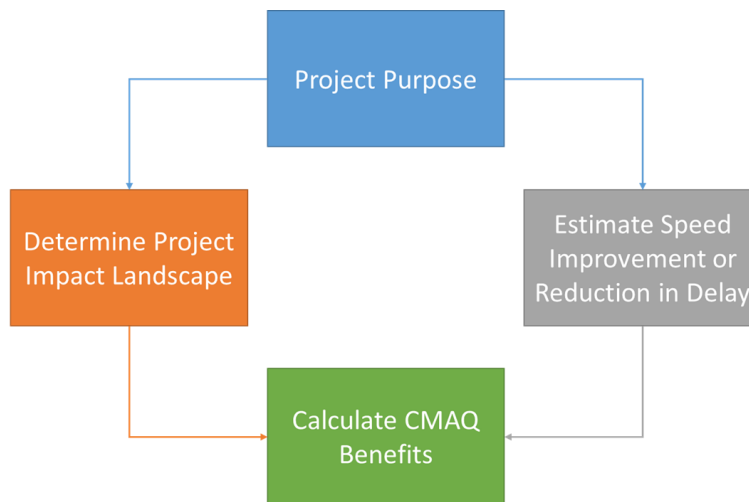


Figure 1: CMAQ Project Process

The project process as illustrated is a very high-level summary. It is not meant to imply that it covers the entire project process or all project related information required within the DRCOG project application, but rather to highlight several critical elements that are crucial within the project development process so that the project sponsor can accurately define the project and related benefits and DRCOG can critically assess the project.

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Certain projects lend themselves better than others with regard to data being applicable and readily available for each data parameter. There were two challenges that needed to be resolved:

- How to apply data parameters representatively to complex traditional traffic operations projects and “soft” projects, such as; studies, guidelines, software upgrades, etc., and
- How to apply data parameters to other future projects that were not submitted as part of the DRCOG ITS Pool Projects (FY14 – FY17), but that are expected to become more prevalent in future years, such as; transit, bike/pedestrian, intersection operations (new turn lanes), vehicle fleets, alternative fuels and Transportation Demand Management (TDM), and
- What is a reasonable estimated increase in speed or reduction in stopped delay that is projected to be realized once the project is implemented. More information regarding reasonable estimated increase in speed is provided in Section 7.

For purposes of this methodology all projects that were submitted as part of the DRCOG ITS Pool Projects (FY14 – FY17) were assessed to identify similarities with regard to data availability and applicability for each data parameter, including other future projects that were not submitted. Based on the similarities, the projects were categorized and defined as follows:

- **Traditional Traffic Operations Projects** – These projects are typically implemented at a site on a roadway or within a corridor segment, and are well defined in terms of location (segment or corridor) and impact period such that traffic volumes are easily applied. These projects require the least amount of work in applying the data parameters due to the limited and relatively confined nature of the project. Application of the data parameters is very straight forward once the data is collected and requires very minimal to no data manipulation prior to application. There are typically many documented benefit studies for these projects.
- **Complex Traditional Traffic Operations Projects** – These projects typically involve higher functionality and are typically implemented on one or more corridors. Due to the extensive nature of the project, application of the data parameters is not straight forward as more data is needed. There are few studies that document benefits for these projects.
- **Soft Projects** – These projects include training, studies, software upgrades and others that are not typically implemented directly on the roadway system. Due to the nature of the work being performed, application of the data parameters is very difficult. Also, there are no studies that document benefits for these projects.
- **Other Future Projects** – These projects are becoming more mainstream and are expected to be part of the projects that are submitted on a more frequent basis in the upcoming years. Due to the abstract nature of these projects many of the data parameters identified will not apply, and other data parameters will need to be supplemented. FHWA performed a study² to evaluate the cost-effectiveness of CMAQ eligible project types. The study reviewed more than 2,000 projects, which were categorized into 19 project types, several of which correlate to the Other Future Projects. It is recommended that at the time projects in this category are submitted, the project sponsor should consult the study to identify applicable data parameters to calculate project related air quality and emissions benefits. More information regarding the study is provided in Section 7.

² Congestion Mitigation and Air Quality (CMAQ) Improvement Program, Cost Effectiveness Tables Development and Methodology, December 3, 2015

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Table 1 shows all of the DRCOG ITS Pool Projects (FY14 – FY17), regardless if the project was selected, grouped by category as identified above, including Other Future Projects. This is to illustrate the range of projects that were submitted and how challenging it is to establish a consistent methodology.

Table 1: DRCOG ITS Pool Projects (FY14 – FY17) and Other Future Projects by Project Category

Project Category	Project	Application of Data Parameters
Traditional Traffic Operations Projects	<ul style="list-style-type: none"> • Traffic signal system replacement/upgrade • Traffic Responsive Control • Traffic Adaptive Control • Extend reach of signal system control • Install UPS at intersection • Flashing Yellow Arrow implementations • Bicycle detection • Fiber Interconnect (traffic signals on corridor) • Ramp Metering (advanced functionality) • Replace/upgrade ramp metering system 	<ul style="list-style-type: none"> • Easy and generally straight forward • Many previous studies with documented benefits
Complex Traditional Traffic Operations Projects	<ul style="list-style-type: none"> • ATM elements • System Monitoring – CCTV/system detectors • Travel time monitoring system • Driver feedback signs • Upgrading communications from serial to Ethernet • Upgrade SONET field communications system 	<ul style="list-style-type: none"> • Harder and not as straight forward • Few previous studies with documented benefits
Soft Projects	<ul style="list-style-type: none"> • Public Safety CADD Interface • Incident Management Training • C2C Feasibility Study (fiber interconnect between two signal systems) • CTMS software revision for travel time monitoring • Regional Data Warehouse/Cognos Licensing • Performance Monitoring System • Purdue Coordination Diagrams 	<ul style="list-style-type: none"> • Very difficult and not straight forward • No previous studies with documented benefits
Other Future Projects	<ul style="list-style-type: none"> • Transit • Bike/pedestrian • Intersection operations (new turn lanes) • Vehicle fleets • Alternative fuels • Transportation Demand Management (TDM) 	<ul style="list-style-type: none"> • Conventional data parameters do not apply • Consult FHWA study identified above

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In looking at Table 1, the following items are very obvious.

- Although data may be available for projects within each project category, application of the data may be incrementally more difficult for Complex Traditional Traffic Operations Projects and Soft Projects.
- An estimated increase in speed is necessary to calculate an emissions/air quality benefit for all projects; except projects specifically designed to reduce stopped delay, such as; Flashing Yellow Arrow implementations and others (possibly Incident Management projects) that will not apply an estimated increase in speed, but will apply estimated reduction in stopped delay to calculate emissions/air quality benefit.
- Other Future Projects, due to the nature of the projects, require some different and/or additional data parameters to calculate emissions/air quality benefits.

7. FHWA Study to Evaluate CMAQ Projects Cost-Effectiveness in Reducing Pollutants

Moving Ahead for Progress in the 21st Century Act (MAP-21) required FHWA to perform a study to evaluate the cost-effectiveness of CMAQ eligible project types by criteria pollutant and develop a table showing such information³. To fulfil that requirement, Volpe National Transportation Systems Center prepared *Congestion Mitigation and Air Quality (CMAQ) Improvement Program, Cost-Effectiveness Tables Development and Methodology*, dated December 3, 2015. **MAP-21 also requires that MPOs consider the table(s) when selecting projects or developing performance plans** [bold added].

As mentioned above, the study reviewed more than 2,000 projects that were categorized into 19 project types. The study showed cost-effectiveness estimates, represented in terms of dollar per ton of pollutant reduced, across a range of five criteria pollutants for each project type by median-cost effectiveness and the lowest project cost. The study developed a methodology and identified relevant data parameters for each project type to perform the analysis.

In conjunction with this DRCOG CMAQ Benefits Study, a Summary and Comparison with DRCOG CMAQ Prototype Projects (seven prototype projects were selected to apply CMAQ Benefits methodology and data parameters) and the FHWA CMAQ Projects Cost-Effectiveness Study was conducted to determine the soundness, reasonableness and credibility of the CMAQ Benefits methodology and process. The Summary and Comparison with DRCOG CMAQ Prototype Projects is attached as **Appendix B**, which also provides further detail regarding the FHWA CMAQ Projects Cost-Effectiveness Study.

Of particular interest was that the FHWA CMAQ Projects Cost-Effectiveness Study regarding projects in the project type identified as Intelligent Transportation Systems/Intersection Improvements, which is the category that most of the DRCOG CMAQ Program projects fit into, found that:

*“Distinct to other project types, each of the intersection improvement scenarios involved a specific improvement in travel speeds (or a reduction in delay, in the case of left-turn lanes), **generally around five miles per hour** [bold added] (from bases ranging from 15 to 40 miles per hour). In all, 20 scenarios were included in the analysis.”⁴*

³ 23 U.S.C. Sec. 149, (i)

⁴ The FHWA CMAQ Projects Cost-Effectiveness Study - Page 67

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This appeared to validate the 5 miles per hour (MPH) increase in speed, which was applied to the DRCOG CMAQ prototype projects to calculate air quality and emissions benefits. Subsequent to this, DRCOG performed an analysis of traffic signal timing benefits for all projects from 2010 to 2015 for all periods, and concluded that there was an average speed increase of about 3.5 MPH fairly consistent from period to period, year after year with a fairly consistent mean and fairly consistent standard deviation. Because the transportation system is mature and improvements are being made to fairly well-maintained corridors, 3.5 MPH seems to be a reasonable estimated increase in speed and is therefore recommended as the default value in Section 8.6.

Finally, the Summary and Comparison with DRCOG CMAQ Prototype Projects concluded that:

. . . . the DRCOG CMAQ Prototype Project methodology and data parameters is a sound process that provides reasonably quantifiable emissions/air quality benefits and project cost-effectiveness with respect to reducing subject pollutants. The DRCOG CMAQ Prototype Projects methodology and data parameters seem to be very consistent with the Study methodology and data parameters, which provides a creditable validation and a very high-level of confidence with the DRCOG CMAQ Prototype Projects methodology and data parameters and the process.

8. Recommended Guidelines for Data Parameters and Applying Data Parameters to Projects

As mentioned earlier, for a project to be eligible for CMAQ funding it must demonstrate an emissions/air quality benefit, which will only result from an increase in speed or a reduction in stopped delay for most projects. Other Future Projects will need to identify other applicable data parameters associated specifically with the project.

Although the same data parameters will be used for every project; except for Other Future Projects, they will be applied based on the project type in conjunction with the project category. Project sponsors will be responsible to obtain the data for each data parameter, and will have to exercise judgment in determining how each data parameter best applies to the specific project.

The Guidelines are meant to assist project sponsors by providing a standard framework, data parameters and process that can be applied to projects in a consistent manner to calculate air quality and emissions benefits. To that extent the Guidelines meet the FHWA requirements that:

States make sure that determinations of air quality benefits are credible and based on a reproducible and logical analytical procedure, and that emissions to be reported in a consistent fashion across projects to allow accurate comparison during project selection and prioritization.

Project sponsors always have the flexibility to use additional or other data parameters and related data from case studies or other substantiated sources that may be more relevant to the specific project based on project sponsors judgment. It is the responsibility of project sponsors to determine the most appropriate data parameters that should be applied to a specific project, and it is also the responsibility of project sponsors to ensure and justify that the data is both relevant and credible.

To assist project sponsors the following outlines a step-by-step process, which coincides with the attached **CMAQ Benefits Methodology Emissions Spreadsheet** that is explained in Section 9, regarding how the data parameters will be applied to projects within each project category, and identifies recommended

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guidelines pertaining to the data parameters and the data source(s) that can be used to obtain data for each data parameter. Other Future Projects are not included within this step-by-step process.

8.1 Step One: Project Sponsor Must Identify the Project Corridor(s) and Segment(s)

For both Traditional Traffic Operations Projects and Complex Traffic Operations Projects it should be relatively easy to identify the project corridor(s) and segment(s) as these projects are usually implemented on the roadway system. It is more difficult for Soft Projects because it requires that the project be associated to the applicable roadway system. This requires judgment on the part of the project sponsor and may require use of a surrogate, but related, project application in order to make a reasonable roadway association to the project.

As an example, a project such as the Regional Data Warehouse/Cognos Licensing that developed a regional data warehouse and issued Cognos licenses to users to access the data warehouse and generate reports was associated to the roadway system based on the corridors identified in Cognos, within the DRCOG MPO, due to the fact that these corridors are being reported on the Cognos system.

Soft Projects require more work than Complex Traditional Traffic Operations Projects due to the need to first identify a reasonably related project application that can be used to associate the project to the applicable roadway system.

8.2 Step Two: Project Sponsor Must Determine the Project Corridor(s) and Segment(s) Length

Once the project corridor(s) and segment(s) have been identified the lengths can be determined for each corridor(s) and segment(s). Corridor improvement projects that apply to more than one corridor should use the segment length for each of the corridors.

Guidelines:

Depending on the project, the segment length could include the following:

- Limits of the corridor
- Signal spacing for arterials
- Left turn bay length for Flashing Yellow Arrow implementations
- Ramp spacing for freeways

Data Source:

For state highways CDOT Online Transportation Information System (OTIS) provides highway and traffic data. For non-state highway local roadways the respective jurisdiction should have the segment length data. Alternatively, local project sponsor data sources or Google could provide this information.

8.3 Step Three: Project Sponsor Must Identify Impact Period for Project

For most projects the impact period is obvious, as the project is designed to provide an operational improvement for a specific problem. For other projects that the impact period is not as clear, the project sponsor will have to use judgment to determine the most appropriate impact period for the project including by direction, if applicable. If projects make improvements during periods other than in the peak period(s) they can use the specific time period when the project would demonstrate improvements. This is very important as the traffic volume(s) will be used for the impact period identified including by

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direction, if applicable. For example, a ramp metering project impact period would be peak period for the direction of travel onto the roadway.

Guidelines:

The time period for which the project is specifically implemented or expected to show improvement. The impact period consists of three components:

- Daily Impact Period,
- Direction and
- Annual Impact Period

The following identifies several options that should be considered regarding each impact period component:

Daily Impact Period – the time during the day that the project is specifically designed to improve operations.

- All day, i.e., 24 hours
- Peak period(s)- AM (6-9) or PM (3-6)
- Off-peak period(s)- (9AM-3PM) or (6PM-10PM)
- During the day- 6AM to 6PM
- Specific corridor peak period – (For example I-70 west peak period is westbound Saturday morning and eastbound Sunday afternoon)

Because CMAQ benefits are only realized during periods when speeds are 50 MPH or less for CO and 49 MPH or less for VOC, respectively (55 MPH or less for CO₂ and 37 MPH or less for NO_x, respectively)⁵, it is recommended that projects focus on improvements during peak periods, i.e., both AM (6-9) and PM (3-6) for weekdays, regardless if the project provides improvements during other periods that may have higher speeds.

Direction – the direction, if applicable, during the daily impact period that the project is most likely to improve operations.

- Northbound
- Southbound
- Eastbound
- Westbound

Annual Impact Period – the annual time period that the project is specifically designed to improve operations.

- Weekday only, i.e., annualized with 250 days
- Weekend only, i.e., annualized with 104 days
- Every day, i.e., annualized with 365 days

Data Source:

Project sponsor will determine the impact period for the project in accordance with the purpose and intent of the project.

⁵ MOVES2014a using the 2015 MOVES2014a modeling assumptions.

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8.4 Step Four: Project Sponsor Must Obtain Traffic Volume(s) for the Project Corridor(s) and Segment(s) during Daily Impact Period

Traffic volume(s) will need to be obtained for the corridor(s) and segment(s) during the Daily Impact Time-Period of the project including by direction, if applicable.

Guidelines:

Traffic volume at the project implementation site or traffic volume(s) on a corridor or corridors, as applicable, regarding the project. Depending on the length of the corridor it may be necessary to average segment traffic volumes.

Data Source:

For state highways CDOT Online Transportation Information System (OTIS) provides highway and traffic data. For non-state highway local roadways the respective jurisdiction should have traffic volume data.

8.5 Step Five: Project Must Obtain Speed (actual) or Stopped Delay for the Corridor(s) and Segment(s) during Daily Impact Period

Speed or reduction in stopped delay will need to be obtained for the corridor(s) and segment(s) during the Daily Impact Period of the project including by direction, if applicable. This will provide the project actual baseline speed or reduction in stopped delay to which the estimated increase in speed or the projected reduction in stopped delay will be used to calculate the projected emissions/air quality benefit.

Guidelines:

Speed data will be for the corridor or segment length during the Daily Impact Period including by Direction, if applicable, for the project. Reduction in stopped delay will be provided by the project sponsor based on travel runs or other verifiable data modeling or analytical related projects.

Data Source:

For all roadways INRIX provides speed data based on user selected parameters including; segment limits, time of day, roadway direction and others. It should be for applicable weekday or weekend time period. If weekday is applicable, speed should be calculated based on monthly average from Tuesday to Thursday. If weekend is applicable, speed should be calculated based on monthly average for Saturday and Sunday.

Flashing Yellow Arrow implementation projects primary purpose is not to increase speed but to reduce stopped delay (Stop Delay Concept). Therefore, rather than speed project sponsors will need to consider/collect the following information to calculate emissions/air quality benefits for Flashing Yellow Arrow projects:

- If a vehicle is stopped, it means the speed is 0 MPH
- The amount of time a vehicle is stopped is stopped delay
- The project would need to collect before condition stopped delay in the field
- The project would need to reasonably predict reduction in stopped delay using published technical studies or other verifiable case studies
- Segment length is not applicable for Flashing Yellow Arrow implementations

8.6 Step Six: Apply Estimated Increase in Speed (projected)

The challenges with determining the estimated increase in speed have been discussed above in the assessment.

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Guidelines:

To proceed with a simple, uniform and consistent process, all projects should assume an estimated increase in speed of 3.5 MPH, which is reasonable as a starting place; except projects that are specifically designed to reduce stopped delay such as; Flashing Yellow Arrow projects that should use the Stop Delay Concept identified above in Step Five. Other incident management related projects may also choose to use stopped delay, and in which case should consult page 100 of the FHWA *Congestion Mitigation and Air Quality (CMAQ) Improvement Program, Cost-Effectiveness Tables Development and Methodology*, dated December 3, 2015.

Data Source:

Project sponsor will use 3.5 MPH for all projects.

[8.7 Step Seven: Project Must Identify Project Cost and Project Life Cycle](#)

Project cost is necessary to calculate dollars per ton for each criteria pollutant reduced on an annual basis. Project cost should include CMAQ funds and, if applicable, required matching local funds. Project life cycle is needed to calculate the total benefit of tons for criteria pollutant reduced over the project life cycle including dollars per ton for each criteria pollutant reduced over the project life cycle. Examples of project life cycles can be found on page 40 of the FHWA *Congestion Mitigation and Air Quality (CMAQ) Improvement Program, Cost-Effectiveness Tables Development and Methodology*, dated December 3, 2015.

[8.8 Step Eight: Calculating Project Emissions/Air Quality Benefits](#)

By following the steps above, the project sponsor has the following data

- Corridor (s)
- Segment(s) and/or Corridor(s) Length
- Impact Period for Project (daily and annual)
- Traffic Volumes by direction and by impact period
- Current Speed or stopped delay (before condition) by direction and by impact period
- Estimated Increase in Speed or stopped delay (projected for after condition) by direction and by impact period
- Project Cost
- Project Life Cycle

9. Inputting Project Data Parameters in CMAQ Benefits Methodology Emissions Spreadsheet

The CMAQ Benefits Methodology Emissions Spreadsheet contains two project samples: Travel Time Monitoring based on an increase in speed and Flashing Yellow Arrow based on a reduction in stopped delay. The project sponsor can use the appropriate project sample as a template for their project. The Spreadsheet can be accessed by “clicking” on the paperclip that is displayed on the upper left-side of this document. The Spreadsheet also contains the Emission Curves⁶ table, which is used to determine the output rates for each criteria pollutant. The following provides a summary overview regarding how to use the Spreadsheet (it is assumed that the user has proficient working knowledge and ability with Excel) to input project related data obtained as identified in Section 8.

⁶ MOVES2014a using the 2015 MOVES2014a modeling assumptions.

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- Review the project samples to determine which sample best reflects how project related emissions benefits will be calculated, i.e., an increase in speed or a reduction in stopped delay for the project.
- Create a project sheet for the project and copy the desired project sample into the project sheet (rename created project sheet tab with name of project).
- Do not change the name of Emission Curves tab as it is used as a “look up” table for the project sheet(s).
- Insert project related data obtained in Section 8 only in the appropriate areas (columns and rows)/cells (highlighted in yellow) on the project sheet. Additional corridor and segment data may be added above the line identified on the project sheet.
- If additional corridor and segment data is added, copy formulas from row above for each criteria pollutant (columns K through AK) for increase in speed projects including after speed (column I), and (columns K through AG) for reduction in stopped delay projects. Only delete rows of data that will not be used in the project.
- Default values highlighted in green should not be changed unless substantiated by project sponsor.
- On the Emissions Benefits Summary Table in the project sheet, ensure that formula includes all rows for each criteria pollutant Benefit on the project sheet.
- Once data has been inputted into the project spreadsheet and all corresponding formulas have been copied, and the formula has been updated in the Emissions Benefits Summary Table to include all rows for each criteria pollutant Benefit on the project sheet, the air quality and emissions benefits including cost-effectiveness over the project life cycle will be calculated in the Emissions Benefits Summary Table.

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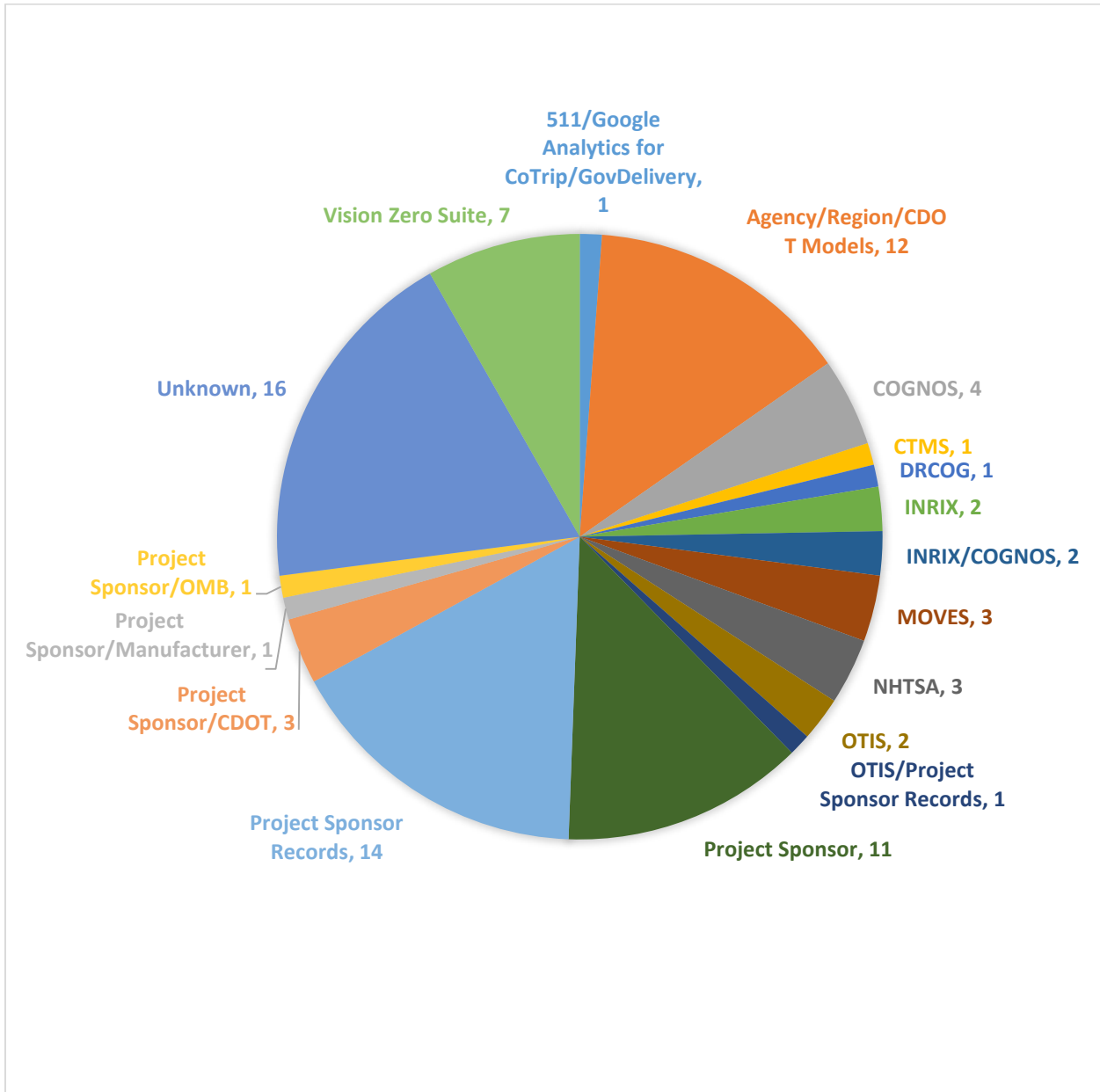
ITS Pool Prioritization (1)	Project Purpose Category	2014 - 2017 Projects (2)	Agency	TOPS BC Module (3)
Prepare and implement regional traffic incident management system improvements (<i>Priority Level 1</i>)	Traffic Incident Management Improvements	Incident Management Systems	CDOT Real-Time Traffic Management Branch	Traffic Incident Management – FSP
		Public Safety CADD Interface	CDOT ITS Branch	Traffic Incident Management – FSP
Extend and expand traffic monitoring infrastructure and capability (<i>Priority Level 2</i>)	System Monitoring Improvements	Implement System Monitoring: CCTV, system detectors		Supporting Strategies - CCTV
		Travel Time Monitoring System	<ul style="list-style-type: none"> • Arapahoe County • Centennial • Denver • Greenwood Village • Lakewood 	Advanced Traffic Demand Management
		CTMS software revision for Travel Time Monitoring	CDOT ITS Branch	Traveler Information
		ATM elements		Advanced Traffic Demand Management
Prepare and implement projects that facilitate coordinated operations across multiple jurisdictions (<i>Priority Level 3</i>)	Data Integration & Performance Management Improvements	Regional Data Warehouse	CDOT ITS Branch	N/A
		Performance Monitoring System		N/A
Prepare and implement projects that facilitate coordinated operations across multiple jurisdictions (<i>Priority Level 3</i>)	Communication System Improvements	Upgrading communications from serial to Ethernet		N/A
		Upgrade SONET field communications system		N/A
Prepare and implement project that improve work	Work Zone Management Improvements			

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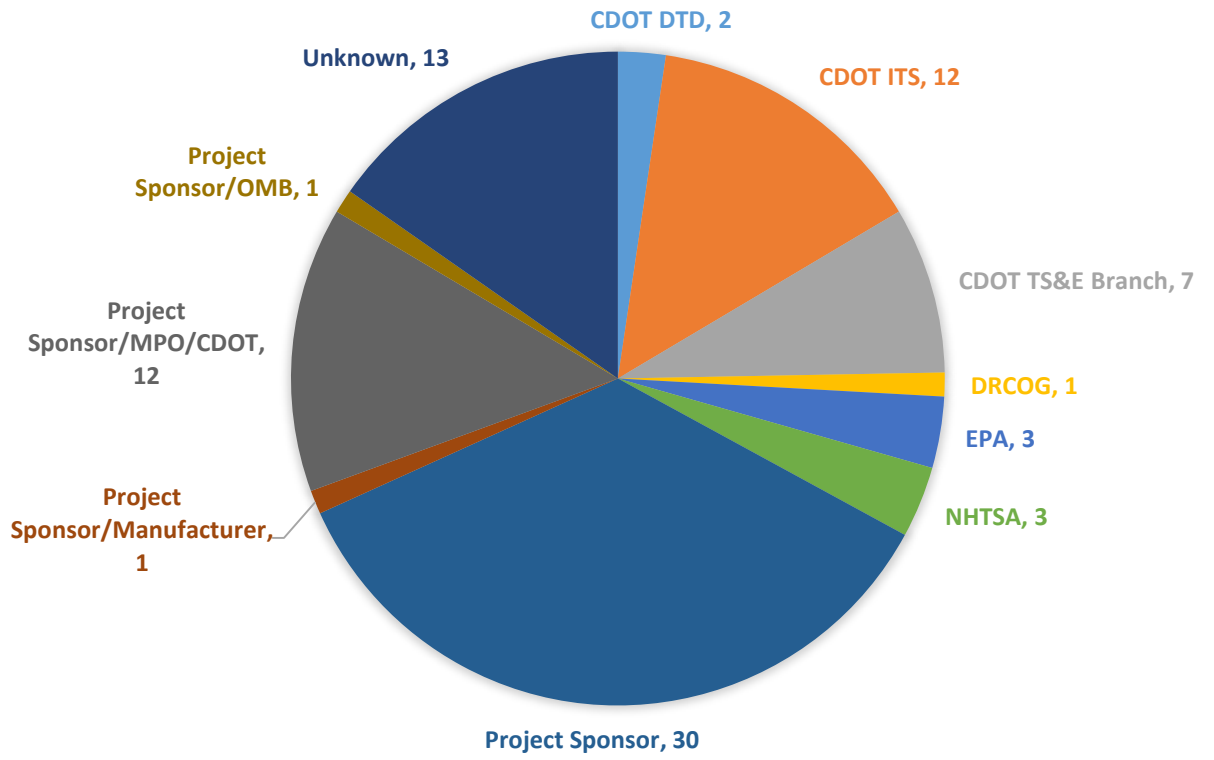
ITS Pool Prioritization (1)	Project Purpose Category	2014 - 2017 Projects (2)	Agency	TOPS BC Module (3)
zone/special event management (<i>Priority Level 4</i>)				
Prepare and implement project that expand operational capabilities (<i>Priority Level 5</i>)	Traffic Signal & Ramp Metering System(s) Operational Improvements	Traffic signal system replacement/upgrade	Thornton	Traffic Signal Coordination – Central Control
		Purdue Coordination Diagrams		Traffic Signal Coordination – Traffic Actuated
		Extend reach of the system control		Traffic Signal Coordination – Central Control
		Install UPS at intersection		Traffic Signal Coordination Systems – Preset Timing
		Flashing yellow arrow implementations		Traffic Signal Coordination – Actuated
		Traffic Responsive Control Implementation		Traffic Signal Coordination – Actuated
		Traffic Adaptive Control implementation		Traffic Signal Coordination – Actuated
		Ramp Metering (advanced functionality)	CDOT Region 1	Ramp Metering Systems – Traffic Actuated
		Bicycle Detection		Supporting Strategies – Loop Detection
		Implement C2C between two signal control systems	Denver	Traffic Signal Coordination – Central Control
		Replace/upgrade ramp metering system	CDOT Region 1	Ramp Metering Systems – Central Control
		Driver Feedback Signs		Traveler Information - DMS

1. DRCOG Regional Intelligent Transportation Systems Deployment Program, Adopted June 2014, Appendix A (Priority Table).
2. List of Projects Submitted to DRCOG for 2014 through 2017 ITS Pool. Projects highlighted in yellow were selected (Table 5 – DRCOG RITS Deployment Program).
3. TOPS B/C is a sketch-planning level decision support developed by FHWA Office of Operations. It can be used to conduct benefit/cost analysis on TSM&O strategies including, travel time and speed, throughput, safety, emissions, energy, costs, efficiency and other.

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CMAQ Benefits Study Literature Research Findings

1. Overview of the CMAQ Program

Congress established the Congestion Mitigation Air Quality (CMAQ) program in the early 1990s under the Intermodal Surface Transportation Efficiency Act (ISTEA), and expanded and continued it to the present under subsequent Transportation Authorization Bills. The primary focus of the CMAQ program has been on air quality improvement, reflecting the requirements placed on the transportation sector by the Clean Air Act Amendments of 1990 to help meet national air quality goals. The CMAQ program provides flexible funding for States to use in nonattainment areas and maintenance areas to help them address air quality concerns from transportation sources.

Federal CMAQ funds, as part of the Federal Transportation Authorization Bill, are appropriated to CDOT to carry out and discharge CMAQ program responsibilities. The Transportation Commission, by adoption of resolutions, has delegated program administration to three eligible metropolitan planning organizations (MPO) and five rural PM-10 areas, including their funding allocations and other program recipient requirements.

2. DRCOG CMAQ Program

The Denver Regional Council of Governments (DRCOG) MPO administers the CMAQ program in the Denver metro area (DRCOG Metropolitan Planning Area). The primary requirement for CMAQ funded projects or programs is that they must identify emissions reductions. In the early CMAQ years, traffic signal retiming projects were the prevalent type of projects and DRCOG (including local stakeholders) developed a standard methodology to identify project related emissions reductions. However, as Transportation System Management & Operations (TSM&O) projects, such as; travel time monitoring, C2C between two signal control systems, regional data warehouse, bicycle detection and others have become more prevalent and mainstream, Project Sponsors have struggled with how to identify and calculate emissions reductions for these types of projects. Therefore, DRCOG initiated the CMAQ Benefits Study Project to identify and/or develop a consistent process and methodology that Project Sponsors could easily apply to a broad range of operational projects to identify project related emission reductions.

3. Purpose of the CMAQ Benefits Study Project

The purpose of the CMAQ Benefits Study Project is:

To develop a simple, consistent and uniform approach so Project Sponsors can identify and calculate emissions benefits, project cost/benefits and other related performance measure benefits, both before and after project implementation.

The Federal Highway Administration (FHWA) does not specify that States use a particular emissions reduction methodology, FHWA stipulates that States make sure determinations of air quality benefits are credible and based on a reproducible and logical analytical procedure. FHWA requires emissions to be reported in a consistent fashion across projects to allow accurate comparison during project selection and prioritization¹. In addition, FHWA also requires that States use the latest Motor Vehicle Emissions Simulator (MOVES) emissions model developed by the Environmental Protection Agency to estimate fuel consumption and emissions of greenhouse gases and other pollutants.

¹ The Colorado Department of Transportation Congestion Mitigation & Air Quality Program 2007-2008 Report.

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4. Literature Research of Existing Tools and Applications

Literature research has revealed there is numerous analyses tools and methodologies that have been designed for conducting benefit/cost (B/C) analysis of one or more TSM&O strategies and projects (some TSM&O strategies are shown in Section 5.3). These include tools developed by regional, state, and Federal agencies, as well as proprietary tools developed by many private-sector enterprises; and range from simple methods intended for one-time analysis to more complex tools that are continually maintained and updated that form a continuing standardized framework for conducting B/C analysis for various agencies². Benefit/cost analysis is an extremely important and valuable component within project development; however, pursuant to 23 USC 149 CMAQ funded projects or programs must reduce Carbon Monoxide (CO) and Particulate Matter (PM-10), and Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOC), which are precursors to ozone, emissions from transportation related projects or programs. This fundamental requirement narrowed the analyses tools to several of the most widely distributed tools that either calculate emissions benefits or allow the user to calculate emissions benefits from other benefit data that is calculated by the tool, which is then used to calculate emission benefits. As mentioned, the tools range from simple to very complex, but can generally be segmented into the following three broad categories: Sketch Planning, Post Processing and Multiresolution/Multiscenario. **Table 1** shows the tool category, description and some advantages and concerns related to each tool category.

Table 1: Benefits/Cost Analysis Tools Category and Description

Tool Category	Description	Advantages	Concerns
Sketch Planning	Typically use spreadsheets or simply structured databases, and are intended to provide relatively easy and fast analysis of the particular TSM&O strategy and often require relatively limited input data, e.g., basic aggregated volume and speed.	<ul style="list-style-type: none"> • Simple, quick and low cost estimation of TSM&O strategy • Rely on generally available input data • Static default relationships between strategies and their impact on limited number of MOEs • Ability to customize and make adjustment to default parameters 	<ul style="list-style-type: none"> • Lack rigor of more advanced analysis methods • Limited set of MOEs, reducing comprehensive B/C analysis • Assumes static, linear reactions of travelers in deployed strategies; does not account for route change, mode shift or changes in travel demand
Post Processing	More complex and generally include customized interfaces and analysis processes and are intended to link with travel demand models, simulation models or HPMS databases, and require	<ul style="list-style-type: none"> • Directly link B/C analysis with travel demand • Directly accept model data as inputs to analysis • Customized applications, 	<ul style="list-style-type: none"> • Requires linkage of regional model or customized model routines • Significant effort required to develop, apply, test and validate methods

² FHWA Operations Benefit/Cost Analysis Desk Reference, Chapter 4.

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Tool Category	Description	Advantages	Concerns
	more specific data and additional effort to configure and operate.	algorithms and routines to apply to region's modeling framework to produce required MOEs	<ul style="list-style-type: none"> Compatibility between tool and modeling platform
Multiresolution -Multiscenario	Most complex and require the integration of multiple analysis tools such as, combining the analysis capabilities of a travel demand model with a simulation model and requires much broader types of data that may not be readily available.	<ul style="list-style-type: none"> High level of confidence in the accuracy of results Full range of impacts of TSM&O strategy Assess performance during varying conditions – incident vs no-incident, good weather vs weather conditions, etc. 	<ul style="list-style-type: none"> Significant effort to develop the analysis process & linking model platform Compatibility of tools/methods – many are not easily combined Complexity to develop model processes limits the scope of analysis

Table 2 shows tools within each tool category, primary purpose of the tool and the agency that developed the tool.

Table 2: Benefits/Cost Analysis Tools, Primary Purpose and Agency Developed

Tool Category	Tool	Version/Date	Primary Purpose	Agency Developed
Sketch Planning	Cal-BC	5.0 - February 2012	Conduct B/C analysis of traditional highway improvements	Caltrans
	Computer Model	Unable to locate	Estimate emissions benefits of employer-based travel demand management strategies	EPA
	SCRITS ³	January 1999	Estimate user benefits of ITS and is a subset of the capabilities on TOPS-BC	SAIC ⁴ for FHWA
	TOPS-BC	1.0 – June 2013	Provides expected range of TSM&O strategy impacts, identifies B/C based on input needs, estimates life-cycle costs and project benefits	FHWA
	TIM-BC	1.0.0 – July 2015	Focuses on providing cost/benefits for service patrol programs	FHWA

³ No longer supported by FHWA.

⁴ Science Applications International Corporation.

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	TRUCE	2.0 June 2007 (date estimated)	Estimates costs and benefits of converting all freeway lanes during peak periods into toll facilities including providing adequate transit for commuters not willing or unable to pay toll rates	FHWA
Post Processing	IDAS	Developed in 2001 and has undergone updates	Estimates changes in modal, route and temporal decisions of travelers resulting from ITS technologies	FHWA
	FITSEval	Unable to locate	Travel demand model post-processor to estimate B/C of ITS form FDOT standardized model	FDOT (under development)
	HERS-ST	5.0 – November 2013	Assesses impacts of traditional capacity improvements by modifying HPMS data characteristics	FHWA
	STEAM	2.02 - 2000	Computes net value of mobility and safety benefits for regionally important projects using travel demand modeling process	FHWA
	IMPACTS	Unable to locate	Spreadsheets related to the STEAM model evaluates highway expansion, bus system expansion light-rail investment, HOV lane and employer based TDM using travel demand model inputs	FHWA
	TRIMMS	2.0 – April 2009	Quantifies net social benefits for travel demand management initiatives	CUTR ⁵ (at the University of South Florida)
Multiresolution -Multiscenario	ICM Initiative	April 2011	Uses travel demand model to show long-term impacts of strategies and refined simulation model to identify operational performance impacts	FHWA

5. Selecting the Appropriate Tool to Calculate CMAQ Project Emissions Benefits

5.1. *Measures of Effectiveness*

As can be seen, most of the tools provide varying capabilities of analyzing the impact of TSM&O strategies on different Measures of Effectiveness (MOEs). Few existing tools are fully capable of estimating the impacts to the comprehensive range of measures that may be impacted by TSM&O strategies. Only multiresolution/multiscenario methods come closest to this comprehensive capability, and the ability of these methods to produce the full range of benefits is not intrinsic to the method itself, but is instead a

⁵ Center for Urban Transportation Research.

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product of the flexibility of the approach⁶. However, this must be taken into consideration with other factors, such as;

- Level of effort and expertise required by the agency to use the tool including if specialized training and/or software is needed and/or additional agency IT support.
- Data required by the tool and its accessibility and availability.
- Level of accuracy must be commensurate with project requirements and needs.

The tool must be capable of evaluating the TSM&O strategies and MOEs of interest to the agency, which as it pertains to these CMAQ projects is to identify emissions benefits, and it must also be appropriate to the scope of the analysis and be able to use with the nominal agency resources available. **Table 3**⁷ shows the tools and the MOEs that the tool is capable of calculating.

Table 3: Benefits/Cost Analysis Tools and Measures of Effectiveness

Tool Category and Tool	Measures of Effectiveness						
	Mobility (Travel Time Savings)	Reliability (Total Delay)	Safety (Number and Severity of Accidents)	Environment (Emissions Reduction)	Energy (Fuel Use)	Productivity (Agency Costs-Efficiency)	Vehicle Operating Cost Savings
Sketch Planning⁸							
Cal-BC	X		X	X			X
SCRITS			X	X	X		X
TOPS-BC	X	X	X	Y ⁹	X	X	X
TIM-BC ¹⁰		X		X	X		
Post Process							
IDAS	X	X	X	X	X	X	X
FITSEval	X		X	X	X		X
HERS-ST	X		X	X		X	X
STEAM	X		X	X	X		X
IMPACTS	X			X	X		X
TRIMMS	X			X	X		
Multi Res –Multi Scenario							

⁶ FHWA Operations Benefit/Cost Analysis Desk Reference, Chapter 4.

⁷ FHWA Operations Benefit/Cost Analysis Desk Reference, Chapter 4.

⁸ Computer Model not included because it only applies to employer based TDM programs. TRUCE not included because it only applies to converting freeway lanes during peak periods to toll facilities.

⁹ Emissions benefits are not directly calculated; however, the benefit information calculated within each MOE can be used, in conjunction with the MOVES Table, to calculate emissions/air quality benefits.

¹⁰ TIM-BC only applies to Freeway Service Patrol (Courtesy Patrol) applications.

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ICM Initiative	X	X	X	X	X	X	X
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X = Primary analysis capability

Y = Secondary analysis capability

5.2. *TSM&O Strategies*

Many of the tools identified were designed to analyze one or more of the typically recognized TSM&O strategies including:

- Travel Demand Management
- Public Transit Systems
- Arterial Traffic Management
- Commercial Vehicle Operations (CVO)
- HOT Lanes
- Freeway Management Systems
- Incident Management Systems
- Regional Multimodal Traveler Information
- Work Zone Management

Only multiresolution/multiscenario tools have the flexibility and capability to currently analyze all of the generally recognized TSM&O strategies identified above. Although some of the tools address multiple TSM&O strategies, only TOPS-BC and IDAS address all of the TSM&O strategies. TOPS-BC addresses most elements of the TSM&O strategies identified, except for travel demand management, public transit systems and CVO for which it addresses some elements. IDAS addresses most elements of the TSM&O strategies identified, except for public transit systems for which it addresses some elements.

There are; however, other TSM&O strategies, such as; implementing a regional data warehouse, performing a software revision to improve travel time monitoring, implementing a performance measure system, upgrading communications from serial to Ethernet, conducting bicycle detection, etc., that do not necessarily fit within a typical recognized TSM&O strategy and will require some level of customization in order to identify and calculate benefits.

5.3. *Sketch Planning Tool Summary Analysis*

Sketch Planning tools provide a relatively easy and fast analysis of the TSM&O strategy while requiring relatively limited input data from the user, which for the most part is typical data that is readily available. Sketch Planning tools are considerably less complex than both Post Processing and Multiresolution/multiscenario tools and do not require any specialized training, or other “front end” applications such as travel demand models and/or traffic simulation models to perform the analysis or additional and continual ITS support.

As it pertains to Sketch Planning Tools, several tools were eliminated from further consideration due to the following:

- Computer Model – only applies to employer based TDM programs.
- SCRITS – no longer supported by FHWA.
- TIM-BC – only applies to Freeway Service Patrol (Courtesy Patrol) applications.
- TRUCE – only applies to converting freeway lanes during peak periods to toll facilities.

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CAL-BC calculates emissions benefits. However, further evaluation of the tool determined that it is not practical or feasible because it requires the user to input California area data (based on designated areas in the State) in order to calculate project life-cycle benefits, benefit/cost ratio and emissions benefits. Also, the tool uses accident data and fuel savings/emissions benefits based on the designated California area, which appears to be very difficult or not possible to modify these data. The tool requires the user to aggregate all cost data into one line item, which makes it impossible to account for different life cycles for multiple types of equipment implemented as part of the same project. Finally, the tool doesn't seem to provide the user with the capability to modify the spreadsheet for the respective application or customize for an application not included within the tool.

TOPS-BC may be a tool worth considering further because it provides capability to directly address all of the MOEs identified in Table 3, as well as the ability to calculate emissions/air quality benefits, which is the primary MOE for CMAQ funded projects, from the MOE benefits. Also, TOPS-BC addresses all of the typically recognized TSM&O strategies identified in Section 5.2, and provides the ability for the user to modify an existing application or to customize for other atypical TSM&O strategies/applications (also identified in Section 5.2) and to input user specific data in place of default data if so desired.

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FHWA CMAQ Project Cost-Effectiveness Study Summary and Comparison with DRCOG CMAQ Prototype Projects

1. Overview

Moving Ahead for Progress in the 21st Century Act (MAP-21) required FHWA to perform a study to evaluate the cost-effectiveness of CMAQ eligible project types by criteria pollutant and develop a table showing such information¹. To fulfil that requirement, Volpe National Transportation Systems Center prepared *Congestion Mitigation and Air Quality (CMAQ) Improvement Program, Cost-Effectiveness Tables Development and Methodology*, dated December 3, 2015 (“the Study”). MAP-21 also requires that MPOs consider the table(s) when selecting projects or developing performance plans.

The Study reviewed more than 2,000 projects that were identified in the CMAQ Public Access System for 2013 (the most recent fiscal year for which data was available at the time of the analysis) across the 17 CMAQ eligible project types as identified in the CMAQ Interim Program Guidance, dated November 2013 including some additional project types based on consultation with stakeholders and a review of relevant content in MAP-21. The Study states that:

“The fullest representations of project-level data were found in data from the CMAQ project database, including the two most recent CMAQ assessment studies (2008 Assessment Study, 2014 Assessment Study), and in additional project summaries from States and localities containing data consistent with CMAQ project summaries . Additional key information was found in existing reviews of mobile emission mitigation projects, in particular Multi-Pollutant Emissions Benefits of Transportation Strategies (FHWA, 2006).”²

Not surprisingly, the majority of CMAQ funding falls into two project types; traffic flow improvements and transit projects accounting for nearly 67 percent of the projects.

Traffic flow improvements consist of projects such as:

- Roundabouts, left-turn or managed lanes, HOV lanes, traveler information systems, traffic signal synchronization, incident management systems, traffic management projects and value/congestion pricing projects.

Transit projects consists of projects such as:

- Projects that result in an increase in transit ridership and reduction in congestion including, facilities, vehicles and equipment, fuel, operating assistance and transit fare schedules.

The remaining CMAQ funding was spread among the following project types: about four percent for traffic control measures and travel demand management, about five percent for shared ride projects and about seven percent for pedestrian and bicycle projects with the rest allocated to diesel retrofit, idle technologies, freight, cold start and alternative fuels.

There is not a one-to-one relationship between projects identified within the 17 CMAQ eligible project types and the projects that the Study evaluated. For example, traveler information systems was not

¹ 23 U.S.C. Sec. 149, (i)

² The Study – Page 34

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identified as a project within Congestion Reduction & Traffic Flow Improvements project type and no specific information is provided. However, the Study states that:

“Difficulties in identifying representative project examples for some project types limited the range of potential projects included in the analysis, and the range of project types was further constrained through the relative maturity of some project types (i.e., some projects types that have been included in previous analyses are no longer funded commonly within CMAQ).”³

Based on this, it can be assumed that either there were not any traveler information projects or there were not enough projects to provide a representative sample. In any case, within that project type (Congestion Reduction & Traffic Flow Improvements) incident management, roundabouts and intersection improvements projects were identified in the Study.

2. Calculating Cost-Effectiveness

Cost effectiveness was calculated in terms of dollars per ton of pollutant reduced for five pollutants including, Fine particulate matter (PM_{2.5}), Nitrogen oxides (NO_x), Volatile organic compounds (VOC), Carbon monoxide (CO) and Particulate matter (PM₁₀). The Study used the Environmental Protection Agency’s (EPA) mobile source emissions model MOVES2010b to quantify emissions impacts for each of the five pollutants by identifying estimates of project-level impacts (e.g., VMT, travel speeds) combined with unit (e.g., per-mile, per-hour) emission rates from MOVES2010b to yield estimated emission impacts. The Study notes that MOVES2014 (EPA’s updated emission’s model) was released while the Study was in progress. However, the analytical work in the Study was substantially complete, and therefore it was decided to continue with MOVES2010b rather than replicate the range of completed analytical runs in MOVES2014.

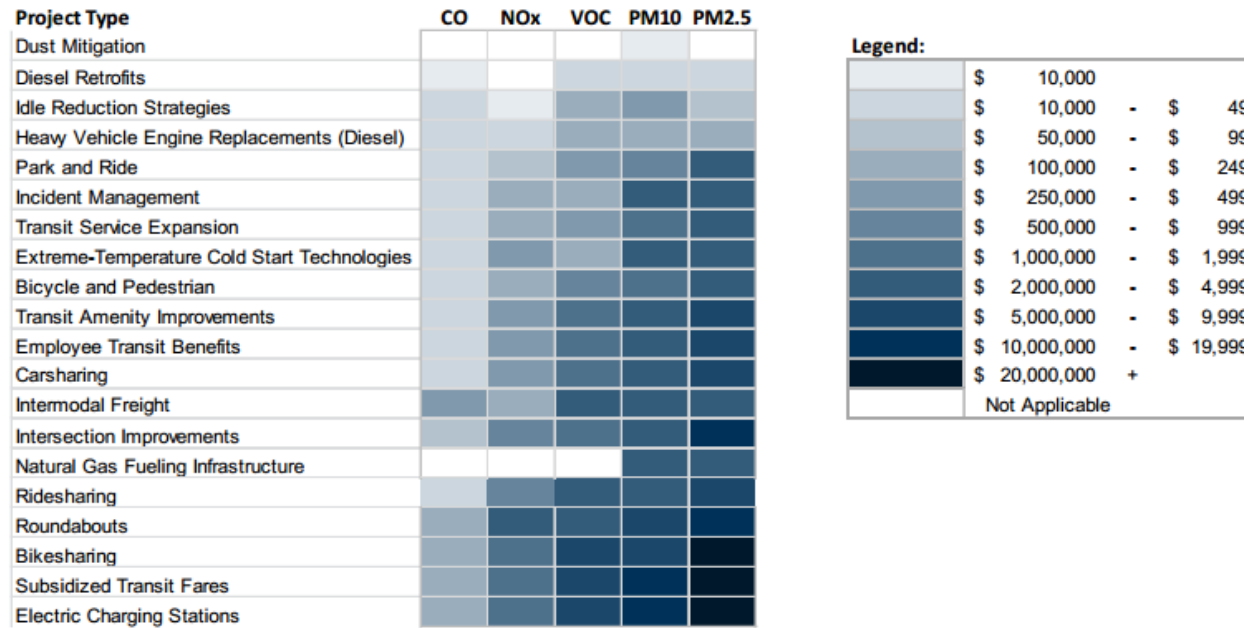
Total project cost (CMAQ funds and matching funds) was used to calculate the cost-effectiveness for each pollutant, which was expressed as dollars per ton of each pollutant reduced for each project. To show a representative cost-effectiveness comparison among the projects, the median cost-effectiveness value was selected and presented in a summary table. In addition, a graph for each pollutant was developed showing the median cost-effectiveness value and the lowest project cost for each project type in order to present a range that could be achieved for each project type; however, in most cases there is a significant difference between the low project cost and median-cost and therefore the low project cost is not likely to be representative of general cost-effectiveness.

3. Summary Findings

Figure 1 shows the medium cost-effectiveness for the project types categorized based on dollars per ton of pollutant reduced from highest cost-effectiveness (lowest cost) to lowest cost-effectiveness (highest cost).

³ The Study – Page 15

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**Figure 1: Medium Cost-Effectiveness Estimates
(Dollars per Ton of Pollutant Reduced)**

For purposes of looking at the project types from a level of magnitude with respect to cost-effectiveness across all pollutants, the project types can be grouped within ranges of high, medium and low as follows:

High Cost-Effectiveness Project Types

- Dust Mitigation
- Diesel Retrofits
- Idle Reduction Strategies
- Heavy Vehicle Engine Replacement (Diesel)
- Park and Ride
- Incident Management
- Transit Service Expansion

Medium Cost-Effectiveness Project Types

- Extreme Temperature Cold Start Technologies
- Bicycle Pedestrian
- Transit Amenity Improvements
- Employee Transit Benefits
- Carsharing
- Intermodal Freight

Low Cost-Effectiveness Project Types

- Intersection Improvements
- Natural Gas Fueling Infrastructure
- Ridesharing

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Roundabouts
Bikesharing
Subsidized Transit Fares
Electric Charging Stations

4. Comparison of the Study Methodology and Data Parameters with DRCOG CMAQ Prototype Projects Methodology and Data Parameters

The traditional DRCOG CMAQ Prototype Projects basically can be grouped into two project types in the Study as follows:

Intelligent Transportation Systems/Intersection Improvements

- Travel Time Monitoring System
- Bicycle Detection
- Flashing Yellow Arrow Implementation

Incident Management

- Incident Management Systems Training Modules

The three remaining DRCOG CMAQ Prototype Projects; Data Warehouse and Cognos Licensing, C2C Feasibility Study and Fiber Interconnect, which were classified as “Soft Projects”, do not fit directly into any of the Study project types. However, based on the overall purpose of these Soft Projects, which is to improve traffic and travel conditions, it seems reasonable that these projects are analogous with and most suitably fit in this project type.

Regarding Intelligent Transportation System/Intersection Improvements, the Study used the same data parameters as were used for the DRCOG CMAQ Prototype Projects such as; annual vehicle miles traveled, travel speed, projected increase in travel speed, pollutant rates and project cost. One minor difference was that the project lifetime period, which was identified as 20 years for this project type, was used to calculate cost-effectiveness over the project’s lifetime. Other than this, the methodology and data parameters were the same as was the projected increase in travel speed of 5 miles per hour (MPH) that was applied to the DRCOG CMAQ Prototype Projects, which was stated in the Study as follows:

“Distinct to other project types, each of the intersection improvement scenarios involved a specific improvement in travel speeds (or a reduction in delay, in the case of left-turn lanes), generally around five miles per hour (from bases ranging from 15 to 40 miles per hour). In all, 20 scenarios were included in the analysis.”⁴

As mentioned, the Study assessed five pollutants. DRCOG assesses four pollutants including CO and NO_x, which are in common with the Study, and Hydrocarbons (HC) and Carbon dioxide (CO₂) that is reported to respond to the DRCOG Board commitment to reducing greenhouse gases.

Figure 2 shows the Study medium cost-effectiveness per ton of pollutant reduced for CO and NO_x and the lowest project cost for the Intelligent Transportation Systems/Intersection Improvements project

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type and the cost-effectiveness per ton of pollutant reduced for the DRCOG CMAQ Prototype Projects for the project lifetime period of 20 years.

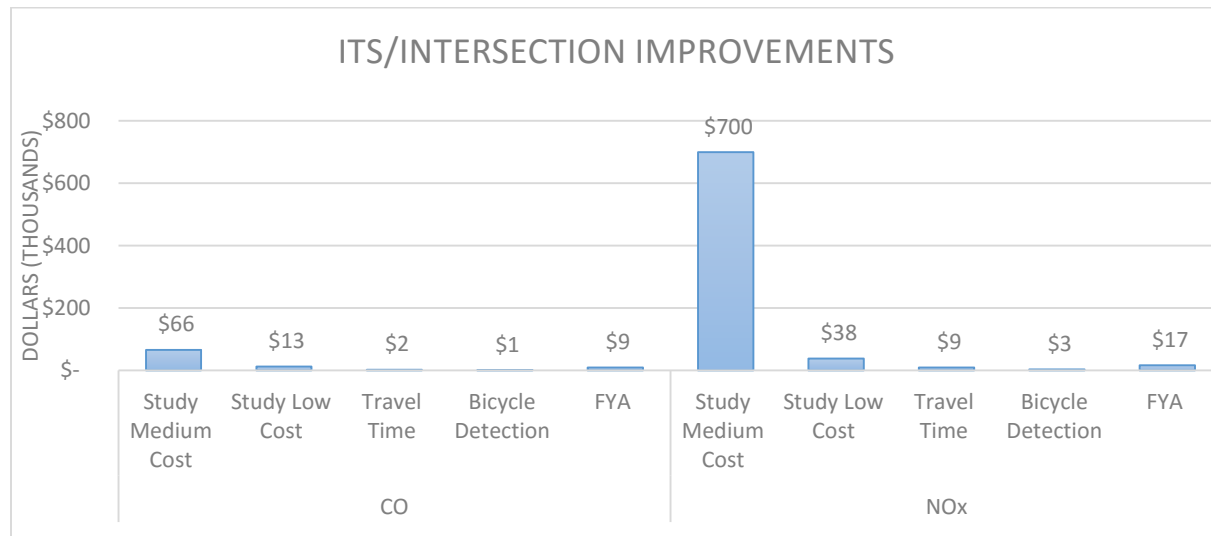


Figure 2: ITS/Intersection Improvements Cost-Effectiveness – Study and DRCOG CMAQ Projects (Dollars per Ton of Pollutant Reduced)

As can be seen, the DRCOG CMAQ Prototype Projects cost-effectiveness is greater than both the Study medium cost-effectiveness and the Study lowest project cost for CO and NOx.

Regarding Incident Management the Study approached this project type from the perspective of mitigating vehicle delay rather than increasing vehicle speed as was used in the DRCOG CMAQ Prototype Projects. The Study data parameters were the estimated number of annual incidents that would be mitigated by the project, average hours of vehicle delay per incident, pollutant rates at idle, project cost and the project lifetime period, which was identified as 10 years for this project type. The Study also stated that:

“These projects center on the provision of equipment or personnel to advise or re-route drivers during incidents of **non-recurring congestion** [bold added] (e.g., accidents, special events). Information on incident management projects was obtained from CMAQ assessment studies and supplementary project information on equipment used within incident project (chiefly, **variable message signs** [bold added]). In all, 18 incident management projects were included in the analysis.”⁵

Figure 3 shows the Study medium cost-effectiveness per ton of pollutant reduced for CO and NOx and the lowest project cost for the Incident Management Improvements project type and the cost-effectiveness per ton of pollutant reduced for the DRCOG CMAQ Prototype Project for the project lifetime period of 10 years.

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Figure 3: Incident Management Cost-Effectiveness – Study and DRCOG CMAQ Project (Dollars per Ton of Pollutant Reduced)

As can be seen, the DRCOG CMAQ Prototype Project cost-effectiveness is greater than both the Study medium cost-effectiveness for CO and NOx the same as the Study lowest project cost for CO, but is less than the Study lowest project cost for NOx.

5. Other Considerations

It is important to recognize other factors may need to be considered as part of the project prioritization process. For example, DRCOG Regional strategic goals and priorities with respect to coordinating and implementing projects to achieve the regional vision may need to be a factor regarding project prioritization, as well as minimum project thresholds to maximize project effectiveness. These are policy decisions that only DRCOG can address and determine how they best apply within the project prioritization process. Regarding this, the Study notes:

“It is important to acknowledge that cost-effectiveness with respect to reducing pollutant emissions and congestion is not necessarily the primary reason to implement a given project. Rather, there can be a wide range of benefits provided by projects (e.g., greenhouse gas mitigation, reductions in fuel consumption, safety improvements). In this analysis, we are focusing on the two central issues relevant to the CMAQ program air quality improvement and reductions in traffic congestion. While other benefits may be of critical importance to State and local organizations, benefits other than reductions in traffic congestion and pollutants associated with CMAQ Program objectives are outside the scope of this analysis.”⁶

6. Conclusion

Based on the comparison of the Study methodology and data parameters with the DRCOG CMAQ Prototype Projects methodology and data parameters, it appears that the DRCOG CMAQ Prototype Project methodology and data parameters is a sound process that provides reasonably quantifiable emissions/air quality benefits and project cost-effectiveness with respect to reducing subject pollutants. The DRCOG CMAQ Prototype Projects methodology and data parameters seem to be very consistent

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with the Study methodology and data parameters, which provides a creditable validation and a very high-level of confidence with the DRCOG CMAQ Prototype Projects methodology and data parameters and the process.

ATTACHMENT E

To: Chair and Members of the Transportation Advisory Committee
From: Douglas W. Rex, Director, Transportation Planning and Operations
303-480-6747 or drex@drcog.org

Meeting Date	Agenda Category	Agenda Item #
December 16, 2016	Action	7

SUBJECT

Updates to *Transportation Planning in the Denver Region*.

PROPOSED ACTION/RECOMMENDATIONS

Recommend approval of the revised document.

ACTION BY OTHERS

RTC discussion:

- [August 16, 2016](#)
- [May 19, 2015](#)
- [September 15, 2015](#)

SUMMARY

As discussed at the November TAC meeting, DRCOG staff have been working with RTD and CDOT to update the *Transportation Planning in the Denver Region* document to respond to the FAST Act and incorporate other updates since RTC last approved it in 2011. DRCOG staff has revised the draft document based on feedback received during the November TAC meeting. These revisions are highlighted in yellow in the linked track-changes version of the document (Attachment 1). The revised clean version is Attachment 2.

Staff will provide an overview of the additional changes at the December TAC meeting. RTC is anticipated to take action on the updated *Transportation Planning in the Denver Region* document in January 2017.

PREVIOUS DISCUSSIONS/ACTIONS

N/A

PROPOSED MOTION

Recommend to the Regional Transportation Committee updates to the *Transportation Planning in the Denver Region*.

ATTACHMENTS

Links – Draft *Transportation Planning in the Denver Region* document:

1. [Track changes version](#)
2. [Final draft version](#)

ADDITIONAL INFORMATION

If you need additional information, please contact Douglas W. Rex, Director, Transportation Planning and Operations, at 303-480-6747 or drex@drcog.org.

The Prospectus

Transportation Planning in the Denver Region

Draft Version – August December 2016

Approved December 2004
Revised November 2006
Revised August 2007
Revised March 2009
Revised September 2011
Revised ____ 2016



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Transportation Planning in the Denver Region

Preparation of this report has been financed in part through grants from the
U.S. Department of Transportation, Federal Transit Administration
and Federal Highway Administration

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Executive Highlights

Common Acronyms

CDOT	Colorado Department of Transportation
DRCOG	Denver Regional Council of Governments
FASTER	Funding Advancement for Surface Transportation and Economic Recovery
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
MOA	Memorandum of Agreement
<u>MPA</u>	<u>Metropolitan Planning Agreement</u>
MPO	Metropolitan Planning Organization
RTD	Regional Transportation District
RTP	Regional Transportation Plan
STIP	State Transportation Improvement Program
TIP	Transportation Improvement Program

Chapter 1—Introduction

- Transportation planning for the Denver region is a continuing, cooperative and comprehensive process.
- The Denver Regional Council of Governments (DRCOG), Regional Transportation District (RTD), and Colorado Department of Transportation (CDOT) are the primary partners in this process.
- A ~~Memorandum of Agreement (MOA)~~ Metropolitan Planning Agreement (MPA) forms and directs this partnership.
- *Transportation Planning in the Denver Region* provides details on how the process currently works. The document will be reviewed and revised as necessary.
- ~~It will be reviewed every two years and revised as necessary.~~
- DRCOG is the metropolitan planning organization (MPO) for the transportation management area and the regional planning commission for the nine plus-county transportation planning region.

Chapter 2—Policy Direction

- Regional transportation planning processes are guided by federal and state laws, regulations/rules, and policies.
- Federal law requires that MPOs take the lead in regional transportation planning in urbanized areas.
- Transportation planning within the transportation management area is guided by the federal metropolitan planning ~~Rules~~ regulations.
- Statewide transportation planning is guided by state statutes and federal statewide planning ~~Rules~~ regulations. In carrying out its responsibilities in the portions of the DRCOG transportation planning region outside the transportation management area, CDOT consults with DRCOG.

- Metro Vision is the region’s vision ~~of~~ for its desired future; implementing the strategic initiatives of ~~the~~ Metro Vision Plan is a primary objective of the DRCOG regional transportation planning process.
- The ~~MOA-MPA~~ specifies principles and objectives for carrying out the regional transportation planning process.

Chapter 3—Participants

- The DRCOG Board is the policy body for the MPO.
- The ~~MOA-MPA~~ organizes the transportation planning process through the establishment of the Regional Transportation Committee and the Transportation Advisory Committee.
- Both the Regional Transportation Committee and DRCOG Board must take favorable action before regional transportation planning policies and products are considered adopted.
- At the staff level, the Agency Coordination Team (ACT) and Interagency Consultation Group (ICG) promotes interagency coordination, cooperation, and communication.
- Constructive public involvement is essential; decisions are made only after the public is made aware of proposed actions and has the opportunity to comment.

Chapter 4—Planning Process Products

Unified Planning Work Program

- The Unified Planning Work Program (UPWP) describes all metropolitan transportation planning activities for the coming two years in the region.
- ~~The~~ UPWP provides the basis for the “scope of work” for the federal planning funds that DRCOG receives.
- Federal agencies review and approve the ~~Unified Planning Work Program~~ UPWP to ensure that the proposed work activities are consistent with federal requirements and eligible for federal funds.

Long-Range Transportation Plan

- The Metro Vision Regional Transportation Plan (RTP) is the Denver region’s long-range transportation plan.
- The Metro Vision RTP is part of ~~the~~ Metro Vision Plan.
- One component of the Metro Vision RTP is the Metro Vision transportation system (referred to in state rules as the “vision plan”).
- The other component is the air quality conforming fiscally constrained RTP, which is the subset of the Metro Vision transportation system that can be achieved with reasonably available financial resources.
- In the transportation management area, the fiscally constrained RTP conforms with the requirements of the Clean Air Act.
- Development of the Metro Vision RTP is a lengthy process entailing substantial cooperative effort by the partner agencies.

Transportation Improvement Program (TIP)

- DRCOG’s TIP identifies the federally-funded transportation projects to be implemented in the transportation management area during ~~at the next~~ six years period.
- It is updated at least every four years.
- The TIP implements the air quality conforming fiscally constrained RTP.

- No project using federal surface transportation funds can move forward unless it is included in the TIP.
- For each TIP, the preparation process is defined by a policy document adopted through the regional transportation planning process.
- DRCOG, CDOT and RTD currently have separate processes to select projects for funding. The selected projects are incorporated in the TIP.
- [The TIP is incorporated without modification into the State Transportation Improvement Program](#)
- ~~The MOA partners are continuing to work to better integrate TIP project selection.~~
- The TIP is fiscally constrained and conforms with the requirements of the Clean Air Act.

Congestion Management Process

- A congestion management process provides for effective management of [the performance of](#) transportation facilities ~~through the use of travel demand reduction and operational management strategies.~~
- In the transportation management area, federal funds cannot be programmed for any highway project that would significantly increase capacity for single occupant vehicles unless the project is based on a congestion management process.
- DRCOG identifies and evaluates congestion management strategies at the regional level as part of the overall regional transportation planning process.
- At the project level, the sponsor conducts the needed congestion management examinations.

Planning Process Certification

- DRCOG and CDOT must certify to the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) that the transportation planning process is conducted in accordance with all applicable federal regulations.
- Certification holds an MPO and all planning partners accountable for the function and quality of the planning process in its region.
- The joint self-certification process is conducted when a new TIP is prepared.
- Also, every four years, FHWA and FTA jointly conduct a planning certification review.

Chapter 5—Coordination with Other Transportation Process

CDOT's Interchange Approval Process (1601)

- 1601 defines the policy and procedures by which CDOT will consider applications for new or modified interchanges on state highways.
- Analytic requirements and approval responsibility vary depending on the category type CDOT assigns to the application.
- For certain types of improvements, the applicant must prepare a system-level study.
- CDOT must approve the system-level study before the improvement is included in the [air quality conforming](#) fiscally constrained RTP.

CDOT's Corridor Optimization Process

- ~~Corridor optimization is a CDOT process to evaluate how future travel demands in corridors should be met.~~
- ~~The corridor optimization process develops CDOT's preferred corridor strategy.~~
- ~~Transportation Commission approval of a corridor optimization report does not constitute a funding commitment.~~

~~An approved corridor optimization plan is CDOT's input to the regional process in development of the Metro Vision R~~

Revision to State Highway Access Categories

- The *State Highway Access Code* specifies a classification system for access management purposes.
- Every state highway is assigned an access category and the Code establishes the process and procedures for making changes to the assigned category.
- DRCOG is afforded the opportunity to review changes to the assigned access category requested within the transportation planning region.

Major Environmental Processes

- The National Environmental Policy Act (NEPA) requires the environmental impact of projects that receive federal funding to be assessed.
- The relationships between major NEPA environmental studies and the regional transportation planning process include listing environmental studies in TIPs and Unified Planning Work Programs, and interagency review of environmental study work scopes; ~~DRCOG committee consideration of purpose and need statements, and environmental study evaluation of alternatives' consistency with the Metro Vision Plan.~~
- The description and cost of the project to be cleared in an environmental decision document must be consistent with that in the adopted air quality conforming fiscally constrained RTP. To do so sometimes requires an amendment to the fiscally constrained RTP.
- Planning and Environmental Linkage (PEL) studies may be conducted prior to NEPA level evaluations.

DRCOG Fixed Guideway Transit Review

- State statute (per Senate Bill 90-208) requires that the MPO review and approve any fixed guideway mass transit system element proposed by RTD before it can be constructed.
- Criteria for review of proposed projects are adopted by the DRCOG Board through the transportation committees process.
- The Senate Bill 90-208 assessment explicitly confirms or rejects the technical and financial feasibility of the proposal.

FasTracks ~~Annual Review~~s

- RTD's FasTracks Plan is a broad long-term program requiring numerous assumptions about technology and financing, which may change over the course of implementing the pPlan.
- DRCOG established procedures for the evaluation of FasTracks Change Reports submitted by RTD. ~~'s Senate Bill 90-208 initial approval of FasTracks required that RTD prepare an annual report for consideration by the regional transportation planning process identifying significant changes in the FasTracks Plan as they develop.~~
- The DRCOG Board through the transportation committees process determines if the changes identified require further Senate Bill 90-208 action.

CDOT and RTD Master Intergovernmental Agreement

- CDOT and RTD executed a Master Intergovernmental Agreement for continued coordination and planning for highway and transit development.
- The Master Agreement establishes a framework to assure-ensure that all proposed projects, programs, and facilities are accommodated to the maximum extent practicable.
- ~~It~~ The agreement establishes a context for corridor-specific agreements.

Planning and Development Process for FTA Capital Investment Program (New Starts Projects, Small Starts and Core Capacity)

- FTA has a defined process that applicants must follow for capital investment grants for new fixed guideway systems or extensions to existing ones ~~(called New Starts)~~.
- ~~The three key development phases in this process are alternatives analysis, preliminary engineering, and final design.~~ project type and overall cost determine the category of the project: New Starts, Small Starts, or Core Capacity.
- For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – project development and engineering. For Small Starts projects, there is one phase in advance of receipt of a construction grant agreement: project development.
- FTA evaluates each proposed ~~New Starts~~ capital investment project nationwide according to a defined set of criteria.
- RTD-Project sponsors provides FTA with relevant information each time ~~RTD~~ they advances a corridor into ~~preliminary engineering or final design, each time it applies~~ applies new phase, for a full funding grant agreement, and annually to support FTA's ~~New Starts~~ report to Congress.

State Implementation Plans for Air Quality

- The federal Clean Air Act requires that states prepare state implementation plans to show how a nonattainment area will attain national air quality standards and how attainment will be maintained.
- State implementation plans establish emissions budgets and specify control measures.
- In air quality nonattainment-maintenance areas, fiscally constrained RTPs and TIPs must conform to the appropriate state implementation plans; i.e., the region meets emissions budgets and required transportation control measures are being implemented.
- The Denver region currently meets national air quality standards for CO and PM-10 and has approved state implementation plans (maintenance plans) ~~for three relevant pollutants~~. The region is considered by the Environmental Protection Agency to be attainment-maintenance for those pollutants.
- In 2012 ~~2007~~, an area that includes much of the Denver region was designated as ~~marginal~~ moderate nonattainment for ozone based on a 2008 75 ppb new 8 ~~eight~~-hour standard.
- In 2015, the EPA set a new eight ~~8~~-hour ozone standard of 70 ppb for which ~~that the region is now planning for~~.

CDOT Program Distribution ~~Resource Allocation~~

- Program Distribution ~~Resource allocation~~ is the process the Transportation Commission uses to forecast revenues, identify needs ~~on for~~ the state highway system, and define how resources will be allocated to address those needs.
- Federal law requires the state and MPO to cooperatively develop estimates of funds available for implementation of air quality conforming fiscally constrained long-range transportation plans and TIPs.
- ~~To this end, CDOT and DRCOG executed a Memorandum of Understanding in November 2004 that acknowledged a funding baseline and established allocation methodologies for unanticipated incremental and new revenues above the baseline and for unallocated funds for strategic projects.~~

CDOT TIP Project Selection Processes for Projects in the DRCOG TIP

- Federal law requires collaboration and consultation in project selection and prioritization. CDOT identifies projects for funding in the TIP within the transportation management area and in the STIP in the Mountains and Plains area.

- CDOT's project selection processes serve as the basis for projects CDOT identifies and submits to DRCOG for inclusion in the TIP in the transportation management area. Projects are identified for potential inclusion in the TIP through processes which include asset management systems, safety processes, competitive evaluation, and consultation with planning partners.
- CDOT reviews proposed projects and solicits input from planning partners and the public through the Project Priority Programming Process (4P).
- DRCOG and RTD participate in the countywide meetings of CDOT's 4P process to promote interagency coordination.

- ~~CDOT uses the project priority programming process to obtain local agency input on which state highway projects it should fund in the TIP and state transportation improvement program (STIP).~~
- ~~CDOT uses management systems to identify the optimal use of resources in several funding programs, such as surface treatment and bridge.~~
- ~~The current strategic projects program consists of 28 high priority transportation projects throughout the state.~~
- ~~Regional priorities program funds may be used to address needs in any of the CDOT investment categories.~~
- ~~Congestion relief funds must be applied to projects that improve congestion on congested segments of the state highway system.~~
- ~~Senate Bill 09-108 established three new funding categories: FASTER Safety, FASTER Bridge, and FASTER Transit.~~
- ~~CDOT inspects all public highway bridges in the state and assigns a sufficiency rating. Bridges that are eligible for federal bridge funds, are structurally deficient or functionally obsolete, and have a sufficiency rating of 80 or less are identified on the Select List.~~
- ~~From the Select List, CDOT identifies those to be replaced or rehabilitated using available federal and state funds.~~
- ~~A portion of federal funds is set aside to achieve reductions in the number and severity of crashes through elimination of roadway hazards. CDOT conducts a process to select projects to receive this funding.~~
- ~~FTA provides funding to CDOT for specific public transportation programs. CDOT conducts a process to select projects to receive this funding.~~
- ~~CDOT conducts a process to select projects for Safe Routes to School (FHWA) funds.~~

RTD Strategic ~~Budget~~**Business Plan**

- The strategic ~~business~~budget plan is RTD's six-year fiscally constrained operating and capital improvement plan; it is revised annually.
- ~~Local governments, transportation management organizations, and the public provide input to RTD.~~
- RTD uses the strategic ~~business~~budget plan to identify its federally-funded projects for inclusion in the TIP.

DRCOG Toll Facilities Review

- State statute (per Senate Bill 09-108) requires that the MPO review and approve any toll highway plan proposed in the DRCOG area by the High Performance Transportation Enterprise. Additionally, the FAST Act requires HPTE (or other public tolling authorities) to consult with DRCOG concerning the placement and amount of tolls on a facility.
- Criteria for review of proposed projects are adopted by the DRCOG Board through the transportation ~~committees~~committees' process.

Transportation Planning in the Denver Region

- Assessment findings for the toll highway/system proposal consider the operation, technology, feasibility, and financing.

1. Introduction

Transportation planning for the Denver region is a continuing, cooperative, and comprehensive process. Three agencies—the Denver Regional Council of Governments (DRCOG), the Regional Transportation District (RTD), and the Colorado Department of Transportation (CDOT) are the primary partners in this effort. A [Metropolitan Planning Agreement \(MPA\) to be signed in 2017 \(formally Memorandum of Agreement \(MOA\) signed in 2001 and modified in 2008\)](#) forms and directs this partnership.

DRCOG, CDOT and RTD are the ~~MOA~~ [Metropolitan Planning Agreement \(MPA\)](#) partners.

1A. Purpose of this Document

Transportation Planning in the Denver Region augments the ~~MOA~~ [MPA](#) by providing the details of how this transportation planning process works. It has been approved by the Regional Transportation Committee (see Section 3.A1), which has Board and executive management membership from all three ~~MOA~~ [MPA](#) partners. It:

- describes the policies and procedures of the process, in the context of federal, state and regional requirements (Chapter 2)
- details how the three partners cooperate in carrying out the process (Chapter 3)
- identifies the five key regional transportation planning products required by federal law and explains how the participants work together to produce those products (Chapter 4); and
- shows how the regional process dovetails with individual processes of the three partners, and interacts with local governments, air quality planning agencies, and other participants to accomplish transportation planning in the Denver region (Chapter 5).

This document presents **current** details and understandings. However, process details change continually in response to new federal and state laws and regulations, regional issues and initiatives, and the evolving focus of ~~the individual each~~ [MOA](#) [MPA](#) partner agencies. ~~To keep this document current, every two years t~~[The Regional Transportation Committee will periodically review this document to ensure it is an accurate reflection of the regional planning process. considers whether it is necessary to update the document.](#) If revisions are deemed necessary, the Regional Transportation Committee identifies which revisions can be accepted simply by committee action, and which must be referred to the ~~b~~[Boards](#) of all three ~~MOA~~ [MPA](#) partner agencies for endorsement. ~~The biennial consideration takes place before mid-year. Revisions, if needed, are generally completed by year's end.~~

2B. Planning Geography

For transportation planning purposes, the Denver region consists of two geographic areas.

- **The Transportation Management Area.** Federal law requires that each urbanized area in the nation (as defined by the U.S. [Census Bureau of Census](#)) with a population ~~over~~ [greater than](#) 200,000 be designated as a transportation management area. That transportation management area must cover the entire urbanized area(s) and the contiguous geographic area(s) likely to become urbanized within, at a minimum, a 20-year period. Federal law further requires that regional

Transportation Planning in the Denver Region

transportation planning in a metropolitan area be conducted by a **Metropolitan Planning Organization (MPO)** and encourages designation of a *single* MPO to serve multiple urbanized areas that are adjacent to each other. The FHWA/FTA-designated transportation management area depicted in Exhibit 1, for which DRCOG is the MPO, includes four urbanized areas, encompasses slightly more than 3,600 square miles, and consists of the portions of Adams and Arapahoe counties west of Kiowa Creek; all of Broomfield, Denver, Douglas, and Jefferson counties; all of Boulder County except Rocky Mountain National Park; and a portion of southwest Weld County. The transportation management area designation defines the entire metropolitan planning area.

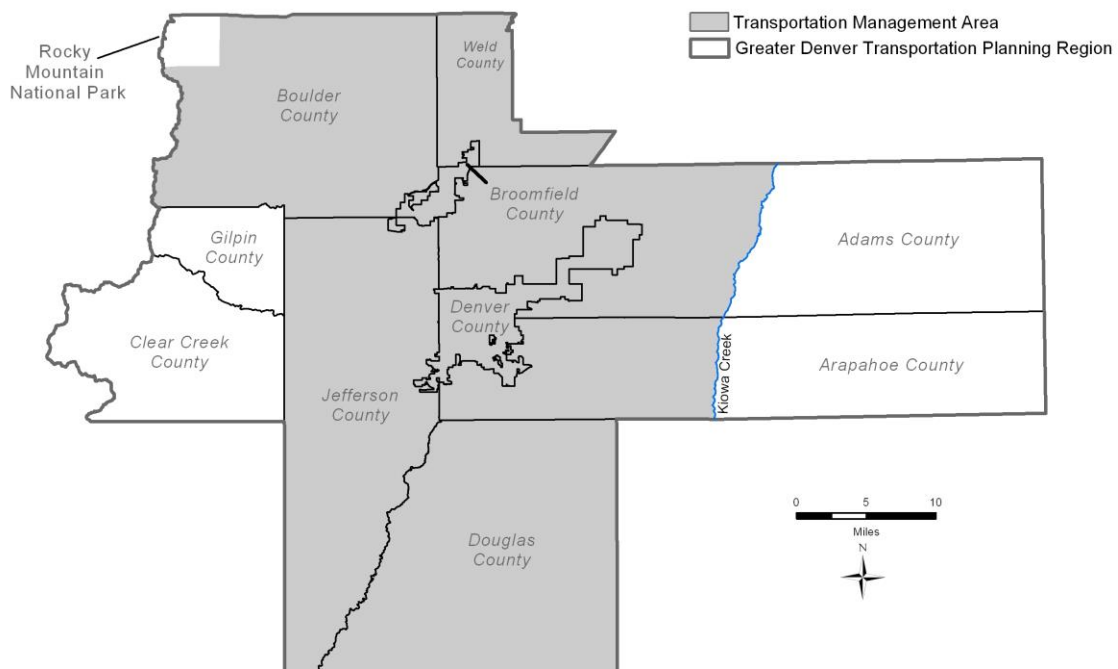
- **The Transportation Planning Region.**

State statute requires the state transportation planning process be conducted in cooperation with “regional planning commissions.” For this purpose, Colorado has been subdivided into 15 transportation planning regions formed around regional planning commissions. DRCOG is the **Regional Planning Commission** for the counties of Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Gilpin, Jefferson and southwest Weld County. The entire 5,288-square-mile nine-plus-county area is called the **Greater Denver Transportation Planning Region**. Gilpin and Clear Creek counties and the eastern portions of Adams and Arapahoe counties, which are all outside the transportation management area, are often referred to as the **Mountains and Plains** area of the Denver region.

The transportation management area and transportation planning region boundaries change over time. For example, the boundaries were revised in 2008 to include the contiguous portion of southwest Weld County anticipated to be urbanized within the next 20 years.

Prior to 2007, the transportation management area included all of the region’s air quality nonattainment or maintenance areas. But, in 2007, the Environmental Protection Agency declared an area that includes the DRCOG transportation management area plus the remaining portions of Adams, Arapahoe, and Boulder counties, plus portions of Larimer and Weld counties as nonattainment for ozone under the **eight**-hour standard. A memorandum of agreement noted in Section 4.**B2** governs the transportation conformity evaluations conducted for this nonattainment area.

Exhibit 1 DRCOG Transportation Management Area and Transportation Planning Region



2. Policy Direction

Regional transportation planning processes are guided by laws, [regulations](#)/rules, and policies set by the federal and state governments. In the DRCOG region, Metro Vision and the transportation planning ~~Memorandum of Agreement~~[Metropolitan Planning Agreement](#) provide further direction.

4A. Federal Policy Requirements

The requirements and responsibilities for transportation planning are contained in federal law and in federal regulations that implement the law. Appendix A lists relevant federal legislative and regulatory references.

Federal Law

About every five or six years, Congress enacts a law to “authorize” funds for surface transportation programs. Congress typically uses these reauthorization acts to review, revise and refine all aspects of federal surface transportation policy, including transportation planning. Since 1973, federal transportation law has placed the responsibility for carrying out the regional transportation planning process in urbanized areas on MPOs.

The most recently enacted reauthorization ~~act~~ is the [Fixing America’s Surface Transportation \(FAST\) Act signed on December 4, 2015](#). ~~The FAST Act builds on its predecessor~~ [the incorporates many of the aspects of, and builds on its predecessor, the 2012 Moving Ahead for Progress in the 21st Century Act, commonly called MAP-21 which builds from its predecessor, 2005the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, commonly called SAFETEA-LU, which builds from its predecessor, the Transportation Equity Act for the 21st Century \(TEA-21\)](#). Key transportation planning products adopted after July 1, 2007, must comply with ~~MAP-21 SAFETEA-LU~~. ~~MAP-21SAFETEA-LU expired on September 30, 201409 and a series of continuing resolutions have ensured the flow of federal transportation dollars. The Denver region will continue to follow the tenets and rules associated with MAP-21 as they are finalized ore SAFETEA-LU until such time as new authorization legislation has been enacted.~~

~~SAFETEA-LU identified the following national policy: “It is in the national interest to encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and between States and urbanized areas, while minimizing transportation-related fuel consumption and air pollution.”~~

Federal law requires that a **metropolitan planning organization (MPO)** take the lead in regional transportation planning in urbanized areas.
DRCOG is the MPO for the Denver region.

As has been the case with reauthorization acts for the past several decades, ~~the MAP-21SAFETEA-LU~~[FAST Act](#) tasks MPOs with developing plans and programs to accomplish the act’s objectives ~~within~~ [within](#) metropolitan areas, using a continuing, cooperative, comprehensive process. ~~MAP-21~~[The FAST Act re—emphasizes](#)[reinforces](#) [MAP-21’s emphasis on](#)

[performance-based planning that considers measures and targets](#). ~~Reauthorization acts also typically~~ identify planning factors that the metropolitan transportation planning process must address (see Exhibit -2), requires that the process be certified as compliant with federal law, and designates the major products of the process.

Chapter 4 provides descriptions of the required planning products and activities.

Federal Transportation Planning Rules Regulations

Federal regulations are typically issued to implement the federal law. Usually, a year or two after each reauthorization act, the U.S. Department of Transportation revises portions of the code of federal regulations to reflect not only changes explicitly stated in the act, but also changes in philosophy that were part of the discussion and debate leading to adoption of the act. The portions of the federal regulations pertaining to transportation planning are commonly referred to as “the Planning Rules.”

The ~~federal~~ Planning Rules for metropolitan transportation planning provide more specifics about ~~the~~ major products and certification. Beyond that, they state the requirements for other process elements including:

- agreements that define transportation planning partnerships between the state, public transportation providers, and the MPO
- agreements between MPOs and air quality planning agencies regarding air quality-related transportation planning
- defining and adjusting planning area boundaries and MPO policy body membership
- inclusion of other transportation-related agencies and groups; and
- public involvement.

Transportation planning within the transportation management area is guided by federal metropolitan planning rules.

Exhibit 2 Planning Factors in ~~MAP-21~~ [the FAST Act](#) ~~the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users~~

~~MAP-21~~ [The FAST Act](#) ~~The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users~~ states that the metropolitan transportation planning process must provide for consideration of projects ~~and~~ strategies, [and services](#) that will:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and nonmotorized users;
- Increase the security of the transportation system for motorized and nonmotorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve [the](#) quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- [Emphasize the preservation of the existing transportation system;](#)
- [Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of the transportation systems;](#)
- [and](#)
- [Enhance travel and tourism.](#)

*These are called the **eight factors**.*

Other Federal Laws and Regulations

While federal reauthorization acts and ensuing federal regulations govern the metropolitan transportation planning process, the process must also respond to numerous other federal actions, including (but not limited to) [Title VI of the Civil Rights Act of 1964](#), the National Environmental Policy Act, the Clean Air Act, the Clean Water Act, the Civil Rights Act, [Section 504 of the Rehabilitation Act of 1973](#), ~~and~~ the Americans with Disabilities Act ([ADA](#)), and executive orders.

[2. As an example, DRCOG addresses ADA requirements directly and, in collaboration with its planning partners and member governments, works to address ADA requirements in several of its planning products and documents and overall planning process:](#)

- [Appendix A of DRCOG's *Public Involvement in Regional Transportation Planning \(2010\)* addresses applicable ADA regulations. For example, representatives from the disabled community are listed as examples of interested parties that participate in the transportation planning process, and the document addresses how to accommodate them. DRCOG periodically measures and reviews the public participation process using factors that address attendance at speaking engagements with the public and elected representatives from groups representing populations such as individuals with disabilities, older adults and other constituencies.](#)
- [All DRCOG-hosted public hearings are wheelchair accessible. DRCOG will accommodate and provide services for individuals with other disabilities when provided notice before the hearing. Hearings are held at DRCOG's office, which is centrally located and accessible by transit service.](#)
- [DRCOG is an Equal Employment Opportunity\(EEO\) employer and does not discriminate against any status protected by applicable law including disability. The DRCOG EEO statement is available on the DRCOG website.](#)
- [ADA, among other civil rights statutes, is addressed in the *DRCOG Civil Rights- Title VI Policy Statement*. Along with the statement, the complaint procedure and contact information for the DRCOG Discrimination Complaint Coordinator are also included on DRCOG's website as well as other documents including DRCOG's *Limited English Proficiency Plan*. Also included in *DRCOG's Title VI Implementation Plan* are copies of DRCOG's nondiscrimination contract provisions which include provisions for ADA. DRCOG certifies compliance with multiple civil rights laws including ADA in the Title VI Local Agency Assurance also included in ~~this document~~\[DRCOG's Title VI Implementation Plan\]\(#\).](#)
- [DRCOG also self certifies that the transportation planning process is being carried out in accordance with all applicable requirements including ADA every time new TIP is adopted.](#)
- [The purpose of DRCOG's Coordinated Transit Plan is to improve mobility for older adults, individuals with disabilities, low-income individuals and others with mobility challenges. As the federally-required Coordinated Public Transit Human Services Transportation Plan \(CPHSTP\), the Coordinated Transit Plan also addresses many FTA requirements including:](#)

An assessment of transportation needs for individuals with disabilities and older adults. (This assessment can be based on the experiences and perceptions of the planning partners, and/or on more sophisticated data collection efforts, and gaps in service).

- DRCOG is a founding member of the Denver Regional Mobility and Access Council (DRMAC). This includes having an appointed representative of DRCOG on DRMAC's Board of Directors. DRMAC was established in 2005 to address the specialized transportation needs for citizens of the greater Denver metro area. Its mission is to ensure people with mobility challenges have access to the community by increasing, enhancing, sharing and coordinating regional transportation services and resources.
- Among the strategic initiatives included in DRCOG's *Metro Vision* is to ensure ADA standards are met or exceeded in constructing or retrofitting facilities such as curb cuts and ramps.

DRCOG addresses ADA at the regional level, not at the project level. For example, DRCOG is not required to have an ADA Transition Plan as are many local government recipients of federal funds. Local government sponsors of projects selected for TIP funding are required to adhere to all federal requirements including ADA. It is the responsibility of CDOT, FTA and FHWA to enforce federal regulations and requirements, including ADA, in their role as administrators of federally funded projects. DRCOG provides an information, education, communication and assistance role.

2B. State Policy Requirements

Federal Relationship

The ~~FAST Act Moving Ahead for Progress in the 21st Century Act Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users~~ requires state departments of transportation to conduct statewide transportation planning and programming, and federal Planning Rules for statewide transportation planning provide regulatory details. ~~While~~ Although the requirements in federal laws and regulations for statewide planning are generally similar to those for metropolitan planning, the specific federal requirements for transportation planning in metropolitan areas are defined in the appropriate metropolitan elements of federal law and regulations, rather than by the statewide elements. Federal law does not require statewide long-range transportation plans to be fiscally constrained.

~~Federal~~ However, federal law does require the statewide process to interact with the metropolitan process in areas where the metropolitan process is required. This interaction is described in various federal laws and regulations as **cooperation** or **coordination**. Each has a slightly different definition, but both imply that the involved parties work together to make sure products are seamless and schedules are consistent. The cooperation and coordination all help to achieve consistent goals and objectives.

Outside ~~the~~ of metropolitan areas, federal law requires states to conduct their transportation planning process in ~~consultation~~ cooperation with ~~the~~ local officials responsible for transportation.

State Statute

Colorado statute ~~clarifies~~ specifies that statewide transportation planning and programming is to be done in cooperation with regional planning commissions. The Greater Denver Transportation Planning Region is one of ~~the~~ 15 transportation planning regions established for this purpose. DRCOG, as the Regional Planning Commission for that transportation planning region, has metropolitan transportation planning responsibilities within the transportation management area and a consultation role outside of it (in the Mountains and Plains area). State statute also requires that:

- a 20-year regional transportation plan be developed for each transportation planning region that includes a metropolitan area
- a regional transportation plan shows s what can be reasonably expected to be implemented with the revenues that are likely to be available (in other words, fiscally constrained).
- CDOT integrate and consolidate the regional transportation plans into a comprehensive statewide transportation plan
- a Statewide Transportation Advisory Committee (~~STAG~~) review and comment on all regional transportation plans submitted and provide advice to CDOT (a representative from each of the 15 transportation planning regions in the state ~~has one representative serves~~ on this committee); and
- the ~~general assembly~~ Colorado General Assembly recognizes s that regional planning commissions and transportation planning regions are the proper forum for transportation planning and that the county hearing process is the proper forum for local government input into the five-year program of projects

FASTER Legislation

In 2009 the Colorado Legislature passed Senate Bill 09-108, Funding Advancement for Surface Transportation and Economic Recovery (FASTER). FASTER created new state transportation enterprises, funding sources, and programs. ~~It~~ also identified the following additional factors that should be addressed by the statewide plan, and by ~~reference~~ inference, the MPO transportation plans as well:

- ~~1.~~ t Targeting of infrastructure investments, including preservation of the existing transportation system
- ~~2.~~ s Safety enhancement
- ~~3.~~ s Strategic mobility and multimodal choice
- ~~4.~~ s Support of urban or rural mass transit
- ~~5.~~ e Environmental stewardship
- ~~6.~~ e Effective, efficient, and safe freight transport
- ~~7.~~ r Reduction of greenhouse gas emissions

~~Previous~~ Ongoing state planning factors include:

- ~~8.~~ a an emphasis on multimodal transportation considerations, including the connectivity between modes of transportation
- ~~9.~~ a an emphasis on coordination with county and municipal land use planning, including examination of the impact of land use decisions on transportation needs and the exploration of opportunities for preservation of transportation corridors
- ~~10.~~ a the development of areawide multimodal management plans in coordination with the process of developing the elements of the state plan

Transportation Commission Rules and Regulations

As required by state statute, the Transportation Commission has adopted rules and regulations for the statewide transportation planning process. As with federal regulations, these rules augment statutory language. Included in the ~~c~~Commission's rules are requirements for:

- public participation
- transportation planning region boundary revisions
- elements to be included in regional transportation plans
- review of regional plans by the Statewide Transportation Advisory Committee
- development and approval of the statewide transportation plan; and
- updates and amendments of regional and statewide plans.

~~CDOT issued a *Regional Transportation Planning Guidebook* in 2006, designed to assist regional planning commissions in developing regional transportation plans consistent with federal and state requirements. The guidebook will be updated prior to the development of the next long range (e.g., 2040) statewide and regional transportation plans. Also, t~~The Transportation Commission routinely adopts ~~procedural~~ **policy** directives or rules for other transportation planning-related processes. Those most relevant to the DRCOG regional process are discussed in Chapter 5.

Relevant state statutes are listed in Appendix A.

3C. Metro Vision Guidance

As the regional planning commission for the Denver region, DRCOG prepares the plan for the physical development of the region. For nearly two decades this plan has been known as Metro Vision. Metro Vision remains advisory for a local jurisdiction unless its planning commission chooses to adopt it as its official advisory plan.

Metro Vision does not replace the vision of any individual community; rather, it is a tool to promote regional cooperation on issues that extend beyond jurisdictional boundaries. The plan anticipates that individual communities will contribute to Metro Vision outcomes and objectives through different pathways and at different speeds for collective effect. Six core principles have shaped the role of Metro Vision since the plan's earliest conceptions and remain valid today.

- Metro Vision protects and enhances the region's quality of life.
- Metro Vision is aspirational, long-range and regional in focus.
- Metro Vision offers ideas for local implementation.
- Metro Vision respects local plans.
- Metro Vision encourages communities to work together.
- Metro Vision is dynamic and flexible.

Metro Vision guides DRCOG's work and establishes shared expectations with the region's many and various planning partners. The degree to which the outcomes, objectives and initiatives identified in Metro Vision apply in individual communities will vary. The region's local governments will determine how and when to apply the tenets of Metro Vision based on local conditions and aspirations.

~~As a regional planning commission, DRCOG adopts and maintains a regional plan. Metro Vision is the long-range plan to manage growth within the Denver area. The Metro Vision Plan addresses development, transportation needs, and environmental quality. It serves as a~~

~~comprehensive foundation for regional planning efforts and provides a regional context for local decision-making on growth and development issues. It recognizes the impact growth will have on the provision of infrastructure, water quality, clean air, and the environment and calls for an efficient development pattern that supports transit, protects valuable recreation and open space, and provides for diversity in community structure and housing choices.~~

~~The Metro Vision 2035 Plan establishes the vision for the Denver region in 2035. How the region can achieve the vision is presented in three topical areas:~~

- ~~• growth and development~~
- ~~• transportation~~
- ~~• environment~~

~~Components include extent of urban development, urban centers, community design, and parks and open space, among others. Each component has a vision, goal, and several policies. Together, the components create the future preferred vision. Metro Vision 2040 is under development with expected completion by the end of 2016.~~

~~Implementing Metro Vision influences where future population settles and businesses locate, which, in turn, affects travel behavior and the need for transportation facilities and services.~~

~~Implementing the Metro Vision Plan is A primary objective of the DRCOG regional transportation planning process is to help implement Metro Vision.~~

4D. Memorandum of Agreement Metropolitan Planning Agreement Guiding Principles

As stated in Chapter 1, the three partner agencies (DRCOG, RTD, and CDOT) entered into an MOA in July 2001 for the transportation planning process for the DRCOG region. The MOA was modified in June 2008 to expand the geographic scope to include southwest Weld County. Under new requirements of the FAST Act, the MOA is replaced with a Metropolitan Planning Agreement (MPA) to reflect more a greater emphasis on performance-based planning coordination. The purpose of the MPA is to implement federal and state statutes and regulations addressing regional transportation planning to ensure that a collaborative process occurs among the three agencies. Per “metropolitan planning agreement” requirements of MAP-21, the MOA will be updated in 2016.

~~As defined in the MOA, the purpose of the collaborative regional transportation planning process is:~~

~~*“To develop... a multimodal transportation system for the region that supports the region’s Metro Vision Plan and amendments thereto; meets each party’s planning needs, roles, and responsibilities; and addresses the needs of the public.”*~~

The MOA-MPA acknowledges the roles and responsibilities of the three agencies regarding transportation planning as defined by federal and state laws and regulations. The MOA-MPA further describes the functions, products, and organization of the planning process.

The MOA-MPA specifies that the regional transportation planning process is carried out in a manner consistent with the following principles and objectives:

- Each year, the partner agencies solicit input on the goals and objectives of the regional process ~~is solicited and~~ to collaboratively establish the goals and objectives for transportation

Transportation Planning in the Denver Region

planning ~~are collaboratively established~~ in order to guide ongoing and future transportation investments. This is accomplished through:

- joint meetings of members of the agencies' governing boards
 - coordinating the processes for setting project priorities
 - providing opportunities for meaningful public participation
 - establishing a clear decision-making structure; and
 - establishing cooperative interagency staff communication.
- Development and transportation plans are integrated ~~so that both are~~ to be mutually supportive. This is accomplished by working with local municipalities and counties to:
 - coordinate the integration of transportation planning and land use
 - preserve adequate right-of-way for future transportation options
 - ~~assure~~ ensure that regional needs are addressed; and
 - coordinate and prioritize transportation investments to achieve a balance of transportation and quality-of-life issues.

The ~~Memorandum of Agreement~~ Metropolitan Planning Agreement formally commits DRCOG, RTD, and CDOT to work together on transportation planning for the Denver region.

3. Participants

Transportation planning in the Denver region ~~uses~~ incorporates the experience and input of many people and organizations. The DRCOG Board is the MPO of the transportation management area and the rRegional planning commission of the Greater Denver Transportation Planning Region. CDOT and RTD are partner agencies in the regional transportation planning process as affirmed in the MOAMPA. Local officials, interest groups, the public, and others provide ~~important~~ essential direction and comment. Other federal, state and regional agencies play key roles, too.

4A. DRCOG Committee Structure

As stated in the MOAMPA, the regional transportation planning process is organized around ~~the a~~ series of committees shown in Exhibit 3. Exhibit 4 details committee composition and responsibilities.

The **DRCOG Board** is made up of local elected officials from the region’s towns, cities and counties. It also includes at least one non-voting members each from CDOT (appointed by the governor (at least one typically from CDOT) and from the Regional Transportation District RTD.
The DRCOG Board is the policy body for the MPO.

The **Regional Transportation Committee (RTC)** is a permanent committee that prepares and forwards policy recommendations to the DRCOG Board. DRCOG Board policy actions that differ from the Regional Transportation Committee recommendation must be referred back to the ~~Regional Transportation~~ Committee for reconsideration.

Transportation planning products described in Chapter 4 typically require ***adoption by the DRCOG Board through the transportation committees process, which includes:***

~~That phrase means:~~

- sequential review by the Transportation Advisory Committee, the Regional Transportation Committee, and the DRCOG Board, and
- the Regional Transportation Committee and the DRCOG Board must both take favorable action for policies and products to be considered adopted.

The **Transportation Advisory Committee (TAC)** is a permanent committee that assists the Regional Transportation Committee and the DRCOG Board by reviewing the work of the transportation planning process.

Ad hoc committees (or task forces) and work groups may be established by the DRCOG Board, Regional Transportation Committee, ~~and/~~ or Transportation Advisory Committee. They are given short-term assignments to assist on specific topics, tasks, or activities. ~~Membership is set by the initiating committee, but typically includes experts on the specific subject and/or representatives of affected groups.~~

The **Agency Coordination Team (ACT)** and Interagency Consultation Group (ICG) ~~are~~ is a standing work groups made up of staff from the MOAMPA partner agencies, air quality planning agencies, and federal agencies. ACT. ~~The team exists to promote coordination, cooperation, and, importantly, communication among agencies. Its regular dD~~ duties include:

- synchronizing the schedule of planning activities (including Transportation Advisory Committee and Regional Transportation Committee consideration).,

Transportation Planning in the Denver Region

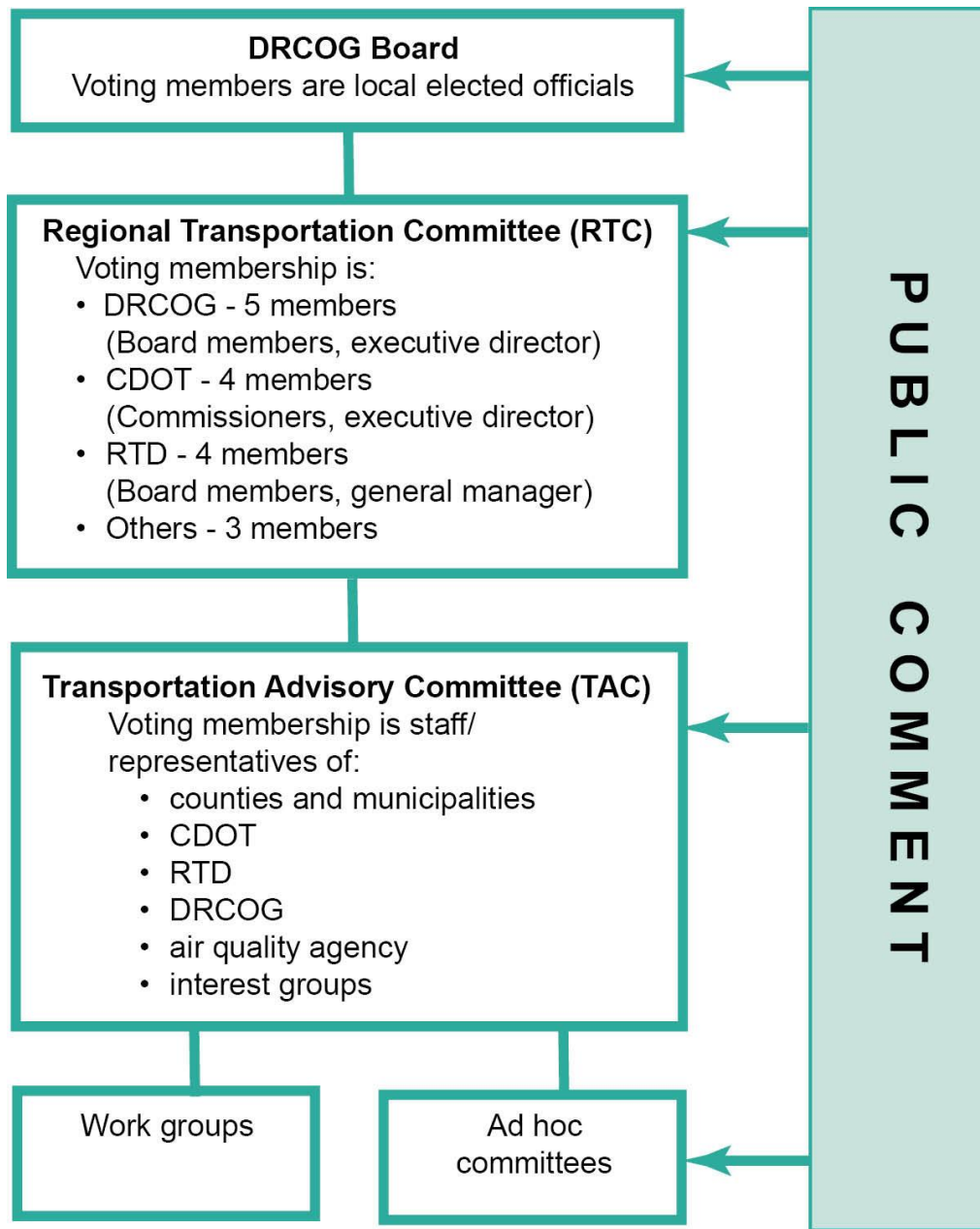
- coordinating Unified Planning Work Program (see Chapter 4) activities with agencies' planning activities.

ICG duties include reviewing transportation planning and air quality conformity products, methodologies, and schedules, and

- ~~coordinating Unified Planning Work Program (see Chapter 4) activities with agencies' planning activities.~~

~~The air quality/transportation interagency consultation process is facilitated by meetings of the Agency Coordination Team.~~

Exhibit 3 Transportation Planning Committee Structure



Transportation Planning in the Denver Region

Exhibit 4 Composition and Responsibilities of the DRCOG Board and Transportation Committees

	DRCOG Board	Regional Transportation Committee	Transportation Advisory Committee
Authority	<ul style="list-style-type: none"> State and Federal statutes DRCOG Articles of Association 	<ul style="list-style-type: none"> Federal statute 2001 MOA DRCOG Board adopts committee description 	<ul style="list-style-type: none"> 2001 MOA DRCOG Board adopts committee description
Responsibilities	<ul style="list-style-type: none"> Prepares, maintains, and regularly reviews comprehensive regional plan (Metro Vision) Adopts all regional transportation planning products, including the Metro Vision RTP and TIP Products and policies are adopted when the Board and Regional Transportation Committee both take favorable action Board holds regularly-scheduled non-voting work sessions (typically monthly) at which every Board member is invited to participate 	<ul style="list-style-type: none"> Assists the DRCOG Board in regional transportation planning Prepares regional transportation planning policy recommendations for action by the DRCOG Board 	<ul style="list-style-type: none"> Facilitates dialogue and cooperation among local governments, regional agencies, the state, and other stakeholders on regional transportation issues Provides advice and guidance on methods of planning and implementation, and helps develop policy options Reviews planning products and processes Makes recommendations to the Regional Transportation Committee on transportation plans and improvement programs
Membership	<ul style="list-style-type: none"> Each municipality, county, and city-and-county within the nine plus-county region is eligible to be a member of DRCOG Each member may designate one local elected official as its member representative and one as its alternate <ul style="list-style-type: none"> Denver may designate two members Governor appoints three non-voting members, including one member from CDOT Non-voting member from RTD RTD has one non-voting member 	<ul style="list-style-type: none"> Five from DRCOG—the chair, vice chair, two Board members/directors, and the executive director Four from CDOT—three Denver-area transportation commissioners and the executive director Four from RTD—three board members and the general manager DRCOG, CDOT, and RTD may designate alternates in writing Three others—appointed annually by the Regional Transportation Committee chair upon unanimous recommendation of the DRCOG, CDOT and RTD executives (DRCOG executive will consult with the chair prior to the three agency executives forming a recommendation) 16 voting members total 	<ul style="list-style-type: none"> 15 local-government representatives appointed by the DRCOG chair: <ul style="list-style-type: none"> two each from Adams, Arapahoe, Boulder, Douglas, and Jefferson counties and one from southwest Weld County; at least three are appointed from counties at least seven are appointed from municipalities (at least two but no more than three are from cities smaller than 35,000 in population) two from Denver and one from Broomfield one from the non-MPO (Mountains and Plains) area of the transportation planning region appointees are city or county managers/administrators; or public works, transportation; or planning directors; or equivalent CDOT directors (or their designees) for regions 1 and 4, division of transit and rail, and 6 and transportation development division RTD's planning/development director; Assistant General Manager of Planning DRCOG's transportation planning and operations director Regional Air Quality Council executive director One representative each of environmental, freight, transportation demand management/non-motorized, senior, aviation, non-RTD transit, and business/economic development interests (nominated by the DRCOG chair and confirmed by the Regional Transportation Committee) Alternates may be designated in writing FHWA and FTA have ex-officio representation 29 voting members total
Quorum	<ul style="list-style-type: none"> One-third of all voting member representatives 	<ul style="list-style-type: none"> 12 voting members or designated alternates 	<ul style="list-style-type: none"> 15 voting members or designated alternates

Decisions Made	<ul style="list-style-type: none"> Regular questions: <u>W</u>with a majority of voting member representatives present Adoption or amendment of elements of regional plan: <u>W</u>with a majority of all voting member representatives 	<ul style="list-style-type: none"> With 12 affirmative votes 	<ul style="list-style-type: none"> With 15 affirmative votes
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2B. Public Involvement

Constructive public involvement is essential at all levels of transportation planning. DRCOG is responsible for proactively engaging the public in the regional transportation planning process, and embraces federal requirements that MPOs provide the public *with complete information, timely public notice, full public access to key decisions, and early and continuing involvement* in developing the planning products described in Chapter 4. ~~DRCOG's efforts focus upon region-wide transportation issues, the interrelationship of transportation planning with land use and other planning activities, and the Metro Vision plan.~~ *Public Involvement in Regional Transportation Planning* documents DRCOG's public involvement process. DRCOG reviews the process annually.

Recent federal regulations and executive orders have emphasized broadening public participation in transportation planning to include affected groups that have not traditionally been very involved, such as minority constituents and people with disabilities, low incomes or disabled, low-income, persons with limited English proficiency, and minority constituents. All DRCOG-hosted public hearings and forums are held in venues that are wheelchair accessible, and DRCOG accommodates and provides services for persons with other disabilities when such services are requested in advance. DRCOG's Limited English Proficiency (LEP) Plan outlines how such assistance will be provided to such persons.

Specific goals of DRCOG's public involvement process are to:

- **present information and educate the public** about the regional transportation planning process, ~~including the role of the MPO, the DRCOG transportation committee structure, and the types of products that are developed and the implications of those products.~~
- **continuously continually solicit public input** through its Board ~~members~~directors, public forums, public hearings, corridor studies, attending local community and interest group meetings, distributing questionnaires and newsletters—especially at the beginning of planning processes, at key decision points, and when final drafts are prepared. DRCOG makes maximum use of opportunities to speak to communities and organizations at their scheduled meetings; experience has ~~shown~~demonstrated that going out to the public rather than expecting the public to come to a DRCOG meeting is more productive.
- **facilitate information flow between the public and decision-makers** by compiling public issues, comments and concerns into complete and concise documents.
- **consider and respond to public concerns.** DRCOG considers public concerns in preparing draft documents. The transportation committees and the DRCOG Board consider expressed public concerns when making decisions. DRCOG is responsible for drafting responses to identified ~~issues~~concerns and for documenting the consideration given to major issues by decision-makers. For certain processes (specifically, the Metro Vision RTP and TIP, described in

The goal of public involvement is to ~~assure~~ensure that the decisions regarding a proposed plan or project are made only after the public is made aware of and has the opportunity to comment on the proposal.

Chapter 4), if significant comments are received on the draft documents, DRCOG prepares a summary, analysis, and report on the disposition of those comments.

The DRCOG regional transportation planning process and its corresponding system-level public participation is a coordinated effort of the ~~MOA~~-MPA partner agencies. However, public participation takes place at the city, county, corridor, and project levels, too. In fact, individuals concerned about a specific project or citywide plan, for example, will often find their participation to be more meaningful in a public involvement process conducted specifically for that project or plan. While DRCOG provides opportunities for further public comment on proposed projects during development of regional products such as the Metro Vision RTP or TIP, DRCOG's public involvement is intended to augment, not replace, project-specific public involvement activities.

4. Planning Process Products

Federal laws and regulations require the performance based regional transportation planning process to produce five major products. The following sections describe what each ~~one~~-product contains and how each is prepared:

1. Unified Planning Work Program
2. Long-Range Transportation Plans
3. Transportation Improvement Program
4. Congestion Management Process
5. ~~Planning Process Certifications~~Though final federal rules have not been established, DRCOG acknowledges it will also have to prepare additional documents associated with performance based planning and monitoring.

~~4A.~~ Unified Planning Work Program

The Unified Planning Work Program (UPWP) describes all metropolitan transportation planning and transportation-related land use and air quality planning activities, regardless of funding source, on a two-year cycle, addressing the planning priorities facing of the DRCOG region. It identifies tasks that will be accomplished using federal transportation planning funds. The ~~MOA~~ MPA partners participate in the activities of the ~~Unified Planning Work Program~~UPWP, with; each contributing information, effort and resources. The work program defines the nature, extent and duration of ~~that~~ the partners' participation. The three partners conduct their individual planning programs in ~~cooperation~~-coordination with the regional program. Each agency is responsible for:

- identifying priority planning issues of concern
- preparing work tasks to address ~~them~~issues of concern
- completing assigned tasks; and
- cooperating with other agencies so that shared tasks can be completed.

The Unified Planning Work Program provides the basis for the “scope of work” of the contract ~~that~~ DRCOG executes with CDOT to receive federal transportation planning funds.

The Unified Planning Work Program typically includes ~~the following~~:

- ~~a description of the region’s transportation objectives and critical issues and how the Denver region will address them, through the work program, during the coming two years. Input on the objectives and issues issues are obtained through a meeting of the governing boards of the three agencies and/or through transportation committees committees’ discussion and review.~~ purpose, background, and guidelines for planning activities
- the accomplishments of preceding Unified Planning Work Programs UPWPs and the current status of the transportation planning program
- an overview of Unified Planning Work Program UPWP priority activities
- descriptions of the planning tasks to be performed using federal transportation planning funds and matching funds (and other funds identified by mutual agreement); Specifically, descriptions identifying work activities, objectives, products, participants, responsibilities, and expected completion schedule.
- identification of funding sources, with revenues and expenditures shown by agency by task activity, and with documentation that meets federal and state requirements; and
- descriptions of other major transportation planning activities by MOA-MPA partner agencies and local governments using other funds. These projects are briefly identified for informational reference purposes.

The work program year is the federal fiscal year, which begins ~~each~~ October 1. Preparation of the Unified Planning Work Program UPWP typically begins in March of odd-numbered years. DRCOG leads this effort, with significant collaboration from RTD and CDOT and assistance from other agencies through the Agency Coordination Team. FHWA and FTA review the work program to ~~assure that~~ ensure the proposed activities are consistent with federal requirements and eligible for federal funding. The Unified Planning Work Program UPWP is adopted by the DRCOG Board through the **transportation committees process** (see sidebar to Section 3.A). When the adopted work program receives formal federal approval, CDOT prepares and executes the consolidated transportation planning grant contract with DRCOG using a summary version of the Unified Planning Work Program as the scope of work. Exhibit 5 shows a typical timeline for developing the Unified Planning Work Program UPWP.

Relationship to the Statewide Transportation Planning/Programming Process

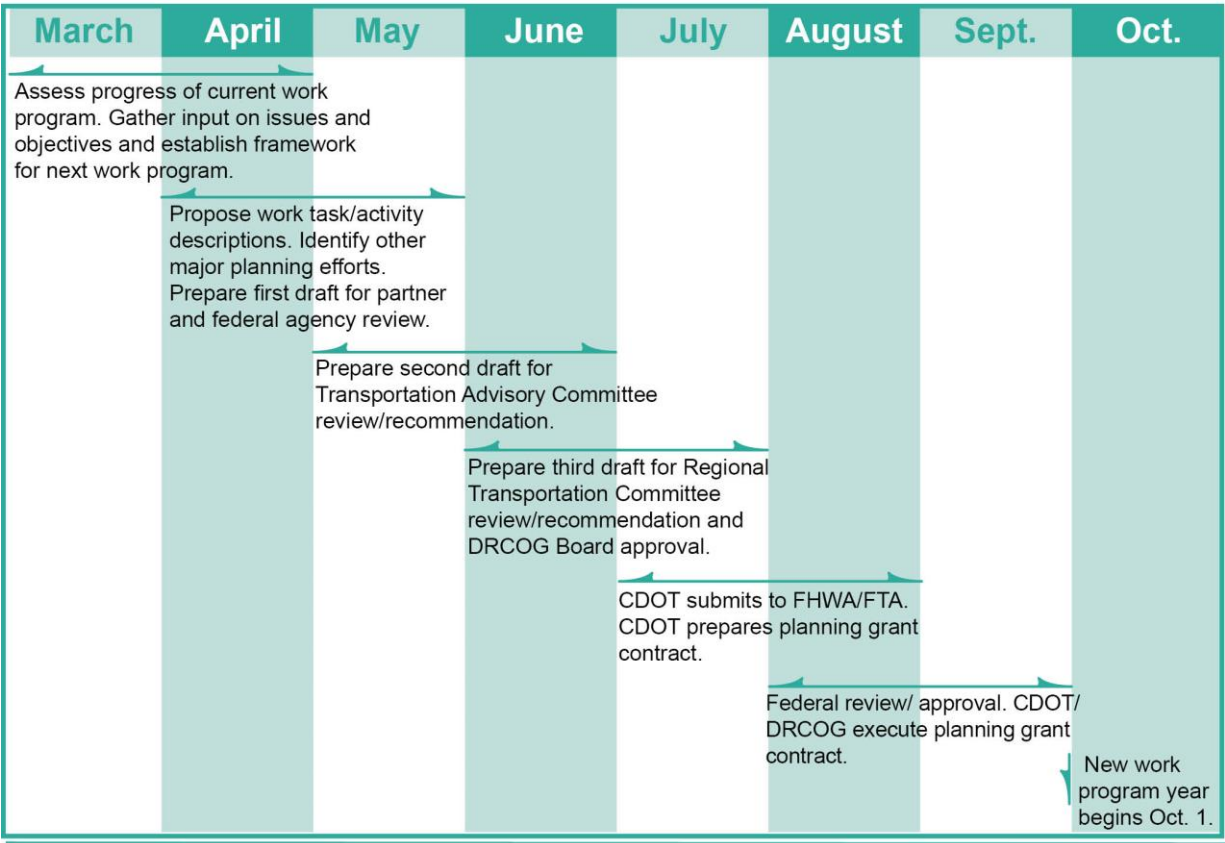
CDOT provides input on planning issues and concerns and on Unified Planning Work Program the UPWP tasks, products and timing desired ~~by~~ for the statewide process. As funding allows, the Unified Planning Work Program UPWP includes the mutually agreed-upon activities necessary to ~~assure~~ ensure seamless products and consistent schedules.

Amendments

Generally midway through each federal fiscal year and at the end of the first federal fiscal year, the Agency Coordination Team reviews progress on the work program ~~is reviewed by the Agency Coordination Team~~. As needed, revisions are identified and an amended Unified Planning Work Program is adopted by the DRCOG Board through the transportation committees process. CDOT conveys the adopted amended Unified Planning Work Program UPWP to FHWA and FTA for approval.

Exhibit 5 Typical Unified Planning Work Program Timeline (Odd-numbered years)

Transportation Planning in the Denver Region



2B. Long-Range Transportation Plan

The Metro Vision ~~Plan~~ is a comprehensive policy document that expresses the region's vision for growth, development, environmental quality, and transportation. It identifies the long-range transportation ~~vision, goal, and policies~~ outcomes, objectives, and strategic initiatives needed to support the desired physical, social, and economic development of the region (the other plan components). ~~Traditionally,~~ DRCOG develops and maintains a **Metro Vision Regional Transportation Plan (RTP)** as a part of ~~the region's Metro Vision Plan~~. The Metro Vision RTP ~~provides more detail than the Metro Vision Plan and~~ includes two key components:

- The **Metro Vision transportation system** reflects a transportation system and accompanying programs and services necessary to enhance the region's quality of life and adequately respond to mobility demands. Not fiscally constrained, the Metro Vision transportation system is the region's "20-year transportation plan" required by state law and referred to in state rules as the "vision plan."
- The air quality conforming **fiscally constrained regional transportation plan** is the subset of the Metro Vision transportation system required by federal law for transportation management areas. The fiscally constrained performance-based RTP identifies the affordable, multimodal transportation system that can be achieved ~~over~~ during a minimum 20-year planning horizon (as of the effective approval date) with financial resources that are expected to be "reasonably available."

The specific titles of these two components may change over time, but DRCOG expects to continue the concept of identifying both a "vision" transportation system and one that is fiscally constrained ~~is expected to remain~~. For consistency, both the Metro Vision transportation system and air quality conforming fiscally constrained RTP cover the entire transportation planning region. Both components of the Metro Vision RTP are reviewed and amended/updated as necessary. Within the transportation management area, federal law requires the fiscally constrained RTP to be reviewed and updated at least every four years to validate air quality conformity and address the latest planning assumptions and other regulatory requirements.

The Metro Vision RTP is the Denver region's long-range transportation plan. Its key components are:

- the Metro Vision transportation system
- the fiscally constrained RTP

Federal regulations require the air quality conforming fiscally constrained RTP to include both long-range and short-range strategies/actions that provide for the development of an ~~identify and document the regional transportation policies, facilities, improvements, and services comprising the~~ integrated multimodal transportation system to facilitate; ~~a system that facilitates~~ the safe and efficient movement of people and goods in; addressing current and future transportation demand, ~~within fiscal constraints~~.

The air quality conforming fiscally constrained RTP:

- ~~shows~~ demonstrates the consideration given to the region's comprehensive long-range land use plan and development objectives (~~i.e.,~~ the other elements of Metro Vision)
- considers the federal planning factors (see Chapter 2)

Transportation Planning in the Denver Region

- forecasts the future transportation demand of ~~persons~~-people and ~~goods~~-commercial vehicles
- emphasizes facilities serving important national, regional, and metropolitan functions
- provides general project descriptions (referred to in the regulations as “design concept and scope”) sufficient to develop realistic cost estimates and ~~permit~~-allow air quality conformity examination
- considers the findings of the congestion management process
- identifies modernization and rehabilitation strategies necessary to preserve the transportation system
- identifies operational and management strategies to make most efficient use of the transportation system
- includes a safety element coordinated with the sState strategic highway safety plan ~~of strategies and policies~~
- ~~discusses~~-addresses environmental mitigation policies, programs, or strategies
- includes appropriate bicycle and pedestrian facilities and proposed transportation enhancement activities
- contains a financial plan describing the cost and funding assumptions and showing fiscal constraint; and
- ~~within the transportation management area~~, conforms with Clean Air Act requirements within applicable pollutant (non)-attainment areas.

~~When~~-While a long-range transportation plan ~~the RTP~~ is being developed, the ~~MOA~~-MPA partners ~~are working~~ on a complex series of interrelated and overlapping tasks spanning 18 to 24 months. A general description of typical tasks follows. Exhibit 6 illustrates the tasks ~~on an~~ example along a sample 18-month timeline, and Exhibit 7 shows the long-range transportation plan development responsibilities of the ~~MOA~~-MPA partners.

Exhibit 6 Typical Long-Range Transportation Plan Timeline

Transportation Planning in the Denver Region

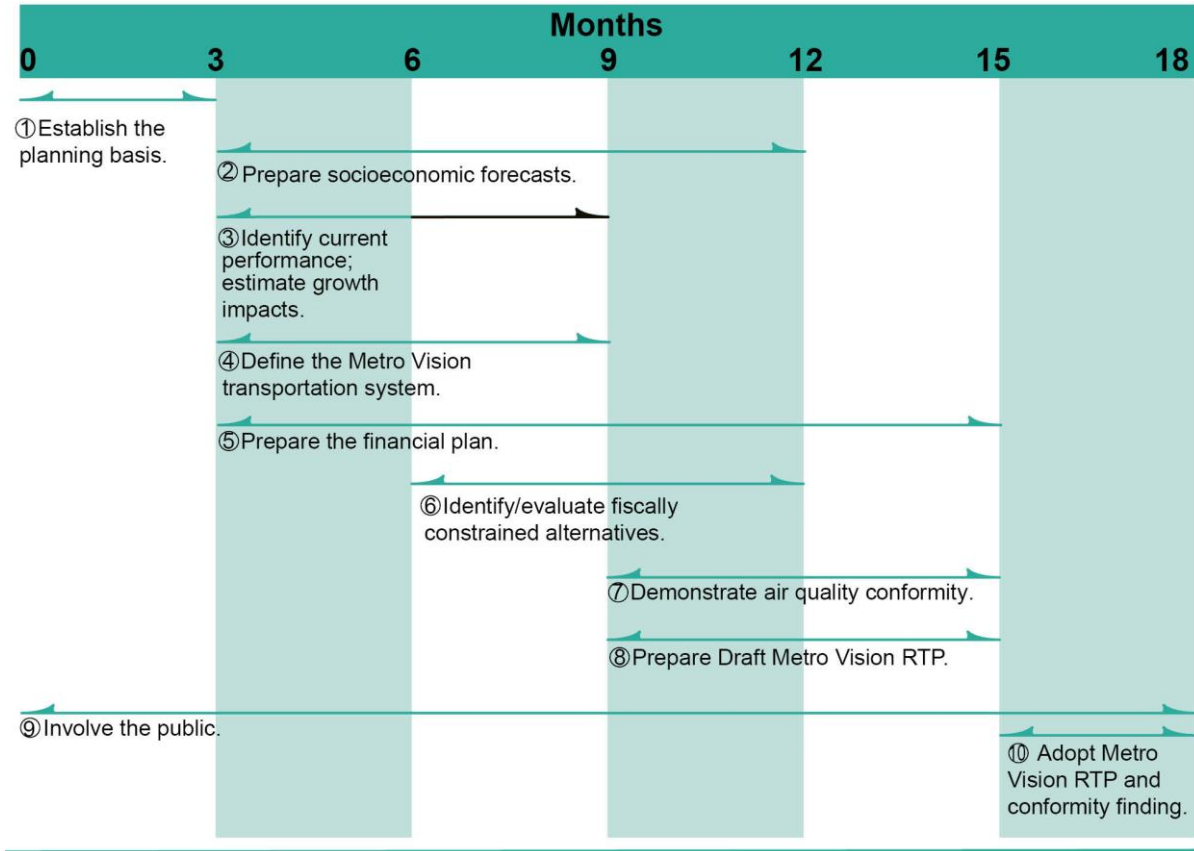


Exhibit 7 Partner Responsibilities in Developing Long-Range Transportation Plans

DRCOG:

- prepares and /adopts ~~the~~ Metro Vision Plan including a ~~the~~ transportation “element”
- prepares and /adopts the Metro Vision RTP including both the Metro Vision transportation system and the air quality conforming fiscally constrained regional transportation plan
- coordinates, prepares and /adopts the finding of air quality conformity for the fiscally constrained RTP
- coordinates activities, ~~assures~~ ensures collaboration, facilitates review and approval process
- prepares socioeconomic forecasts and runs regional travel model
- calculates, compiles, and presents performance measures and results
- identifies and evaluates transportation strategy alternatives including congestion management options
- leads the process that selects priority capital projects for the integrated multimodal system
- leads development of the financial plan demonstrating fiscal constraint
- ~~coordinates the air quality conformity process~~
- conducts public involvement activities and consults with land management and environmental resource agencies
- provides an overview of environmental mitigation opportunities
- publishes ~~the~~ Metro Vision Plan, Metro Vision RTP, and conformity documents and makes them available to the public

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CDOT:

- provides guidance about state regulations, Transportation Commission investment priorities, and plan preparation
- provides state highway system performance data and goals
- identifies [mobility needs, safety, operations and preservation needs](#) ~~capital expansion, safety, preservation (system quality), security, and operations (program delivery) needs~~ for state highways to implement Metro Vision and participates in the ~~capital~~ project evaluation [and](#) /selection process for the integrated multimodal system
- reviews highway networks and regional travel model results including data for air quality conformity
- [provides revenue forecasts and program distribution information](#)
- works with DRCOG to cooperatively estimate long-range transportation revenues and cooperates in the development/review of the financial plan
- provides an overview of environmental mitigation opportunities
- assists with the development of strategy and project cost estimates
- reviews the Metro Vision RTP and facilitates review by [the](#) Statewide Transportation Advisory Committee
- participates in public involvement and agency consultation activities
- integrates and consolidates the Metro Vision RTP into the statewide transportation plan

RTD:

- provides transit system performance data
- identifies capital expansion, safety, preservation, security, and operations needs for the transit system to implement Metro Vision and participates in the capital project evaluation [and](#) /selection process for the integrated multimodal system
- reviews transit networks and assists with regional travel modeling
- works with DRCOG to cooperatively estimate long-range transportation revenues and assists with [preparing](#) the financial plan
- assists with the development of strategy and project cost estimates
- reviews the Metro Vision RTP
- participates in public involvement and agency consultation activities

Ongoing: Public involvement and agency consultation

DRCOG's general public involvement procedures are discussed in Chapter 3 and are applied to the entire process of regional transportation plan development. Public involvement includes outreach from the beginning of the process through its completion. Agency consultation typically takes place as appropriate in steps 3 through 7. DRCOG usually holds a minimum of two public meetings when working on a new plan and may conduct public forums or open houses as well. As possible, the public participation events of the MPA partner agencies are jointly sponsored or mutually attended. DRCOG holds formal public hearings with appropriate public notice for adopting an update or revising Metro Vision and for adoption of the Metro Vision RTP and associated conformity finding for the fiscally constrained RTP. DRCOG summarizes all public comments received via outreach, forums, meetings, phone and email messages, and other sources; then drafts responses and presents all comments and responses to the transportation committees and DRCOG Board to consider. If significant public comments are received on draft documents, a summary, analysis and report on the disposition of such comments are included as part of the final Metro Vision RTP documentation.————

Step 1. The planning basis

~~To begin, the region's adopted long-range transportation plan policy and strategy components vision, goals, policies and action strategies are examined in concert with the current Metro Vision Plan long-range land use/development vision and in light of then-current federal and state requirements. Through public and /stakeholder outreach and the transportation committees process, they the plan and strategy components are reconfirmed or revised as appropriate to establish the long-range planning basis and foundation of the new Metro Vision RTP. Subsequently, to assist in examining alternative transportation strategies and networks, eligibility and evaluation criteria and/or methodologies consistent with the goals and policies are identified. These too are brought through the transportation committees process for policy level acceptance.~~

————Step 2. Socioeconomic forecasts

Socioeconomic forecasts are the foundation of regional travel and air quality modeling. Estimates of population, employment, and households ~~by income group~~ for the current year, the horizon year of the long-range plan, and for interim “staging” years required for air quality conformity modeling are produced. ~~Assisted by a panel of economists and demographic experts (including the state demographer),~~ DRCOG starts by establishing **regional control totals** based on broad national and state forecasts and expectations, as well as and other input. These regional totals are then ~~distributed down~~ allocated to smaller areas called **transportation analysis zones**, ~~taking into account Metro Vision policies, transportation characteristics, and market and other factors that determine each small area's development or redevelopment potential~~ using the Urban-Sim model. Local governments ~~assist~~ help by verifying current data, providing local development plans and expectations, and reviewing initial estimates. The approximately 6,250-square-mile ~~(approximate)~~ DRCOG modeling area has more than 2,800 transportation analysis zones.

~~During the course of the regional plan development, numerous transportation analysis zone-level data sets are prepared. Preliminary data sets are used for understanding the implications of growth (step 3) and for review by local governments. Alternative data sets may be prepared to reflect and test both unconstrained and fiscally constrained network options (steps 4 and 6) and growth and development options (step 3). All data sets add up to the regional control totals. The socioeconomic forecasts are “finalized” when regional travel modeling for air quality conformity is started (step 7).~~

Step 3. Current system performance and the implications of growth

DRCOG summarizes the current overall performance of the regional transportation system using performance measure applicable data from CDOT, RTD, local governments, public transportation authorities, and the regional travel model. DRCOG also uses preliminary data from the regional travel model to quantify how much travel demand will increase by travel-mode over during the time period covered by the plan and to spotlight the implications of this growth if transportation facilities beyond those currently underway are not built (i.e., how performance will deteriorate in the future if further improvements to the system are not made). This step establishes base measures of performance against which potential improvement options can be compared.

As part of this step, DRCOG may identify future “scenarios” alternative land use/development scenarios with using alternative growth (differing allocations of growth,) with and transportation systems, assumptions, and external factors options and evaluate them to examine benefits, impacts and costs. In the past, such evaluation (combined with other analyses) led to the “urban form” elements currently contained in Metro Vision.

Step 4. Define the Metro Vision transportation system

In this step, DRCOG works with the MOA-MPA partners, local governments, public highway authorities, other interested parties, and the public to identify the future transportation system that would best align with and implement the other components of Metro Vision. The Metro Vision transportation system typically describes an integrated multi-modal system that includes:

- rail and bus transit service, and multimodal passenger facilities
- the principal and major regional arterial and freeway network
- key regional bicycle corridors, and
- basic needs for preferred perspectives on maintenance and preservation, management and operations, safety, security, environmental mitigation and enhancement of the transportation system.

Each of these elements is updated during the process to the extent that revisions are warranted. Some of these are described in substantially more detail in stand-alone documents, which may or may not be updated during specific plan development cycles.

Conceptual cost estimates are prepared, and the total amount of funding needed cost to build, operate, and maintain this system is identified. However, this system has no fiscal constraints. The Metro Vision transportation system becomes the starting point for defining the fiscally constrained RTP.

The Metro Vision transportation system is incorporated in summary form in the Metro Vision Plan document and discussed in more detail in the Metro Vision RTP.

As an Appendix of the Metro Vision RTP, DRCOG maintains “corridor visions” for 35 key multimodal corridors of the region. The individual corridor visions include a vision statement, corridor goals/objectives, corridor context, discussion of select environmental resources, and depiction of the strategies and projects that comprise the unconstrained vision necessary to influence and respond to future growth and development.

Step 5. The financial plan

The fiscally constrained component of the Metro Vision RTP must include a financial plan that reconciles the estimated costs of constructing, maintaining, and operating the proposed

transportation system with reasonably expected revenues ~~over~~ during the time period covered by the plan. Developing the financial plan is a cooperative effort ~~by~~ among the ~~MOA~~ MPA partners, local governments, public highway authorities and other stakeholders.

To comply with federal requirements, the financial plan for any fiscally constrained RTP must consider and ultimately define numerous financial aspects including (but not limited to):

- the base fiscal year for revenue estimates (values in year of expenditure and constant year dollars)
- the precise number of years covered by the plan
- ~~how conservative or optimistic and how flexible or inflexible the estimation of “reasonably expected to be available” revenues is.~~ Funding sources and revenue amounts, including ~~ing~~ traditional federal-formula and state sources, discretionary sources, local governments, private developers, tolling, existing and new public transportation authorities, public-private partnerships, transit farebox, and potential new state, regional, or local transportation funding initiatives.
- for any agency whose responsibilities extend beyond the DRCOG region (CDOT, for example), how much revenue is allocated within the DRCOG region; and
- cost estimation; ~~i.e.,~~ such as what is needed at the broad investment category level and what is needed for specific projects.

The Agency Coordination Team and/or ad hoc committees may work through technical issues pertaining to fiscal constraint. Relevant information is provided to the transportation committees for explicit consideration of draft revenue and cost estimates prior to ~~the~~ DRCOG Board approval of networks for air quality conformity testing (Step 96). The final financial plan is explicitly considered by the transportation committees as it becomes part of the Metro Vision RTP document to be adopted by the DRCOG Board.

Step 6. Fiscally constrained regional roadway and rapid transit system ~~alternatives~~

~~The Metro Vision transportation system requires a level of funding beyond what is reasonably expected, but t~~he air quality conforming fiscally constrained RTP must specify only those improvements that can be afforded. ~~The objective of t~~his step ~~is to define~~s the subset of Metro Vision transportation system regionally significant projects and strategies that best achieve ~~the~~ Metro Vision ~~Plan’s~~ planning and transportation objectives within the constrained level of funding.

Typically, This is accomplished by first evaluating the roadway and transit capital improvements of the currently-defined Metro Vision transportation system are verified with partner agencies and local governments. ~~–Envisioned projects may be added, modified, or removed.~~ –The projects are then evaluated based on agreed-upon criteria which may be related to such factors as the scale of the problem, benefits of the project, number of users, safety, and other attributes related to the implementation of Metro Vision. ~~– Projects must then be identified which can be included within the financially constrained revenue estimates for the RTP.~~ –Future funding allocations are also made for “system categories” for which specific future projects are not identified. ~~–These categories are analyzed based on performance management efforts (for example~~ e.g., safety and reconstruction) and other factors (e.g., funding for future bicycle, pedestrian, and transportation demand, and system operational projects). ~~using the accepted criteria and/or methodologies (step 1) to identify projects that are the highest priority. Initial~~

~~evaluation results are used to identify alternative improvement “packages” (groups of projects). Programmatic options may also be examined, such as:~~

- ~~• the level of facilities to be considered for improvement in the fiscally constrained RTP~~
- ~~• the relative emphasis to be placed on mobility, operations, preservation, safety, etc.~~
- ~~• modal preferences or multimodal opportunities; and~~
- ~~• inclusion of projects that will (or could) be funded by future voter initiatives, tolling, etc.~~

~~The alternative packages or programmatic options are then further evaluated. DRCOG performs this task with assistance from MOA partner agencies, local governments, and the transportation committees. A key product of this step is approval by the DRCOG Board through the transportation committees process of draft fiscally constrained highway and transit networks to be assessed for air quality conformity. Interim year “stages” of these networks are subsequently identified for air quality conformity testing.~~

Step 7. Air quality conformity

The fiscally constrained components of long-range transportation plans must conform to appropriate State Implementation Plans for air quality (see Section 5.H9). As established in federal regulations for conformity determinations, the proposed fiscally constrained RTP networks are modeled in combination with the final transportation analysis zone-level socioeconomic forecasts to determine travel on the roadway and transit system. The regional travel model results including traffic volumes, vehicle miles of travel, average vehicle speed, and transit ridership by time of day are used to predict the amount of various pollutants emitted by these on-road mobile sources. The amount of predicted pollutant emissions must not exceed budgets established in State Implementation Plans. Implementation of transportation control measures is also assessed. These criteria are examined for the long-range horizon year of the fiscally constrained RTP and for interim years established considering federal and State Implementation Plan requirements. All criteria must be met for all years evaluated. ~~If se all criteria are met~~, DRCOG prepares a technical document supporting a conformity finding. ~~Unless the finding is deemed “routine in nature” by the Air Pollution Control Division of the Colorado Department of Health and Environment (CDPHE) according to the Air Quality Control Commission’s (AQCC) Regulation 10,~~ ~~t~~This document is taken to the ~~Air Quality Control Commission~~~~AQCC~~ in a public hearing; that body formally comments on the finding. ~~Also a~~ public hearing is ~~also~~ held ~~by~~at the DRCOG Board. The DRCOG Board adopts the conformity finding through the transportation ~~committees~~~~committees~~’ process as part of the Metro Vision RTP adoption. ~~After approval by the Board, ~~t~~The conformity finding documentation, along with the plan documentation, is provided to FHWA/ FTA for the federal conformity determination. The federal conformity determination for a fiscally constrained RTP is valid only for up to four years. Exhibit 8 shows air quality conformity responsibilities.~~

Step 8. Metro Vision RTP preparation

DRCOG develops the Metro Vision RTP document. ~~If multiple roadway/transit network alternatives were approved for conformity evaluation in step 6, the evaluations and committee processes that define the specific capital projects to be included in the final draft fiscally constrained RTP are conducted.~~ The Metro Vision RTP includes all the elements noted in previous steps-4. ~~For the fiscally constrained RTP, appropriate regional strategies or areas of emphasis are identified consistent with the financial plan. The parts of the corridor visions that are fiscally constrained are updated.~~ The financial plan is described in detailed and transportation benefits and impacts are documented. DRCOG prepares drafts of Metro Vision RTP text and, through review by the transportation committees, ~~works through remaining~~

~~issues~~finalizes the draft. A copy of the draft is also provided to CDOT to coordinate review by the Statewide Transportation Advisory Committee.

~~———— Step 9. Public involvement and agency consultation (throughout process)~~

~~DRCOG's general public involvement procedures are discussed in Chapter 3 and are applied to the entire process of regional transportation plan development. Public involvement among all stakeholders includes outreach from the beginning of the process through its completion. Agency consultation typically takes place as appropriate in steps 3 through 7. DRCOG usually holds a minimum of two public meetings when working on a new plan and may conduct public forums or open houses as well. As possible, public participation events of the MOA MPA partner agencies are jointly sponsored or mutually attended. Formal public hearings with appropriate public notice are held at the DRCOG Board meetings for adoption of an update or revision to the Metro Vision Plan and for adoption of the Metro Vision RTP and associated conformity finding for the fiscally constrained RTP. DRCOG summarizes all public comments received via outreach, forums, meetings, phone and email messages, and other sources, drafts responses, and presents this information to the transportation committees and DRCOG Board to consider. If significant public comments are received on draft documents, a summary, analysis, and report on the disposition of such comments is are included as part of the final Metro Vision RTP documentation.~~

Exhibit 8 Air Quality Conformity Responsibilities with Fiscally Constrained RTP

An MOA between DRCOG, [the Regional Air Quality Council \(RAQC\)](#), and the Colorado Department of Public Health and Environment outlines specific roles and responsibilities for transportation conformity evaluations. A second MOA between DRCOG and the RAQC highlights the staff-level coordination of regional transportation, development, and air quality planning efforts. A third MOA between DRCOG and five other transportation or air quality agencies specifically addresses [eight](#)-hour ozone conformity. The working interpretation of these MOAs includes:

- The interagency consultation [group \(ICG\)](#) process shall be convened at the outset of the plan development process and at key points throughout.
- The draft fiscally constrained RTP roadway and transit networks approved in [Step 6](#) serve as the transportation system basis. Per the [eight](#)-hour ozone MOA, the DRCOG travel model covers all of the southern subarea of the [eight](#)-hour ozone nonattainment area (the subarea boundary line is the nominal alignment of Weld County Road 38, the extension of the Boulder/Larimer County boundary eastward to the Morgan County line). DRCOG coordinates with Weld County and CDOT Region 4 to define the networks outside of the DRCOG region.
- DRCOG, in cooperation with RTD, CDOT, and affected local governments and public transportation authorities, develops a schedule of [regionally significant](#) improvements for the interim staging years [identified for](#)~~required in~~ the conformity process.
- DRCOG [adjusts](#)~~details~~ these [roadway](#) networks [to reflect](#)~~by identifying~~ roadway classification, laneage, “area type,” transit service frequency, parking costs, and ~~numerous~~ other [attributes](#) ~~transportation modeling assumptions~~.
- DRCOG [and the ICG](#) also determines [other planning assumptions](#)~~other factors that may need to be assumed in the air quality analysis~~, such as:
 - ~~estimates of the travel reductions attributable to nonmotorized facilities and demand and system management strategies in the fiscally constrained RTP, or~~
 - ~~local government and agency commitments to decreased sanding or improved street sweeping reducing small particulate pollution.~~
 - [Socioeconomic, demographic, and vehicle fleet forecasts](#).
- DRCOG runs the regional travel model and provides the results to the Agency Coordination Team [and Interagency Consultation Group](#) to check reasonableness.
- ~~Thirty days afterward~~, DRCOG submits the final transportation data to the Air Pollution Control Division, which calculates the final pollutant emission levels and provides the results to DRCOG ~~within 30 days. The agencies may agree on more or less time, considering the nature of the data and overall time and schedule for RTP adoption.~~
- DRCOG prepares the conformity [determination finding](#) technical document. The [eight](#)-hour ozone MOA and ~~draft~~ SIP allow DRCOG to prepare an ozone conformity determination for the southern subarea of the ozone nonattainment area. The North Front Range MPO prepares ozone conformity determinations for the northern subarea.
- The ~~Air Quality Control Commission and the~~ DRCOG Board ~~each~~ holds [a](#) public hearings on the conformity [determination finding](#). DRCOG distributes the ~~technical~~ document [a minimum of at least](#) 30 days before the ~~earliest of three~~ public hearings.
- ~~Pursuant to its public hearing, t~~he Air Quality Control Commission ~~will~~ holds [a public hearing for conformity determinations associated with new plans or major amendments \(at their discretion as provided for in Regulation 10\) and](#) provides ~~s~~ comments to DRCOG ~~about conformity of the fiscally constrained RTP~~.
- Upon adoption by DRCOG ~~for the southern subarea DRCOG transmits~~ the conformity [determination finding documentation along with the](#) plan documentation [is transmitted](#) to FHWA ~~and~~ FTA.
- [FHWA receives concurrence conformity determination from EPA.](#)
- FHWA [and](#) FTA issue the federal conformity determination.

Step 10. Metro Vision RTP adoption

The Metro Vision RTP and fiscally constrained RTP conformity finding require public review and adoption by the DRCOG Board through the transportation committees process. Upon transportation committees recommendation of the draft Metro Vision RTP and conformity finding documentation, DRCOG announces a formal public hearing and makes these documents are made available for public examination. Final transportation committees recommendations and DRCOG Board action take place after consideration of public input. Upon adoption, DRCOG transmits the Metro Vision RTP to CDOT; the Metro Vision transportation system component for integration into the state's vision transportation plan (along with ~~the Metro Vision Plan's~~ policy level documentation) and the air quality conforming fiscally constrained RTP component for inclusion in the state's ~~fiscally constrained~~ transportation plan.

Relationship to Statewide Transportation Planning/Programming Process

Federal rules-regulations require statewide transportation plans to be coordinated with metropolitan transportation plans and states to cooperate with MPOs on the portions of the plans affecting metropolitan planning areas. These requirements are acknowledged in the MPOA. State statute requires CDOT to “integrate and consolidate” regional transportation plans into a comprehensive statewide transportation plan. The rules for statewide transportation planning indicate that “regional transportation plans...shall...form the basis for developing...the statewide transportation plan” and that “at a minimum, the statewide transportation plan shall include priorities as identified in the regional transportation plan.” ~~If~~ the Metro Vision RTP is developed in a process consistent with state rules and is responsive to Statewide Transportation Advisory Committee and CDOT reviews (reflected by favorable action by the Regional Transportation Committee); At that point, CDOT integrates it into the statewide plan.

Amendments

The Metro Vision RTP may be amended when significant changes occur to regionally significant projects (additions, deletions, and modifications), major planning assumptions, or other time-sensitive transportation planning changes. The opportunity for amending the Metro Vision RTP ~~ments will typically be offered once a year on an annual cycle, though in unique circumstances, the DRCOG Board may consider amending the RTP at any time. semi-annually following the DRCOG Board-adopted Metro Vision Plan Assessment process. The “cycle 1” amendment process usually begins in January and finishes in August. The “cycle 2” amendment process usually runs from July to January. The amendment schedule may be altered by DRCOG Board action. Corresponding amendments to the Metro Vision Plan are at the DRCOG Board's discretion~~

An amendment to the fiscally constrained RTP **and** new air quality conformity finding are required for highway or transit network changes of regional significance, such as:

- new rapid transit lines
- new interchanges
- interchange improvements that add or delete travel movements; and
- roadway~~highway~~ widenings of one centerline-mile or more on the plan's regional roadway system.

An amendment to the fiscally constrained RTP, but without a~~ne~~ new air quality conformity finding, may be~~is~~ required for:

- RTP network changes outside the transportation management area
- changes in the proposed funding source; and

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- [other](#) substantive changes to elements of the Metro Vision RTP that are not specifically included in the air quality conformity modeling (~~such as revision of the bicycle corridors map~~).

An amendment to the [air quality conforming](#) fiscally constrained RTP is **not required** for lesser revisions, such as:

5. highway widenings of less than one centerline-mile on plan roadways
6. changes to local, collector and minor arterials implemented with local or private funds
7. minor scope changes to projects
8. minor changes to non-conformity-modeled elements, and
9. text clarifications or corrections.

3C. Transportation Improvement Program

The Transportation Improvement Program (TIP) is a staged multiyear program of projects to implement the [air quality conforming](#) fiscally constrained RTP. The TIP identifies the federally-funded surface transportation strategies and projects (or phases of projects) to be implemented in the DRCOG transportation management area during the next few years. Per state protocol, the TIP also includes the CDOT projects being implemented using only state funds.

The federal requirement under ~~MAP-21~~ [the FAST Act](#) ~~SAFETEA-LU~~ is that TIPs cover at least four years. ~~To be consistent with the State TIP (STIP),~~ DRCOG's TIP [currently](#) covers a six-year period; ~~federal agencies~~ [FHWA and FTA](#) consider the last two years as informational. The TIP is updated at least every four years as required by federal regulations. [CDOT now develops an annual Statewide Transportation Improvement Program \(STIP\).](#)

Like the fiscally constrained RTP, the TIP must conform with the requirements of the Clean Air Act, so it must identify **all** regionally significant projects, regardless of funding source, being completed ~~in~~ [during](#) the TIP period. ~~That~~ [Regionally significant projects](#) includes roadway capacity projects being built by local governments with local funds, new tollways or capacity increases to existing ~~ones~~ [tollways](#) by public highway authorities, and major projects being implemented by RTD with its funds.

DRCOG leads the TIP development, working collaboratively with the ~~MOA~~ [MPA](#) partners, air quality agencies, local governments and others. TIP development and adoption takes about 15 months and a general description of usual tasks follows. Exhibit 9 shows a typical timeline and Exhibit 10 identifies TIP development responsibilities of the ~~MOA~~ [MPA](#) partners. ~~Pursuant to the MOA, the three partners are working together to better integrate project selection in the TIP, and the evolving integration efforts are identified each TIP cycle.~~

[Ongoing. Public involvement](#)

[Project selection considers the concerns of the public. Project sponsors are responsible for providing opportunities for public comment on projects and applications submitted to DRCOG. RTD's and CDOT's processes include public participation. A formal TIP public hearing, with appropriate public notice, is conducted by the DRCOG Board prior to adoption. The public notice of public involvement activities and time established for public review and comments on the TIP will satisfy the Program of Projects \(RTD's Strategic Budget Plan\) requirements of the FTA Section 5307 Program. DRCOG summarizes all public comments received during the public comment period, drafts responses as appropriate, and presents this information to the transportation committees and DRCOG Board. If significant public comments are received on draft documents, a summary, analysis and report on the disposition of such comments are included as part of the final TIP documentation.](#)

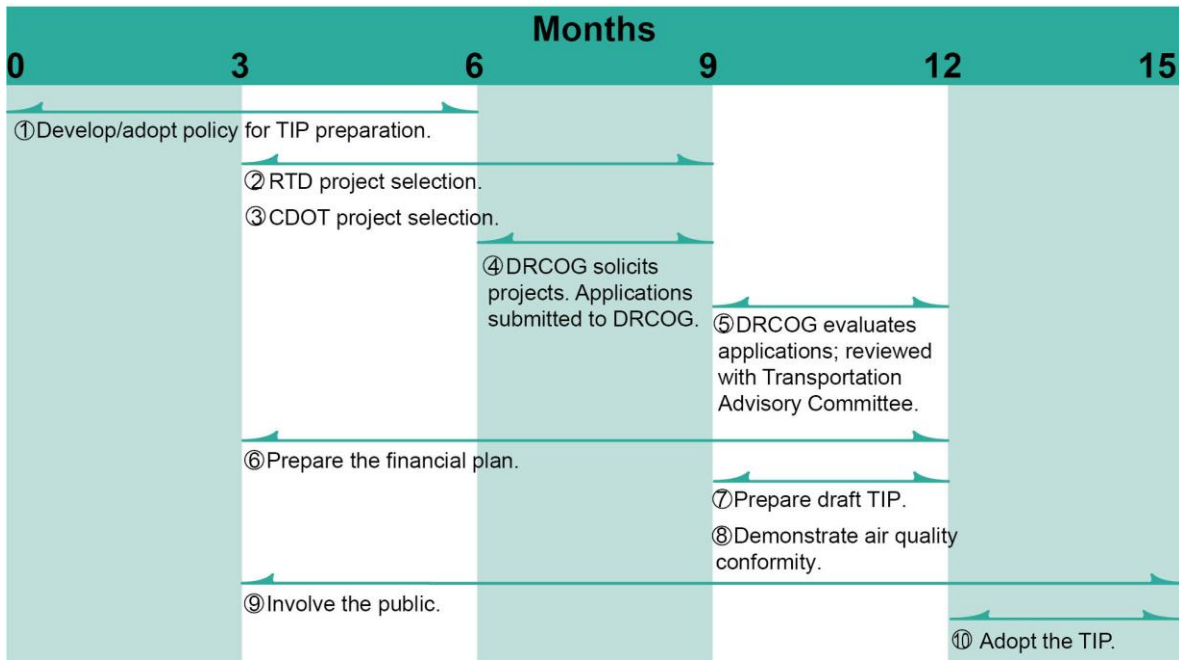
Step 1. Develop policy for TIP preparation

Each time a new TIP is prepared, the first step is to establish or confirm the process, and procedures, ~~criteria, etc. that will be~~ used to develop the TIP ~~it and revise it~~. DRCOG assembles these into a policy document for adoption by the DRCOG Board through the transportation committees ~~ss~~ process. Ad hoc committees or working groups may be ~~are typically~~ established to assist in this effort. The policy document is adopted before DRCOG solicits applications for TIP funding (Sstep 4).

No project using federal surface transportation funds can move forward unless it is ~~shown~~ included in the TIP.

Only projects that implement the fiscally constrained RTP can be selected for funding.

Exhibit 9 Typical Transportation Improvement Program Timeline



Policy items typically considered and discussed include:

- ~~reconfirming the time horizon of the TIP, how many years will be fully programmed, and perspectives on how many years are considered “committed”~~
- ~~identifying TIP project selection integration actions~~
- ~~the relationship of the TIP and project selection to the Metro Vision Plan defining the regional objectives and strategies for project selection.~~ Because the TIP is the mechanism to identify the projects and strategies from the fiscally constrained RTP that are the highest priority to implement in the immediate future, the goals and objectives from ~~the Metro Vision Plan~~ and ~~the Metro Vision RTP~~ are reviewed to provide a TIP project selection basis
- identifying eligible applicants ~~for DRCOG selected categories~~ and deciding ~~the maximum number of~~ how many applications each may submit
- establishing project eligibility (including, and perhaps beyond, federal criteria) for DRCOG-selected categories. ~~This task typically defines “project types” consistent with regional goals/ objectives~~
- Identifying set-aside pools or off-the-top funding allocations not subject to the TIP call for projects.
- specifying other application requirements, such as ~~carryover project commitment, financial requirements including~~ responsibility for providing local matching funds and funding possible project cost increases, recipient responsibility for timely implementation, and who (from the applicant’s organization) is allowed to submit the applications
- defining the evaluation

Federal surface transportation funds are provided to states and regions in numerous different federal funding programs or “categories.” DRCOG directly selects projects for funding in three federal programs titled:

- Surface Transportation Program-Metro
- Transportation Alternatives Program (TAP)(TA) ~~Surface Transportation Program-Enhancement~~
- Congestion Mitigation/Air Quality (CMAQ)

Transportation Planning in the Denver Region

- criteria by project type to rank/rate applications for DRCOG-selected categories; and
- defining the subsequent methods or procedural steps that result in project selection for the draft TIP.

Exhibit 10 Partner Responsibilities in Developing the Transportation Improvement Program

DRCOG:

- prepares and /adopts the TIP
- prepares and /adopts finding of air quality conformity
- coordinates activities, ~~assures~~ ensures collaboration, and facilitates the review and approval process
- develops eligibility requirements and selection criteria for DRCOG-selected categories
- solicits projects through a “call for projects” and assists potential applicants
- ~~may submit its own projects for selection consideration~~ evaluates applications and selects projects in ~~those~~ DRCOG-selected categories
- ensures consistency of proposed projects with the air quality conforming fiscally constrained RTP
- develops the financial plan, demonstrating fiscal constraint
- solicits descriptions of regionally significant projects being implemented in the TIP horizon using non-federal revenues
- coordinates the air quality conformity process including running the regional travel model if needed
- conducts public involvement activities
- publishes and /distributes the TIP
- maintains process for TIP ~~revisions~~ modifications and amendments

CDOT:

- provides guidance about state regulations
- works with DRCOG to cooperatively estimate available short-range state and federal ~~highway~~ revenues and cooperates in the development and /review of the financial plan
- solicits proposals and selects projects for funding with CDOT-~~controlled~~ revenue
- provides details of CDOT-~~selected~~ projects for inclusion in the TIP
- ~~may submit its own projects for DRCOG-selected categories of the TIP~~ participates in interagency review of proposed projects
- if needed, reviews highway networks and regional travel model results including data for air quality conformity
- reviews TIP information and documentation
- participates in public involvement activities
- incorporates the TIP into the STIP subsequent to governor’s approval

RTD:

- works with DRCOG to cooperatively estimate short-range regional and federal transit revenues and assists with the financial plan
- identifies projects for federal funding through its ~~Transit Development Program~~ [Strategic Budget Plan](#)
- provides details of RTD projects using federal funds to be included in the TIP
- provides details of other significant RTD projects using non-federal funds
- ~~may submit its own projects for DRCOG-selected categories of the TIP~~ participates in interagency review of proposed projects
- if needed, reviews transit networks and assists with regional travel modeling
- reviews TIP information and documentation
- participates in public involvement activities

Step 2. RTD project selection

RTD has primary responsibility for selecting projects for the TIP that use federal transit formula [funds](#) (“Section 5307 and 5309”) and transit discretionary ([competitive](#)) funds. RTD uses ~~their~~ [its](#) Strategic ~~Business~~ [Budget](#) Plan as the basis for its project selections and initial submittals to DRCOG (see Section 5.12). RTD provides its Section 5307 Program of Projects to DRCOG.

Step 3. CDOT project selection

CDOT receives federal highway funds from a variety of federal programs and also receives revenues from the Colorado Highway Users Tax Fund and is eligible to receive funds from the Colorado General Fund (as provided by the state legislature). The Transportation Commission has established a structure for identifying and addressing needs on the state highway system with this combination of funds (see Section 5.10). CDOT projects are defined for purposes of the TIP in the following investment category or program areas:

- strategic projects
- surface treatment
- regional priorities
- congestion relief
- bridge
- safety
- FASTER Safety
- FASTER Bridge Enterprise
- FASTER Transit
- elderly, disabled, rural, and other transit

Section 5.11 describes ~~the~~ CDOT ~~s TIP project~~ selection processes [for projects in the DRCOG TIP](#). Projects selected in the transportation management area are included in the TIP. [Since CDOT programs projects by investment category, instead of specific funding source, they are all listed as state funds within the TIP. CDOT does not specifically identify whether the funds are state or federal; the TIP lists them all as state funds.](#) CDOT operations and maintenance projects are not required to be listed in the TIP unless they are of a “capital” nature.

Step 4. Solicitation for DRCOG-selected projects

Once the TIP preparation policy document has been adopted ([S](#)step 1), DRCOG formally announces it is soliciting applications for TIP funding [through a call for projects](#). The application

forms and submittal process are ~~Web~~web-based. The application specifies instructions per the adopted policy document and embeds all evaluation criteria so applicants can immediately see how well their projects score and assess their competitiveness. The solicitation announcement typically gives sponsors six to eight weeks to complete and submit applications.

DRCOG conducts training on how to use the application program and jointly with CDOT holds workshops on what it means to implement projects using federal ~~TIP~~ funds. DRCOG also provides relevant material on its ~~y~~Web-site.

Step 5. Review and evaluation of submittals

DRCOG evaluates TIP applications using the process and methodology adopted in ~~S~~step 1. The Transportation Advisory Committee reviews the evaluations; a work group or ad hoc committee may be convened to assist. TIP applicants, ~~and~~ DRCOG and ~~either~~ CDOT or RTD (~~depending on project type~~) may hold “peer reviews” of certain projects to better understand scope, cost, and schedule implications. DRCOG typically produces a validated scoring/ranking of eligible submitted projects, by project type, for consideration by the transportation committees, the public, and the DRCOG Board.

The ~~exact~~ nature of the final selection process ~~tends to vary~~iesy from one TIP cycle to the next, but the specific process defined in ~~S~~step 1 is carried forward. Typically, transportation committees review the ranked lists of projects; work groups or ad hoc committees assist in crafting options as to the best “mix” of projects; and ~~other factors are considered~~geographic equity is examined. An interagency review phase allows the ~~MOA-MPA~~ partners to share their tentative selections with each other (along with ~~projects~~ proposed, but not selected, ~~projects~~) for review and comment on synergistic and multi-modal opportunities and implementation conflicts.

Step 6. Financial plan

To ~~comply with federal requirements~~, the TIP must contain a financial plan showing proposed expenditures are consistent with reasonably expected revenues. DRCOG works cooperatively with CDOT and RTD to determine reasonably expected revenue by funding category, by year. The financial plan may contain proposals for new revenues, new revenue sources (for example, federal discretionary funds); or innovative financing, as long as ~~they~~ such funding can be established as reasonably available. Costs are supplied by CDOT, RTD, and other project sponsors as part of their applications/-submittals. The final financial plan is explicitly considered by the transportation committees and the DRCOG Board as part of ~~adopting~~ the TIP ~~adoption~~.

Step 7. Draft TIP

After interagency review, the tentatively ~~-~~selected projects from the DRCOG process and the potentially ~~-~~revised submittals from RTD and CDOT are reviewed for consistency with the ~~air quality conforming~~ fiscally constrained RTP. DRCOG then assembles a consolidated draft TIP document, adding any federal discretionary or congressionally ~~-~~earmarked projects. DRCOG identifies the regionally significant projects that will be completed using non-federal funds during the period of the TIP for inclusion in the network demonstrating air quality conformity and listing in the TIP document.

Step 8. Air quality conformity

The process for demonstrating the TIP’s air quality conformity is similar to that used for the fiscally constrained RTP (see Section 4.2). Regionally significant roadway capacity and major transit guideway improvements selected for the TIP or implemented using non-federal funds in the TIP time horizon are compared to the projects anticipated to be completed during the first

interim “stage” of the fiscally constrained RTP (see Section 4.2, [Steps 6 and 7](#)). If TIP horizon projects are not in that stage, an RTP conformity revision is processed concurrently. ~~The regional travel model is run, pollutant emissions levels are estimated and compared to budgets, and implementation of State Implementation Plan transportation control measures is verified (see Section 5.9). Coordination is made with the North Front Range MPO to assure the requirements of the 8-hour ozone memorandum of agreement are addressed. If all criteria are met, DRCOG staff prepares a technical document supporting a conformity finding and public hearings are held. The DRCOG Board adopts the conformity finding through the transportation committees process as part of the TIP adoption. These [Applicable items reports](#) are provided to FHWA [and](#) /FTA to issue the federal conformity determination.~~

~~———— Step 9. Public involvement ([throughout process](#))~~

~~Project selection considers the concerns of the public. Project sponsors are responsible for providing opportunities for public comment on projects and applications submitted to DRCOG. RTD’s and CDOT’s processes include public participation. A formal TIP public hearing, with appropriate public notice, is conducted by the DRCOG Board prior to adoption. [The public notice of public involvement activities and time established for public review and comments on the TIP will satisfy the Program of Projects \(RTD’s Strategic Budget Plan\) requirements of the FTA Section 5307 Program.](#) The TIP public involvement process also serves as the Section 5307 public involvement process, and the public hearing is noticed accordingly. DRCOG summarizes all public comments received per the public record, drafts responses as appropriate, and presents this information to the transportation committees and DRCOG Board. If significant public comments are received on draft documents, a summary, analysis, and report on the disposition of such comments is included as part of the final TIP documentation.~~

~~———— Step 10. TIP adoption~~

The TIP and conformity finding require public review and adoption by the DRCOG Board through the transportation committees process. Upon transportation committees recommendation of the draft TIP and conformity documentation, DRCOG announces a formal public hearing and ~~these~~ [makes available](#) documents ~~are made available~~ for public examination. Formal transportation committees recommendations and DRCOG Board action take place after consideration of public input. Upon adoption, the TIP is transmitted to the [g](#)Governor for approval and to CDOT for inclusion in the STIP. [FHWA and /FTA issues a federal conformity determination concurrently to approving the TIP in the STIP.](#)

Relationship to the Statewide Transportation Planning/Programming Process

The projects in DRCOG’s adopted TIP are included without modification in the STIP, provided that the TIP was prepared in a process consistent with federal ~~rules~~[regulations](#), demonstrates air quality conformity, and is approved by the [g](#)Governor. However, because of the uncertainty associated with predicting the amount of revenues available for DRCOG, ~~to program to projects funded from the Surface Transportation Programs (Metro and Enhancement) and the Congestion Mitigation/Air Quality program,~~ CDOT may initially include these projects in the STIP only as illustrative and not in the funded programs. They are depicted as illustrative projects until the sponsor is ready to begin, at which time they are transferred into the funded programs where they can be budgeted.

TIP Revisions

The TIP may be revised between formal development cycles following the policies adopted in [Step 1](#). For any revision, air quality conformity must be considered. Typically, revisions are either of a policy or administrative nature. DRCOG has an agreement with CDOT that ~~the~~

DRCOG's public involvement and notification procedures of DRCOG will meet the requirements for CDOT's project amendments.

Policy amendments entail significant changes that require public review and adoption by the DRCOG Board through the transportation committees process. The TIP policies of Step 1 define the types of revisions that might require policy amendments. Examples from the current policy include:

- changing a project's funding by more than \$54 million during the TIP's first four years
- deleting a project, or deferring it, from the first four years of the TIP, or
- adding a project such that a new conformity evaluation would be required.

~~Policy amendments are currently processed quarterly. For most, air quality conformity determination is a simple statement that there is no impact on conformity. Others, however, require an entire new conformity determination.~~

Administrative modifications are less significant and, by definition, do not affect air quality conformity. DRCOG processes them and no committee review or DRCOG Board approval is required. ~~Examples from the current TIP policy include:~~

~~changing the designated responsible agency with the original sponsor's approval shifting funding within the TIP's first four years, or calling out specific projects to use Bridge, Safety, Surface Treatment, Safe Routes to School, or certain transit funds.~~

Pool Flexibility

There is an agreement on the degree of CDOT's flexibility ~~that CDOT has~~ concerning amending projects within CDOT pools (~~for example e.g.~~, Bridge Off-System, Bridge On-System, Congestion Relief, FASTER Bridge-Safety-Transit, and Surface Treatment). CDOT is allowed to shift funds without going through the amendment process each time, as long as the total amount of funding in the pool does not change.

Annual Listing of Federally Obligated Projects

Each fiscal year, DRCOG prepares a listing of projects for which federal funds were obligated by December 31st from data supplied by CDOT and the Federal Transit Administration. This listing is presented to transportation committees and posted on the DRCOG website ~~for public consumption.~~

4D. Congestion Management Process

In transportation management areas, federal law requires the regional transportation planning process to include a congestion management process:

"...that provides for safe and effective integrated management and operation...of new and existing transportation facilities...and through the use of travel demand reduction and operational management strategies."

The DRCOG region's congestion management framework addresses many federal, ~~accepted by the DRCOG Board in 1993, is that congestion management~~ requirements ~~are addressed~~ within several the other transportation planning tasks, processes and documents to the extent possible. Congestion management fits into the overall regional transportation planning process; it does not stand alone and is not a static product. The congestion management strategies

In transportation management areas such as Denver that are attainment-maintenance for air quality (see Section 5.9), federal funds **cannot** be programmed for any highway capacity project that would significantly increase capacity for single-occupant vehicles unless the project is based on an approved congestion management process.

philosophy of ~~considering~~ travel demand reduction (including Transportation Demand Management strategies) and operational management ~~strategies as ways to assure~~ ensure the efficient and effective use of transportation facilities are considered ~~is routinely included~~ in all project development and transportation planning processes in the region. As the MPO, DRCOG is responsible for coordinating the congestion management process.

The key components of the congestion management process are:

- **Congestion definition at the regional level.** In the DRCOG region, congestion is considered “severe” for linear segments of the designated regional roadway system that have a congestion mobility grade of “D” or “F.” The congestion mobility grade is calculated on a 1- to 20-point scale for every roadway segment. Points are calculated for each of five unique congestion measures, accumulated summed to a grand total, and used for ~~the~~ assignment of a grade. A map of roadway locations with a grade of “D” or “F” is produced annually. The regional level congestion definition should not be used in place of engineering level analyses required for corridor, project, or environmental documentation studies
- **Performance monitoring.** DRCOG assembles congestion information from a variety of sources including the regional travel model, local government and CDOT traffic counts, private companies using vehicle probe data (for example, e.g. INRIX) and ~~outside other~~ sources such as the national *Urban Mobility Report* prepared by the Texas Transportation Institute. Annual DRCOG produces annual reports ~~are produced~~ to present updated information and new types of measures.

Congestion Mobility Grade Measures

- **Duration** – How long does the congestion last? (“number of hours per day congested”)
- **Severity** – How long are the delays at individual locations? (“percent of travel time in delay in peak hour”)
- **Magnitude** – What is total amount of delay for all travelers at that location? (“Total daily delay time per mile”)
- **Variation** – What is the variation in travel time between off-peak and rush hour?
- **Reliability** – How frequently do crashes, incidents, or events occur? (“crashes per mile per year”)

The performance-based planning process established in MAP-21 and continued in the FAST Act (23 U.S.C. 119) requires that DRCOG and CDOT develop transportation plans and transportation improvement programs through a performance-driven, outcome-based approach to planning. DRCOG and CDOT transportation plans shall include performance targets that address performance measures and standards and a system performance report. Plans requiring performance targets include:

- Regional Transportation Plan
 - Transportation Improvement Program
 - Statewide Transportation Plan
 - State Transportation Improvement Program
- **Strategy identification and evaluation.** In this component, the causes of congestion are examined and congestion management strategies are explored. ~~Per the DRCOG congestion management system framework, t~~his activity takes place at two distinct levels, the regional level and the project level, as described in Exhibit 11. Many types of congestion mitigation strategies are identified in DRCOG’s Congestion Mitigation Toolkit.

- **Implementation.** To comply with federal requirements, pProjects must implement specific congestion management actions defined in the project level evaluation (for example e.g., NEPA). Decisions as to schedule, responsibilities, and funding sources for the more regional congestion management strategies are made during the TIP process.
- **Monitoring of strategy effectiveness.** Recipients of Congestion Mitigation/Air Quality program funds (see Section 4. C3) have a benefits-reporting requirement to FHWA and the Transportation Commission. DRCOG staff also monitors the results of other TIP funded projects related to congestion. Following the establishment of final federal FAST Act rules regulations, DRCOG will adjust current monitoring procedures, if necessary, to address the new rules regulations. The DRCOG Board may direct that other projects conduct effectiveness studies when the project is completed or that projects install monitoring devices so that effectiveness can be easily examined. The DRCOG Board may also identify a Unified Planning Work Program task to examine the effectiveness of specific projects or congestion management strategies.

Relationship to the Statewide Transportation Planning/Programming Process

Federal law only requires a congestion management process in transportation management areas, not throughout the remainder of the state. In the DRCOG transportation management area, the statewide transportation planning process must explicitly consider, analyze as appropriate, and reflect in its transportation planning products the DRCOG congestion management process.

Exhibit 11 The Two Levels of Congestion Management Strategy Evaluation in the DRCOG Region

- **1. Regional level.** During the development of long-range regional transportation plans, strategies for congestion management are identified and evaluated. The region's key preferred strategies are identified as part of the Metro Vision transportation system and the fiscally constrained RTP identifies the subset that will be "emphasized" with the reasonably expected funding resources. Separate but consistent documents may be prepared for certain strategies, such as a regional-intelligent transportation systems strategic plan or a travel demand management strategic plan.
- **2. Project level.** For major highway and transit capacity projects, project level evaluation examines specific congestion management actions either alone, in combination, or in support of the project. Project level analysis is a more detailed and geographically-focused evaluation of costs, benefits, and impacts of specific strategies. One source of information on strategies is the DRCOG Congestion Mitigation Toolkit. **The agency managing project development is responsible for project level congestion management evaluations.** There are two key examinations:
 - Identification and evaluation of a "management strategy only" alternative to determine whether or not it could substitute for the additional capacity of the "build" alternatives being considered.
 - If building additional highway or transit capacity is the preferred alternative necessary, then congestion management strategies that most effectively support the operation of the "build" alternative are included in and implemented by the project.

5E. Planning Process Certifications

Under [the FAST Act](#), ~~SAFETEA-LU~~ DRCOG and CDOT must certify to FHWA and FTA that the metropolitan transportation planning process is being conducted in accordance with all applicable federal requirements each time a new TIP is submitted. Similarly, every four years FHWA ~~and~~ /FTA must conduct ~~its own~~ [federal](#) review of the process. Both the self-certification and the federal quadrennial planning certification review hold an MPO and all planning partners in the transportation management area (including FHWA and FTA) accountable for the function and quality of the planning process in its region.

DRCOG initiates the self-certification process, [working with CDOT throughbyto conduct](#) a critical review of the federal requirements (see Chapter 2). ~~With CDOT input~~ DRCOG prepares [a draft](#) certification documentation that is [signed by the executive directors of each agency](#). ~~taken for action by the DRCOG Board through the transportation committees process. Public comment is sought at the time of DRCOG Board action. If the conclusion is reached that the regional transportation planning process complies with all applicable federal requirements, the DRCOG Board and CDOT certify the process.~~

Federal law mandates that the self-certification accompany the submittal of an adopted TIP to FHWA ~~and~~ /FTA. ~~DRCOG, CDOT, and the federal agencies discuss the schedule at the Agency Coordination Team (or elsewhere, as most appropriate).~~

FHWA and FTA are jointly responsible for conducting the quadrennial planning certification review for the U.S. Department of Transportation. The Environmental Protection Agency and other federal agencies may also participate. The federal agencies typically begin the process by sending ~~out~~ a questionnaire to ~~be completed by~~ the MPO that covers an array of planning topics. DRCOG, with the assistance of the ~~MOA-MPA~~ partners, air quality planning agencies, and local governments as appropriate, completes a formal response. The federal agencies conduct a “desk review” of this response, then typically ~~spend two or three days in the region~~ conducting an on-site evaluation, meeting with key staff from the agencies, local elected officials, and the public. [The federal agencies then writeprepare a report to document the review and any findings.](#) FHWA and FTA jointly conclude the quadrennial planning certification review with one of the following actions:

- certify the transportation planning process
- certify the process subject to required corrective actions
- certify the process as acceptable for a portion of the overall requirements (in other words, not certify the process for some programs), or
- withhold certification.

A certification conclusion is valid until a new FHWA ~~and~~ /FTA quadrennial certification process is conducted.

If certification is limited or withheld, some federal funding to the region may be withheld by FHWA ~~and/or~~ /FTA.

~~For the quadrennial certification review, FHWA and FTA determine at the start of each year when each of the MPO certification reviews will occur nationwide. An MPO may negotiate the timing of that review if it is incompatible with other major events of the organization. The joint certification conclusion is released approximately two to three months after the on-site review, typically no later than the end of the federal fiscal year.~~

Relationship to the Statewide Transportation Planning/Programming Process

The MPO self-certifications and quadrennial certification review conclusions are considered by CDOT in its certification to FHWA and FTA that the statewide transportation planning process is being carried out in accordance with all federal requirements.

10.5. Coordination with Other Transportation Processes

RTD, CDOT, air quality planning agencies, and local governments undertake numerous transportation planning and programming activities that ~~interact~~ intersect with the regional process. This chapter identifies those most relevant to the regional process, describes them, and shows how they relate to the regional process and how the activities are coordinated.

1. CDOT Interchange Approval

CDOT's Interchange Approval Process Policy Directive was established to ensure fair and consistent treatment of proposals for new interchanges or major interchange improvements on state highways. The Policy Directive was amended in December 2004 (and reconfirmed in October 2008) and ~~a~~ the Procedural Directive that implements it was issued in October 2005. The CDOT "1601 process" is applied to all state highways (interstates, other freeways, and non-freeway facilities) and to all applicants (local governments, public highway authorities, and CDOT itself) to manage the location of interchanges so that the state highway system's mobility and level of service is preserved. Such interchanges and ~~improvements~~ cannot be constructed until the applicant completes all the steps of the 1601 process identified in the Procedural Directive. Exhibit 12 summarizes those steps.

Categories of Applications

- Type 1: New interchanges on interstates or freeways, or any application not initiated by CDOT that seeks CDOT cost-sharing. Approval by Transportation Commission.
- Type 2: New interchanges not on interstates or freeways, or any modification or reconfiguration to existing interchanges (with no CDOT cost-sharing). Approval by the CDOT Chief Engineer (may be elevated to Transportation Commission).
- Type 2a: Minor interchange improvements with little or no impact to the transportation system. Approval by the CDOT Chief Engineer (may be delegated to the CDOT Regional Director).

Relationship to the Regional Transportation Planning Process

~~The Metro Vision transportation system of the Metro Vision RTP may include new interchanges on state highways or major improvements to existing ones without any 1601 steps being completed.~~

The air quality conforming fiscally constrained RTP ~~typically~~ must depict proposed new interchanges or major interchange improvements for purposes of fiscal constraint and, in some instances, air quality conformity, either through the development of a new RTP or an amendment to an existing one. The following types of interchange improvements, which will typically be either Type 1 or Type 2 1601 applications, are considered regionally significant and must be reflected in the conformity modeling network:

1. new interchange
2. improvements upgrading a local service interchange to a freeway-to-freeway interchange
3. improvements adding missing movements to an existing interchange (for example, changing a half diamond to a full diamond, or adding new freeway-to-freeway ramps not currently provided)

4. removal of an interchange or elimination of movements.

For regionally significant interchange improvements in the transportation management area, appropriate CDOT approval of the system level study is needed no later than three weeks after the due date for project requests in the development of a new RTP or for RTP amendments. The applicant must provide the draft system level study (Type 1 and Type 2), or other data (Type 2a), to DRCOG 20 days before the date of needed CDOT action.

For non-regionally significant interchange improvements in the transportation management area, and for any interchange improvements in the remainder of the transportation planning region, appropriate CDOT approval of the system level study (Type 1 and Type 2) or other data (Type 2a) is needed at least 45 days prior to the DRCOG ~~p~~Public ~~h~~Hearing on a new [air quality conforming](#) fiscally constrained RTP or RTP amendment. If CDOT approval is not obtained in these timeframes, the request must be deferred until the next scheduled RTP amendment cycle. In all cases, applicants must provide DRCOG a conceptual level cost estimate, even if a system level study is not prepared. The DRCOG land use forecasts for the current plan horizon are the analytic base for 1601 studies ~~where~~ [for which](#) fiscally constrained RTP funding sources are expected or desired. CDOT may also request a build-out assessment to further define project level requirements and financial commitments.

As appropriate, CDOT reports on the status of 1601 studies in the region to [DRCOG](#) transportation committees.

Exhibit 12 Steps in the 1601 Process

The 7 steps in the 1601 process are briefly summarized as follows (for detail, see the 1601 *Procedural Directive*):

- **1.** The applicant notifies the appropriate CDOT region of its desire to build a new interchange or improve an existing interchange on the state highway system, and the CDOT region sets a **pre-application project scoping meeting**. The purpose of the meeting is to determine the scope category and anticipated process and schedule for the proposed project. The CDOT Regional Director must approve the progression of any application to Step 2.
- **2.** The applicant is responsible for all costs associated with the development, administration, and evaluation of such applications. If the applicant is not CDOT, an initial **intergovernmental agreement** is developed between the applicant and CDOT addressing: anticipated improvement category; responsibility for administrative and application costs; identification of needed studies and analytical procedures; level of design detail needed; environmental study expectations; long range plan consistency requirements; access permitting; and other relevant topics.
- **3.** The applicant completes a **system level study** to identify the short and long term environmental, community, safety, and operational impacts on the state highway and surrounding transportation system. The system level study includes a preliminary financial plan that identifies all costs and proposed responsibility for funding and the effect of the proposed funding on the fiscally constrained RTP. Type 2a applications do not require a system level study, but the applicant must prepare data sufficient to substantiate that there is no potential for significant negative impact.
- **4.** The Transportation Commission (Type 1) or CDOT Chief Engineer (Type 2) reviews and, if acceptable, **approves the system level study**, with conditions.
- **5.** DRCOG must establish that the proposed new interchange or interchange improvements are **consistent with the fiscally constrained RTP**; often this requires an amendment to the RTP.
- **6.** The applicant must prepare **conceptual design**, which must be approved by the CDOT Chief Engineer or Regional Director. The design report must contain any Access Code-related requirements. The applicant must complete the **NEPA** process, with the CDOT Chief Engineer or FHWA issuing the appropriate decision document. When the interchange is on the interstate, FHWA must grant access approval.
- **7.** If the applicant is not CDOT, a **final intergovernmental agreement** between CDOT and the applicant is executed that details the actions to be implemented, ownership, costs, and a funding plan clearly identifying responsibilities. The CDOT Chief Engineer approves the final intergovernmental agreement, if it is acceptable. If the final funding plan differs substantially from that approved by the Transportation Commission in Step 4, it is submitted to the Transportation Commission for reconsideration.

Upon completion of the final intergovernmental agreement, CDOT issues a state highway access permit. The applicant completes design, right-of-way acquisition, and construction per the approved final intergovernmental agreement and access permit.

2. CDOT Corridor Optimization

Corridor optimization is the name CDOT has given to its process to identify how future travel demands in given corridors should be met. Corridor optimization produces a document that defines CDOT's vision of the future for potential highway expansion, future right-of-way needs, and permitted access. The document also suggests how transit, the parallel arterial street system, and other alternatives could help meet future overall corridor demands. The process is detailed in the Transportation Commission's *Corridor Optimization Guidelines (2001)*.

CDOT identifies corridors it believes might benefit from an optimization study and prioritizes the corridors for study. Transportation Commission approval is needed before a study can begin. While the Guidelines state that the study process is a collaborative effort between CDOT, regional, and local agency staff, it is the Transportation Commission's responsibility to approve a final Corridor Optimization Report. Exhibit 13 outlines the steps in the corridor optimization process.

Relationship to the Regional Transportation Planning Process

Funding for corridor optimization studies within the transportation management area is shown in the TIP. Corridor optimization studies in the region are also mentioned in the informational section of the Unified Planning Work Program. For a specific corridor, CDOT's corridor optimization process develops **CDOT's preferred corridor strategy** and an approved Corridor Optimization Plan becomes CDOT's input to the Metro Vision transportation system. Differences of vision between local governments, RTD, and/ or CDOT as reflected in city, county, or corridor optimization plans are resolved when the Metro Vision RTP is developed. Decisions about what Corridor Optimization Plan recommendations can be funded are initially made when the fiscally constrained RTP is prepared. Implementation funding is programmed through the TIP in the transportation management area and the STIP in the remainder of the transportation planning region.

The DRCOG land use forecasts may be used as a starting point for a corridor optimization study. However, the corridor optimization process may consider several different land use/transportation scenarios.

As appropriate, CDOT updates the transportation committees on the status of ongoing corridor optimization studies in the region.

3. Revisions to State Highway Access Categories

The *State Highway Access Code* identifies the procedures and standards by which CDOT and local governments regulate property access to or from state highways. The *Code*, revised by the Transportation Commission in 1998 (major) and 2002 (minor) pursuant to state statute, specifies a classification system of eight separate categories for access management purposes, as shown in Exhibit 13. In 1999, CDOT and local governments cooperatively assigned each state highway segment a category on the basis of existing and future function and location of the highway or /segment.

The *Code* establishes the process and procedure for making changes to the assigned category, which is accomplished through a rule-making hearing by the Transportation Commission. Exhibit 14 outlines the process. CDOT maintains the current schedule of assigned categories reflecting the original category assignment and all changes approved since 1999.

Relationship to the Regional Transportation Planning Process

Managing the state highway system to enhance safety, maintain smooth traffic flow, and protect the functional capability of the system (the intent of the *Code*) is consistent with policies of the Metro Vision Plan. In concept, state highways shown on the Metro Vision RTP network should carry an access designation consistent with the regionally-significant nature of that plan, specifically F-W, E -X, R-A, and NR-A (see Exhibit 13). In the already-developed portions of the region, established roadside development may make assignment of these high level access categories unrealistic and lower classifications based on the existing level of development may be the best that can be achieved.

When notified by CDOT of a proposed access category revision, DRCOG staff:

- for any NR (nonrural) designation requested, examines the request for consistency with the Metro Vision's Plan-urban growth boundary/area
- for any state highway on the Metro Vision RTP, checks whether the proposed access category is generally consistent with the expectations that come with being shown on that plan.

If there are no concerns, DRCOG does not submit testimony at the rule-making hearing. If there are inconsistencies or concerns, DRCOG staff immediately alerts the local agency and CDOT staff. If ~~those~~ the problems identified can be addressed or reasonably explained,

DRCOG does not submit testimony. If concerns are not, or cannot be, addressed, DRCOG may present testimony. There may be a need to revise or adjust the Metro Vision RTP during the next update or revision cycle to reflect approved access category changes.

As appropriate, CDOT updates the transportation committees on the outcome of relevant access category change requests.

Exhibit 13 State Highway Access Categories

The *State Highway Access Code* identifies eight categories for access management as follows (for detail, see the *Code*):

- F-W (interstate, freeway)
- E-X (expressway, major bypass)
- R-A (rural regional highway)
- R-B (rural highway)
- NR-A (nonrural regional or principal highway)
- NR-B (nonrural arterial)
- NR-C (nonrural arterial, low speed character)
- F-R (frontage road)

Exhibit 14 Process for Changing State Highway Access Category

The process for making changes to the assigned state highway access category is briefly summarized as follows (for detail, consult the [State Highway Access Code](#) or the CDOT Access Program Administrator):

1. Relevant local government, MPO or transportation planning region (with the approval of the local government by resolution), or CDOT initiates a request for a category change.
2. At least 90 days before anticipated [Transportation Commission](#) action, the applicant provides information to CDOT to support the request, including an explanation of the need for the requested change and a discussion of how the change is consistent with the purposes and standards of the *Code*.
3. CDOT:
 - [CDOT](#) reviews each request
 - [CDOT](#) prepares a recommendation to the Transportation Commission
 - [CDOT](#) provides a copy of pertinent documents to the appropriate local governments and MPO or transportation planning region 30 days prior to Commission action, and
 - [CDOT](#) prepares the notice of the rule-making hearing.
4. At the hearing, all interested persons are provided the opportunity to submit written or verbal testimony.
5. The Transportation Commission acts on the changes, based on the record of the rule-making hearing, as soon as practical following the hearing.

4C. Major Environmental Processes

The National Environmental Policy Act (NEPA), signed into law January 1, 1970, requires federal agencies to assess the environmental impact of major federal actions, including projects that receive federal funds, using an interdisciplinary approach that provides opportunities for public review and input. Since then, a large body of regulations, processes and procedures, and case law has specified how these assessments are completed. Further, numerous other public health laws, regulations, and executive orders have been enacted, broadening the scope of and requirements for environmental-type considerations, which are typically folded into the NEPA umbrella.

Environmental Process Acronyms	
EA	Environmental Assessment
EIS	Environmental Impact Statement
PEL	Planning and Environmental Linkage
NEPA	National Environmental Policy Act

The purpose of this section is to define the relationships between the regional transportation planning process and major environmental studies. For this relationship to be understood, some NEPA terminology and process information is briefly presented. Exhibit 16 identifies the categories of environmental study and indicates which are considered major. Exhibit 17 summarizes the general process for conducting major environmental studies. CDOT's *Environmental Stewardship Guide* provides a good overview and additional detail is contained in the *CDOT NEPA Manual*.

Relationship to the Regional Transportation Planning Process

The federal [rules-regulations](#) for NEPA and for metropolitan transportation planning have evolved since their initial adoption several decades ago. Congress has expressed its intent that transportation planning and environmental considerations be better coordinated [with clear relationships](#) ~~and the federal transportation planning rules enacted after SAFETEA-LU provided substantial direction about “linking the transportation planning and NEPA processes.” The MOA partners are working through how these new rules will be specifically applied in the future within the Denver region. The relationship guidance presented in this section is applicable to environmental studies currently underway. This guidance is important because several major environmental studies underway are in corridors for which sufficient implementation funding is not identified (i.e., projects in those corridors are **not** included in the fiscally constrained RTP with the resources expected to be reasonably available during the next 20 years or more).~~

Exhibit 15 [Categories of NEPA Environmental Action Categories Study](#)

Proposed transportation actions or potential projects are categorized according to the likely environmental impact.

Categorical exclusions are assigned to actions or projects that individually or cumulatively do not have a significant environmental impact. A categorical exclusion is **not** considered to be a major environmental process.

[For actions or projects where the significance of the environmental impact is not clearly known, an environmental assessment \(EA\) is prepared.](#)

An **environmental impact statement (EIS)** is required for actions or projects that are likely to have significant impacts to the environment. ~~All EISs are considered to be major environmental processes.~~

~~For actions or projects where the significance of the environmental impact is not clearly known, an environmental assessment (EA) is prepared. **Select EAs may be** considered to be major environmental processes, as presented in this section.~~

The following relationships are [typically](#) established

- **Authorizing the study.** Within the transportation management area, an EIS or EA is included in the TIP if federal, state, or RTD funds are being used. EISs or EAs, regardless of funding source, are listed in the informational section of the Unified Planning Work Program.
- **Pre-study activities.** The applicant provides a draft work scope for a specific EIS or EA directly to the other [MOA-MPA](#) partners at a time no later than the release of the consultant solicitation for work. The [MOA-MPA](#) partners review that draft and provide timely comments. ~~Issues~~ [Areas of concern](#) are worked out between the applicant and the [MOA-MPA](#) partner agencies before the consultant work scope is finalized. As part of this review, the [MOA-MPA](#) partners confirm which ~~of the following~~ relationship requirements the study needs to meet. The relationship requirements are considered to be standard for all EISs,

CDOT's *Environmental Stewardship Guide* states:

“A carefully prepared Purpose and Need statement provides a credible foundation for the subsequent study and promotes acceptance by the public and review agencies.”

Early input from the regional transportation planning process assists in creating this credible foundation.

but for EAs the determination is made on a case-by-case basis cooperatively between the ~~MOA-MPA~~ partners and applicant at ~~the~~ an Agency Coordination Team meeting.

- **Early review of regional planning process linkages and consistency**
 - Purpose and need. As the NEPA study is developing a draft purpose and need statement during scoping, DRCOG is customarily asked to provide review comments from the perspective of the MPO. To assist in developing its response, DRCOG may solicit input from the Transportation Advisory Committee or from individual member jurisdictions that could be affected by the proposed project. ~~and reviews the draft purpose and need statement with the Transportation Advisory Committee. The specific point for committee input (e.g., in resource agency scoping or public scoping) is established cooperatively by DRCOG and the applicant on a case-by-case basis depending on the project and its issues, but in a way so as not to unduly affect the NEPA study schedule. The Transportation Advisory Committee may be consulted if there are uncertainties. The applicant assists in any committee briefing.~~
 - Metro Vision. As one of its evaluations, the NEPA study expressly considers and articulates the relationships (consistency or conflicts) between the project, its alternatives and ~~the “urban form” and transportation components of the~~ Metro Vision Plan. ~~This consideration may help generate appropriate alternatives or eliminate others and the consistency examination can help identify how alternatives do or do not respond to the region’s “desired” future growth.~~
 - Project location and RTP “placeholder.” The NEPA study identifies whether the study location is within the area subject to regional air quality conformity determination and what placeholder projects the then-current air quality conforming fiscally constrained RTP shows within the corridor (see background discussion in Exhibit 178).
 - ~~Evaluation criteria.~~ ~~As the NEPA study identifies its objectives and the measurement methods it uses to assess how well alternatives achieve those objectives, it considers criteria that DRCOG uses in the regional transportation plan development process.~~
 - Land use forecasts. Regional air quality conformity is demonstrated for the fiscally constrained RTP based on the DRCOG small area land use forecasts. As such, those forecasts form the baseline for the transportation measures, criteria and related evaluations within the NEPA study. Other forecasts may be used for sensitivity analysis, investigating even longer-range improvement needs, examining the implications of a transportation alternative on inducing growth or redefining land use (an indirect effect), and for the portion of the Greater Denver Area Transportation Planning Region where air quality conformity is not applicable.
 - Congestion Management Process requirements. Within the transportation management area, the NEPA study addresses the project level congestion management requirements (see Section 4.4D) or references such efforts that may be conducted outside the NEPA study. Outside the transportation management area, a congestion management examination is not required, but is encouraged.
 - Approaching the NEPA decision – Relationship of NEPA preferred alternative to the Metro Vision transportation system. If the NEPA preferred alternative differs significantly from the placeholder project concept depicted in the Metro Vision transportation system of the Metro Vision RTP, it DRCOG staff should be alerted. The project is brought to through the regional transportation planning process to be considered for inclusion in the plan during the next “scheduled” plan amendment or update process. As a preference preferred alternative begins to is developed in the

NEPA study, the applicant alerts DRCOG and that issue may be brought to transportation committees for discussion.

- **Relationship of NEPA decision to the air quality conforming fiscally constrained RTP.** Exhibit 18 presents a matrix for synchronizing the NEPA decision document with the fiscally constrained RTP. Close coordination among the applicant, lead agency, and DRCOG is encouraged during this period to avoid delays to the NEPA study or unreasonable expectations on the regional transportation planning process.
- **Relationship of NEPA decision to the TIP.** Within the transportation management area, the elements of the project anticipated during the period of the TIP, including environmental impact mitigation, must be part of the adopted conforming TIP before the NEPA decision document can be issued.

An environmental **disclosure** document can be issued for alternatives or a preferred alternative NOT included within the fiscally constrained RTP, but completion of such document is no guarantee of funding and no guarantee of inclusion in the fiscally constrained RTP.

A NEPA **decision** document, however, cannot be issued until the selected project, project elements, or project phases are included within an adopted, fiscally constrained RTP that, in air quality nonattainment-maintenance areas, has demonstrated air quality conformity.

Planning and Environmental Linkage (PEL) Studies

A [Planning and Environmental Linkage \(PEL\)](#) study can be conducted as an interim step of evaluation for a transportation need or project that ~~has been identified in the regional transportation plan, but~~ has not entered formal NEPA-level analysis. The purpose of a PEL study is to perform preliminary analysis and make decisions not normally completed as a part of the traditional regional level planning process. This in turn that will make NEPA level evaluation and decision-making more transparent to resource agencies and the public, promote environmental stewardship, minimize duplication of effort, and reduce delays in project implementation. PEL studies may also be conducted for transportation corridors to more clearly identify the problem and develop potential refined solutions for future inclusion on in the regional transportation plan. Agencies preparing a PEL study must complete an FHWA questionnaire to verify the activities conducted as part of the study and their relationship to future NEPA document preparation.

Exhibit 16 General Process for Conducting a ~~Major Environmental~~ NEPA Study

The **general** process for conducting an EIS or EA is similar, as described in the following overview. *For any **specific** study, some steps may be conducted in a different order. There are also some specific requirement differences between an EIS and an EA.*

1. Identify roles. The lead agency in a major environmental study is a federal role (for example e.g., FHWA, FTA, or joint lead). The lead agency is responsible for assuring that all aspects of the relevant NEPA processes are completed per federal requirements. The applicant (CDOT, RTD, public transportation authorities, or local governments, sometimes cooperatively) typically completes or manages the actual work under the lead agency's guidance.
2. Define and conduct agency coordination and public involvement, including initial notification to the public and affected agencies.
3. Define the scope of the proposed project and its purpose and need, for example,; what the project is trying to accomplish and why it is needed, what the problems are that need to be addressed.
4. Describe the affected environment. Identify, assess, and understand the existing conditions of the numerous potentially sensitive environmental resources.
5. Identify alternatives that respond to the purpose and need. A "no action" alternative must be defined as a baseline for comparison.
6. Evaluate the alternatives. Quantify how well each alternative addresses the needs and the environmental (and other) impacts or consequences. In larger studies, a multi-step evaluation and screening process is probable (though not required), with an initial step that eliminates alternatives that are not viable due to fatal flaws, followed by a preliminary screening using a few criteria to eliminate alternatives that are clearly inferior, followed by a more detailed assessment of the remaining alternatives using a full set of criteria.
7. Prepare and distribute the environmental disclosure document. The lead agency issues the EA, or the draft and final EIS.
8. Identify a preferred alternative, including needed avoidance, minimization, and mitigation of project impacts. In studies where funding is not available to fully construct the preferred alternative, "priority" project elements or phases must be identified for inclusion in the decision document.
9. During a formal comment period, solicit public and agency review. Appropriately address comments submitted.
10. Prepare and distribute the decision document. For an EIS process, the lead agency issues a Record of Decision. For an EA process, it issues a Finding of No Significant Impact if the proposed project has no significant impacts that cannot be mitigated. If impacts of environmental significance are considered likely, the EA process may conclude that an EIS must be prepared.

Exhibit 17 Coordination between Regional Transportation Plan and ~~Environmental~~-NEPA Study's Decision Document

Background. Prior to a major NEPA study, the transportation improvements identified in the Metro Vision RTP may be considered best estimate placeholders. In the fiscally constrained RTP, the placeholder is assumed in the cost computations for fiscal constraint and, in air quality nonattainment-maintenance areas, is part of the modeled network used to demonstrate regional air quality conformity. ~~As decision processes,~~ EISs and EAs intend to identify a preferred alternative that can be implemented. To do so, the description (design concept and scope) and cost of the project to be approved in the NEPA decision document must be consistent with that in the adopted fiscally constrained RTP. ~~If they are not consistent, either That could entail amending~~ the fiscally constrained RTP ~~must be amended,~~ or the NEPA study ~~identifying the “priority” elements or phases of a preferred alternative that would be completed within the available fiscally constrained funds or both~~ ~~must be modified.~~ The cost of any project/phase included in the fiscally constrained RTP must include and account for environmental mitigation measures anticipated in the NEPA decision document.

Scenarios and associated requirements.

1. A pProject desired in the NEPA decision document ~~is not~~ significantly different from the adopted fiscally constrained RTP placeholder. ~~The project must still be and is~~ within the placeholder budget for fiscal constraint or within an acceptable tolerance level. The tolerance level ~~for specific projects~~ will be agreed upon by CDOT, DRCOG, and FHWA, based on the overall cost ~~magnitude~~ of the project. As a general guideline, “smaller” projects (e.g. <\$30 million) may have a project cost tolerance within 30 percent of the fiscally constrained RTP placeholder cost in ~~the same constant~~ year dollars. ~~The and a~~ cumulative cost of all individual ~~decision document~~ NEPA process projects ~~may have a project cost tolerance~~ within 20 percent of the total cost of ~~those projects as shown all regionally significant projects~~ in the fiscally constrained TIP. Progressively lower tolerance levels ~~may, to~~ be determined ~~jointly~~ by CDOT, DRCOG, and FHWA ~~will be used~~ for larger projects. No RTP amendment is needed ~~and the~~ NEPA decision document can be issued.
2. A pProject desired in the NEPA decision document is significantly different from the adopted fiscally constrained RTP placeholder. ~~but is within the placeholder budget or tolerance.~~
 - a. ~~Within the air quality nonattainment or maintenance area,~~ “Significantly different” ~~within the nonattainment maintenance area implies need to redo~~ A new air quality conformity determination ~~may be required.~~ A fiscally constrained RTP amendment is required, which DRCOG would consider during the next scheduled plan amendment or development cycle. NEPA decision document can be issued ~~only~~ after ~~the~~ fiscally constrained RTP is revised and air quality conformity demonstrated.
 - b. ~~Outside the air quality nonattainment-maintenance area,~~ A fiscally constrained RTP amendment is needed, but would be considered “minor” since air quality conformity is not involved. Applicant should coordinate with DRCOG on timing of fiscally constrained RTP amendment and issuance of NEPA decision document.
3. A pProject desired in the NEPA decision document is beyond the agreed upon tolerance level. ~~but and~~ the applicant has a proposal for how RTP fiscal constraint will be maintained (for example, deleting or deferring other projects in the fiscally constrained RTP, or adding additional revenues). ~~A~~ fiscally constrained RTP amendment is required, which DRCOG would consider during the next scheduled plan amendment or development cycle. NEPA decision document can be issued ~~only~~ after fiscally constrained RTP is revised and ~~in the air quality nonattainment maintenance area,~~ air quality conformity ~~is~~ demonstrated.
4. A pProject desired in the NEPA decision document is beyond the agreed upon tolerance level and the applicant has no proposal for how fiscal constraint will be maintained. ~~The~~ NEPA decision document cannot be issued until project is in the fiscally constrained RTP. ~~but with no applicant proposal for maintaining fiscal constraint~~ DRCOG would consider this ~~project~~ only during the next scheduled ~~new~~ plan development cycle.

Note that coordination between the RTP and rapid transit environmental studies are addressed as part of the FasTracks Annual Review process between DRCOG, RTD, and FTA.

5. DRCOG Fixed Guideway Transit Review

Senate Bill 90-208 is a Colorado statute enacted in 1990 that states:

“The Regional Transportation District (RTD) Board shall take no action relating to the construction of a regional fixed-guideway mass transit system until such a system has been approved by the designated ~~m~~Metropolitan ~~p~~Planning ~~o~~Organization (MPO). Each component part or corridor of such system must be approved by the MPO. Such action shall include approval of the method of financing and the technology selected for such projects.”

Appendix A lists the relevant state statute.

Senate Bill 90-208 provides the legislature assurance that fixed-guideway construction proposed by RTD is technologically sound, financially feasible, and consistent with the expectations of affected jurisdictions as represented in the MPO process.

Criteria for the review of proposed projects per Senate Bill 90-208 are adopted by the DRCOG Board through the transportation committees process. RTD submits fixed-guideway transit proposals to DRCOG and, in its proposal, describes the [specific](#) project in detail, provides a rationale for why it is being pursued, and provides information pertinent to each of the criteria. DRCOG conducts a technical assessment of ~~the each~~ proposal using the information provided by RTD and its own examinations. Based on the criteria, DRCOG prepares a draft assessment report making preliminary findings and conclusions, which is reviewed by RTD. The proposal is also presented to the public in a hearing at ~~the a~~ DRCOG Board [meeting](#). DRCOG prepares a final assessment report reflecting resolution of technical and financial issues with RTD and summarizing public comment. Final transportation committees recommendations and DRCOG Board action to approve the specific proposal (or not) take place upon consideration of the final report.

Relationship to the Regional Transportation Planning Process

The Senate Bill 90-208 evaluation is conducted by DRCOG through the regional transportation planning process. As a priority transportation planning activity, such evaluations are identified in the Unified Planning Work Program. RTD fixed-~~g~~-guideway transit facilities must be in the [air quality conforming](#) fiscally constrained RTP and the TIP before they can be implemented. The Senate Bill 90-208 assessment confirms the fiscally constrained nature of the proposal per the fiscally constrained RTP or provides a rationale for plan amendment. The project can be included in the TIP for construction only after the DRCOG Board has issued a favorable Senate Bill 90-208 finding.

~~6E.~~ FasTracks ~~Annual~~ Review

In April 2004, DRCOG completed the initial Senate Bill 90-208 review of RTD’s FasTracks Plan, which was subsequently approved by the region’s voters in November 2004. FasTracks is a broad, region-wide, long-term program and numerous assumptions were made about both technology and financing. To ensure the legislative intent of the review but address the likelihood of change during the course of FasTracks implementation, DRCOG [has defined a process to evaluate changes to the most recently approved FasTracks Plan to determine if such proposed changes warrant new ~~'s initial~~ Senate Bill 90-208 approval action by the DRCOG Board. The key steps in the process are as follows:](#)

- [RTD submits a FasTracks Change Report](#)
- [The DRCOG Board, through the transportation committees process will-determines whether if-changes in the following categories require further action pursuant to Senate Bill 90-208:](#)
 - [Project definition/scope/technology](#)
 - [Financial pPlan](#)
 - [Implementation schedule](#)
 - [Operating characteristics](#)
 - [Level of bus service](#)

~~approval of FasTracks required an annual review by the regional transportation planning process. For this review, RTD prepares an annual FasTracks report, which identifies changes in:~~

- ~~• project definition, scope, or technology~~
- ~~• costs of overall plan and corridors~~
- ~~• revenue projections~~
- ~~• implementation schedule~~
- ~~• operating characteristics~~
- ~~• level of bus service~~

RTD ~~b~~Board final action on any significant change to the FasTracks Plan requires MPO approval. ~~through the annual review process~~

The DRCOG Board ~~also requires RTD to provide a FasTracks Status Report every year. The report is for information purposes and does not require an associated action~~ ~~through the transportation committees process determines if the changes identified are significant enough to require further Senate Bill 90-208 action.~~

Relationship to the Regional Transportation Planning Process

~~The annual review is identified as a work activity in the Unified Planning Work Program. The annual process may result in the need to amend the fiscally constrained RTP or TIP to accommodate significant changes.~~

7E. CDOT and RTD Master Intergovernmental Agreement

In April 2004, CDOT and RTD executed a Master Intergovernmental Agreement for continued coordination and planning for transportation development within the portion of the state in the RTD district. The Master [Intergovernmental](#) Agreement establishes a framework process for coordination of CDOT's and RTD's transportation improvements to ~~assure~~ [ensure](#) that all proposed projects, programs, and facilities are accommodated to the maximum extent practicable. Each party further commits to minimizing costs for upgrades or modifications necessitated by the other party's construction to the maximum degree possible. The Master [Intergovernmental](#) Agreement establishes a context for corridor-specific intergovernmental agreements that address corridor planning, environmental study coordination, final design, management, and funding of improvements. Exhibit 18 identifies the elements covered by the Master [Intergovernmental](#) Agreement. An exhibit attached to the Master [Intergovernmental](#) Agreement identifies expectations for corridors where CDOT and RTD, jointly or separately, have either ongoing environmental study or near-term expectations for such.

Relationship to the Regional Transportation Planning Process

The coordination ~~committed~~-specified by the Master Intergovernmental Agreement affects how CDOT and RTD propose studies for inclusion in the Unified Planning Work Program and TIP, corridor projects in the RTP, and specific construction projects in the TIP.

Exhibit 18 Items Addressed by the CDOT/RTD Master Intergovernmental Agreement

- 1. Project Coordination
 - — Physical impacts to existing facilities
 - — Impacts based on maintaining operations and safety
 - — Impacts based on legal, regulatory, or design standard requirements
 - — Impacts in long-term projects:
 - ⊖ • identification of future improvements
 - ⊖ • conceptual design
 - ⊖ • final design and construction elements
 - ⊖ • design approval of construction elements
 - ⊖ • environmental study coordination
 - — Responsibility for determining impacts
 - — Sharing of personnel
- 2. Right-of-W~~ay~~ay
 - — Use of CDOT right-of-way
 - — Cost of additional right-of-way
- 3. Credit for Funds Expended
- 4. Dispute Resolution
- 5. Implementation by Corridor or Project Specific Agreements

8G. Planning and Development Process for FTA Capital Investment Grant Program ~~New Starts Projects~~

The Capital Investment Grants (CIG) is FTA’s primary grant program for funding major transit capital investments, including heavy rail, commuter rail, light rail, streetcars and bus rapid transit. Projects seeking CIG funding must complete a series of steps during several years to be eligible for funding. The project type and overall cost determine the category of the project: New Starts, Small Starts or Core Capacity. For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – project development (PD) and engineering. For Small Starts projects, there is one phase in advance of receipt of a construction grant agreement: project development.

Project sponsors must submit a letter to FTA requesting approval to enter into project development. Once a project is approved, the following activities must be completed within two years:

- The project sponsor must select a Locally Preferred Alternative;
- The project sponsor must get the Locally Preferred Alternative adopted into the fiscally constrained metropolitan transportation plan;
- The environmental review process required under NEPA must be completed as signified by a final FTA environmental decision (for example, categorical exclusion, finding of no significant impact, combined final environmental impact statement/record of decision, or record of decision) covering all aspects of the project proposed for FTA funding; and

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- The project sponsor must develop sufficient information for FTA to develop a project rating.

DRCOG plays a key role in adopting the Locally Preferred Alternative into the fiscally constrained metropolitan transportation plan. In order for a project to be included in the plan there has to be a reasonable expectation of funding. This can be met, in part, by using anticipated funding from the CIG as a financial planning assumption.

FTA evaluates each proposed project according to a set of defined criteria, summarized in Exhibit 19. FTA uses the information to rate CIG candidates and make recommendations to Congress regarding a project's viability for federal funding. FTA prepares an annual report that provides a snapshot of all projects, including each one's strengths and weaknesses. Once given FTA approval, projects can move on to construction.

~~The Federal Transit Administration's (FTA) Final Rule on Major Capital Investment Projects prescribes the process that applicants must follow to be considered for capital investment grants for new fixed guideway systems or extensions to existing systems (called New Starts). There are three key development and documentation phases in this process:~~

- ~~**Project Development** comprises the completion of the environmental review process, which includes developing and reviewing alternatives, selecting a locally preferred alternative, and adopting in into the RTP. **Alternatives Analysis** is a study, typically undertaken at the outset of the preparation of a draft Environmental Impact Statement, that evaluates appropriate modal and alignment options for addressing mobility needs in the specific corridor.~~
- ~~**Preliminary Engineering** includes the completion of sufficient engineering and design along with the securing commitments of all non-New Starts funding. It refines recommendations from the Alternatives Analysis, resulting in estimates of project costs, benefits and impacts at a level of detail necessary to complete the Environmental Impact Statement process. Other requirements, such as developing a project management plan, must also be completed during this phase.~~
- ~~**Final Design** includes right-of-way acquisition, utility relocation, and the preparation of final construction plans, detailed specifications, construction cost estimates, and bid documents.~~

~~FTA evaluates each proposed New Starts project according to a set of defined criteria, summarized and provided for reference in Exhibit 19. FTA uses the information to rate New Starts projects around the country and make recommendations to Congress regarding a project's viability for federal funding. FTA prepares an "Annual Report on New Starts" that provides a current snapshot of all New Starts projects nationally including each one's current strengths and weaknesses.~~

~~RTD, solely or in cooperation with CDOT and/or local jurisdictions, coordinates and sponsors each phase of New Starts project development in the Denver region. RTD prepares New Starts information addressing the FTA criteria:~~

- ~~each time it requests entry in Preliminary Engineering or Final Design~~
- ~~entry into Engineering~~
- ~~each time it applies for a Full Funding Grant Agreement~~
- ~~for FTA's annual report.~~

RTD may apply for a Full Funding Grant Agreement with FTA to obtain federal capital grant funding when the fixed guideway project has:

- been included in the adopted RTP
- been approved by the RTD Board with the local funding commitment established, and
- proceeded to a point in the development process where estimated costs, benefits, and impacts are known with a very high degree of confidence.

A Full Funding Grant Agreement establishes the maximum amount of FTA participation in the project, a yearly funding schedule, and a construction schedule to complete the project and open it to revenue service. Appendix A lists relevant regulatory references.

Relationship to the Regional Transportation Planning Process

The Alternatives Analysis is a bridge between transit project development and the regional transportation planning process. An Alternatives Analysis The project development process is considered complete when identifies a locally preferred alternative, is selected by local and regional decision makers, This alternative is approved by the RTD Board, and adopted into the air quality conforming fiscally constrained RTP. A transit project can continue into Preliminary Engineering, Final Design, and Full Funding Grant Agreement only as long as it remains included in the fiscally constrained RTP.

As appropriate, RTD updates the transportation committees on its New Starts status.

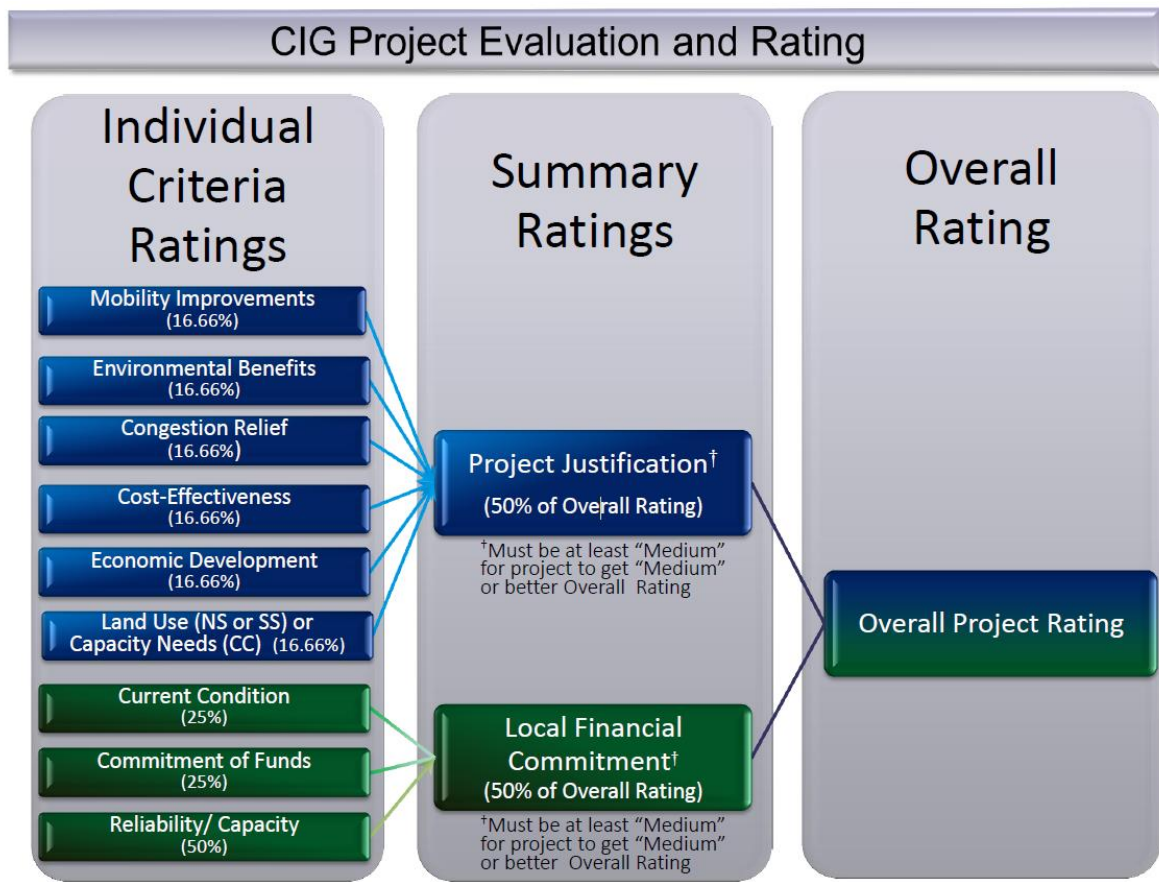


Exhibit 19—New Starts Evaluation Criteria

~~FTA evaluates project justification based on:~~

- ~~— Congestion Relief~~
- ~~— Environmental Benefits~~
- ~~— Environmental Benefits~~
- ~~— Land Use~~
- ~~— Economic Development~~
- ~~• mobility improvements~~
- ~~• environmental benefits~~
- ~~• operating efficiencies~~
- ~~• cost effectiveness~~
- ~~• transit supportive land use policies and future patterns other factors~~

~~FTA also evaluates local financial commitment. FTA issues periodic guidance detailing the procedures for preparing the New Starts submittal.~~

9H. State Implementation Plans for Air Quality

The federal Clean Air Act defines a process for Environmental Protection Agency (EPA) development and approval of National Ambient Air Quality Standards for a variety of pollutants that can adversely affect human health ([for example e.g.](#), carbon monoxide, ozone, and small particulates). The law requires State Implementation Plans (SIPs) be prepared to show how a nonattainment area—that is, a region that does not currently meet the air quality standards—will attain standards by implementing and enforcing emission control strategies and how attainment will be maintained. Appendix A lists relevant legislative and regulatory references.

- **Nonattainment area SIPs** are pollutant-specific plans that detail how a region will meet the specific air quality standard by specific dates.
- **Maintenance plans** are pollutant-specific SIPs that outline how an area that has met the specific air quality standard will continue to do so for a 10-year period.
- **Regional haze SIPs** show how visibility will be improved in national parks and wilderness areas (for example, Rocky Mountain National Park in the DRCOG area).
- **Conformity SIPs** are the federally enforceable state regulations governing transportation conformity determinations.

The requirements of each SIP depend on the pollutant, classification, and attainment dates. The term SIP generally refers to all of the individual plans and regulations that are submitted to and approved by the EPA. Key elements typically included in SIPs are:

- An **inventory** that accounts for all relevant emissions and emission sources. The inventory is used in (1) establishing emissions reduction targets, (2) setting caps on mobile source emissions ([for example i.e.](#), from roadways and traffic), and (3) as needed, performing air quality dispersion modeling.
- 4. An **emissions budget**, which is the maximum allowable amount of each pollutant from mobile sources.
- 2. **Control measures** as needed to help reach or maintain the emissions budget, including Transportation Control Measures focusing on reducing vehicle use and/or congestion.

Exhibit 20 shows general tasks for SIP development and adoption. The Air Quality Control Commission (AQCC), a regulatory body appointed by the [gGovernor](#), is responsible for the adoption of SIPs and their implementing regulations in Colorado through a public rule-making process. The Regional Air Quality Council (RAQC) is the lead air quality planning agency for the Denver region, so designated by the [gGovernor](#). The RAQC has the primary responsibility for preparation of Denver area SIPs including selection of control measures. The Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment operates the air monitors, collects emission inventory information, provides technical assistance to [entities engaged in](#) the SIP process, and enforces adopted air quality regulations.

The Clean Air Act provides for sanctions if a needed SIP is not submitted to EPA or if EPA finds it incomplete, inadequate, or disapproves it. Sanctions can include federal funds being withheld for certain categories of transportation projects.

Exhibit 20 Developing and Adopting an Air Quality State Implementation Plan

DRCOG

- provides data from Denver regional travel model for base and future years (vehicle miles traveled, speeds, transportation network)

Air Pollution Control Division (APCD)

- develops the pollution emissions **inventory** for the “base year”
 - — for mobile sources using the EPA MOBILE model reflecting the latest available information on such factors as number and type of vehicles in the region, rate of fleet turnover, and transportation characteristics.
 - — for non-mobile sources using EPA and local models.
- projects the inventory to a future year
- determines the maximum amount of mobile source pollution emissions that ~~-~~would allow the region to meet the National Ambient Air Quality Standards (the **emissions budget**)

Regional Air Quality Council (RAQC)

- identifies **control measures** to reduce air pollution in the Denver area
- prepares SIP for compliance with federal air quality standards
- holds a public hearing and ~~/~~ receives public comment on the proposed SIP

RAQC and APCD

- develop draft regulations to implement control measures

Air Quality Control Commission (AQCC)

- holds a public hearing and ~~/~~ receives public comment on the proposed SIP and draft regulations
- adopts the SIP and ~~d~~ regulations

Colorado General Assembly

- reviews SIP
- grants permission to submit

Governor

- approves SIP
- submits

EPA

- determines completeness and legal and technical adequacy (this determination makes new emissions budgets applicable)
- approves SIP (this makes the SIP and its regulations federally enforceable)

Exhibit 210 identifies the Denver region's air quality status.

Exhibit 201 Denver Regional Air Quality Status

1. As of 2002, the Denver region met national air quality standards and has approved maintenance plans for the following pollutants and, as such, is considered to be **attainment-maintenance** for them:
 - Carbon monoxide
 - PM10 (particulates less than 10 microns in size)
2. In 1997, the Environmental Protection Agency established a new, more stringent standard for ozone, based on measurements averaged over an eight-hour period. In 2004, the EPA defined a new nonattainment area for ozone using the new 0.80 ppb eight-hour standard. It encompasses all of the Greater Denver Transportation Planning Region except for Clear Creek and Gilpin counties plus portions of Larimer and Weld counties including the Fort Collins-Loveland and Greeley urbanized areas. EPA formally designated it as nonattainment in 2007. An eight-hour ozone SIP was prepared in 2008 and was approved by EPA in 2011. On April 11, 2016, EPA reclassified the region as moderate nonattainment. The new designation has an attainment deadline of July 20, 2018 and requires the development and submittal of a new SIP. In 2015, the EPA set a new eight-hour ozone standard of 0.70 ppb. In 2017, the region will begin preparing a new SIP to address this standard.
- ~~2. In 1997, the EPA established a new, more stringent standard for ozone, based on measurements averaged over an 8-hour period. In 2004, the EPA defined a new nonattainment area for ozone using the new .08 ppm 8-hour standard. It encompasses all of the Greater Denver Transportation Planning Region except for Clear Creek and Gilpin counties plus portions of Larimer and Weld counties including the Fort Collins-Loveland and Greeley urbanized areas. EPA formally designated it as in nonattainment in 2007. An 8-hour ozone SIP was prepared in 2008 and was approved by EPA in 2011. On April 11, 2016, EPA reclassified the region as moderate nonattainment. The new designation has an attainment deadline of July 20, 2018 and requires the development and submittal of a new SIP. Final decisions regarding establishment of a new ozone standard have not yet been made by EPA. In 2015, the EPA set a new 8-hour ozone standard of 70 ppb. In 2017, the region will begin preparing a new SIP to address this standard.~~
3. Visibility (the metro area "brown cloud") is not regulated by Clear Air Act requirements.

Relationship to the Regional Transportation Planning Process

The EPA requires federal actions to conform to the appropriate SIP. Conformity in the Clean Air Act means conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of such standards. Air quality conforming fiscally constrained long-range transportation plans and, TIPs, and federally -funded projects in nonattainment and maintenance areas, must conform to the SIP. Conformity for a fiscally constrained RTP or TIP is demonstrated by showing that expected mobile source emissions are at or below SIP **emissions budgets** and that adopted **transportation control measures** are being (or will be) implemented consistent with the schedule in the SIP. Conformity procedures are described in Sections 4.B2 and 4.C3.

As appropriate, APCD or RAQC updates the transportation committees on SIP issues and status.

Federal and state laws require an air quality and transportation interagency consultation process. The consultation procedures are formally integrated into the SIP. The consultation process in the DRCOG region is facilitated by meetings of the Agency Coordination Team.

10I. CDOT Program Distribution **Resource Allocation**

The Transportation Commission makes decisions about the management and operation of the state highway system including construction, operations, and improvement, and is also responsible for adopting statewide long-range transportation plans and the STIPs. To carry out its planning, programming, and budgeting responsibilities, the Transportation Commission determines estimated revenues, needs, and how the ~~resources-estimated revenues~~ are allocated. The Transportation Commission does this by a process called ~~resource allocation~~ Program Distribution.

Step 1. Revenue forecasting

Air quality conforming ~~f~~ Fiscally constrained long-range transportation plans must reflect financial resources that are expected to be reasonably available over the time period of ~~that~~ the plan. Federal laws and ~~rules-regulations~~ mandate that forecasting must be done cooperatively with relevant parties. To forecast revenues over a long period of time, many ~~things-factors~~ must be considered and ~~ultimately~~ defined. Such items typically include, but are not limited to:

- How traditional sources of funds should be forecast over a 20- to 25-year period.
- Whether different assumptions are needed for different funding sources, such as local resources or federal formula funds.
- How private development contributions should be estimated.
- ~~What~~ The expectations are for new sources of funding, such as tolling, public/private partnerships, or revenue initiatives at the state, regional, or local level.
- What the effect of inflation will be.

Step 2. State highway system needs

CDOT has embraced a performance-based approach to financial decision-making and has ~~evolved-developed~~ a structure for identifying needs on the state highway system. The top level of this structure consists of five goal areas identified in the 2040 Statewide Transportation Plan ~~currently consists of five investment categories:~~

- Mobility - Improve mobility and connectivity with a focus on operations and transportation choice
- ~~Program Delivery~~
- Safety - Move Colorado toward zero deaths by reducing traffic-related deaths and serious injuries
- Maintaining the sSystem - Preserve and maintain the existing transportation system
- ~~System Quality~~
- Economic vVitality - Improve the competitiveness of the state economy through strategic transportation investments
- ~~Other Programs (Strategic Projects, FASTER, and the Regional Priority Program).~~

The next level of the structure ~~is~~ are program areas and performance objectives. For example, ~~m~~ Maintaining the sSystem system quality has ~~involves~~ several program areas including bridge, surface treatment, and maintenance with performance objectives for each.

~~Performance measures are established at the program and in some instances the investment~~

~~level. Performance objectives may be established.~~ Evaluation tools and/or predictive models are ~~developed~~ used to ~~compute~~ estimate system performance in response to various levels of investment.

Step 3. Allocation of resources

Federal law requires the state and MPO to cooperatively develop estimates of funds available for implementation of air quality conforming fiscally constrained metropolitan RTPs and TIPs. To that end, DRCOG works cooperatively with CDOT and other planning partners in the Program Distribution process. Program Distribution is a part of the planning process of the Statewide Transportation Plan and outlines the estimated assignment of forecasted revenues to various program areas for during the time period of the plan. CDOT, DRCOG, and other planning partners work cooperatively through during the Program Distribution process to develop recommendations to the Transportation Commission for the distribution of revenues to programs, and for the formula allocation of applicable programs to CDOT Regions and/or MPOs. The Transportation Commission approves Program Distribution, and CDOT and planning partners further cooperate to develop estimates of the federal and state funds from Program Distribution that might be reasonably anticipated to be available for transportation purposes within the MPO area for the time period of the TIP and RTP.

~~a Memorandum of Understanding (MOU) between CDOT and DRCOG was executed in November 2004 for the purpose of addressing revenue allocation. The intent of the MOU was to ensure an equitable allocation of transportation revenues throughout the state and specifically to the DRCOG area, to the maximum extent practicable. The funding referenced by the MOU includes all statewide revenue available to CDOT from federal sources and state funds, but does not include local or regional funds or toll facilities. The term of the MOU was extended through 2011. The MOU acknowledged a funding baseline that had been established by the Transportation Commission and established allocation methodologies for:~~

- ~~unallocated funds for strategic projects~~
- ~~incremental revenues (from existing sources above baseline projections)~~
- ~~new revenues (from new sources such as new legislation, a referendum or voter initiative, or one-time revenues).~~

Relationship to the Regional Transportation Planning Process

The Transportation Commission approves Program Distribution, and CDOT and planning partners further cooperate to develop Planning Estimates of the federal and state funds from Program Distribution that might be reasonably anticipated to be available for transportation purposes within the MPO area for the time period of the TIP and RTP. When the Transportation Commission adopts resource allocation, CDOT sets control totals by investment category and/or program area for CDOT engineering regions/transportation planning regions over the life of the plan. The regional transportation planning process determines which projects and strategies will be included in the air quality conforming fiscally constrained RTP and CDOT's participation in the regional process helps ensure that the fiscally constrained RTP's financial plan accurately reflects the Program Distribution and pPlanning eEstimates CDOT control totals. The pPlanning eEstimates six-year control totals also guide DRCOG and CDOT as projects are developed for inclusion in the TIP/STIP. An annual CDOT budget is developed, and adopted in the spring of each year. The annual budget is based on updated revenue forecasts, and on updated information on funding needed to achieve performance objectives. The annual budget for each year replaces Program Distribution as the fiscal constraint for that year in the TIP. The MOU established a mutually acceptable resource allocation methodology to set these control totals. The MOU also guides allocation of unanticipated revenues during a TIP cycle.

As part of RTP or TIP development, or as appropriate, CDOT updates the transportation committees on federal and state transportation funding for the DRCOG area. the resource allocation outcome. DRCOG and CDOT staffs present an annual report to the DRCOG Board to verify the MOU process and progress.

11J. CDOT TIP Project Selection Processes for Projects in the DRCOG TIP

CDOT has numerous funding programs organized around the following budget categories:

- Maintain – Maintaining what we have the region (and state) already has
- Maximize – Safely making the most of what we have the region (and state) already has
- Expand – Increasing capacity
- Pass-Through Funds/Multim-Modal Grants

its investment categories and program areas. Federal law requires collaboration and consultation in project selection and prioritization. There are two primary methods by which CDOT selects identifies projects for funding in the TIP within the transportation management area and in the STIP in the Mountains and Plains area. Processes for identifying projects include They are:

- Asset mManagement systems – Projects to maintain the transportation system are identified through asset management systems with input from CDOT rRegional staff. These CDOT uses the Project Priority Programming Process (4P) to identify projects or project phases for several of the funding programs. This process was established by Transportation Commission resolution in 1994 after coordination with other agencies including MPOs to address consistency with federal expectations. It was updated with Commission approval in September 2009. The process is conducted during each TIP/STIP development cycle via meetings with Transportation Planning Regions and CDOT Regions. In the case of DRCOG, meetings are held with individual counties. Exhibit 23 summarizes key steps of the process.

- ~~CDOT uses management systems to identify the optimal use of resources in other funding programs. The management~~ systems incorporate performance measures and monitoring, strategy evaluation tools, and predictive models to identify cost-effective projects that will assist in achieving established performance objectives.
- Safety pProcesses – Targeted safety improvements for funding with sources such as FASTER Safety and Highway Safety Improvement Program (HSIP) are identified through the analysis of safety data with input from CDOT rRegional staff. Safety data are used to identify the locations where improvements are most likely to result in increased safety for the traveling public.
- Competitive eEvaluation – Projects for programs including Safe Routes to School, Transportation Alternatives Program (TAP), FASTER Transit, and FTA programs are identified through competitive application-based evaluation processes. Projects are generally identified through a call for projects and applications are reviewed against established criteria to identify projects for funding.
- Regional Priority Program (RPP) – RPP is a flexible funding source with projects identified by the CDOT regions in consultation with planning partners.

Exhibit 22 Steps in CDOT's Project Priority Programming Process

1. CDOT estimates available revenue and funding levels for programs in Program Distribution.
- 2. CDOT prepares **background** information, including relevant roadway and traffic information and the status of current TIP/STIP projects and /phases. CDOT identifies proposed projects and tThe latest cost estimates for projects currently under development are confirmed.
 - ~~Based on resource allocation and other resource expectations, CDOT estimates revenues for each year of the six year TIP/STIP, by engineering region, by major program.~~
- 3. The ~~three~~ two CDOT engineering regions typically hold a **countywide meeting** with each of the nine counties in the DRCOG region. At a location in each county, CDOT discusses projects, priorities, and proposed revisions to the TIP, STIP and RTP consistent with updated cost and revenue estimates with local officials and staff. The counties take the lead in inviting other local agencies within their county and in publicizing meetings, which are open to the public. DRCOG and RTD discuss their processes for TIP project selection. Other issues, such as elimination of roadways from the state highway system and the potential for other funding mechanisms, may also be discussed. CDOT typically encourages each county to present a consolidated perspective of its project priorities.
- 4. Each CDOT engineering region meets **individually with each MPO and transportation planning region** ~~TPR~~ in the area it serves. Considering input from the countywide meetings and other evaluations s or information, this meeting leads to initial prioritization of projects within that planning region. For the DRCOG area, the transportation committees process may fulfill the intent of the individual MPO/ transportation planning region meeting.
- 5. Each CDOT engineering region then holds a **joint meeting of all its MPOs and transportation planning regions** ~~TPRs~~. DRCOG participates in such meetings in engineering regions 1 and 4. Priorities are considered in the context of the entire engineering region, not just the DRCOG area.
- 6. Each CDOT engineering region then provides DRCOG with the list of proposed projects to be considered in the TIP. This is shared with MPO A partners in the TIP interagency review phase. The final list is included in the **draft TIP** for public hearing and DRCOG Board approval through the transportation committees process.
- 7. Upon approval by the gGovernor, CDOT incorporates the adopted TIP into the draft STIP. CDOT ~~engineering R~~ region 1 informs DRCOG of the projects and /phases it has selected for inclusion in the draft STIP in the Mountains and Plains area of the Greater Denver ~~Transportation Planning Region~~ TPR. CDOT verifies projects for fiscal constraint and consistency with the financial and long-range plans, consistency aspects, and makes the draft STIP available to the public for review and comment. Once the **STIP is approved** by the Transportation Commission, CDOT transmits it to FHWA and FTA for federal approval.

CDOT reviews proposed projects and solicits input from planning partners and the public through the **Project Priority Programming Process (4P)**. The 4P was developed by the Transportation Commission in cooperation with Colorado Counties Incorporated (CCI), the Colorado Municipal League (CML), and the Metropolitan Planning Organizations (MPOs). It was first adopted by the Transportation Commission in 1994, and has been updated most recently as part of the development of the current ~~FY 16-19~~ fiscal years 2016-2019 Statewide Transportation Improvement Program (STIP). The process is conducted during each TIP/STIP development cycle via meetings with ~~t~~Transportation ~~p~~Planning ~~r~~Regions and CDOT ~~r~~Regions. In the case of DRCOG, meetings are held with individual counties. Exhibit 22 summarizes key steps of the process.

The CDOT funding programs for which projects are shown in the TIP and STIP are:

- Strategic Projects
- Surface Treatment
- Regional Priorities
- Congestion Relief
- FASTER (bridge, safety, and transit)
- Bridge
- Safety
- Elderly, Disabled, Rural ~~Job Access/Reverse Commute, and New Freedom Transit Safe Routes to School~~

~~The selection method and process for these CDOT funding programs is described in following sections:~~

~~CDOT also has numerous funding programs that it uses for budgeting purposes but which are not required to be shown in the TIP or STIP. These include:~~

- ~~1. maintenance activities (the maintenance level of service program) for which funding is allocated based on the maintenance management system~~
- ~~2. program delivery that funds ongoing CDOT operations for administration, engineering, and project and program support, including the CDOT planning work program~~

~~Strategic Projects Program~~

~~The CDOT Strategic Projects Program was established to accelerate the funding and development of high priority transportation projects throughout the state. The current program, also known as 7th pot, consists of 28 specific projects identified by the Transportation Commission from the mobility, system quality, and safety investment categories and approved by the voters of Colorado for bond funding to expedite implementation. The Transportation Commission establishes funding amounts and delivery schedules for these projects. Any future strategic projects program will be defined by the Transportation Commission through the statewide transportation planning process.~~

~~Surface Treatment Program~~

~~CDOT's Surface Treatment Program is included in the TIP and STIP as pools of funding (by CDOT engineering region) that can be applied in specific locations as needed throughout the year. This funding program is part of the system quality investment category. Each CDOT engineering region develops its list of surface treatment projects based on the state's pavement management system. The project priority programming process may influence implementation decisions among high priority projects, but a minimum of 70 percent of the projects selected~~

must be consistent with recommended investments from the pavement management system. The projects selected by the engineering regions are identified within each region's surface treatment pool.

Regional Priorities Program (RPP)

Regional Priorities Program funds must be used on the state highway system and may be used to address needs in any of the investment categories as deemed appropriate by CDOT through the project priority programming process. Transit or other projects may be funded in this program if they relieve congestion or improve operations of the state highway system. These funds are currently allocated to CDOT engineering regions through the CDOT resource allocation process (see Section 5.10).

Congestion Relief Program

The Congestion Relief Program was established by the Transportation Commission in 2004 with the specific objective of improving congestion on the State Highway System. This program is part of the mobility investment category. Funding began in fiscal year 2007. Congestion relief funds are distributed through the CDOT resource allocation process to CDOT engineering regions based on vehicle miles traveled on congested roadway segments. CDOT defines a roadway segment as congested when the volume during the 30th highest hour of the year is greater than or equal to 85 percent of computed capacity. Congestion relief funds must be applied to projects on congested segments of the state highway system. CDOT uses the project priority programming process to identify potential projects. Project sponsors establish baseline data and performance goals for their proposal using appropriate mobility performance measures such as travel time index, duration of congestion, and level of service. Project selection includes consideration of cost-effectiveness. Sponsors are required to evaluate how well the project met the performance goals (congestion improvement) after project completion.

Bridge Project Selection

The bridge project selection process prioritizes funding for repair, reconstruction, and replacement of bridges throughout the state. It is a program area of CDOT's system quality investment category. Funding is distributed to CDOT engineering regions through the CDOT resource allocation process (see Section 5.10).

The federal Highway Bridge Replacement and Rehabilitation Program is the specific source of federal bridge funding. To be eligible for that funding, a bridge must be on the **Federal Select List of Bridges**. The process for creating the Select List is summarized in Exhibit 24.

FHWA requires that 15 to 35 percent of total federal bridge funding go to off-system bridges. On-system bridges are bridges on the state highway system. Off-system bridges are those owned by cities and counties on city and county routes and other public bridges such as those on E-470 and the Northwest Parkway. CDOT's bridge program allocations include significant state funds in addition to federal funds. In recent years, CDOT's allocation of bridge funds to off-system bridges has been more than 30 percent of total federal bridge funds. For on-system bridges, CDOT prepares cost estimates and uses its bridge management system to develop priorities for bridge improvements within the available budget. A "Special Highway Committee" provides recommendations for off-system bridge projects. Selected projects within the transportation management area are placed in the TIP.

FASTER Transit

The FASTER legislation required that a portion of the state and local FASTER revenues totaling \$15 million/year be set aside for transit. Of this, \$5 million is available through a local transit

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~~grant program and \$10 million is available for a statewide transit program. The Transportation Commission adopted evaluation criteria to aid in the project selection process, which includes criticality, financial capacity, financial need, project impacts, and readiness. DRCOG and the CDOT Regions jointly review and recommend projects.~~

~~1. **Local Transit Grant Program.** Funds for the FASTER local transit grant program are distributed to the region by formula. Projects are identified and prioritized for funding through the Project Prioritization and Programming Process (4P). Eligible applicants should be proactive by informing their appropriate TPR/MPO representative of the eligible capital projects for which they are seeking FASTER funds. The CDOT Regions, working cooperatively with the state's 15 TPRs and MPOs, utilize the adopted evaluation criteria to assess and rank projects.~~

~~Funding may be used for any items defined as capital expenses by the FTA, with the exception of land purchases and office-related equipment. Operating, administrative and planning expenses are not eligible for funding. Eligible applicants include public agencies, and public and private non-profit agencies that offer either public transportation or "open door" specialized transportation (service for the elderly and disabled).~~

~~2. **Statewide Transit Grant Program.** CDOT Regional and local organizations are eligible project sponsors. Project requests must be identified as being statewide, interregional, regional, or local in nature. The same criteria used for evaluating and prioritizing the FASTER local transit grants is applied to the Statewide Transit Grant Program. However, higher priority is given to statewide, interregional, and regional projects, in that order. In addition, higher priority is also given to projects that are multimodal in nature. Studies are an eligible project under the statewide grant program.~~

Safe Routes to Schools Project Selection

~~The federal Safe Routes to Schools program is designed to encourage more walking and biking to school. SAFETEA-LU authorized \$1 million in federal funds for each state for five years. Some of the selected projects are for infrastructure, such as bike and pedestrian paths and sidewalks. From 10 percent to 30 percent of the available funds must go for non-infrastructure educational programs. Exhibit 27 summarizes CDOT's selection process.~~

Relationship to the Regional Transportation Planning Process

~~CDOT's project selection processes serve as the basis for projects CDOT identifies and submits to DRCOG for inclusion in the TIP in the transportation management area. DRCOG and RTD participate in the countywide meetings of CDOT's project priority programming process to promote interagency coordination. That process also requires individual and joint meetings with MPOs and transportation planning regions to mutually consider project funding priorities.~~

~~Regionally significant TIP projects derived from the adopted fiscally constrained RTP must be consistent with the applicable funding program assumptions used for the RTP.~~

~~On occasion, CDOT may be asked to brief the transportation committees on topics related to CDOT TIP project selection such as:~~

- ~~strategic projects progress~~
- ~~pavement or bridge management systems~~
- ~~the effectiveness of completed congestion-relief projects~~
- ~~the status of the bridge or safety programs.~~

12K. RTD Strategic Budget Business Plan

The Strategic Budget Business Plan is RTD's six-year fiscally constrained operating and capital improvement plan that is revised annually. RTD uses the pPlan for submitting projects to DRCOG

for inclusion in the TIP. Exhibit 28 summarizes annual Strategic **BudgetBusiness** Plan development steps.

Relationship to the Regional Transportation Planning Process RTD presents its proposed Strategic **BudgetBusiness** Plan to the Transportation Advisory Committee for comment. Upon adoption, the Strategic **BudgetBusiness** Plan becomes the basis for RTD's submittal to DRCOG of transit projects to be included for funding in the TIP.

Exhibit 23 Steps in Preparing the RTD Strategic **BudgetBusiness** Plan

- ◆ 1. RTD prepares **revenue estimates** for each year of the Strategic Business Plan. Revenue estimates include state and local sales and use tax, farebox revenues, and federal grants. Revenue projections are based on economic indicators, including regional growth projections, from state and local economists. Federal funds are estimated based on past trends, formula allocations, and recent congressional actions.
- ◆ 2. Annually in December, RTD develops **proposed projects** for consideration. Standardized information including the estimated cost of the project is developed. Cost estimates consider such factors as capital cost, service hours by service project type, and principal and interest payments on long-term debt.
- ◆ ~~Local governments and transportation management organizations, through a series of meetings held approximately quarterly beginning in January, provide input to RTD as to possible transit capital and service projects desired within their jurisdictions in the timeframe of the Strategic Business Plan.~~
- ◆ 3. RTD reviews each proposed project and **prioritizes** them.
- ◆ 4. RTD adjusts the prioritized list to fit the expected revenues once the financial projections have been completed.
- ◆ 5. RTD reviews the draft Strategic Business Plan for consistency with Civil Rights Act requirements. RTD reviews the draft Strategic Business Plan with local governments and transportation management organizations at the appropriate quarterly meeting.
- ◆ 6. The draft Strategic Business Plan is brought to the RTD Board at a public meeting for **adoption**, typically before the annual budget is reviewed and adopted in August.
- ◆ 7. The adopted Strategic Business Plan is incorporated into RTD's annual **budget**.

13L. DRCOG Toll Facilities Review

Senate Bill 09-108 is a Colorado statute enacted in 2009 that created the High-Performance Transportation Enterprise (HPTE) to:

“seek out opportunities for innovative and efficient means of financing other important surface transportation infrastructure projects and will ensure that such projects are also properly prioritized and accelerated”

And

“has the duty to evaluate any toll highway in the state that is owned and offered for sale or for lease and an operating concession by an entity other than the state in order to determine whether it is in the best interests of the state for the transportation enterprise to purchase or lease the toll highway.”

And

“In considering the effect on regional or local transportation plans, the Transportation Enterprise Board shall consult with the appropriate regional or local transportation planning agency.—A surface transportation infrastructure project shall not proceed past the planning stage until all metropolitan planning organizations entitled to participate in the planning, development, and approval process.—have approved the project.”

Appendix A lists the relevant statute.

[The DRCOG Board adopted by resolution in January 2009](#) ~~c~~Criteria for the review of proposed projects [with an tolling component for inclusion in the DRCOG Fiscally Constrained Regional Transportation Plan \(RTP\). The review criteria respond to per](#) Senate Bill 09-108 [and House Bill 05-1148 for CDOT/HPTE projects and House Bill 06-1003 for private toll company projects.](#) ~~The DRCOG Board amended the review criteria in July 2016 to update and clarify the review criteria language with updates, for clarity and to incorporate the contract~~ [content of CDOT’s 2015 HOV Policy.](#) ~~were adopted by resolution by the DRCOG Board in January 2009. Though the resolution references the earlier House Bill 05-1148 and the former Colorado Tolling Enterprise, it is understood that the procedures outlined with the resolution will apply to toll highway proposals from the HPTE. The~~ [HPTE and other project sponsors](#) must submit toll highway/system proposals to DRCOG with sufficient detailed information for DRCOG to evaluate the proposals per the adopted criteria. Information must be provided for six items: project operation, technology, feasibility, financing, other required federal information, and other pertinent information.

DRCOG assesses the proposal using information provided by the HPTE [or other project sponsors](#) and its own examinations. The proposal is presented to the public at a public hearing before DRCOG Board ~~members~~ [directors](#). DRCOG presents a final assessment either within the plan amendment summary report or, if deemed necessary, through a separate report reflecting resolution of technical, operational, feasibility, and financial issues ~~with the HPTE~~; summarizing public comment; and identifying options for Board consideration. Final transportation committees recommendations and DRCOG Board action to approve the specific proposal (or not) take place upon consideration of the final assessment.

Relationship to the Regional Transportation Planning Process

Toll highways (or toll lanes) must be in the [air quality conforming](#) fiscally constrained RTP and TIP before they can be implemented. The DRCOG assessment confirms the fiscally constrained

nature of the proposal per the fiscally constrained RTP or provides a rationale for plan amendment. The project can be included in the TIP and RTP for construction only after the DRCOG Board has issued a favorable finding.

The FAST Act also contains the following provision (23 U.S.C. 166(g)) regarding tolling:

“(g) Consultation of MPO: If a HOV facility charging tolls under paragraph (4) or (5) of subsection (b) is on the Interstate System and located in a metropolitan planning area established in accordance with section 134, the public authority shall consult with the metropolitan planning organization for the area concerning the placement and amount of tolls on the facility.”

DRCOG coordinated with FHWA, CDOT, and HPTE in June 2016 to establish a process to address this requirement. The stakeholders agreed to use the Agency Coordination Team (ACT) meeting process to conduct the toll placement/amount-setting coordination when needed and decide if further action is needed.

Appendix A

Select Federal and State Legislative and Regulatory References

FEDERAL LEGISLATIVE REFERENCES

Public Law ~~109-59~~ [114-94](#)

~~Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)~~
[Fixing America's Surface Transportation \(FAST\) Act](#)

23 U.S.C. 134

Metropolitan planning

49 U.S.C. 5303 et seq.

Metropolitan planning (formerly 49 U.S.C. 1607)

23 U.S.C. 135

Statewide planning

23 U.S.C. 303

Management systems

42 U.S.C. 7401 et seq.

Code for Clean Air Act

23 U.S.C. 324

Code for Civil Rights Act (Title VI)

29 U.S.C. 794

Code for Civil Rights Act (Title VI)

42 U.S.C. 4321 et seq.

Code for National Environmental Policy Act (NEPA)

Public Law 101-336

Americans with Disabilities Act

FEDERAL REGULATORY REFERENCES

23 C.F.R. Part 450 (Sect. 300-338)

Metropolitan planning ~~rule~~[regulation](#)

[23 C.F.R. Part 490](#)

[Performance management regulation](#)

49 C.F.R. Part 613 (Sect. 100)

Metropolitan planning ~~rule~~[regulation](#)

23 C.F.R. Part 450 (Sect. 200-224)

Statewide planning rule

49 C.F.R. Part 613 (Sect. 200)

Statewide planning rule

23 C.F.R. Part 500

Management systems

23 C.F.R. Part 200

USDOT regulations for Civil Rights (Title VI)

49 C.F.R. Part 21

USDOT regulations for Civil Rights (Title VI)

49 C.F.R. Part 611

FTA final rule on major capital investment projects (New Starts)

40 C.F.R. Part 51

Environmental Protection Agency regulations for State Implementation Plan (SIP)

40 C.F.R. Part 93

Environmental Protection Agency conformity regulations

49 C.F.R. Parts 27, 37, & 38

USDOT regulations of Americans with Disabilities Act

23 C.F.R. Parts 770-772

USDOT regulations of NEPA

40 C.F.R. Parts 1500-1508

Council on Environmental Quality regulations of NEPA

COLORADO STATUTE REFERENCES

30-28-105

Regional planning commissions

43-1-1101-1105

Transportation planning

43-2-147

Access code authority

32-9-107.7

Senate Bill 90-208

43-4-806

Senate Bill 09-108 (FASTER)

25-7-105(1)

Air Quality Control Commission authority for SIP

43-1-106

Transportation Commission

Transportation Planning in the Denver Region

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Acronyms

CDOT	Colorado Department of Transportation
DRCOG	Denver Regional Council of Governments
FAST	Fixing America's Surface Transportation Act
FASTER	Funding Advancement for Surface Transportation and Economic Recovery
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
MOA	Memorandum of Agreement
MPA	Metropolitan Planning Agreement
MPO	Metropolitan Planning Organization
RTD	Regional Transportation District
RTP	Regional Transportation Plan
STIP	Statewide Transportation Improvement Program
TIP	Transportation Improvement Program

Executive Highlights

Chapter 1—Introduction

- Transportation planning for the Denver region is a continuing, cooperative and comprehensive process.
- The Denver Regional Council of Governments (DRCOG), Regional Transportation District (RTD), and Colorado Department of Transportation (CDOT) are the primary partners in this process.
- A Metropolitan Planning Agreement (MPA) forms and directs this partnership.
- Transportation Planning in the Denver Region provides details on how the process currently works. The document will be reviewed and revised as necessary.
- DRCOG is the metropolitan planning organization (MPO) for the transportation management area and the regional planning commission for the nine plus-county transportation planning region.

Chapter 2—Policy Direction

- Regional transportation planning processes are guided by federal and state laws, regulations/ rules, and policies.
- Federal law requires that MPOs take the lead in regional transportation planning in urbanized areas.
- Transportation planning within the transportation management area is guided by the federal metropolitan planning regulations.
- Statewide transportation planning is guided by state statutes and federal statewide planning regulations. In carrying out its responsibilities in the portions of the DRCOG transportation planning region outside the transportation management area, CDOT consults with DRCOG.
- Metro Vision is the region’s vision for its desired future; implementing the strategic initiatives of Metro Vision is a primary objective of the DRCOG regional transportation planning process.

- The MPA specifies principles and objectives for carrying out the regional transportation planning process.

Chapter 3—Participants

- The DRCOG Board is the policy body for the MPO.
- The MPA organizes the transportation planning process through the establishment of the Regional Transportation Committee and the Transportation Advisory Committee.
- Both the Regional Transportation Committee and DRCOG Board must take favorable action before regional transportation planning policies and products are considered adopted.
- At the staff level, the Agency Coordination Team (ACT) and Interagency Consultation Group (ICG) promote interagency coordination, cooperation and communication.
- Constructive public involvement is essential; decisions are made only after the public is made aware of proposed actions and has the opportunity to comment.

Chapter 4—Planning Process Products

Unified Planning Work Program

- The Unified Planning Work Program (UPWP) describes all metropolitan transportation planning activities for the coming two years in the region.
- The UPWP provides the basis for the “scope of work” for the federal planning funds that DRCOG receives.
- Federal agencies review and approve the UPWP to ensure that the proposed work activities are consistent with federal requirements and eligible for federal funds.
- Long-Range Transportation Plan
- The Metro Vision Regional Transportation Plan (RTP) is the Denver region’s long-range transportation plan.
- The Metro Vision RTP is part of Metro Vision.
- One component of the Metro Vision RTP is the Metro Vision transportation system (referred to in state rules as the “vision plan”).

- The other component is the air quality conforming fiscally constrained RTP, which is the subset of the Metro Vision transportation system that can be achieved with reasonably available financial resources.
- In the transportation management area, the fiscally constrained RTP conforms with the requirements of the Clean Air Act.
- Development of the Metro Vision RTP is a lengthy process entailing substantial cooperative effort by the partner agencies.
- Transportation Improvement Program (TIP)
- DRCOG's TIP identifies the federally-funded transportation projects to be implemented in the transportation management area during a six-year period.
- It is updated at least every four years.
- The TIP implements the air quality conforming fiscally constrained RTP.
- No project using federal surface transportation funds can move forward unless it is included in the TIP.
- For each TIP, the preparation process is defined by a policy document adopted through the regional transportation planning process.
- DRCOG, CDOT and RTD currently have separate processes to select projects for funding. The selected projects are incorporated in the TIP.
- The TIP is incorporated without modification into the State Transportation Improvement Program
- The TIP is fiscally constrained and conforms with the requirements of the Clean Air Act.

Congestion Management Process

- A congestion management process provides for effective management of the performance of transportation facilities.
- In the transportation management area, federal funds cannot be programmed for any highway project that would significantly increase capacity for single-occupant vehicles unless the project is based on a congestion management process.
- DRCOG identifies and evaluates congestion management strategies at the regional level as part of the overall regional transportation planning process.
- At the project level, the sponsor conducts the needed congestion management examinations.

Planning Process Certification

- DRCOG and CDOT must certify to the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) that the transportation planning process is conducted in accordance with all applicable federal regulations.
- Certification holds an MPO and all planning partners accountable for the function and quality of the planning process in its region.
- The joint self-certification process is conducted when a new TIP is prepared.
- Also, every four years, FHWA and FTA jointly conduct a planning certification review.

Chapter 5—Coordination with Other Transportation Process

CDOT's Interchange Approval Process (1601)

- 1601 defines the policy and procedures by which CDOT will consider applications for new or modified interchanges on state highways.
- Analytic requirements and approval responsibility vary depending on the category type CDOT assigns to the application.
- For certain types of improvements, the applicant must prepare a system-level study.
- CDOT must approve the system-level study before the improvement is included in the air quality conforming fiscally constrained RTP.

Revision to State Highway Access Categories

- The State Highway Access Code specifies a classification system for access management purposes.
- Every state highway is assigned an access category and the Code establishes the process and procedures for making changes to the assigned category.
- DRCOG is afforded the opportunity to review changes to the assigned access category requested within the transportation planning region.

Major Environmental Processes

- The National Environmental Policy Act (NEPA) requires the environmental impact of projects that receive federal funding to be assessed.
- The relationships between major NEPA environmental studies and the regional

transportation planning process include listing environmental studies in TIPs and Unified Planning Work Programs, and interagency review of environmental study work scopes.

- The description and cost of the project to be cleared in an environmental decision document must be consistent with that in the adopted air quality conforming fiscally constrained RTP. To do so sometimes requires an amendment to the fiscally constrained RTP.
- Planning and Environmental Linkage (PEL) studies may be conducted prior to NEPA level evaluations.

DRCOG Fixed Guideway Transit Review

- State statute (per Senate Bill 90-208) requires that the MPO review and approve any fixed guideway mass transit system element proposed by RTD before it can be constructed.
- Criteria for review of proposed projects are adopted by the DRCOG Board through the transportation committee process.
- The Senate Bill 90-208 assessment explicitly confirms or rejects the technical and financial feasibility of the proposal.

FasTracks Reviews

- RTD's FasTracks Plan is a broad long-term program requiring numerous assumptions about technology and financing, which may change over the course of implementing the plan.
- DRCOG established procedures for the evaluation of FasTracks Change Reports submitted by RTD.
- The DRCOG Board through the transportation committee process determines if the changes identified require further Senate Bill 90-208 action.

CDOT and RTD Master Intergovernmental Agreement

- CDOT and RTD executed a Master Intergovernmental Agreement for continued coordination and planning for highway and transit development.
- The Master Agreement establishes a framework to ensure that all proposed projects, programs, and facilities are accommodated to the maximum extent practicable.
 - The agreement establishes a context for corridor-specific agreements.

Planning and Development Process for FTA Capital Investment Program (New Starts, Small Starts and Core Capacity)

- FTA has a defined process that applicants must follow for capital investment grants for new fixed guideway systems or extensions to existing ones.
- The project type and overall cost determine the category of the project: New Starts, Small Starts or Core Capacity.
- For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – project development and engineering. For Small Starts projects, there is one phase in advance of receipt of a construction grant agreement: project development.
- FTA evaluates each proposed capital investment project nationwide according to a defined set of criteria.
- Project sponsors provide FTA with relevant information each time they advance a corridor into a new phase, for a full funding grant agreement, and annually to support FTA's report to Congress.

State Implementation Plans for Air Quality

- The federal Clean Air Act requires that states prepare state implementation plans to show how a nonattainment area will attain national air quality standards and how attainment will be maintained.
- State implementation plans establish emissions budgets and specify control measures.
- In air quality nonattainment-maintenance areas, fiscally constrained RTPs and TIPs must conform to the appropriate state implementation plans; i.e., the region meets emissions budgets and required transportation control measures are being implemented.
- The Denver region currently meets national air quality standards for CO and PM-10 and has approved state implementation plans (maintenance plans). The region is considered by the Environmental Protection Agency to be attainment-maintenance for those pollutants.
- In 2016, an area that includes much of the

Denver region was designated as moderate nonattainment for ozone based on a 2008 75 ppb eight-hour standard.

- In 2015, the EPA set a new eight-hour ozone standard of 70 ppb for which the region is now planning.

CDOT Program Distribution

- Program Distribution is the process the Transportation Commission uses to forecast revenues, identify needs for the state highway system, and define how resources will be allocated to address those needs.
- Federal law requires the state and MPO to cooperatively develop estimates of funds available for implementation of air quality conforming fiscally constrained long-range transportation plans and TIPs.

CDOT Selection Processes for Projects in the DRCOG TIP

- Federal law requires collaboration and consultation in project selection and prioritization. CDOT identifies projects for funding in the TIP within the transportation management area and in the STIP in the Mountains and Plains area.
- CDOT's project selection processes serve as the basis for projects CDOT identifies and submits to DRCOG for inclusion in the TIP in the transportation management area. Projects are identified for potential inclusion in the TIP through processes which include asset management systems, safety processes, competitive evaluation and consultation with planning partners.

- CDOT reviews proposed projects and solicits input from planning partners and the public through the Project Priority Programming Process (4P).
- DRCOG and RTD participate in the countywide meetings of CDOT's 4P process to promote interagency coordination.

RTD Strategic Budget Plan

- The strategic budget plan is RTD's six-year fiscally constrained operating and capital improvement plan; it is revised annually.
- RTD uses the strategic budget plan to identify its federally-funded projects for inclusion in the TIP.

DRCOG Toll Facilities Review

- State statute (per Senate Bill 09-108) requires that the MPO review and approve any toll highway plan proposed in the DRCOG area by the High Performance Transportation Enterprise. Additionally, the FAST Act requires HPTE (or other public tolling authorities) to consult with DRCOG concerning the placement and amount of tolls on a facility.
- Criteria for review of proposed projects are adopted by the DRCOG Board through the transportation committees' process.
- Assessment findings for the toll highway/system proposal consider the operation, technology, feasibility, and financing.

1. Introduction

Transportation planning for the Denver region is a continuing, cooperative and comprehensive process. Three agencies—the Denver Regional Council of Governments (DRCOG), the Regional Transportation District (RTD) and the Colorado Department of Transportation (CDOT) are the primary partners in this effort. A Metropolitan Planning Agreement (MPA) signed in XXX (formerly Memorandum of Agreement (MOA) signed in 2001 and modified in 2008) forms and directs this partnership.

DRCOG, CDOT and RTD are the Metropolitan Planning Agreement (MPA) partners

A. Purpose of this Document

Transportation Planning in the Denver Region augments the MPA by providing the details of how this transportation planning process works. It has been approved by the Regional Transportation Committee (see Section 3.A), which has Board and executive management membership from all three MPA partners. It:

- describes the policies and procedures of the process, in the context of federal, state and regional requirements (Chapter 2)
- details how the three partners cooperate in carrying out the process (Chapter 3)
- identifies the five key regional transportation planning products required by federal law and explains how the participants work together to produce those products (Chapter 4); and
- shows how the regional process dovetails with individual processes of the three partners, and interacts with local governments, air quality planning agencies, and other participants to accomplish transportation planning in the Denver region (Chapter 5).

This document presents **current** details and understandings. However, process details change continually in response to new federal and state laws and regulations, regional issues and initiatives, and the evolving focus of each MPA partner agency. The Regional Transportation Committee will periodically review this document to ensure it is an

accurate reflection of the regional planning process. If revisions are deemed necessary, the Regional Transportation Committee identifies which revisions can be accepted simply by committee action, and which must be referred to the boards of all three MPA partner agencies for endorsement.

B. Planning Geography

For transportation planning purposes, the Denver region consists of two geographic areas.

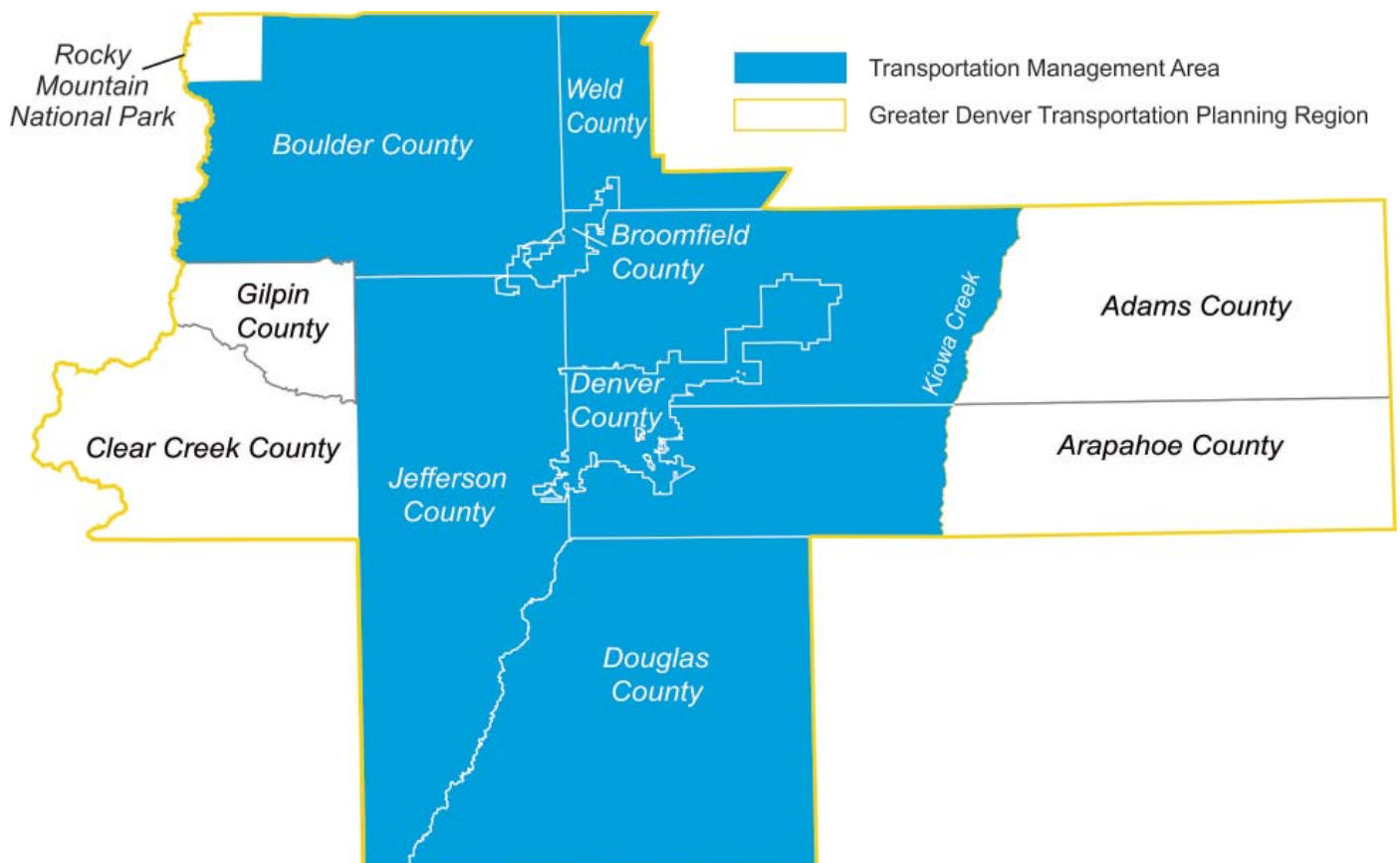
- **The Transportation Management Area.** Federal law requires that each urbanized area in the nation (as defined by the U.S. Census Bureau) with a population greater than 200,000 be designated as a transportation management area. That transportation management area must cover the entire urbanized area(s) and the contiguous geographic area(s) likely to become urbanized within, at a minimum, a 20-year period. Federal law further requires that regional transportation planning in a metropolitan area be conducted by a **metropolitan planning organization (MPO)** and encourages designation of a single MPO to serve multiple urbanized areas that are adjacent to each other. The FHWA/FTA-designated transportation management area depicted in **Exhibit 1**, for which DRCOG is the MPO, includes four urbanized areas, encompasses slightly more than 3,600 square miles, and consists of the portions of Adams and Arapahoe counties west of Kiowa Creek; all of Broomfield, Denver, Douglas and Jefferson counties; all of Boulder County except Rocky Mountain National Park; and a portion of southwest Weld County. The transportation management area designation defines the entire metropolitan planning area.
- **The Transportation Planning Region.** State statute requires the state transportation planning process be conducted in cooperation with regional planning commissions. For this purpose, Colorado has been subdivided into 15 transportation planning regions formed around regional planning commissions. DRCOG is the regional planning commission for the counties

of Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Gilpin, Jefferson and southwest Weld. The entire 5,288-square-mile nine-plus-county area is called the **Greater Denver Transportation Planning Region**. Gilpin and Clear Creek counties and the eastern portions of Adams and Arapahoe counties, which are all outside the transportation management area, are often referred to as the **Mountains and Plains** area of the Denver region.

Prior to 2007, the transportation management area included all of the region’s air quality nonattainment or maintenance areas. But in 2007, the Environmental Protection Agency declared an area that includes the DRCOG transportation management area plus the remaining portions of Adams, Arapahoe and Boulder counties, plus portions of Larimer and Weld counties, as nonattainment for ozone under the eight-hour standard. A memorandum of agreement noted in Section 4.B governs the transportation conformity evaluations conducted for this nonattainment area.

The transportation management area and transportation planning region boundaries change over time. For example, the boundaries were revised in 2008 to include the contiguous portion of southwest Weld County anticipated to be urbanized within the next 20 years.

Exhibit 1: DRCOG Transportation Management Area and Transportation Planning Region



2. Policy Direction

Regional transportation planning processes are guided by laws, regulations/rules, and policies set by the federal and state governments. In the DRCOG region, Metro Vision and the transportation planning Metropolitan Planning Agreement provide further direction.

A. Federal Policy Requirements

The requirements and responsibilities for transportation planning are contained in federal law and in federal regulations that implement the law. Appendix A lists relevant federal legislative and regulatory references.

Federal Law

About every five or six years, Congress enacts a law to authorize funds for surface transportation programs. Congress typically uses these reauthorization acts to review, revise and refine all aspects of federal surface transportation policy, including transportation planning. Since 1973, federal transportation law has placed the responsibility for carrying out the regional transportation planning process in urbanized areas on MPOs.

The most recently enacted reauthorization is the Fixing America's Surface Transportation (FAST) Act signed on Dec. 4, 2015. The FAST Act incorporates many of the aspects of builds on its predecessor, the 2012 Moving Ahead for Progress in the Century Act (MAP-21).

Federal law requires that a metropolitan planning organization (MPO) take the lead in regional transportation planning in urbanized areas. DRCOG is the MPO for the Denver region.

As has been the case with reauthorization acts for the past several decades, the FAST Act tasks MPOs with developing plans and programs to accomplish the act's objectives within metropolitan areas, using a continuing, cooperative, comprehensive process. The FAST Act reinforces MAP-21's emphasis on

re emphasizes performance-based planning that considers measures and targets, identifies planning factors that the metropolitan transportation planning process must address (see **Exhibit 2**), requires that the process be certified as compliant with federal law, and designates the major products of the process.

Chapter 4 provides descriptions of the required planning products and activities.

Transportation planning within the transportation management area is guided by federal metropolitan planning rules.

Federal Transportation Planning Regulations

Federal regulations are typically issued to implement the federal law. Usually, a year or two after each reauthorization act, the U.S. Department of Transportation revises portions of the code of federal regulations to reflect not only changes explicitly stated in the act, but also changes in philosophy that were part of the discussion and debate leading to adoption of the act. The portions of the federal regulations pertaining to transportation planning are commonly referred to as the Planning Rules.

The Planning Rules for metropolitan transportation planning provide more specifics about major products and certification. Beyond that, they state the requirements for other process elements including:

- agreements that define transportation planning partnerships between the state, public transportation providers and the MPO
- agreements between MPOs and air quality planning agencies regarding air quality-related transportation planning
- defining and adjusting planning area boundaries and MPO policy body membership
- inclusion of other transportation-related agencies and groups; and
- public involvement.

Exhibit 2: Planning Factors in the FAST Act

The FAST Act states that the metropolitan transportation planning process must provide for consideration of projects, strategies and services that will:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
- Increase the safety of the transportation system for motorized and nonmotorized users;
- Increase the security of the transportation system for motorized and nonmotorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of the transportation system; and
- Enhance travel and tourism.

Other Federal Laws and Regulations

While federal reauthorization acts and ensuing federal regulations govern the metropolitan transportation planning process, the process must also respond to numerous other federal actions, including (but not limited to) Title VI of the Civil Rights Act of 1964 the National Environmental Policy Act, the Clean Air Act, the Clean Water Act, the Civil Rights Act, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA), and executive orders.

As an example, DRCOG addresses ADA requirements directly and, in collaboration with its planning partners and member governments, works to address ADA requirements in several of

its planning products and documents and overall planning process:

- Appendix A of DRCOG's *Public Involvement in Regional Transportation Planning (2010)* addresses applicable ADA regulations. For example, representatives from the disabled community are listed as examples of interested parties that participate in the transportation planning process, and the document addresses how to accommodate them. DRCOG periodically measures and reviews the public participation process using factors that address attendance at speaking engagements with the public and elected representatives from groups representing populations such as individuals with disabilities, older adults and other constituencies.
- All DRCOG-hosted public hearings are wheelchair accessible. DRCOG will accommodate and provide services for individuals with other disabilities when provided notice before the hearing.
- Hearings are held at DRCOG's office, which is centrally located and accessible by transit service.
- DRCOG is an Equal Employment Opportunity (EEO) employer and does not discriminate against any status protected by applicable law including disability. The DRCOG EEO statement is available on the DRCOG website.
- ADA, among other civil rights statutes, is addressed in the DRCOG Civil Rights-Title VI Policy Statement. DRCOG's Title VI Implementation Plan can be found on the DRCOG website and DRCOG's Title VI Implementation Plan. Along with the statement, the complaint procedure and contact information for the DRCOG Discrimination Complaint Coordinator are also included on the website as well as other documents including DRCOG's Limited English Proficiency Plan. Also included in DRCOG's Title VI Implementation Plan are copies of DRCOG's nondiscrimination contract provisions which include provisions for ADA. DRCOG certifies compliance with multiple civil rights laws including ADA in the Title VI Local Agency Assurance also included in DRCOG's Title VI Implementation Plan.
- DRCOG also self-certifies that the transportation planning process is being carried out in accordance with all applicable requirements including ADA every time a new TIP is adopted.

- The purpose of DRCOG’s Coordinated Transit Plan is to improve mobility for older adults, individuals with disabilities, low-income individuals and others with mobility challenges. As the federally-required Coordinated Public Transit Human Services Transportation Plan (CPTHSTP), the Coordinated Transit Plan also addresses many FTA requirements including:
 - An assessment of transportation needs for individuals with disabilities and older adults. (This assessment can be based on the experiences and perceptions of the planning partners, and/or on more sophisticated data collection efforts, and gaps in service).
 - DRCOG is a founding member of the Denver Regional Mobility and Access Council (DRMAC). This includes having an appointed representative of DRCOG on DRMAC’s Board of Directors. DRMAC was established in 2005 to address the specialized transportation needs for citizens of the greater Denver metro area. Its mission is to ensure people with mobility challenges have access to the community by increasing, enhancing, sharing and coordinating regional transportation services and resources.
 - Among the strategic initiatives included in DRCOG’s Metro Vision is to ensure ADA standards are met or exceeded in constructing or retrofitting facilities such as curb cuts and ramps.

DRCOG addresses ADA at the regional level, not at the project level. For example, DRCOG is not required to have an ADA Transition Plan as are many local government recipients of federal funds. Local government sponsors of projects selected for TIP funding are required to adhere to all federal requirements including ADA. It is the responsibility of CDOT, FTA and FHWA to enforce federal regulations and requirements, including ADA, in their role as administrators of federally funded projects. DRCOG provides an information, education, communication and assistance role.

B. State Policy Requirements

Federal Relationship

The FAST Act requires state departments of transportation to conduct statewide transportation planning and programming, and federal Planning Rules

for statewide transportation planning provide regulatory details. Although the requirements in federal laws and regulations for statewide planning are generally similar to those for metropolitan planning, the specific federal requirements for transportation planning in metropolitan areas are defined in the appropriate metropolitan elements of federal law and regulations, rather than by the statewide elements. Federal law does not require statewide long-range transportation plans to be fiscally constrained.

However, federal law does require the statewide process to interact with the metropolitan process in areas where the metropolitan process is required. This interaction is described in various federal laws and regulations as **cooperation** or **coordination**. Each has a slightly different definition, but both imply that the involved parties work together to make sure products are seamless and schedules are consistent. The cooperation and coordination help to achieve consistent goals and objectives.

Outside of metropolitan areas, federal law requires states to conduct their transportation planning process in **cooperation** with local officials responsible for transportation.

State Statute

Colorado statute specifies that statewide transportation planning and programming is to be done in cooperation with regional planning commissions. The Greater Denver Transportation Planning Region is one of 15 transportation planning regions established for this purpose. DRCOG, as the regional planning commission for that transportation planning region, has metropolitan transportation planning responsibilities within the transportation management area and a consultation role outside of it (in the Mountains and Plains area). State statute also requires that:

- a 20-year regional transportation plan be developed for each transportation planning region that includes a metropolitan area
- a regional transportation plan shows what can be reasonably expected to be implemented with the revenues that are likely to be available (in other words, fiscally constrained).
- CDOT integrate and consolidate the regional transportation plans into a comprehensive statewide transportation plan
- a Statewide Transportation Advisory

Committee review and comment on all regional transportation plans submitted and provide advice to CDOT (a representative from each of the 15 transportation planning regions in the state serves on this committee); and

- the Colorado General Assembly recognizes that regional planning commissions and transportation planning regions are the proper forum for transportation planning and that the county hearing process is the proper forum for local government input into the five-year program of projects

FASTER Legislation

In 2009 the Colorado Legislature passed Senate Bill 09-108, *Funding Advancement for Surface Transportation and Economic Recovery* (FASTER). FASTER created new state transportation enterprises, funding sources and programs. It also identified the following additional factors that should be addressed by the statewide plan, and by inference, the MPO transportation plans as well:

- targeting of infrastructure investments, including preservation of the existing transportation system
- safety enhancement
- strategic mobility and multimodal choice
- support of urban or rural mass transit
- environmental stewardship
- effective, efficient and safe freight transport
- reduction of greenhouse gas emissions

Ongoing state planning factors include:

- an emphasis on multimodal transportation considerations, including the connectivity between modes of transportation
- an emphasis on coordination with county and municipal land use planning, including examination of the impact of land use decisions on transportation needs and the exploration of opportunities for preservation of transportation corridors
- the development of areawide multimodal management plans in coordination with the process of developing the elements of the state plan

Transportation Commission Rules and Regulations

As required by state statute, the Transportation Commission has adopted rules and regulations for the statewide transportation planning process.

As with federal regulations, these rules augment statutory language. Included in the commission's rules are requirements for:

- public participation
- transportation planning region boundary revisions
- elements to be included in regional transportation plans
- review of regional plans by the Statewide Transportation Advisory Committee
- development and approval of the statewide transportation plan; and
- updates and amendments of regional and statewide plans.

The Transportation Commission routinely adopts policy directives or rules for other transportation planning-related processes. Those most relevant to the DRCOG regional process are discussed in Chapter 5.

Relevant state statutes are listed in Appendix A.

C. Metro Vision Guidance

As a regional planning commission, DRCOG adopts and maintains a regional plan. Metro Vision is the long-range plan to manage growth within the Denver area. Metro Vision addresses development, transportation needs and environmental quality. It serves as a comprehensive foundation for regional planning efforts and provides a regional context for local decision-making on growth and development issues. It recognizes the effects growth will have on the provision of infrastructure, water quality, clean air and the environment and calls for an efficient development pattern that supports transit, protects valuable recreation areas and open space, and provides for diversity in community structure and housing choices.

The Metro Vision 2035 Plan establishes how regional stakeholders can achieve their 20-year aspirations for the region in three topical areas:

- growth and development
- transportation
- environment

Components include extent of urban development, urban centers, community design, and parks and open space. Each component has a vision, goal and

several policies. Together, the components create the future preferred vision. A Metro Vision update is under development with expected completion by the end of 2016.

Implementing Metro Vision influences where future residents settle and businesses locate, which, in turn, affects travel behavior and the need for transportation facilities and services.

A primary objective of the DRCOG regional transportation planning process is to help implement Metro Vision.

D. Metropolitan Planning Agreement Guiding Principles

As stated in Chapter 1, the three partner agencies (DRCOG, RTD and CDOT) entered into an MOA in July 2001 for the transportation planning process for the DRCOG region. The MOA was modified in June 2008 to expand the geographic scope to include southwest Weld County. Under new requirements of the FAST Act, the MOA is replaced with a Metropolitan Planning Agreement (MPA) to reflect a greater emphasis on performance-based planning coordination. The purpose of the MPA is to implement federal and state statutes and regulations addressing regional transportation planning to ensure that a collaborative process occurs among the three agencies.

The MPA acknowledges the roles and responsibilities of the three agencies regarding transportation planning as defined by federal and state laws and regulations. The MPA further describes the functions, products and organization of the planning process.

The MPA specifies that the regional transportation planning process is carried out in a manner consistent with the following principles and objectives:

- Each year, the partner agencies solicit input on the goals and objectives of the regional process to collaboratively establish the goals

and objectives for transportation planning in order to guide ongoing and future transportation investments. This is accomplished through:

- joint meetings of members of the agencies’ governing boards
 - coordinating the processes for setting project priorities
 - providing opportunities for meaningful public participation
 - establishing a clear decision-making structure; and
 - establishing cooperative interagency staff communication.
- Development and transportation plans are integrated to be mutually supportive. This is accomplished by working with local municipalities and counties to:
 - coordinate the integration of transportation planning and land use
 - preserve adequate right-of-way for future transportation options
 - ensure that regional needs are addressed; and
 - coordinate and prioritize transportation investments to achieve a balance of transportation and quality-of-life issues.

The Metropolitan Planning Agreement formally commits DRCOG, RTD and CDOT to work together on transportation planning for the Denver region.

3. Participants

Transportation planning in the Denver region incorporates the experience and input of many people and organizations. The DRCOG Board is the MPO of the transportation management area and the regional planning commission of the Greater Denver Transportation Planning Region. CDOT and RTD are partner agencies in the regional transportation planning process as affirmed in the MPA. Local officials, interest groups, the public and others provide essential direction and comment. Other federal, state and regional agencies play key roles, too.

A. DRCOG Committee Structure

As stated in the MPA, the regional transportation planning process is organized around a series of committees shown in **Exhibit 3**. **Exhibit 4** details committee composition and responsibilities.

The **DRCOG Board** is made up of local elected officials from the region's towns, cities and counties. It also includes at least one non-voting member each from CDOT (appointed by the governor) and from RTD. **The DRCOG Board is the policy body for the MPO.**

Transportation planning products described in Chapter 4 typically require **adoption by the DRCOG Board through the transportation committees process**, which includes:

- sequential review by the Transportation Advisory Committee, the Regional Transportation Committee, and the DRCOG Board, and
- the Regional Transportation Committee and the DRCOG Board must both take favorable action for policies and products to be considered adopted.

The **Regional Transportation Committee (RTC)** is a permanent committee that prepares and forwards policy recommendations to the DRCOG Board. DRCOG Board policy actions that differ from the Regional Transportation Committee recommendation must be referred back to the committee for reconsideration.

The **Transportation Advisory Committee (TAC)** is a permanent committee that assists the Regional Transportation Committee and the DRCOG Board by reviewing the work of the transportation planning process.

Ad hoc committees (or task forces) and work groups may be established by the DRCOG Board, Regional Transportation Committee or Transportation Advisory Committee. They are given short-term assignments to assist on specific topics, tasks or activities.

The **Agency Coordination Team (ACT) and Interagency Consultation Group (ICG)** are standing work groups made up of staff from the MPA partner agencies, air quality planning agencies and federal agencies. ACT duties include:

- synchronizing the schedule of planning activities (including Transportation Advisory Committee and Regional Transportation Committee consideration)
- coordinating Unified Planning Work Program (see Chapter 4) activities with agencies' planning activities.

ICG duties include reviewing transportation planning and air quality conformity products, methodologies and schedules.

B. Public Involvement

Constructive public involvement is essential at all levels of transportation planning. DRCOG is responsible for proactively engaging the public in the regional transportation planning process, and embraces federal requirements that MPOs provide the public **with complete information, timely public notice, full public access to key decisions, and early and continuing involvement** in developing the planning products described in Chapter 4. *Public Involvement in Regional Transportation Planning* documents DRCOG's public involvement process. DRCOG reviews the process annually.

Recent federal regulations and executive orders have emphasized broadening public participation in

Exhibit 3: Transportation Planning Committee Structure

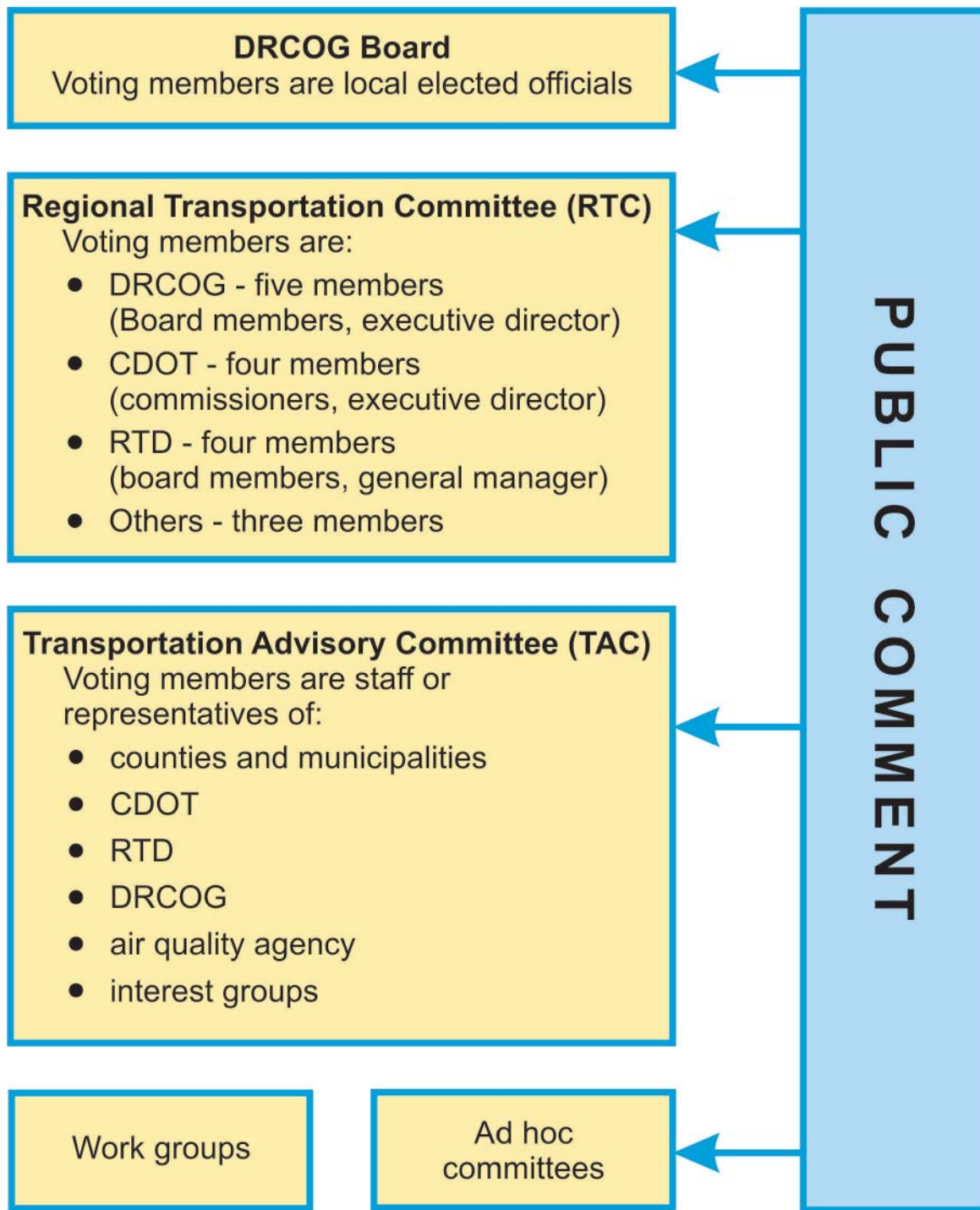


Exhibit 4: Composition and Responsibilities of the DRCOG Board and Transportation Committees

	DRCOG Board	Regional Transportation Committee	Transportation Advisory Committee
Authority	<ul style="list-style-type: none"> State and federal statutes DRCOG Articles of Association 	<ul style="list-style-type: none"> Federal statute 2001 MOA DRCOG Board adopts committee description 	<ul style="list-style-type: none"> 2001 MOA DRCOG Board adopts committee description
Responsibilities	<ul style="list-style-type: none"> Prepares, maintains and regularly reviews comprehensive regional plan (Metro Vision) Adopts all regional transportation planning products, including the Metro Vision RTP and TIP Products and policies are adopted when the Board and Regional Transportation Committee both take favorable action Board holds regularly-scheduled non-voting work sessions (typically monthly) at which every Board member is invited to participate 	<ul style="list-style-type: none"> Assists the DRCOG Board in regional transportation planning Prepares regional transportation planning policy recommendations for action by the DRCOG Board 	<ul style="list-style-type: none"> Facilitates dialogue and cooperation among local governments, regional agencies, the state and other stakeholders on regional transportation issues Provides advice and guidance on methods of planning and implementation, and helps develop policy options Reviews planning products and processes Makes recommendations to the Regional Transportation Committee on transportation plans and improvement programs
Membership	<ul style="list-style-type: none"> Each municipality, county and city-and-county within the nine-plus-county region is eligible to be a member of DRCOG Each member may designate one local elected official as its member representative and one as its alternate <ul style="list-style-type: none"> Denver may designate two members Governor appoints three non-voting members, including one member from CDOT RTD has one non-voting member 	<ul style="list-style-type: none"> Five from DRCOG—the chair, vice chair, two Board directors and the executive director Four from CDOT—three Denver-area transportation commissioners and the executive director Four from RTD—three board members and the general manager DRCOG, CDOT and RTD may designate alternates in writing Three others—appointed annually by the Regional Transportation Committee chair upon unanimous recommendation of the DRCOG, CDOT and RTD executives (DRCOG executive will consult with the chair prior to the three agency executives forming a recommendation) 16 voting members total 	<ul style="list-style-type: none"> 15 local-government representatives appointed by the DRCOG chair: <ul style="list-style-type: none"> two each from Adams, Arapahoe, Boulder, Douglas and Jefferson counties, and one from southwest Weld County; <ul style="list-style-type: none"> at least three are appointed from counties at least seven are appointed from municipalities (at least two but no more than three are from cities smaller than 35,000 in population) two from Denver and one from Broomfield one from the non-MPO (Mountains and Plains) area of the transportation planning region appointees are city or county managers/ administrators; public works, transportation or planning directors; or equivalent CDOT directors (or their designees) for regions 1 and 4, division of transit and rail, and transportation development division RTD's assistant general manager of planning DRCOG's transportation planning and operations director Regional Air Quality Council executive director One representative each of environmental, freight, transportation demand management/non-motorized, senior, aviation, non-RTD transit and business/economic development interests (nominated by the DRCOG chair and confirmed by the Regional Transportation Committee) Alternates may be designated in writing FHWA and FTA have ex officio representation 29 voting members total
Quorum	<ul style="list-style-type: none"> One-third of all voting member representatives 	<ul style="list-style-type: none"> 12 voting members or designated alternates 	<ul style="list-style-type: none"> 15 voting members or designated alternates
Decisions Made	<ul style="list-style-type: none"> Regular questions: With a majority of voting member representatives present Adoption or amendment of elements of regional plan: With a majority of all voting member representatives 	<ul style="list-style-type: none"> With 12 affirmative votes 	<ul style="list-style-type: none"> With 15 affirmative votes

transportation planning to include affected groups that have not traditionally been very involved, such as minority constituents and people with disabilities, lower incomes or limited English proficiency. All DRCOG-hosted public hearings and forums are held in venues that are wheelchair accessible, and DRCOG accommodates and provides services for people with other disabilities when such services are requested in advance. DRCOG's Limited English Proficiency Plan outlines how such assistance will be provided.

Specific goals of DRCOG's public involvement process are to:

- **present information and educate the public** about the regional transportation planning process.
- **continually solicit public input** through its Board directors, public forums, public hearings, corridor studies, attending local community and interest group meetings, distributing

The goal of public involvement is to ensure that the decisions regarding a proposed plan or project are made only after the public is made aware of, and has the opportunity to comment on, the proposal.

questionnaires and newsletters—especially at the beginning of planning processes, at key decision points, and when final drafts are prepared. DRCOG makes maximum use of opportunities to speak to communities and organizations at their scheduled meetings; experience has demonstrated that going out to the public rather than expecting the public to

come to a DRCOG meeting is more productive.

- **facilitate information flow between the public and decision-makers** by compiling public issues, comments and concerns into complete and concise documents.
- **consider and respond to public concerns.** DRCOG considers public concerns in preparing draft documents. The transportation committees and the DRCOG Board consider expressed public concerns when making decisions. DRCOG is responsible for drafting responses to identified concerns and for documenting the consideration given to major issues by decision-makers. For certain processes (specifically, the Metro Vision RTP and TIP, described in Chapter 4), if significant comments are received on the draft documents, DRCOG prepares a summary, analysis, and report on the disposition of those comments.

The DRCOG regional transportation planning process and its corresponding system-level public participation is a coordinated effort of the MPA partner agencies. However, public participation takes place at the city, county, corridor and project levels, too. In fact, individuals concerned about a specific project or citywide plan, for example, will often find their participation to be more meaningful in a public involvement process conducted specifically for that project or plan. While DRCOG provides opportunities for further public comment on proposed projects during development of regional products such as the Metro Vision RTP or TIP, DRCOG's public involvement is intended to augment, not replace, project-specific public involvement activities.

4. Planning Process Products

Federal laws and regulations require the performance-based regional transportation planning process to produce five major products. The following sections describe what each product contains and how each is prepared:

A. Unified Planning Work Program

The Unified Planning Work Program (UPWP) describes all metropolitan transportation planning and transportation-related land use and air quality planning activities, regardless of funding source, on a two-year cycle, addressing the planning priorities of the DRCOG region. It identifies tasks that will be accomplished using federal transportation planning funds. The MPA partners participate in the activities of the UPWP, with each contributing information, effort and resources. The work program defines the nature, extent and duration of the partners' participation. The three partners conduct their

The Unified Planning Work Program provides the basis for the scope of work of the contract DRCOG executes with CDOT to receive federal transportation planning funds.

individual planning programs in coordination with the regional program. Each agency is responsible for:

- identifying priority planning issues of concern
- preparing work tasks to address issues of concern
- completing assigned tasks; and
- cooperating with other agencies so that shared tasks can be completed.

The Unified Planning Work Program typically includes:

- a description of the region's transportation objectives and critical issues and how the Denver region will address them, through the work program, during the coming two years. Input on the objectives and issues are obtained through a meeting of the governing boards of the three agencies and/or through transportation committees' discussion and review

- the accomplishments of preceding UPWPs and the current status of the transportation planning program
- an overview of UPWP priority activities
- descriptions of the planning tasks to be performed using federal transportation planning funds and matching funds (and other funds identified by mutual agreement). Specifically, descriptions identify work activities, objectives, products, participants, responsibilities and expected completion schedule.
- identification of funding sources, with revenues and expenditures shown by agency by activity, and with documentation that meets federal and state requirements; and
- descriptions of other major transportation planning activities by MPA partner agencies and local governments using other funds. These projects are briefly identified for informational purposes.

The work program year is the federal fiscal year, which begins Oct. 1. Preparation of the UPWP typically begins in March of odd-numbered years. DRCOG leads this effort, with significant collaboration from RTD and CDOT and assistance from other agencies through the Agency Coordination Team. FHWA and FTA review the work program to ensure the proposed activities are consistent with federal requirements and eligible for federal funding. The UPWP is adopted by the DRCOG Board through the **transportation committees process** (see sidebar to Section 3.A). When the adopted work program receives formal federal approval, CDOT prepares and executes the consolidated transportation planning grant contract with DRCOG using a summary version of the Unified Planning Work Program as the scope of work. **Exhibit 5** shows a typical timeline for developing the UPWP.

Relationship to the Statewide Transportation Planning/Programming Process

CDOT provides input on planning issues and concerns and on UPWP tasks, products and timing desired for the statewide process. As funding allows, the UPWP includes the mutually agreed-

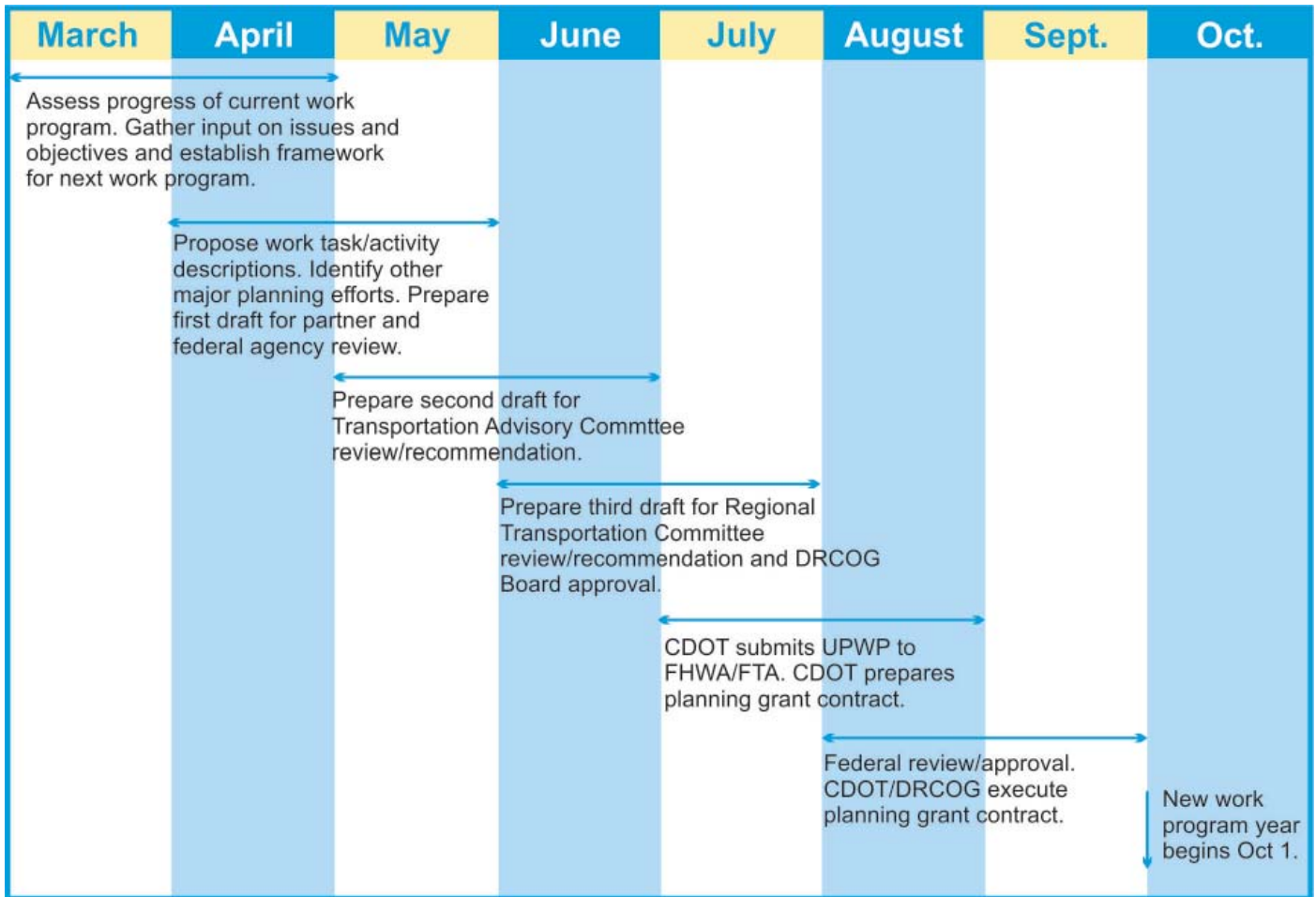
upon activities necessary to ensure seamless products and consistent schedules.

Amendments

Generally midway through each federal fiscal year and at the end of the first federal fiscal year, the Agency Coordination Team reviews progress on the

work program. As needed, revisions are identified and an amended Unified Planning Work Program is adopted by the DRCOG Board through the transportation committees process. CDOT conveys the adopted amended UPWP to FHWA and FTA for approval.

Exhibit 5: Typical Unified Planning Work Program Timeline (Odd-numbered years)



B. Long-Range Transportation Plan

Metro Vision is a comprehensive policy document that expresses the region's vision for growth, development, environmental quality and transportation. It identifies the long-range transportation outcomes, objectives, and strategic initiatives needed to support the desired physical, social and economic development of the region (the other plan components). DRCOG develops and maintains a **Metro Vision Regional Transportation Plan (RTP)** as a part of Metro Vision. The Metro Vision RTP includes two key components:

- The Metro Vision transportation system reflects a transportation system and accompanying programs and services necessary to enhance the region's quality of life and adequately respond to mobility demands. Not fiscally constrained, the Metro Vision transportation system is the region's 20-year transportation plan required by state law and referred to in state rules as the vision plan.
- The air quality conforming fiscally constrained regional transportation plan is the subset of the Metro Vision transportation system required by federal law for transportation management areas. The fiscally constrained performance-based RTP identifies the affordable, multimodal transportation system that can be achieved during a minimum 20-year planning horizon (as of the effective approval date) with financial resources that are expected to be reasonably available.

The specific titles of these two components may change over time, but DRCOG expects to continue identifying both a vision transportation system and

The Metro Vision RTP is the Denver region's long-range transportation plan.

Its key components are:

- the Metro Vision transportation system
- the fiscally constrained RTP

one that is fiscally constrained. For consistency, both the Metro Vision transportation system and air quality conforming fiscally constrained RTP cover the entire transportation planning region. Both

components of the Metro Vision RTP are reviewed and amended/updated as necessary. Within the transportation management area, federal law requires the fiscally constrained RTP to be reviewed and updated at least every four years to validate air quality conformity and address the latest planning assumptions and other regulatory requirements.

Federal regulations require the air quality conforming fiscally constrained RTP to include both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand.

The air quality conforming fiscally constrained RTP:

- demonstrates the consideration given to the region's comprehensive long-range land use plan and development objectives (the other elements of Metro Vision)
- considers the federal planning factors (see Chapter 2)
- forecasts the future transportation demand of people and commercial vehicles
- emphasizes facilities serving important national, regional and metropolitan functions
- provides general project descriptions (referred to in the regulations as "design concept and scope") sufficient to develop realistic cost estimates and allow air quality conformity examination
- considers the findings of the congestion management process
- identifies modernization and rehabilitation strategies necessary to preserve the transportation system
- identifies operational and management strategies to make most efficient use of the transportation system
- includes a safety element coordinated with the state strategic highway safety plan
- addresses environmental mitigation policies, programs or strategies
- includes appropriate bicycle and pedestrian facilities and proposed transportation enhancement activities
- contains a financial plan describing the cost and funding assumptions and showing fiscal constraint; and

- conforms with Clean Air Act requirements within applicable pollutant (non)attainment areas.

Exhibit 6 illustrates the tasks along a sample 18-month timeline, and **Exhibit 7** shows the long-range transportation plan development responsibilities of the MPA partners.

While the RTP is being developed, the MPA partners work on a complex series of interrelated and overlapping tasks spanning 18 to 24 months. A general description of typical tasks follows.

Exhibit 6: Typical Long-Range Transportation Plan Timeline

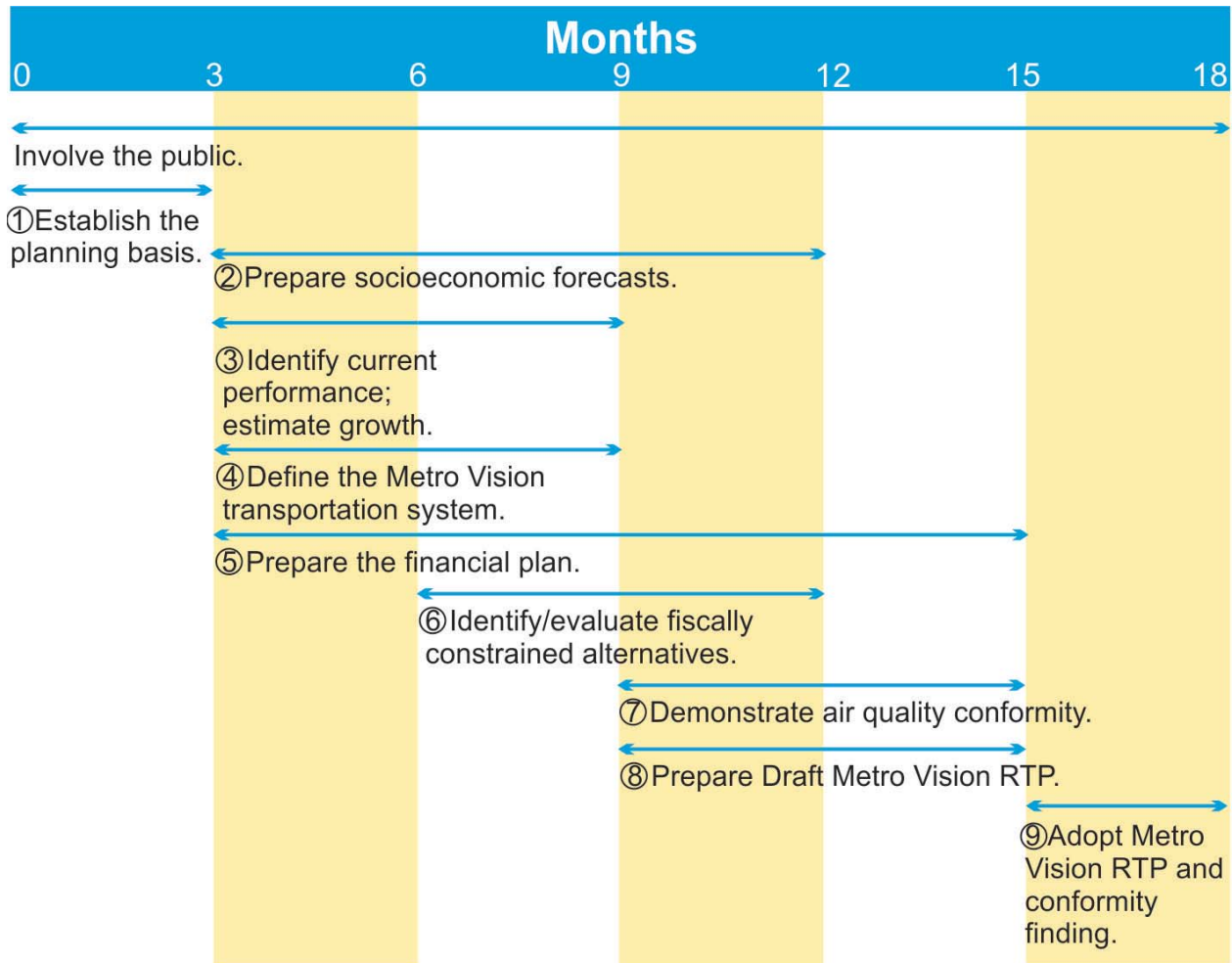


Exhibit 7: Partner Responsibilities in Developing Long-Range Transportation Plans

DRCOG:

- prepares and adopts Metro Vision including a transportation element
- prepares and adopts the Metro Vision RTP including both the Metro Vision transportation system and the air quality conforming fiscally constrained regional transportation plan
- coordinates, prepares and adopts the finding of air quality conformity for the fiscally constrained RTP
- coordinates activities, ensures collaboration, facilitates review and approval process
- prepares socioeconomic forecasts and runs regional travel model
- calculates, compiles and presents performance measures and results
- identifies and evaluates transportation strategy alternatives including congestion management options
- leads the process that selects priority capital projects for the integrated multimodal system
- leads development of the financial plan demonstrating fiscal constraint
- conducts public involvement activities and consults with land management and environmental resource agencies
- provides an overview of environmental mitigation opportunities
- publishes Metro Vision, Metro Vision RTP and conformity documents and makes them available to the public
- maintains process for amending the Metro Vision RTP

CDOT:

- provides guidance about state regulations, Transportation Commission investment priorities and plan preparation
- provides state highway system performance data and goals
- identifies mobility needs, safety, operations and preservation needs for state highways to implement

Metro Vision and participates in the project evaluation and selection process for the integrated multimodal system

- reviews highway networks and regional travel model results including data for air quality conformity
- provides revenue forecasts and program distribution information
- works with DRCOG to cooperatively estimate long-range transportation revenues and cooperates in the development/review of the financial plan
- provides an overview of environmental mitigation opportunities
- assists with the development of strategy and project cost estimates
- reviews the Metro Vision RTP and facilitates review by the Statewide Transportation Advisory Committee
- participates in public involvement and agency consultation activities
- integrates and consolidates the Metro Vision RTP into the statewide transportation plan

RTD:

- provides transit system performance data
- identifies capital expansion, safety, preservation, security and operations needs for the transit system to implement Metro Vision and participates in the capital project evaluation and selection process for the integrated multimodal system
- reviews transit networks and assists with regional travel modeling
- works with DRCOG to cooperatively estimate long-range transportation revenues and assists with preparing the financial plan
- assists with the development of strategy and project cost estimates
- reviews the Metro Vision RTP
- participates in public involvement and agency consultation activities

Ongoing: Public involvement and agency consultation

DRCOG's general public involvement procedures are discussed in Chapter 3 and are applied to the entire process of regional transportation plan development. Public involvement includes outreach from the beginning of the process through its completion. Agency consultation typically takes place as appropriate in steps 3 through 7. DRCOG usually holds a minimum of two public meetings when working on a new plan and may conduct public forums or open houses as well. As possible, the public participation events of the MPA partner agencies are jointly sponsored or mutually attended. DRCOG holds formal public hearings with appropriate public notice for adopting an update or revising Metro Vision and for adoption of the Metro Vision RTP and associated conformity finding for the fiscally constrained RTP. DRCOG summarizes all public comments received via outreach, forums, meetings, phone and email messages, and other sources; then drafts responses and presents all comments and responses to the transportation committees and DRCOG Board to consider. If significant public comments are received on draft documents, a summary, analysis and report on the disposition of such comments are included as part of the final Metro Vision RTP documentation.

Step 1. The planning basis

The region's adopted long-range transportation plan policy and strategy components are examined in concert with Metro Vision. Through public and stakeholder outreach and the transportation committee process, the plan and strategy components are reconfirmed or revised as appropriate to establish the long-range planning basis and foundation of the new Metro Vision RTP.

Step 2. Socioeconomic forecasts

Socioeconomic forecasts are the foundation of regional travel and air quality modeling. Estimates of population, employment and households for the current year, the horizon year of the long-range plan, and for interim staging years required for air quality conformity modeling are produced. DRCOG starts by establishing regional control totals based on broad national and state forecasts and expectations, as

well as other input. These regional totals are then allocated to smaller areas called transportation analysis zones using the UrbanSim model. Local governments help by verifying current data, providing local development plans and expectations, and reviewing initial estimates. The approximately 6,250-square-mile DRCOG modeling area has more than 2,800 transportation analysis zones.

Step 3. Current system performance and the implications of growth

DRCOG summarizes the current performance of the regional transportation system using applicable data from CDOT, RTD, local governments, public transportation authorities and the regional travel model. DRCOG also uses preliminary data from the regional travel model to quantify how much travel demand will increase by mode during the time period covered by the plan. This step establishes base measures of performance against which potential improvement options can be compared.

As part of this step, DRCOG may identify future scenarios using alternative growth allocations and transportation system assumptions, and external factors to examine benefits, impacts and costs.

Step 4. Define the Metro Vision transportation system

In this step, DRCOG works with the MPA partners, local governments, public highway authorities, other interested parties and the public to identify the future transportation system that would best align with and implement the other components of Metro Vision. The Metro Vision transportation system typically describes an integrated multimodal system that includes:

- rail and bus transit service, and multimodal passenger facilities
- the principal and major regional arterial and freeway network
- key regional bicycle corridors, and
- basic needs for maintenance and preservation, management and operations, safety, security, environmental mitigation and enhancement of the transportation system.

Conceptual cost estimates are prepared, and the total amount of funding needed to build, operate

and maintain this system is identified. This system has no fiscal constraints. The Metro Vision transportation system becomes the starting point for defining the fiscally constrained RTP.

Step 5. The financial plan

The fiscally constrained component of the Metro Vision RTP must include a financial plan that reconciles the estimated costs of constructing, maintaining and operating the proposed transportation system with reasonably expected revenues during the time period covered by the plan. Developing the financial plan is a cooperative effort among the MPA partners, local governments, public highway authorities and other stakeholders.

To comply with federal requirements, the financial plan for any fiscally constrained RTP must consider and ultimately define numerous financial aspects including (but not limited to):

- the base fiscal year for revenue estimates (values in year of expenditure and constant-year dollars)
- the precise number of years covered by the plan
- funding sources and revenue amounts, including traditional federal-formula and state sources, discretionary sources, local governments, private developers, tolling, existing and new public transportation authorities, public-private partnerships, transit farebox and potential new state, regional or local transportation funding initiatives.
- for any agency whose responsibilities extend beyond the DRCOG region (CDOT, for example), how much revenue is allocated within the DRCOG region; and
- cost estimation, such as what is needed at the broad investment category level and what is needed for specific projects.

The Agency Coordination Team and/or ad hoc committees may work through technical issues pertaining to fiscal constraint. Relevant information is provided to the transportation committees for explicit consideration of draft revenue and cost estimates prior to DRCOG Board approval of networks for air quality conformity testing (Step 7). The final financial plan is explicitly considered by the transportation committees as it becomes part of the Metro Vision RTP document to be adopted by the DRCOG Board.

Step 6. Fiscally constrained regional roadway and rapid transit system

The air quality conforming fiscally constrained RTP must specify only those improvements that can be afforded. This step defines the subset of Metro Vision transportation system regionally significant projects and strategies that best achieve Metro Vision's planning and transportation objectives within the constrained level of funding.

Typically, the roadway and transit capital improvements of the currently-defined Metro Vision transportation system are verified with partner agencies and local governments. Envisioned projects may be added, modified or removed. The projects are then evaluated based on agreed-upon criteria which may be related to such factors as the scale of the problem, benefits of the project, number of users, safety and other attributes related to the implementation of Metro Vision. Projects must then be identified which can be included within the financially constrained revenue estimates for the RTP. Future funding allocations are also made for "system categories" for which specific future projects are not identified. These categories are analyzed based on performance management efforts (for example, safety and reconstruction) and other factors (funding for future bicycle, pedestrian and transportation demand, and system operational projects).

Step 7. Air quality conformity

The fiscally constrained components of long-range transportation plans must conform to appropriate State Implementation Plans for air quality (see Section 5.1). As established in federal regulations for conformity determinations, the proposed fiscally constrained RTP networks are modeled in combination with the final transportation analysis zone-level socioeconomic forecasts to determine travel on the roadway and transit system. The regional travel model results including traffic volumes, vehicle miles of travel, average vehicle speed and transit ridership by time of day are used to predict the amount of various pollutants emitted by these on-road mobile sources. The amount of predicted pollutant emissions must not exceed budgets established in State Implementation Plans. Implementation of transportation control measures

is also assessed. These criteria are examined for the long-range horizon year of the fiscally constrained RTP and for interim years established considering federal and State Implementation Plan requirements. All criteria must be met for all years evaluated. If all criteria are met, DRCOG prepares a technical document supporting a conformity finding. Unless the finding is deemed “routine in nature” by the Air Pollution Control Division of the Colorado Department of Health and Environment according to the Air Quality Control Commission’s (AQCC) Regulation 10, this document is taken to the AQCC

in a public hearing; that body formally comments on the finding. A public hearing is also held by the DRCOG Board. The DRCOG Board adopts the conformity finding through the transportation committees process as part of the Metro Vision RTP adoption. After approval by the Board, the conformity finding documentation, along with the plan documentation, is provided to FHWA/ FTA for the federal conformity determination. The federal conformity determination for a fiscally constrained RTP is valid only for up to four years. **Exhibit 8** shows air quality conformity responsibilities.

Exhibit 8: Air Quality Conformity Responsibilities with Fiscally Constrained RTP

An MOA between DRCOG, the Regional Air Quality Council (RAQC), and the Colorado Department of Public Health and Environment outlines specific roles and responsibilities for transportation conformity evaluations. A second MOA between DRCOG and RAQC highlights the staff-level coordination of regional transportation, development and air quality planning efforts. A third MOA between DRCOG and five other transportation or air quality agencies specifically addresses eight-hour ozone conformity. The working interpretation of these MOAs includes:

- The Interagency Consultation Group (ICG) process shall be convened at the outset of the plan development process and at key points throughout.
- The draft fiscally constrained RTP roadway and transit networks approved in Step 6 serve as the transportation system basis. Per the eight-hour ozone MOA, the DRCOG travel model covers all of the southern subarea of the eight-hour ozone nonattainment area (the subarea boundary line is the nominal alignment of Weld County Road 38, the extension of the Boulder/Larimer county boundary eastward to the Morgan County line). DRCOG coordinates with Weld County and CDOT Region 4 to define the networks outside of the DRCOG region.
- DRCOG, in cooperation with RTD, CDOT and affected local governments and public transportation authorities, develops a schedule of regionally significant improvements for the interim staging years identified for the conformity process.
- DRCOG adjusts the networks to reflect roadway classification, laneage, area type, transit service frequency, parking costs and other attributes.
- DRCOG and the ICG also determine other planning assumptions, such as:
 - local government and agency commitments
 - to decreased sanding or improved street sweeping reducing small particulate pollution.
 - socioeconomic, demographic and vehicle fleet forecasts.
- DRCOG runs the regional travel model and provides the results to the Agency Coordination Team and Interagency Consultation Group to check the results’ reasonableness.
- DRCOG submits the final transportation data to the Air Pollution Control Division, which calculates the final pollutant emission levels and provides the results to DRCOG.
- DRCOG prepares the conformity determination technical document. The eight-hour ozone MOA and SIP allow DRCOG to prepare an ozone conformity determination for the southern subarea of the ozone nonattainment area. The North Front Range MPO prepares ozone conformity determinations for the northern subarea.
- The DRCOG Board holds a public hearing on the conformity determination. DRCOG distributes the document at least 30 days before the public hearing.
- The Air Quality Control Commission holds a public hearing for conformity determinations associated with new plans or major amendments (at its discretion as provided for in Regulation 10) and provide comments to DRCOG.
- Upon adoption by DRCOG the conformity determination plan documentation is transmitted to FHWA and FTA.
- FHWA receives concurrence conformity determination from EPA.
- FHWA and FTA issue the federal conformity determination.

Step 8. Metro Vision RTP preparation

DRCOG develops the Metro Vision RTP document. The Metro Vision RTP includes all the elements noted in previous steps. The financial plan is described in detail and transportation benefits and impacts are documented. DRCOG prepares drafts of Metro Vision RTP text and, through review by the transportation committees, finalizes the draft. A copy of the draft is also provided to CDOT to coordinate review by the Statewide Transportation Advisory Committee.

Step 9. Metro Vision RTP adoption

The Metro Vision RTP and fiscally constrained RTP conformity finding require public review and adoption by the DRCOG Board through the transportation committee process. Upon transportation committee recommendation of the draft Metro Vision RTP and conformity finding documentation, DRCOG announces a formal public hearing and makes documents available for public examination. Final transportation committee recommendations and DRCOG Board action take place after consideration of public input. Upon adoption, DRCOG transmits the Metro Vision RTP to CDOT; the Metro Vision transportation system component for integration into the state's vision transportation plan (along with the Metro Vision's policy level documentation) and the air quality conforming fiscally constrained RTP component for inclusion in the state's transportation plan.

Relationship to Statewide Transportation Planning/ Programming Process

Federal regulations require statewide transportation plans to be coordinated with metropolitan transportation plans and states to cooperate with MPOs on the portions of the plans affecting metropolitan planning areas. These requirements are acknowledged in the MPA. State statute requires CDOT to integrate and consolidate regional transportation plans into a comprehensive statewide transportation plan. The rules for statewide transportation planning indicate that "regional transportation plans...shall...form the basis for developing...the statewide transportation plan" and that "at a minimum, the statewide transportation plan shall include priorities as identified in the regional transportation plan." The Metro Vision RTP

is developed in a process consistent with state rules and is responsive to Statewide Transportation Advisory Committee and CDOT reviews (reflected by favorable action by the Regional Transportation Committee). At that point, CDOT integrates it into the statewide plan.

Amendments

The Metro Vision RTP may be amended when significant changes occur to regionally significant projects (additions, deletions and modifications), major planning assumptions, or other time-sensitive transportation planning changes. The opportunity for amending the Metro Vision RTP will typically be offered once a year on an annual cycle, though in unique circumstances the DRCOG Board may consider amending the RTP at any time.

An amendment to the fiscally constrained RTP **and** new air quality conformity finding are required for highway or transit network changes of regional significance, such as:

- new rapid transit lines
- new interchanges
- interchange improvements that add or delete travel movements; and
- roadway widenings of one centerline-mile or more on the plan's regional roadway system.

An amendment to the fiscally constrained RTP, but **without** a new air quality conformity finding, may be required for:

- RTP network changes outside the transportation management area
- changes in the proposed funding source; and
- other substantive changes to elements of the Metro Vision RTP that are not specifically included in the air quality conformity modeling

An amendment to the air quality conforming fiscally constrained RTP is **not required** for lesser revisions, such as:

- highway widenings of less than one centerline-mile on plan roadways
- changes to local, collector and minor arterials implemented with local or private funds
- minor scope changes to projects
- minor changes to non-conformity-modeled elements, and
- text clarifications or corrections.

C. Transportation Improvement Program

The Transportation Improvement Program (TIP) is a staged multiyear program of projects to implement the air quality conforming fiscally constrained RTP. The TIP identifies the federally funded surface transportation strategies and projects (or phases of projects) to be implemented in the DRCOG transportation management area during the next few years (see below). Per state protocol, the TIP also includes the CDOT projects being implemented using only state funds.

The federal requirement under the FAST Act is that TIPs cover at least four years. DRCOG's TIP currently covers a six-year period; FHWA and FTA consider the last two years as informational. The TIP is updated at least every four years as required by federal regulations. CDOT develops an annual Statewide Transportation Improvement Program (STIP).

Like the fiscally constrained RTP, the TIP must conform with the requirements of the Clean Air Act, so it must identify all regionally significant projects, regardless of funding source, being completed during the TIP period. Regionally significant projects include roadway capacity projects being built by local governments with local funds, new tollways or capacity increases to existing tollways by public highway authorities and major projects being implemented by RTD with its funds.

DRCOG leads the TIP development, working collaboratively with the MPA partners, air quality agencies, local governments and others. TIP development and adoption takes about 15 months and a general description of usual tasks follows. **Exhibit 9** shows a typical timeline and **Exhibit 10** identifies TIP development responsibilities of the MPA partners.

Ongoing. Public involvement

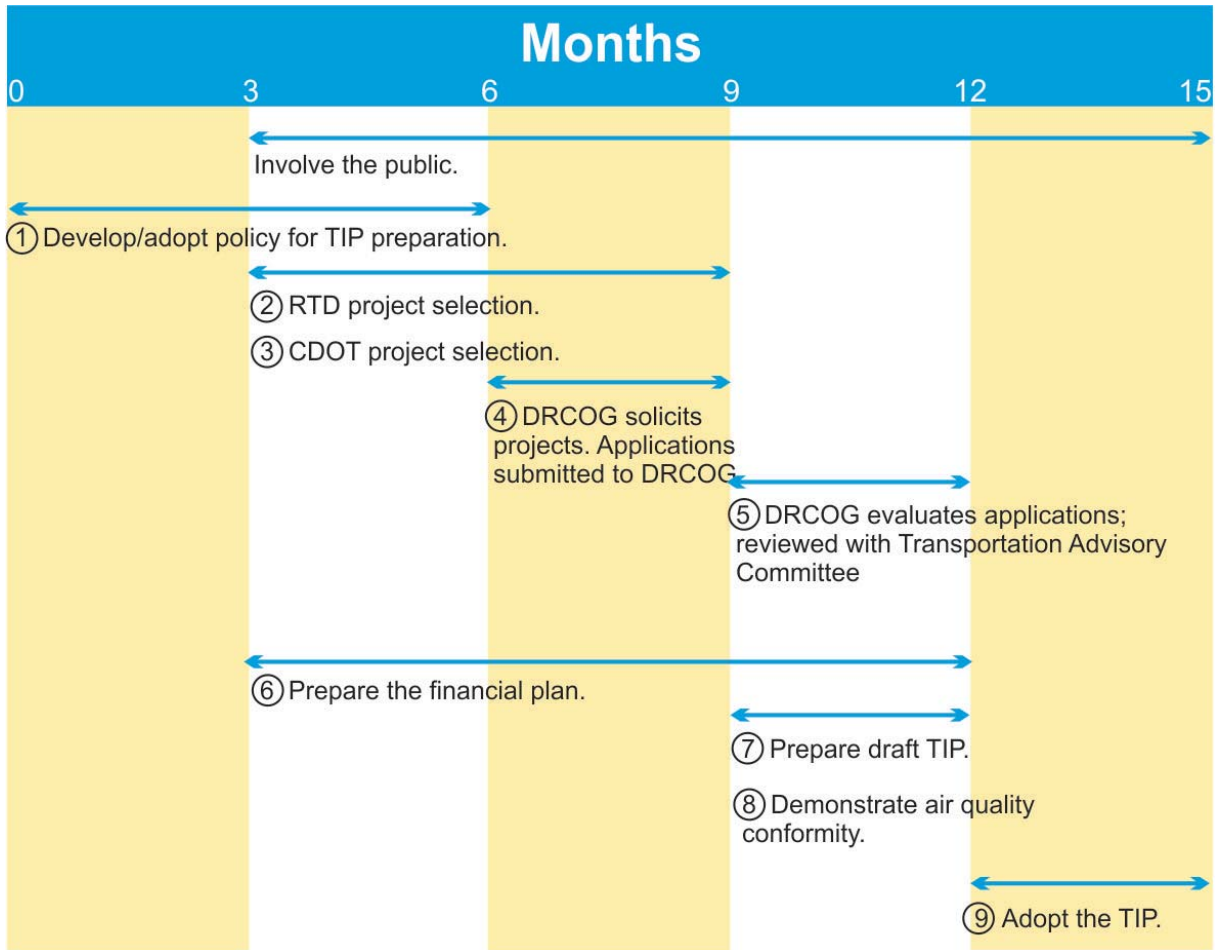
Project selection considers the concerns of the public. Project sponsors are responsible for providing opportunities for public comment on projects and applications submitted to DRCOG. RTD's and CDOT's processes include public participation. A formal TIP public hearing, with appropriate public notice, is conducted by the DRCOG Board prior to adoption. The public notice of public involvement activities and time established for public review and comments on the TIP will satisfy the Program of Projects (RTD's Strategic Budget Plan) requirements of the FTA Section 5307 Program. DRCOG summarizes all public comments received during the public comment period, drafts responses as appropriate, and presents this information to the transportation committees and DRCOG Board. If significant public comments are received on draft documents, a summary, analysis and report on the disposition of such comments are included as part of the final TIP documentation.

Step 1. Develop policy for TIP preparation

Each time a new TIP is prepared, the first step is to establish or confirm the process and procedures used to develop the TIP. DRCOG assembles these into a policy document for adoption by the DRCOG Board through the transportation committee process. Ad hoc committees or working groups may be established to assist in this effort. The policy document is adopted before DRCOG solicits applications for TIP funding (Step 4).

No project using federal surface transportation funds can move forward unless it is included in the TIP.

Exhibit 9: Typical Transportation Improvement Program Timeline



Policy items typically considered and discussed include:

- the relationship of the TIP and project selection to Metro Vision. Because the TIP is the mechanism to identify the projects and strategies from the fiscally constrained RTP that are the highest priority to implement in the immediate future, the outcomes and objectives from Metro Vision and the Metro Vision RTP are reviewed to provide a TIP project selection basis
- identifying eligible applicants and deciding the maximum number of applications each may submit
- establishing project eligibility (including, and perhaps beyond, federal criteria) for DRCOG selected categories
- Identifying set-aside pools or off-the-top funding allocations not subject to the TIP call for projects
- specifying other application requirements, such as responsibility for providing local matching funds and funding possible project cost increases, recipient responsibility for timely implementation, and who (from the

applicant's organization) is allowed to submit the applications

- defining the evaluation criteria by project type to rank/rate applications for DRCOG-selected categories; and
- defining the subsequent methods or procedural steps that result in project selection for the draft TIP.

Federal surface transportation funds are provided to states and regions through numerous federal funding programs or categories. DRCOG directly selects projects for funding in three federal programs titled:

- Surface Transportation Program-Metro
- Transportation Alternatives
- Congestion Mitigation/Air Quality

Exhibit 10: Partner Responsibilities in Developing the Transportation Improvement Program

DRCOG:

- prepares and adopts the TIP
- prepares and adopts finding of air quality conformity
- coordinates activities, ensures collaboration and facilitates the review and approval process
- develops eligibility requirements and selection criteria for DRCOG-selected categories
- solicits projects through a call for projects and assists potential applicants
- evaluates applications and selects projects in DRCOG-selected categories
- ensures consistency of proposed projects with the air quality conforming fiscally constrained RTP
- develops the financial plan, demonstrating fiscal constraint
- solicits descriptions of regionally significant projects being implemented in the TIP horizon using non-federal revenues
- coordinates the air quality conformity process including running the regional travel model if needed
- conducts public involvement activities
- publishes and distributes the TIP
- maintains process for TIP modifications and amendments

CDOT:

- provides guidance about state regulations
- works with DRCOG to cooperatively estimate available short-range state and federal revenues and cooperates in the development and review of the financial plan

- solicits proposals and selects projects for funding with CDOT-controlled revenue
- provides details of CDOT-selected projects for inclusion in the TIP
- participates in interagency review of proposed projects
- if needed, reviews highway networks and regional travel model results including data for air quality conformity
- reviews TIP information and documentation
- participates in public involvement activities
- incorporates the TIP into the STIP subsequent to governor's approval

RTD:

- works with DRCOG to cooperatively estimate short-range regional and federal transit revenues and assists with the financial plan
- identifies projects for federal funding through its Strategic Budget Plan
- provides details of RTD projects using federal funds to be included in the TIP
- provides details of other significant RTD projects using non-federal funds
- participates in interagency review of proposed projects
- if needed, reviews transit networks and assists with regional travel modeling
- reviews TIP information and documentation
- participates in public involvement activities

Step 2. RTD project selection

RTD has primary responsibility for selecting projects for the TIP that use federal transit formula funds (Section 5307 and 5309) and transit discretionary (competitive) funds. RTD uses its Strategic Budget Plan as the basis for its project selections and initial submittals to DRCOG (see Section 5.K). RTD provides its Section 5307 Program of Projects to DRCOG.

Step 3. CDOT project selection

CDOT receives federal highway funds from a variety of federal programs and also receives revenues from the Colorado Highway Users Tax Fund and is eligible to receive funds from the Colorado General Fund (as provided by the state legislature). The Transportation Commission has established a structure for identifying and addressing needs on the state highway system with this combination of funds (see Section 5.J). CDOT projects are defined for purposes of the TIP in the following investment category or program areas:

- strategic projects
- surface treatment
- regional priorities
- congestion relief
- bridge
- safety
- FASTER Safety
- FASTER Bridge Enterprise
- FASTER Transit
- elderly, disabled, rural and other transit

Section 5.J describes CDOT's selection processes for projects in the DRCOG TIP. Projects selected in the transportation management area are included in the TIP. Since CDOT programs projects by investment category, instead of specific funding source, they are all listed as state funds within the TIP. CDOT operations and maintenance projects are not required to be listed in the TIP unless they are of a capital nature.

Step 4. Solicitation for DRCOG-selected projects

Once the TIP preparation policy document has been adopted (Step 1), DRCOG formally announces it is soliciting applications for TIP funding through a call for projects. The application forms and submittal

process are web-based. The application specifies instructions per the adopted policy document and embeds all evaluation criteria so applicants can immediately see how well their projects score and assess their competitiveness. The solicitation announcement typically gives sponsors six to eight weeks to complete and submit applications.

DRCOG conducts training on how to use the application program and jointly with CDOT holds workshops on what it means to implement projects using federal funds. DRCOG also provides relevant material on its website.

Step 5. Review and evaluation of submittals

DRCOG evaluates TIP applications using the process and methodology adopted in Step 1. The Transportation Advisory Committee reviews the evaluations; a work group or ad hoc committee may be convened to assist. TIP applicants, and DRCOG and either CDOT or RTD (depending on project type) may hold peer reviews of certain projects to better understand scope, cost and schedule implications. DRCOG typically produces a validated scoring/ranking of eligible submitted projects, by project type, for consideration by the transportation committees, the public and the DRCOG Board.

The nature of the final selection process varies from one TIP cycle to the next, but the specific process defined in Step 1 is carried forward. Typically, transportation committees review the ranked lists of projects; work groups or ad hoc committees assist in crafting options as to the best mix of projects; and other factors are considered. An interagency review phase allows the MPA partners to share their tentative selections with each other (along with proposed, but not selected, projects) for review and comment on synergistic and multimodal opportunities and implementation conflicts.

Step 6. Financial plan

To comply with federal requirements, the TIP must contain a financial plan showing proposed expenditures are consistent with reasonably expected revenues. DRCOG works cooperatively with CDOT and RTD to determine reasonably expected revenue by funding category, by year. The financial plan may contain proposals for new

revenues, new revenue sources (for example, federal discretionary funds) or innovative financing, as long as such funding can be established as reasonably available. Costs are supplied by CDOT, RTD and other project sponsors as part of their applications/submittals. The final financial plan is explicitly considered by the transportation committees and the DRCOG Board as part of adopting the TIP.

Step 7. Draft TIP

After interagency review, the tentatively selected projects from the DRCOG process and the potentially revised submittals from RTD and CDOT are reviewed for consistency with the air quality conforming fiscally constrained RTP. DRCOG then assembles a consolidated draft TIP document, adding any federal discretionary or congressionally earmarked projects. DRCOG identifies the regionally significant projects that will be completed using non-federal funds during the period of the TIP for inclusion in the network demonstrating air quality conformity and listing in the TIP document.

Step 8. Air quality conformity

The process for demonstrating the TIP's air quality conformity is similar to that used for the fiscally constrained RTP (see Section 4.B). Regionally significant roadway capacity and major transit guideway improvements selected for the TIP or implemented using nonfederal funds in the TIP time horizon are compared to the projects anticipated to be completed during the first interim stage of the fiscally constrained RTP (see Section 4.B, steps 6 and 7). If TIP horizon projects are not in that stage, an RTP conformity revision is processed concurrently. Applicable reports are provided to FHWA and FTA to issue the federal conformity determination.

Step 9. TIP adoption

The TIP and conformity finding require public review and adoption by the DRCOG Board through the transportation committees process. Upon transportation committee recommendation of the draft TIP and conformity documentation, DRCOG announces a formal public hearing and makes available documents for public examination. Formal transportation committee recommendations and

DRCOG Board action take place after consideration of public input. Upon adoption, the TIP is transmitted to the governor for approval and to CDOT for inclusion in the STIP. FHWA and FTA issue a federal conformity determination concurrently to approving the TIP in the STIP.

Relationship to the Statewide Transportation Planning/ Programming Process

The projects in DRCOG's adopted TIP are included without modification in the STIP, provided that the TIP was prepared in a process consistent with federal regulations, demonstrates air quality conformity, and is approved by the governor. However, because of the uncertainty associated with predicting the amount of revenues available for DRCOG, CDOT may initially include these projects in the STIP only as illustrative and not in the funded programs. They are depicted as illustrative projects until the sponsor is ready to begin, at which time they are transferred into the funded programs where they can be budgeted.

TIP Revisions

The TIP may be revised between formal development cycles following the policies adopted in Step 1. For any revision, air quality conformity must be considered. Typically, revisions are either of a policy or administrative nature. DRCOG has an agreement with CDOT that DRCOG's public involvement and notification procedures will meet the requirements for CDOT's project amendments. Policy amendments entail significant changes that require public review and adoption by the DRCOG Board through the transportation committee process. The TIP policies of Step 1 define the types of revisions that might require policy amendments. Examples from the current policy include:

- changing a project's funding by more than \$5 million during the TIP's first four years
- deleting a project, or deferring it, from the first four years of the TIP, or
- adding a project such that a new conformity evaluation would be required.

Administrative modifications are less significant and, by definition, do not affect air quality conformity. DRCOG processes them and no committee review or DRCOG Board approval is required.

Pool Flexibility

There is an agreement on the degree of CDOT's flexibility concerning amending projects within CDOT pools (for example, Bridge Off-System, Bridge On-System, Congestion Relief, FASTER Bridge-Safety-Transit, and Surface Treatment). CDOT is allowed to shift funds without going through the amendment process each time, as long as the total amount of funding in the pool does not change.

Annual Listing of Federally Obligated Projects

Each fiscal year, DRCOG prepares a list of projects for which federal funds were obligated by Dec.31 from data supplied by CDOT and the Federal Transit Administration. This list is presented to transportation committees and posted on the DRCOG website

In transportation management areas such as Denver that are attainment-maintenance for air quality (see Section 5.H), federal funds cannot be programmed for any highway capacity project that would significantly increase capacity for single-occupant vehicles unless the project is based on an approved congestion management process.

D. Congestion Management Process

In transportation management areas, federal law requires the regional transportation planning process to include a congestion management process: "that provides for safe and effective integrated management and operation...of new and existing transportation facilities...and through the use of travel demand reduction and operational management strategies."

The DRCOG region's congestion management framework addresses many federal requirements within several transportation planning tasks, processes and documents to the extent possible. Congestion management fits into the overall regional transportation planning process; it does not stand alone and is not a static product. The congestion management strategies of travel demand reduction (including Transportation Demand Management strategies) and operational management to ensure the efficient and effective

use of transportation facilities are considered in all project development and transportation planning processes in the region. As the MPO, DRCOG is responsible for coordinating the congestion management process.

Congestion Mobility Grade Measures

- **Duration** – How long does the congestion last? (*number of hours per day congested*)
- **Severity** – How long are the delays at individual locations? (*percent of travel time in delay in peak hour*)
- **Magnitude** – What is total amount of delay for all travelers at that location? (*total daily delay time per mile*)
- **Variation** – What is the variation in travel time between off-peak and rush hour?
- **Reliability** – How frequently do crashes, incidents or events occur? (*crashes per mile per year*)

The key components of the congestion management process are:

- **Congestion definition at the regional level.** In the DRCOG region, congestion is considered severe for linear segments of the designated regional roadway system that have a congestion mobility grade of D or F. The congestion mobility grade is calculated on a 1- to 20-point scale for every roadway segment. Points are calculated for each of five unique congestion measures, summed to a grand total, and used for assignment of a grade. A map of roadway locations with a grade of "D" or "F" is produced annually. The regional level congestion definition should not be used in place of engineering level analyses required for **corridor, project or environmental documentation studies.**
- **Performance monitoring.** DRCOG assembles congestion information from a variety of sources including the regional travel model, local government and CDOT traffic counts, private companies using vehicle probe data (for example, INRIX) and other sources such as the national Urban Mobility Report prepared by the Texas Transportation Institute. DRCOG produces annual reports to present updated information and new types of measures.

The performance-based planning process established in MAP-21 and continued in the FAST Act (23 U.S.C. 119) requires that DRCOG and CDOT develop transportation plans and transportation improvement programs through a performance-driven, outcome-based approach to planning. DRCOG and CDOT transportation plans shall include performance targets that address performance measures and standards and a system performance report. Plans requiring performance targets include:

- Regional Transportation Plan
 - Transportation Improvement Program
 - Statewide Transportation Plan
 - State Transportation Improvement Program
- **Strategy identification and evaluation.** In this component, the causes of congestion are examined and congestion management strategies are explored. This activity takes place at two distinct levels, the regional level and the project level, as described in **Exhibit 11**. Many types of congestion mitigation strategies are identified in DRCOG’s *Congestion Mitigation Toolkit*.
 - **Implementation.** To comply with federal requirements, projects must implement specific congestion management actions defined in the project level evaluation (for example, NEPA). Decisions as to schedule, responsibilities and funding sources for the more regional congestion management strategies are made during the TIP process.
 - **Monitoring of strategy effectiveness.** Recipients of Congestion Mitigation/Air Quality program funds (see Section 4.C) have a benefits-reporting requirement to FHWA and the Transportation Commission. DRCOG staff also monitors the results of other TIP-funded projects related to congestion. Following the establishment of final federal FAST Act regulations, DRCOG will adjust current monitoring procedures, if necessary, to address the new regulations.

Relationship to the Statewide Transportation Planning/ Programming Process

Federal law only requires a congestion management process in transportation management areas, not throughout the remainder of the state. In the DRCOG transportation management area, the

Exhibit 11: The Two Levels of Congestion Management Strategy Evaluation in the DRCOG Region

1. **Regional level.** During the development of long-range regional transportation plans, strategies for congestion management are identified and evaluated. The region’s key strategies are identified as part of the Metro Vision transportation system and the fiscally constrained RTP identifies the subset that will be emphasized with the reasonably expected funding resources. Separate but consistent documents may be prepared for certain strategies, such as intelligent transportation systems.
2. **Project level.** For major highway and transit capacity projects, project level evaluation examines specific congestion management actions either alone, in combination, or in support of the project. Project level analysis is a more detailed and geographically-focused evaluation of costs, benefits and effects of specific strategies. One source of information on strategies is the DRCOG *Congestion Mitigation Toolkit*. The agency managing project development is responsible for project level congestion management evaluations.

There are two key examinations:

- Identification and evaluation of a “management strategy only” alternative to determine whether it
- could substitute for the additional capacity of the “build” alternatives being considered.
- If building additional highway or transit capacity is the preferred alternative, then congestion management strategies that most effectively support the operation of the “build” alternative are included in and implemented by the project.

statewide transportation planning process must explicitly consider, analyze as appropriate, and reflect in its transportation planning products the DRCOG congestion management process.

E. Planning Process Certifications

Under the FAST Act, DRCOG and CDOT must certify to FHWA and FTA that the metropolitan transportation planning process is being conducted in accordance with all applicable federal requirements each time a new TIP is submitted. Similarly, every four years FHWA and FTA must conduct a federal review of the process. Both the self-certification and the federal quadrennial planning certification review hold an MPO and all planning partners in the transportation management area (including FHWA and FTA) accountable for the function and quality of the planning process in its region.

DRCOG initiates the self-certification process, working with CDOT to conduct a critical review of the federal requirements (see Chapter 2). DRCOG prepares a certification documentation that is signed by the executive directors of each agency.

Federal law mandates that the self-certification accompany the submittal of an adopted TIP to FHWA and FTA.

FHWA and FTA are jointly responsible for conducting the quadrennial planning certification review for the U.S. Department of Transportation. The Environmental Protection Agency and other federal agencies may also participate. The federal agencies typically begin the process by sending a questionnaire to the MPO that covers an array of planning topics. DRCOG, with the assistance of

the MPA partners, air quality planning agencies, and local governments as appropriate, completes a formal response. The federal agencies conduct a desk review of this response, then typically conduct an on-site evaluation, meeting with key staff from the agencies, local elected officials and the public. The federal agencies then prepare a report to document the review and any findings. FHWA and FTA jointly conclude the quadrennial planning certification review with one of the following actions:

- certify the transportation planning process
- certify the process subject to required corrective actions
- certify the process as acceptable for a portion of the overall requirements (in other words, not certify the process for some programs), or
- withhold certification.

A certification conclusion is valid until a new FHWA and FTA quadrennial certification process is conducted.

If certification is limited or withheld, some federal funding to the region may be withheld by FHWA and/or FTA.

Relationship to the Statewide Transportation Planning/ Programming Process

The MPO self-certifications and quadrennial certification review conclusions are considered by CDOT in its certification to FHWA and FTA that the statewide transportation planning process is being carried out in accordance with all federal requirements.

5. Coordination with Other Transportation Processes

RTD, CDOT, air quality planning agencies and local governments undertake numerous transportation planning and programming activities that intersect with the regional process. This chapter identifies those most relevant to the regional process, describes them and shows how they relate to the regional process and how the activities are coordinated.

A. CDOT Interchange Approval

CDOT's Interchange Approval Process Policy Directive was established to ensure fair and consistent treatment of proposals for new interchanges or major interchange improvements on state highways. The Policy Directive was amended in December 2004 (and reconfirmed in October 2008) and the Procedural Directive that implements it was issued in October 2005. The CDOT "1601 process" is applied to all state highways (interstates, other freeways and non-freeway facilities) and to all applicants (local governments, public highway authorities, and CDOT itself) to manage the location of interchanges so that the state highway system's mobility and level of service is preserved. Such interchanges and improvements cannot be constructed until the applicant completes all the steps of the 1601 process identified in the Procedural Directive. **Exhibit 12** summarizes those steps.

Categories of Applications

Type 1: New interchanges on interstates or freeways, or any application not initiated by CDOT that seeks CDOT cost-sharing. Approval by Transportation Commission.

Type 2: New interchanges not on interstates or freeways, or any modification or reconfiguration to existing interchanges (with no CDOT cost-sharing). Approval by the CDOT chief engineer (may be elevated to Transportation Commission).

Type 2a: Minor interchange improvements with little or no impact to the transportation system. Approval by the CDOT chief engineer (may be delegated to the CDOT regional director).

Relationship to the Regional Transportation Planning Process

The air quality conforming fiscally constrained RTP must depict proposed new interchanges or major interchange improvements for purposes of fiscal constraint and, in some instances, air quality conformity, either through the development of a new RTP or an amendment to an existing one.

The following types of interchange improvements, which will typically be either Type 1 or Type 2 1601 applications, are considered regionally significant and must be reflected in the conformity modeling network:

- new interchange
- improvements upgrading a local service interchange to a freeway-to-freeway interchange
- improvements adding missing movements to an existing interchange (for example, changing a half diamond to a full diamond, or adding new freeway-to-freeway ramps not currently provided)
- removal of an interchange or elimination of movements.

For regionally significant interchange improvements in the transportation management area, appropriate CDOT approval of the system level study is needed no later than three weeks after the due date for project requests in the development of a new RTP or for RTP amendments. The applicant must provide the draft system level study (Type 1 and Type 2), or other data (Type 2a), to DRCOG 20 days before the date of needed CDOT action.

For non-regionally significant interchange improvements in the transportation management area, and for any interchange improvements in the remainder of the transportation planning region, appropriate CDOT approval of the system level study (Type 1 and Type 2) or other data (Type 2a) is needed at least 45 days prior to the DRCOG public hearing on a new air quality conforming fiscally constrained RTP or RTP amendment. If CDOT approval is not obtained in these timeframes, the request must be deferred until the next scheduled RTP amendment cycle. In all cases, applicants must provide DRCOG a conceptual level cost estimate,

even if a system level study is not prepared. The DRCOG land use forecasts for the current plan horizon are the analytic base for 1601 studies for which fiscally constrained RTP funding sources are expected or desired. CDOT may also request a

build-out assessment to further define project level requirements and financial commitments.

As appropriate, CDOT reports on the status of 1601 studies in the region to DRCOG transportation committees.

Exhibit 12: Steps in the 1601 Process

The seven steps in the 1601 process are briefly summarized as follows (for detail, see the 1601 Procedural Directive):

1. The applicant notifies the appropriate CDOT region of its desire to build a new interchange or improve an existing interchange on the state highway system, and the CDOT region sets a **pre-application project scoping meeting**. The purpose of the meeting is to determine the scope category and anticipated process and schedule for the proposed project. The CDOT regional director must approve the progression of any application to Step 2.
2. The applicant is responsible for all costs associated with the development, administration and evaluation of such applications. If the applicant is not CDOT, an initial **intergovernmental agreement** is developed between the applicant and CDOT addressing: anticipated improvement category; responsibility for administrative and application costs; identification of needed studies and analytical procedures; level of design detail needed; environmental study expectations; long-range plan consistency requirements; access permitting; and other relevant topics.
3. The applicant completes a **system level study** to identify the short- and long-term environmental, community, safety and operational effects on the state highway and surrounding transportation system. The system level study includes a preliminary financial plan that identifies all costs and proposed responsibility for funding and the effect of the proposed funding on the fiscally constrained RTP. Type 2a applications do not require a system level study, but the applicant must prepare data sufficient to substantiate that there is no potential for significant negative effects.
4. The Transportation Commission (Type 1) or CDOT chief engineer (Type 2) reviews and, if acceptable, **approves the system level study**, with conditions.
5. DRCOG must establish that the proposed new interchange or interchange improvements are **consistent with the fiscally constrained RTP**; often this requires an amendment to the RTP.
6. The applicant must prepare conceptual design, which must be approved by the CDOT chief engineer or regional director. The design report must contain any *State Highway Access Code*-related requirements. The applicant must complete the **NEPA** process, with the CDOT chief engineer or FHWA issuing the appropriate decision document. When the interchange is on the interstate, FHWA must grant access approval.
7. If the applicant is not CDOT, a **final intergovernmental agreement** between CDOT and the applicant is executed that details the actions to be implemented, ownership, costs and a funding plan clearly identifying responsibilities. The CDOT chief engineer approves the final intergovernmental agreement, if it is acceptable. If the final funding plan differs substantially from that approved by the Transportation Commission in Step 4, it is submitted to the Transportation Commission for reconsideration.

Upon completion of the final intergovernmental agreement, CDOT issues a state highway access permit. The applicant completes design, right-of-way acquisition and construction per the approved final intergovernmental agreement and access permit.

B. Revisions to State Highway Access Categories

The *State Highway Access Code* identifies the procedures and standards by which CDOT and local governments regulate property access to or from state highways. The *Code*, revised by the Transportation Commission in 1998 (major) and 2002 (minor) pursuant to state statute, specifies a classification system of eight separate categories for access management purposes, as shown in **Exhibit 13**. In 1999, CDOT and local governments cooperatively assigned each state highway segment a category on the basis of existing and future function and location of the highway or segment.

The *Code* establishes the process and procedure for making changes to the assigned category, which is accomplished through a rule-making hearing by the Transportation Commission. **Exhibit 14** outlines the process. CDOT maintains the current schedule of assigned categories reflecting the original category assignment and all changes approved since 1999.

Relationship to the Regional Transportation Planning Process

Managing the state highway system to enhance safety, maintain smooth traffic flow and protect the functional capability of the system (the intent of the *Code*) is consistent with policies of the Metro Vision Plan. In concept, state highways shown on the Metro Vision RTP network should carry an access designation consistent with the regionally-significant nature of that plan, specifically F-W, E-X, R-A and NR-A (see **Exhibit 13**). In the already-developed portions of the region, established roadside development may make assignment of these high level access categories unrealistic and lower classifications based on the existing level of development may be the best that can be achieved.

Exhibit 13: State Highway Access Categories

The *State Highway Access Code* identifies eight categories for access management as follows (for detail, see the *Code*):

- F-W (interstate, freeway)
- E-X (expressway, major bypass)
- R-A (rural regional highway)
- R-B (rural highway)
- NR-A (nonrural regional or principal highway)
- NR-B (nonrural arterial)
- NR-C (nonrural arterial, low speed character)
- F-R (frontage road)

When notified by CDOT of a proposed access category revision, DRCOG staff:

- for any NR (nonrural) designation requested, examines the request for consistency with Metro Vision's urban growth boundary/area
- for any state highway on the Metro Vision RTP, checks whether the proposed access category is generally consistent with the expectations that come with being shown on that plan.

If there are no concerns, DRCOG does not submit testimony at the rule-making hearing. If there are inconsistencies or concerns, DRCOG staff immediately alerts the local agency and CDOT staff. If the problems identified can be addressed or reasonably explained, DRCOG does not submit testimony. If concerns are not, or cannot be, addressed, DRCOG may present testimony. There may be a need to revise or adjust the Metro Vision RTP during the next update or revision cycle to reflect approved access category changes.

As appropriate, CDOT updates the transportation committees on the outcome of relevant access category change requests.

Exhibit 14: Process for Changing State Highway Access Category

The process for making changes to the assigned state highway access category is briefly summarized as follows (for detail, consult the *State Highway Access Code* or the CDOT Access Program administrator):

1. Relevant local government, MPO or transportation planning region (with the approval of the local government by resolution), or CDOT initiates a request for a category change.
2. At least 90 days before anticipated Transportation Commission action, the applicant provides information to CDOT to support the request, including an explanation of the need for the requested change and a discussion of how the change is consistent with the purposes and standards of the *Code*.
3. CDOT:
 - reviews each request
 - prepares a recommendation to the Transportation Commission
 - provides a copy of pertinent documents to the appropriate local governments and MPO or transportation planning region 30 days prior to Transportation Commission action, and
 - prepares the notice of the rule-making hearing.
4. At the hearing, all interested persons are provided the opportunity to submit written or verbal testimony.
5. The Transportation Commission acts on the changes, based on the record of the rule-making hearing, as soon as practical following the hearing.

C. Major Environmental Processes

The National Environmental Policy Act (NEPA), signed into law Jan. 1, 1970, requires federal agencies to assess the environmental impact of major federal actions, including projects that receive federal funds, using an interdisciplinary approach that provides opportunities for public review and input. Since then, a large body of regulations, processes and procedures, and case law has specified how these assessments are completed. Further, numerous other public health laws, regulations and executive orders have been enacted, broadening the scope of and requirements for environmental-type considerations, which are typically folded into the NEPA umbrella.

The purpose of this section is to define the relationships between the regional transportation planning process and major environmental studies. For this relationship to be understood, some NEPA terminology and process information is briefly presented. **Exhibit 16** identifies the categories of environmental study and indicates which are considered major. **Exhibit 17** summarizes the general process for conducting major environmental studies. CDOT's *Environmental Stewardship Guide* provides a good overview and additional detail is contained in the CDOT *NEPA Manual*.

Relationship to the Regional Transportation Planning Process

The federal regulations for NEPA and for metropolitan transportation planning have evolved since their initial adoption several decades ago. Congress has expressed its intent that transportation planning and environmental considerations be better coordinated with clear relationships.

Environmental Process Acronyms

EA	Environmental Assessment
EIS	Environmental Impact Statement
PEL	Planning and Environmental Linkage
NEPA	National Environmental Policy Act

Exhibit 15: NEPA Environmental Action Categories

Proposed transportation actions or potential projects are categorized according to the likely environmental impact.

- **Categorical exclusions** are assigned to actions or projects that individually or cumulatively do not have a significant environmental impact. A categorical exclusion is not considered to be a major environmental process.
- For actions or projects where the significance of the environmental impact is not clearly known, an **environmental assessment (EA)** is prepared.
- An **environmental impact statement (EIS)** is required for actions or projects that are likely to have significant impacts to the environment.

The following relationships are typically established

- **Authorizing the study.** Within the transportation management area, an EIS or EA is included in the TIP if federal, state or RTD funds are being used. EISs or EAs, regardless of funding source, are listed in the informational section of the Unified Planning Work Program.
- **Pre-study activities.** The applicant provides a draft work scope for a specific EIS or EA directly to the other MPA partners at a time no later than the release of the consultant solicitation for work. The MPA partners review that draft and provide timely comments. Areas of concern are worked out between the applicant and the MPA partner agencies before the consultant work scope is finalized. As part of this review, the MPA partners confirm which relationship requirements the study needs to meet. The relationship requirements are considered to be standard for all EISs, but for EAs the determination is made on a case-by-case basis cooperatively between the MPA partners and applicant at an Agency Coordination Team meeting.
- **Early review of regional planning process linkages and consistency**
 - **Purpose and need.** As the NEPA study is developing a draft purpose and need

CDOT's *Environmental Stewardship Guide* states:

“A carefully prepared Purpose and Need statement provides a credible foundation for the subsequent study and promotes acceptance by the public and review agencies.”

Early input from the regional transportation planning process assists in creating this credible foundation.

statement during scoping, DRCOG is customarily asked to provide review comments from the perspective of the MPO. To assist in developing its response, DRCOG may solicit input from the Transportation Advisory Committee or individual jurisdictions that could be affected by the proposed project.

- **Metro Vision.** As one of its evaluations, the NEPA study expressly considers and articulates the relationships (consistency or conflicts) between the project, its alternatives and the Metro Vision Plan.
- **Project location and RTP placeholder**

The NEPA study identifies whether the study location is within the area subject to regional air quality conformity determination and what placeholder projects the then-current air quality conforming fiscally constrained RTP shows within the corridor (see background discussion in **Exhibit 16**).
- **Land use forecasts.** Regional air quality conformity is demonstrated for the fiscally constrained RTP based on the DRCOG small area land use forecasts. As such, those forecasts form the baseline for the transportation measures, criteria and related evaluations within the NEPA study. Other forecasts may be used for sensitivity analysis, investigating even longer-range improvement needs, examining the implications of a transportation alternative on inducing growth or redefining land use (an indirect effect), and for the portion of the Greater Denver Area Transportation Planning Region where air quality conformity is not applicable.

- **Congestion Management Process requirements.** Within the transportation management area, the NEPA study addresses the project level congestion management requirements (see Section 4.D) or references such efforts that may be conducted outside the NEPA study. Outside the transportation management area, a congestion management examination is not required, but is encouraged.
- **Approaching the NEPA decision – Relationship of NEPA preferred alternative to the Metro Vision transportation system.** If the NEPA preferred alternative differs significantly from the project concept depicted in the Metro Vision transportation system of the Metro Vision RTP, DRCOG staff should be alerted. The project is brought through the regional transportation planning process to be considered for inclusion in the plan during the next scheduled plan amendment or update process.
 - **Relationship of NEPA decision to the air quality conforming fiscally constrained RTP.** Exhibit 17 presents a matrix for synchronizing the NEPA decision document with the fiscally constrained RTP. Close coordination among the applicant, lead agency and DRCOG is encouraged during this period to avoid delays to the NEPA study or unreasonable expectations on the regional transportation planning process.
 - **Relationship of NEPA decision to the TIP.** Within the transportation management area, the elements of the project anticipated during the period of the TIP, including environmental impact mitigation, must be part of the adopted conforming TIP before the NEPA decision document can be issued.

Planning and Environmental Linkage (PEL) Studies

A Planning and Environmental Linkage (PEL) study can be conducted as an interim step of evaluation for a transportation need or project that has not entered formal NEPA level analysis. The purpose of a PEL study is to perform preliminary analysis and make decisions not normally completed as part of the traditional regional planning process. This in turn will make NEPA level evaluation and decision-making more transparent to resource agencies and the public, promote environmental stewardship, minimize duplication of effort, and reduce delays in project implementation. PEL studies may also be conducted for transportation corridors to more clearly identify the problem and develop refined solutions for inclusion in the regional transportation plan. Agencies preparing a PEL study must complete an FHWA questionnaire to verify the activities conducted as part of the study and their relationship to future NEPA document preparation.

An environmental **disclosure** document can be issued for alternatives or a preferred alternative not included within the fiscally constrained RTP, but completion of such document is no guarantee of funding and no guarantee of inclusion in the fiscally constrained RTP.

A NEPA **decision** document, however, cannot be issued until the selected project, project elements or project phases are included within an adopted, fiscally constrained RTP that, in air quality nonattainment-maintenance areas, has demonstrated air quality conformity.

Exhibit 16: General Process for Conducting a NEPA Study

The general process for conducting an EIS or EA is similar, as described in the following overview. For any specific study, some steps may be conducted in a different order. There are also some specific requirement differences between an EIS and an EA.

1. Identify roles. The lead agency in a major environmental study is a federal role (for example, FHWA, FTA or joint lead). The lead agency is responsible for ensuring that all aspects of the relevant NEPA processes are completed per federal requirements. The applicant (CDOT, RTD, public transportation authorities or local governments, sometimes cooperatively) typically completes or manages the work under the lead agency's guidance.
2. Define and conduct agency coordination and public involvement, including initial notification to the public and affected agencies.
3. Define the scope of the proposed project and its purpose and need, for example, what the project is trying to accomplish and why it is needed, what the problems are that need to be addressed.
4. Describe the affected environment. Identify, assess and understand the existing conditions of the numerous potentially sensitive environmental resources.
5. Identify alternatives that respond to the purpose and need. A no-action alternative must be defined as a baseline for comparison.
6. Evaluate the alternatives. Quantify how well each alternative addresses the needs and the environmental (and other) impacts or consequences. In larger studies, a multi-step evaluation and screening process is probable (though not required), with an initial step that eliminates alternatives that are not viable due to fatal flaws, followed by a preliminary screening using select criteria to eliminate alternatives that are clearly inferior, followed by a more detailed assessment of the remaining alternatives using a full set of criteria.
7. Prepare and distribute the environmental disclosure document. The lead agency issues the EA, or the draft and final EIS.
8. Identify a preferred alternative, including needed avoidance, minimization and mitigation of project impacts. In studies where funding is not available to fully construct the preferred alternative, priority project elements or phases must be identified for inclusion in the decision document.
9. During a formal comment period, solicit public and agency review. Appropriately address comments submitted.
10. Prepare and distribute the decision document. For an EIS process, the lead agency issues a Record of Decision. For an EA process, it issues a Finding of No Significant Impact if the proposed project has no significant impacts that cannot be mitigated. If impacts of environmental significance are considered likely, the EA process may conclude that an EIS must be prepared.

Exhibit 17: Coordination between Regional Transportation Plan and a NEPA Study's Decision Document

Background. Prior to a major NEPA study, the transportation improvements identified in the Metro Vision RTP may be considered best estimate placeholders. In the fiscally constrained RTP, the placeholder is assumed in the cost computations for fiscal constraint and, in air quality nonattainment-maintenance areas, is part of the modeled network used to demonstrate regional air quality conformity. EISs and EAs intend to identify a preferred alternative that can be implemented. To do so, the description (design concept and scope) and cost of the project to be approved in the NEPA decision document must be consistent with that in the adopted fiscally constrained RTP. If they are not consistent, either the fiscally constrained RTP must be amended, or the NEPA study priority elements or phases of a preferred alternative must be modified. The cost of any project or phase included in the fiscally constrained RTP must include and account for environmental mitigation measures anticipated in the NEPA decision document.

Scenarios and associated requirements.

- 1. A project desired in the NEPA decision document not significantly different from the adopted fiscally constrained RTP placeholder:**

The project must still be within the placeholder budget for fiscal constraint or within an acceptable tolerance level. The tolerance level will be agreed upon by CDOT, DRCOG, and FHWA, based on the overall cost of the project. As a general guideline, “smaller” projects (e.g. <\$30 million) may have a project cost tolerance within 30 percent of the fiscally constrained RTP placeholder cost in constant-year dollars. The cumulative cost of all individual NEPA process projects may have a project cost tolerance within 20 percent of the total cost of those projects as shown in the fiscally constrained TIP. Progressively lower tolerance levels may be determined jointly by CDOT, DRCOG, and FHWA for larger projects. No RTP amendment is needed and the NEPA decision document can be issued.
- 2. A project desired in the NEPA decision document is significantly different from the adopted fiscally constrained RTP placeholder:**
 - Within the air quality nonattainment or maintenance area: A new air quality conformity

determination may be required. A fiscally constrained RTP amendment is required, which DRCOG would consider during the next scheduled plan amendment or development cycle. NEPA decision document can be issued after the fiscally constrained RTP is revised and air quality conformity demonstrated.

- Outside the air quality nonattainment-maintenance area: A fiscally constrained RTP amendment is needed, but would be considered minor since air quality conformity is not involved. Applicant should coordinate with DRCOG on timing of fiscally constrained RTP amendment and issuance of NEPA decision document.
- 3. A project desired in the NEPA decision document is beyond the agreed-upon tolerance level, but the applicant has a proposal for how RTP fiscal constraint will be maintained (for example, deleting or deferring other projects in the fiscally constrained RTP, or adding additional revenues):** A fiscally constrained RTP amendment is required, which DRCOG would consider during the next scheduled plan amendment or development cycle. NEPA decision document can be issued after fiscally constrained RTP is revised and air quality conformity is demonstrated.
 - 4. A project desired in the NEPA decision document is beyond the agreed-upon tolerance level and the applicant has no proposal for how fiscal constraint will be maintained:** The NEPA decision document cannot be issued until project is in the fiscally constrained RTP. DRCOG would consider this project only during the next scheduled new plan development cycle.

Note that coordination between the RTP and rapid transit environmental studies are addressed as part of the FasTracks Annual Review process between DRCOG, RTD, and FTA.

D. DRCOG Fixed-Guideway Transit Review

Senate Bill 90-208 is a Colorado statute enacted in 1990 that states:

“The Regional Transportation District (RTD) Board shall take no action relating to the construction of a regional fixed-guideway mass transit system until such a system has been approved by the designated metropolitan planning organization (MPO). Each component part or corridor of such system must be approved by the MPO. Such action shall include approval of the method of financing and the technology selected for such projects.”

Appendix A lists the relevant state statute.

Senate Bill 90-208 provides the legislature assurance that fixed-guideway construction proposed by RTD is technologically sound, financially feasible and consistent with the expectations of affected jurisdictions as represented in the MPO process.

Criteria for the review of proposed projects per Senate Bill 90-208 are adopted by the DRCOG Board through the transportation committees process. RTD submits fixed-guideway transit proposals to DRCOG and, in its proposal, describes the specific project in detail, provides a rationale for why it is being pursued, and provides information pertinent to each of the criteria. DRCOG conducts a technical assessment of each proposal using the information provided by RTD and its own examinations. Based on the criteria, DRCOG prepares a draft assessment report making preliminary findings and conclusions, which is reviewed by RTD. The proposal is also presented to the public in a hearing at a DRCOG Board meeting. DRCOG prepares a final assessment report reflecting resolution of technical and financial issues with RTD and summarizing public comment. Final transportation committees recommendations and DRCOG Board action to approve the specific proposal (or not) take place upon consideration of the final report.

Relationship to the Regional Transportation Planning Process

The Senate Bill 90-208 evaluation is conducted by DRCOG through the regional transportation planning process. As a priority transportation planning activity, such evaluations are identified in the Unified Planning Work Program. RTD fixed-guideway transit facilities must be in the air quality conforming fiscally constrained RTP and the TIP before they can be implemented. The Senate Bill 90-208 assessment confirms the fiscally constrained nature of the proposal per the fiscally constrained RTP or provides a rationale for plan amendment. The project can be included in the TIP for construction only after the DRCOG Board has issued a favorable Senate Bill 90-208 finding.

E. FasTracks Review

In April 2004, DRCOG completed the initial Senate Bill 90-208 review of RTD's FasTracks Plan, which was subsequently approved by the region's voters in November 2004. FasTracks is a broad, regionwide, long-term program and numerous assumptions were made about both technology and financing. To ensure the legislative intent of the review but address the likelihood of change during the course of FasTracks implementation, DRCOG has defined a process to evaluate changes to the most recently approved FasTracks Plan to determine if such proposed changes warrant new Senate Bill 90-208 approval action by the DRCOG Board. The key steps in the process are as follows:

- RTD submits a FasTracks Change Report
- The DRCOG Board, through the transportation committees process, determines whether changes in the following categories require further action pursuant to Senate Bill 90-208:
 - Project definition/scope/technology
 - Financial plan
 - Implementation schedule
 - Operating characteristics
 - Level of bus service

RTD board final action on any significant change to the FasTracks Plan requires MPO approval.

The DRCOG Board also requires RTD to provide a FasTracks Status Report every year. The report is for information purposes and does not require an associated action.

F. CDOT and RTD Master Intergovernmental Agreement

In April 2004, CDOT and RTD executed a Master Intergovernmental Agreement for continued coordination and planning for transportation development within the portion of the state in the RTD district. The Master Intergovernmental Agreement establishes a framework process for coordination of CDOT's and RTD's transportation improvements to ensure that all proposed projects, programs and facilities are accommodated to the maximum extent practicable. Each party further commits to minimizing costs for upgrades or modifications necessitated by the other party's construction to the maximum degree possible. The Master Intergovernmental Agreement establishes a context for corridor-specific intergovernmental agreements that address corridor planning, environmental study coordination, final design, management and funding of improvements.

Exhibit 18 identifies the elements covered by the Master Intergovernmental Agreement. An exhibit attached to the Master Intergovernmental Agreement identifies expectations for corridors where CDOT and RTD, jointly or separately, have either ongoing environmental study or near-term expectations for such.

Relationship to the Regional Transportation Planning Process

The coordination specified by the Master Intergovernmental Agreement affects how CDOT and RTD propose studies for inclusion in the Unified Planning Work Program and TIP, corridor projects in the RTP, and specific construction projects in the TIP.

G. Planning and Development Process for FTA Capital Investment Program

The Capital Investment Grants (CIG) is FTA's primary grant program for funding major transit capital investments, including heavy rail, commuter rail, light rail, streetcars and bus rapid transit. Projects seeking CIG funding must complete a series of steps during several years to be eligible for funding. The project type and overall cost determine the category of the project: New Starts, Small

Exhibit 18: Items Addressed by the CDOT/RTD Master Intergovernmental Agreement

1. Project Coordination
 - Physical effects on existing facilities
 - The effects of maintaining operations and safety
 - The effects of legal, regulatory, or design standard requirements
 - Effects within long-term projects:
 - identification of future improvements
 - conceptual design
 - final design and construction elements
 - design approval of construction elements
 - environmental study coordination
 - Responsibility for determining effects
 - Sharing of personnel
2. Right-of-Way
 - Use of CDOT right-of-way
 - Cost of additional right-of-way
3. Credit for Funds Expended
4. Dispute Resolution
5. Implementation by Corridor or Project Specific Agreements

Starts or Core Capacity. For New Starts and Core Capacity projects, the law requires completion of two phases in advance of receipt of a construction grant agreement – project development (PD) and engineering. For Small Starts projects, there is one phase in advance of receipt of a construction grant agreement: project development.

Project sponsors must submit a letter to FTA requesting approval to enter into project development. Once a project is approved, the following activities must be completed within two years:

- The project sponsor must select a Locally Preferred Alternative;
- The project sponsor must get the Locally Preferred Alternative adopted into the fiscally constrained metropolitan transportation plan;
- The environmental review process required under NEPA must be completed as signified by a final FTA environmental decision (for example, categorical exclusion, finding of no significant impact, combined final environmental

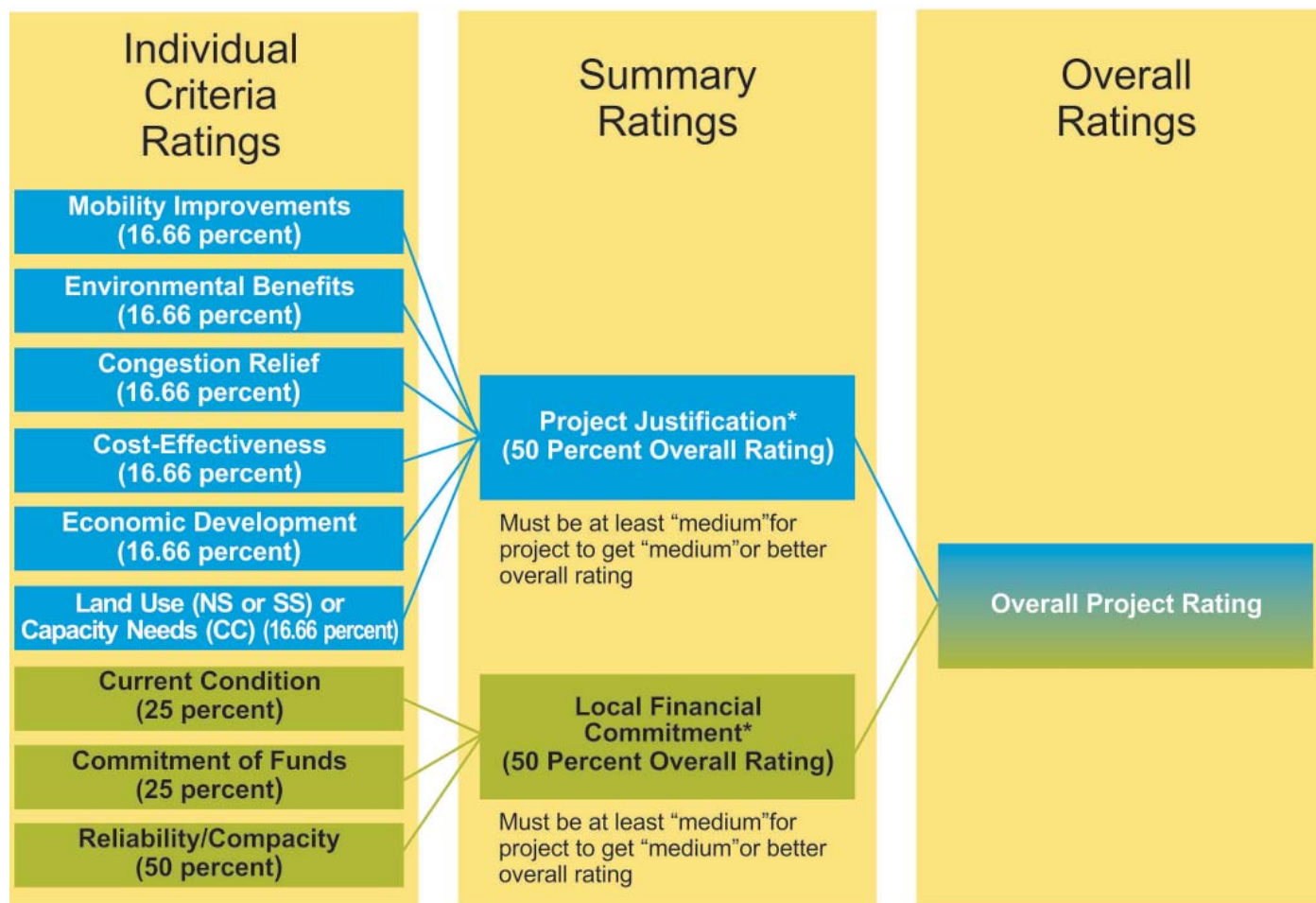
impact statement/record of decision, or record of decision) covering all aspects of the project proposed for FTA funding; and

- The project sponsor must develop sufficient information for FTA to develop a project rating.

DRCOG plays a key role in adopting the Locally Preferred Alternative into the fiscally constrained metropolitan transportation plan. In order for a project to be included in the plan there has to be a reasonable expectation of funding. This can be met, in part, by using anticipated funding from the CIG as a financial planning assumption.

FTA evaluates each proposed project according to a set of defined criteria, summarized in **Exhibit 19**. FTA uses the information to rate CIG candidates and make recommendations to Congress regarding a project's viability for federal funding. FTA prepares an annual report that provides a snapshot of all projects, including each one's strengths and weaknesses. Once given FTA approval, projects can move on to construction.

Exhibit 19: FTA Capital Investment Grant Project Evaluation Rating



H. State Implementation Plans for Air Quality

The federal Clean Air Act defines a process for Environmental Protection Agency (EPA) development and approval of National Ambient Air Quality Standards for a variety of pollutants that can adversely affect human health (for example, carbon monoxide, ozone and small particulates). The law requires State Implementation Plans (SIPs) be prepared to show how a nonattainment area—that is, a region that does not currently meet the air quality standards—will attain standards by implementing and enforcing emission control strategies and how attainment will be maintained. Appendix A lists relevant legislative and regulatory references.

- **Nonattainment area SIPs** are pollutant-specific plans that detail how a region will meet the specific air quality standard by specific dates.
- **Maintenance plans** are pollutant-specific SIPs that outline how an area that has met the

specific air quality standard will continue to do so for a 10-year period.

- **Regional haze SIPs** show how visibility will be improved in national parks and wilderness areas (for example, Rocky Mountain National Park in the DRCOG area).
- **Conformity SIPs** are the federally enforceable state regulations governing transportation conformity determinations.

The requirements of each SIP depend on the pollutant, classification and attainment dates. The term SIP generally refers to all of the individual plans and regulations that are submitted to and approved by the EPA. Key elements typically included in SIPs are:

- An **inventory** that accounts for all relevant emissions and emission sources. The inventory is used in (1) establishing emissions reduction targets, (2) setting caps on mobile source emissions (for example, from roadways and

Exhibit 20: Developing and Adopting an Air Quality State Implementation Plan

DRCOG

- provides data from the Denver regional travel model for base and future years (vehicle miles traveled, speeds, transportation network)

Air Pollution Control Division (APCD)

- develops the pollution emissions inventory for the base year
 - for mobile sources using the EPA MOBILE model reflecting the latest available information on such factors as number and type of vehicles in the region, rate of fleet turnover and transportation characteristics.
 - for non-mobile sources using EPA and local models.
- projects the inventory to a future year
- determines the maximum amount of mobile source pollution emissions that would allow the region to meet the National Ambient Air Quality Standards (the emissions budget)

Regional Air Quality Council (RAQC)

- identifies control measures to reduce air pollution in the Denver area
- prepares SIP for compliance with federal air quality standards

- holds a public hearing and receives public comment on the proposed SIP

RAQC and APCD

- develop draft regulations to implement control measures

Air Quality Control Commission (AQCC)

- holds a public hearing and receives public comment on the proposed SIP and draft regulations
- adopts the SIP and regulations

Colorado General Assembly

- reviews SIP
- grants permission to submit

Governor

- approves SIP
- submits

Environmental Protection Agency

- determines completeness and legal and technical adequacy (this determination makes new emissions budgets applicable)
- approves SIP (this makes the SIP and its regulations federally enforceable)

traffic), and (3) as needed, performing air quality dispersion modeling.

- An **emissions budget**, which is the maximum allowable amount of each pollutant from mobile sources.
- **Control measures** as needed to help reach or maintain the emissions budget, including Transportation Control Measures focusing on reducing vehicle use and/or congestion.

Exhibit 20 shows general tasks for SIP development and adoption. The Air Quality Control Commission (AQCC), a regulatory body appointed by the governor, is responsible for the adoption of SIPs and their implementing regulations in Colorado through a public rule-making process. The Regional Air Quality Council (RAQC) is the lead air quality planning agency for the Denver region, so

designated by the governor. The RAQC has the primary responsibility for preparation of Denver area SIPs including selection of control measures. The Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment operates the air monitors, collects emission inventory information, provides technical assistance to entities engaged in the SIP process, and enforces adopted air quality regulations.

The Clean Air Act provides for sanctions if a needed SIP is not submitted to EPA or if EPA finds it incomplete, inadequate or disapproves it. Sanctions can include federal funds being withheld for certain categories of transportation projects.

Exhibit 21 identifies the Denver region's air quality status.

Exhibit 21: Denver Regional Air Quality Status

1. As of 2002, the Denver region met national air quality standards and has approved maintenance plans for the following pollutants and, as such, is considered to be **attainment-maintenance** for them:
 - Carbon monoxide
 - PM10 (particulates less than 10 microns in size)
2. In 1997, the Environmental Protection Agency established a new, more stringent standard for ozone, based on measurements averaged over an eight-hour period. In 2004, the EPA defined a new nonattainment area for ozone using the new 0.80 ppb eight-hour standard. It encompasses all of the Greater Denver Transportation Planning Region except for Clear Creek and Gilpin counties plus

portions of Larimer and Weld counties including the Fort Collins-Loveland and Greeley urbanized areas. EPA formally designated it as nonattainment in 2007. An eight-hour ozone SIP was prepared in 2008 and was approved by EPA in 2011. On April 11, 2016, EPA reclassified the region as moderate nonattainment. The new designation has an attainment deadline of July 20, 2018 and requires the development and submittal of a new SIP. In 2015, the EPA set a new eight-hour ozone standard of 0.70 ppb. In 2017, the region will begin preparing a new SIP to address this standard.

3. Visibility (the metro area "brown cloud") is not regulated by Clear Air Act requirements.

Relationship to the Regional Transportation Planning Process

The EPA requires federal actions to conform to the appropriate SIP. Conformity in the Clean Air Act means conformity to a SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of such standards. Air quality conforming fiscally constrained long-range transportation plans and TIPs, and federally funded projects in nonattainment and maintenance areas, must conform to the SIP. Conformity for a fiscally constrained RTP or TIP is demonstrated by showing that expected mobile source emissions are at or below SIP **emissions budgets** and that adopted **transportation control measures** are being (or will be) implemented consistent with the schedule in the SIP. Conformity procedures are described in Sections 4.B and 4.C.

As appropriate, APCD or RAQC updates the transportation committees on SIP issues and status.

Federal and state laws require an air quality and transportation interagency consultation process. The consultation procedures are formally integrated into the SIP. The consultation process in the DRCOG region is facilitated by meetings of the Agency Coordination Team.

I. CDOT Program Distribution

The Transportation Commission makes decisions about the management and operation of the state highway system including construction, operations and improvement, and is also responsible for adopting statewide long-range transportation plans and the STIP. To carry out its planning, programming and budgeting responsibilities, the Transportation Commission determines estimated revenues, needs and how the estimated revenues are allocated. The Transportation Commission does this by a process called Program Distribution.

Step 1. Revenue forecasting

Air quality conforming fiscally constrained long-range transportation plans must reflect financial resources that are expected to be reasonably available over the time period of the plan. Federal

laws and regulations mandate that forecasting must be done cooperatively with relevant parties. To forecast revenues over a long period of time, many factors must be considered and defined. Such items typically include, but are not limited to:

- How traditional sources of funds should be forecast over a 20- to 25-year period.
- Whether different assumptions are needed for different funding sources, such as local resources or federal formula funds.
- How private development contributions should be estimated.
- The expectations for new sources of funding, such as tolling, public/private partnerships or revenue initiatives at the state, regional, or local level.
- What the effect of inflation will be.

Step 2. State highway system needs

CDOT has embraced a performance-based approach to financial decision-making and has developed a structure for identifying needs on the state highway system. The top level of this structure consists of five goal areas identified in the 2040 Statewide Transportation Plan:

- Mobility - Improve mobility and connectivity with a focus on operations and transportation choice
- Safety - Move Colorado toward zero deaths by reducing traffic-related deaths and serious injuries
- Maintaining the system - Preserve and maintain the existing transportation system
- Economic vitality - Improve the competitiveness of the state economy through strategic transportation investments

The next level of the structure are program areas and performance objectives. For example, maintaining the system involves several program areas including bridge, surface treatment and maintenance with performance objectives for each. Evaluation tools and/or predictive models are used to estimate system performance in response to various levels of investment.

Step 3. Allocation of resources

Federal law requires the state and MPO to cooperatively develop estimates of funds available for implementation of air quality conforming fiscally constrained metropolitan RTPs and TIPs. To that

end, DRCOG works cooperatively with CDOT and other planning partners in the Program Distribution process. Program Distribution is a part of the planning process of the Statewide Transportation Plan and outlines the estimated assignment of forecasted revenues to various program areas during the time period of the plan. CDOT, DRCOG and other planning partners work cooperatively during the Program Distribution process to develop recommendations to the Transportation Commission for the distribution of revenues to programs, and for the formula allocation of applicable programs to CDOT regions and/or MPOs. The Transportation Commission approves Program Distribution, and CDOT and planning partners further cooperate to develop estimates of the federal and state funds from Program Distribution that might be reasonably anticipated to be available for transportation purposes within the MPO area for the time period of the TIP and RTP.

Relationship to the Regional Transportation Planning Process

The regional transportation planning process determines which projects and strategies will be included in the air quality conforming fiscally constrained RTP, and CDOT's participation in the regional process helps ensure that the fiscally constrained RTP's financial plan accurately reflects the Program Distribution and planning estimates. The planning estimates also guide DRCOG and CDOT as projects are developed for inclusion in the TIP/STIP. An annual CDOT budget is developed, and adopted in the spring of each year. The annual budget is based on updated revenue forecasts, and on updated information on funding needed to achieve performance objectives. The annual budget for each year replaces Program Distribution as the fiscal constraint for that year in the TIP.

As part of RTP or TIP development, or as appropriate, CDOT updates the transportation committees on federal and state transportation funding for the DRCOG area.

J. CDOT Selection Processes for Projects in the DRCOG TIP

CDOT has numerous funding programs organized around the following budget categories:

- Maintain – Maintaining what the region (and state) already has
- Maximize – Safely making the most of what the region (and state) already has
- Expand – Increasing capacity
- Pass-Through Funds/Multimodal Grants

Federal law requires collaboration and consultation in project selection and prioritization. CDOT identifies projects for funding in the TIP within the transportation management area and in the STIP in the Mountains and Plains area. Processes for identifying projects include:

- Asset management systems – Projects to maintain the transportation system are identified through asset management systems with input from CDOT regional staff. These systems incorporate performance measures and monitoring, strategy evaluation tools and predictive models to identify cost-effective projects that will assist in achieving established performance objectives.
- Safety processes – Targeted safety improvements for funding with sources such as FASTER Safety and Highway Safety Improvement Program (HSIP) are identified through the analysis of safety data with input from CDOT regional staff. Safety data are used to identify the locations where improvements are most likely to result in increased safety for the traveling public.
- Competitive evaluation – Projects for programs including Safe Routes to School, Transportation Alternatives Program (TAP), FASTER Transit and FTA programs are identified through competitive application-based evaluation processes. Projects are generally identified through a call for projects and applications are reviewed against established criteria to identify projects for funding.
- Regional Priority Program (RPP) – RPP is a flexible funding source with projects identified by the CDOT regions in consultation with planning partners.
- CDOT reviews proposed projects and solicits input from planning partners and the public through the Project Priority Programming Process (4P). The 4P was developed by the Transportation Commission in cooperation with Colorado Counties Incorporated, the Colorado

Municipal League and the metropolitan planning organizations (MPOs). It was first adopted by the Transportation Commission in 1994, and has been updated most recently as part of the development of the current fiscal years 2016-2019 Statewide Transportation Improvement Program (STIP). The process is conducted during each TIP/STIP development cycle via meetings with transportation planning regions and CDOT regions. In the case of DRCOG, meetings are held with individual counties.

Exhibit 22 summarizes key steps of the process.

The CDOT funding programs for which projects are shown in the TIP and STIP are:

- Strategic Projects
- Surface Treatment
- Regional Priorities
- Congestion Relief
- FASTER (bridge, safety and transit)
- Bridge
- Safety
- Elderly, Disabled, Rural

Exhibit 22: Steps in CDOT's Project Priority Programming Process

1. CDOT estimates available revenue and funding levels for programs in Program Distribution.
2. CDOT prepares **background** information, including relevant roadway and traffic information and the status of current TIP/STIP projects and phases. CDOT identifies proposed projects and the latest cost estimates for projects currently under development are confirmed.
3. The two CDOT engineering regions typically hold a **countywide meeting** with each of the nine counties in the DRCOG region. At a location in each county, CDOT discusses projects, priorities and proposed revisions to the TIP, STIP and RTP consistent with updated cost and revenue estimates with local officials and staff. The counties take the lead in inviting other local agencies within their county and in publicizing meetings, which are open to the public. DRCOG and RTD discuss their processes for TIP project selection. Other issues, such as elimination of roadways from the state highway system and the potential for other funding mechanisms, may also be discussed. CDOT typically encourages each county to present a consolidated perspective of its project priorities.
4. Each CDOT engineering region meets **individually with each MPO and transportation planning region** in the area it serves. Considering input from the countywide meetings and other evaluations or information, this meeting leads to initial prioritization of projects within that planning region. For the DRCOG area, the transportation committees process may fulfill the intent of the individual MPO or transportation planning region meeting.
5. Each CDOT engineering region then holds a **joint meeting of all its MPOs and transportation planning regions**. DRCOG participates in such meetings in engineering regions 1 and 4. Priorities are considered in the context of the entire engineering region, not just the DRCOG area.
6. Each CDOT engineering region then provides DRCOG with a list of proposed projects to be considered in the TIP. This is shared with MPA partners in the TIP interagency review phase. The final list is included in the **draft TIP** for public hearing and DRCOG Board approval through the transportation committee process.
7. Upon approval by the governor, CDOT incorporates the adopted TIP into the draft STIP. CDOT Region 1 informs DRCOG of the projects and phases it has selected for inclusion in the draft STIP in the Mountains and Plains area of the Greater Denver Transportation Planning Region. CDOT verifies projects for fiscal constraint and consistency with long-range plans, and makes the draft STIP available to the public for review and comment. Once the **STIP is approved** by the Transportation Commission, CDOT transmits it to FHWA and FTA for federal approval.

K. RTD Strategic Budget Plan

The Strategic Budget Plan is RTD's six year fiscally constrained operating and capital improvement plan that is revised annually. RTD uses the plan for submitting projects to DRCOG for inclusion in the TIP. **Exhibit 23** summarizes annual Strategic Budget Plan development steps.

Relationship to the Regional Transportation Planning Process

RTD presents its proposed Strategic Budget Plan to the Transportation Advisory Committee for comment. Upon adoption, the Strategic Budget Plan

Exhibit 23: Steps in Preparing the RTD Strategic Budget Plan

1. RTD prepares **revenue estimates** for each year of the Strategic Business Plan. Revenue estimates include state and local sales and use tax, farebox revenues, and federal grants. Revenue projections are based on economic indicators, including regional growth projections, from state and local economists. Federal funds are estimated based on past trends, formula allocations, and recent congressional actions.
2. Annually in December, RTD develops **proposed projects** for consideration. Standardized information including the estimated cost of the project is developed. Cost estimates consider such factors as capital cost, service hours by service project type, and principal and interest payments on long-term debt.
3. RTD reviews each proposed project and **prioritizes** them.
4. RTD adjusts the prioritized list to fit the expected revenues once the financial projections have been completed.
5. RTD reviews the draft Strategic Business Plan for consistency with Civil Rights Act requirements. RTD reviews the draft Strategic Business Plan with local governments and transportation management organizations at the appropriate quarterly meeting.
6. The draft Strategic Business Plan is brought to the RTD Board at a public meeting for **adoption**, typically before the annual budget is reviewed and adopted in August.
7. The adopted Strategic Business Plan is incorporated into RTD's annual **budget**.

becomes the basis for RTD's submittal to DRCOG of transit projects to be included for funding in the TIP.

L. DRCOG Toll Facilities Review

Senate Bill 09-108 is a Colorado statute enacted in 2009 that created the High-Performance Transportation Enterprise (HPTE) to:

“seek out opportunities for innovative and efficient means of financing other important surface transportation infrastructure projects and will ensure that such projects are also properly prioritized and accelerated”

And

“has the duty to evaluate any toll highway in the state that is owned and offered for sale or for lease and an operating concession by an entity other than the state in order to determine whether it is in the best interests of the state for the transportation enterprise to purchase or lease the toll highway”

And

“In considering the effect on regional or local transportation plans, the Transportation Enterprise Board shall consult with the appropriate regional or local transportation planning agency.... A surface transportation infrastructure project shall not proceed past the planning stage until all metropolitan planning organizations entitled to participate in the planning, development, and approval process.... have approved the project.

Appendix A lists the relevant statute.

The DRCOG Board adopted by resolution in January 2009 criteria for the review of proposed projects with a tolling component for inclusion in the DRCOG Fiscally Constrained Regional Transportation Plan (RTP). The review criteria respond to Senate Bill 09-108 and House Bill 05-1148 for CDOT/HPTE projects and House Bill 06-1003 for private toll company projects. The DRCOG Board amended the review criteria in July 2016 to with updates, for clarity and to incorporate the content of CDOT's 2015 High-Occupancy Vehicle Policy. HPTE and other project sponsors must submit toll highway/system proposals to DRCOG with sufficient detailed information for DRCOG to evaluate the proposals per the adopted criteria. Information must be provided for six items: project

operation, technology, feasibility, financing, other required federal information and other pertinent information.

DRCOG assesses the proposal using information provided by the HPTE or other project sponsors and its own examinations. The proposal is presented to the public at a public hearing before DRCOG Board directors. DRCOG presents a final assessment either within the plan amendment summary report or, if deemed necessary, through a separate report reflecting resolution of technical, operational, feasibility and financial issues; summarizing public comment; and identifying options for Board consideration. Final transportation committees recommendations and DRCOG Board action to approve the specific proposal (or not) take place upon consideration of the final assessment.

Relationship to the Regional Transportation Planning Process

Toll highways (or toll lanes) must be in the air quality conforming fiscally constrained RTP and TIP before they can be implemented. The DRCOG assessment confirms the fiscally constrained nature of the proposal per the fiscally constrained RTP or provides a rationale for plan amendment. The project can be included in the TIP and RTP for construction only after the DRCOG Board has issued a favorable finding.

The FAST Act also contains the following provision (23 U.S.C. 166(g)) regarding tolling:

“(g) Consultation of MPO: If a HOV facility charging tolls under paragraph (4) or (5) of subsection (b) is on the Interstate System and located in a metropolitan planning area established in accordance with section 134, the public authority shall consult with the metropolitan planning organization for the area concerning the placement and amount of tolls on the facility.”

DRCOG coordinated with FHWA, CDOT and HPTE in June 2016 to establish a process to address this requirement. The stakeholders agreed to use the Agency Coordination Team (ACT) meeting process to conduct the toll placement/amount-setting coordination when needed and decide if further action is needed.

Appendix A

Select Federal and State Legislative and Regulatory References

FEDERAL LEGISLATIVE REFERENCES

Public Law 114-94	Fixing America's Surface Transportation (FAST) Act
23 U.S.C. 134	Metropolitan planning
49 U.S.C. 5303 et seq.	Metropolitan planning (formerly 49 U.S.C. 1607)
23 U.S.C. 135	Statewide planning
23 U.S.C. 303	Management systems
42 U.S.C. 7401 et seq.	Code for Clean Air Act
23 U.S.C. 324	Code for Civil Rights Act (Title VI)
29 U.S.C. 794	Code for Civil Rights Act (Title VI)
42 U.S.C. 4321 et seq.	Code for National Environmental Policy Act (NEPA)
Public Law 101-336	Americans with Disabilities Act

FEDERAL REGULATORY REFERENCES

23 C.F.R. Part 450 (Sect. 300-338)	Metropolitan planning regulation
23 C.F.R. Part 490	Performance management regulation
49 C.F.R. Part 613 (Sect. 100)	Metropolitan planning regulation
23 C.F.R. Part 450 (Sect. 200-224)	Statewide planning rule
49 C.F.R. Part 613 (Sect. 200)	Statewide planning rule
23 C.F.R. Part 500	Management systems
23 C.F.R. Part 200	USDOT regulations for Civil Rights (Title VI)
49 C.F.R. Part 21	USDOT regulations for Civil Rights (Title VI)
49 C.F.R. Part 611	FTA final rule on major capital investment projects (New Starts)
40 C.F.R. Part 51	Environmental Protection Agency regulations for State Implementation Plan (SIP)
40 C.F.R. Part 93	Environmental Protection Agency conformity regulations
49 C.F.R. Parts 27, 37, & 38	USDOT regulations of Americans with Disabilities Act
23 C.F.R. Parts 770-772	USDOT regulations of NEPA
40 C.F.R. Parts 1500-1508	Council on Environmental Quality regulations of NEPA

COLORADO STATUTE REFERENCES

30-28-105	Regional planning commissions
43-1-1101-1105	Transportation planning
43-2-147	Access code authority
32-9-107.7	Senate Bill 90-208
43-4-806	Senate Bill 09-108 (FASTER)
25-7-105(1)	Air Quality Control Commission authority for SIP
43-1-106	Transportation Commission

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U.S. Department of Transportation, Federal Transit Administration
and Federal Highway Administration.



Transportation Planning in the Denver Region

Denver Regional Council of Governments
1290 Broadway, Suite 100
Denver, CO 80203-5606
www.drcog.org - 303-455-1000

ATTACHMENT F

To: Chair and Members of the Transportation Advisory Committee

From: Jacob Riger, Transportation Planning Manager
303-480-6751 or jriger@drcog.org.

Meeting Date	Agenda Category	Agenda Item #
December 16, 2016	Action	8

SUBJECT

Release of the draft 2040 Metro Vision Regional Transportation Plan (2040 MVRTP) for public review and comment.

PROPOSED ACTION/RECOMMENDATIONS

Approval to release the draft 2040 MVRTP for public review and comment.

ACTION BY OTHERS

N/A

SUMMARY

The DRCOG Board adopted the 2040 Fiscally Constrained Regional Transportation Plan (2040 FC-RTP) in February 2015. Since that time, staff has been working to prepare the full 2040 MVRTP, which integrates the transportation theme of DRCOG's pending new *Metro Vision* to present a complete picture of the region's envisioned and fiscally constrained (cost feasible) multimodal transportation system through 2040.

TAC has received several briefings and has reviewed the major components of the draft 2040 MVRTP, including the freight, transit, and active transportation components. TAC has also reviewed the draft Metro Vision document. Additionally, the draft MVRTP (Attachment 1):

- Builds on and will replace the 2040 FC-RTP
- Incorporates guidance and defined requirements of the FAST Act (Chapters 1 and 7)
- Contains updated population and employment forecasts (planning assumptions) and new traffic model outputs from DRCOG's recently calibrated Focus model (Chapters 2 and 7)
- Directly incorporates the transportation theme (A Connected Multimodal Region) of the draft Metro Vision (Chapter 3)
- Updates and expands the description of each component of the region's multimodal transportation system, particularly for freight, transit, and active transportation (Chapter 4 and appendices)
- Significantly expands documentation of the process, assumptions, and data that were used to create the 2040 FC-RTP's financial plan (Chapter 5)
- Includes several new map concepts throughout the document, particularly for illustrating the 2040 Fiscally Constrained Regional Transportation Plan (Chapter 6)
- Integrates RTP amendments since the 2015 adoption of the 2040 FC-RTP (Chapter 6)

DRCOG staff will provide an overview of the draft 2040 MVRTP at the December TAC meeting.

The 2040 MVRTP is anticipated for adoption in April 2017. To meet that schedule, DRCOG staff is recommending releasing the draft document for public review and comment, recognizing that further refinements and changes can and will be made over the next three months.

PREVIOUS DISCUSSIONS/ACTIONS

- [January 26, 2015](#) - recommend approval of the 2040 FC-RTP associated air quality conformity documents.
- [April 27, 2015](#) – info discussion to introduce the topic of developing the transit component of the 2040 MVRTP.
- [September 28, 2015](#) – recommend approval of all proposed projects in air quality conformity modeling networks for 2015 Cycle 2 amendments to the 2040 FC-RTP.
- [November 23, 2015](#) – review of draft Freight and Goods Movement component of the 2040 MVRTP.
- [January 25, 2016](#) – review of draft Coordinated Transit component of the 2040 MVRTP.
- [July 25, 2016](#) – review of draft Active Transportation component
- [November 28, 2016](#)- recommend the 2040 MVRTP fiscally constrained roadway capacity projects and rapid transit networks to be modeled for air quality conformity.

PROPOSED MOTION

Recommend to the Regional Transportation Committee the release of the draft 2040 Metro Vision Regional Transportation Plan (2040 MVRTP) for public review and comment.

ATTACHMENTS

1. [Draft 2040 MVRTP](#) with [Draft Appendices](#)

ADDITIONAL INFORMATION

If you need additional information, please contact Jacob Riger, Transportation Planning Manager, at 303-480-6751 or jriger@drcog.org.

ATTACHMENT G

To: Chair and Members of the Transportation Advisory Committee

From: Robert Spotts, Senior Transportation/Air Quality Planner
303-480-5626 or rspotts@drcog.org.

Meeting Date	Agenda Category	Agenda Item #
December 19, 2016	Information	9

SUBJECT

Briefing on Electric Vehicle Smart Fleets' survey for state and local government agencies and information on a group purchase initiative.

PROPOSED ACTION/RECOMMENDATIONS

N/A

ACTION BY OTHERS

N/A

SUMMARY

Denver Metro Clean Cities staff will present information about the electric vehicle market and an opportunity to take part in a group purchase initiative for electric vehicles and charging/ fueling infrastructure. This multi-state public sector procurement project will offer public fleets lower prices on electric vehicles from dealership networks by aggregating state and local government purchase volumes as well as access to cost-effective charging/fueling infrastructure.

PREVIOUS DISCUSSIONS/ACTIONS

N/A

PROPOSED MOTION

N/A

ATTACHMENT

Presentation (Denver Metro Clean Cities)

ADDITIONAL INFORMATION

If you need additional information, please contact Robert Spotts, Senior Transportation/Air Quality Planner, at 303 480-5626 or rspotts@drcog.org, or Janna West-Heiss, Denver Metro Clean Cities Coordinator, at 303-388-4327 or JWHeiss@lungs.org.



EV Smart Fleets

Making Electric Vehicles Affordable for Fleets through a Multi-State Joint Procurement



Agenda



About Denver Metro Clean Cities

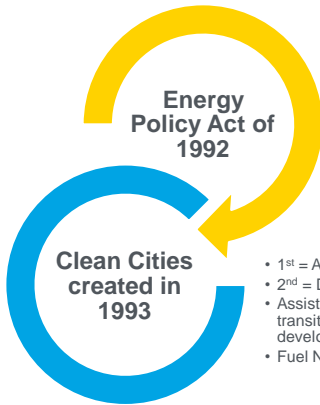
About EV Smart Fleets

Why Electric Vehicles?

State Policies and Incentive Programs

How to Engage With Us

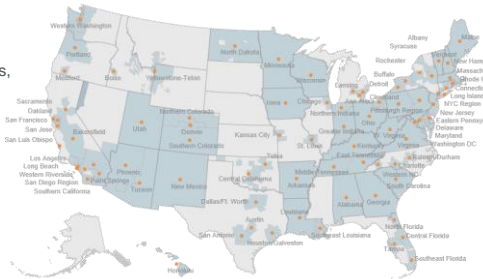
Clean Cities Background



- Mandated government fleets to use alternative fuels (ethanol & biodiesel)

- Funded by the Department of Energy
- Nearly 100 Clean Cities in the nation
- Mission: building partnerships to reduce our reliance on petroleum in transportation

- 1st = Atlanta
- 2nd = Denver
- Assist fleets with transition to alt fuels, develop market
- Fuel Neutral



“To improve lung health & prevent lung disease”

Lung Health
Special Events
Air Quality



Clean Cities

DENVER METRO COALITION

“Clean Fuels. Clean Air. Clean Lungs. Clean Cities.”

DenverCleanCities.org

Denver Metro Clean Cities Programs:



Refuel Colorado

“A Source for Alternative Fuel Vehicles”

- Funded by the Colorado Energy Office
- Free lifecycle fleet analysis
- Fuel/technology guidance
- Grant application preparation
- Stakeholder engagement

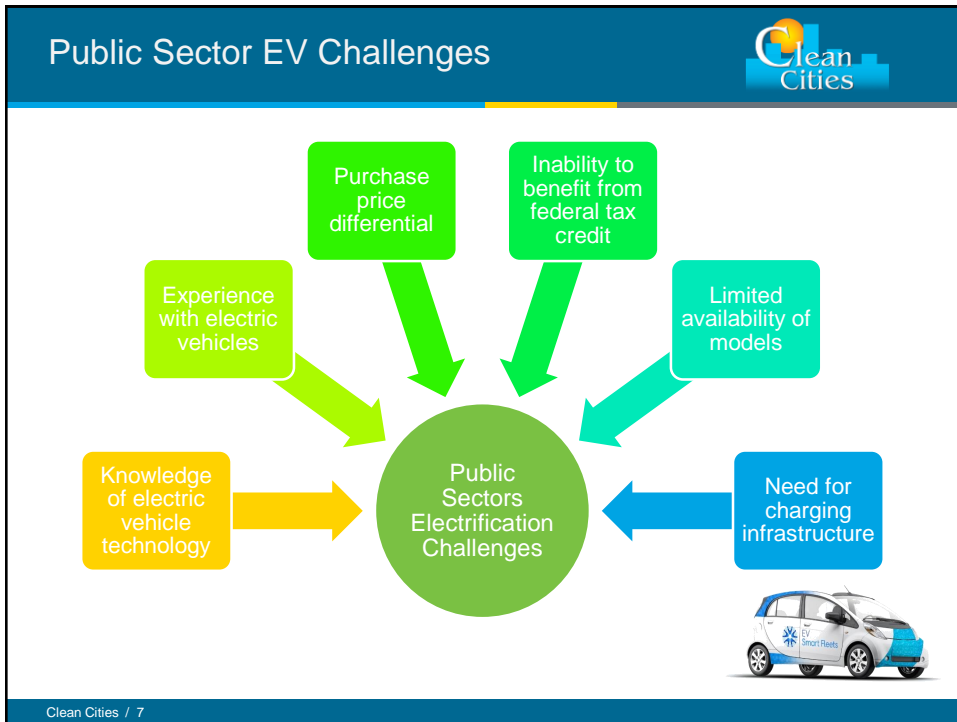
Driving Change

Experiential Electric Vehicle Ride & Drives for large workplaces

EV Smart Fleets

Today's Topic







About EV Smart Fleets

This multi-state public sector procurement project will offer public fleets:

- Lower prices on electric vehicles from dealership networks by aggregating state and local government purchase volumes
- Access to cost-effective charging/fueling infrastructure

Clean Cities / 8

Project Goals



- 1

 - Average 15% Price Reduction
- 2

 - Access to wider range of EV models
- 3

 - Improved access to charging infrastructure
- 4

 - Financing and ownership alternatives



Clean Cities / 9

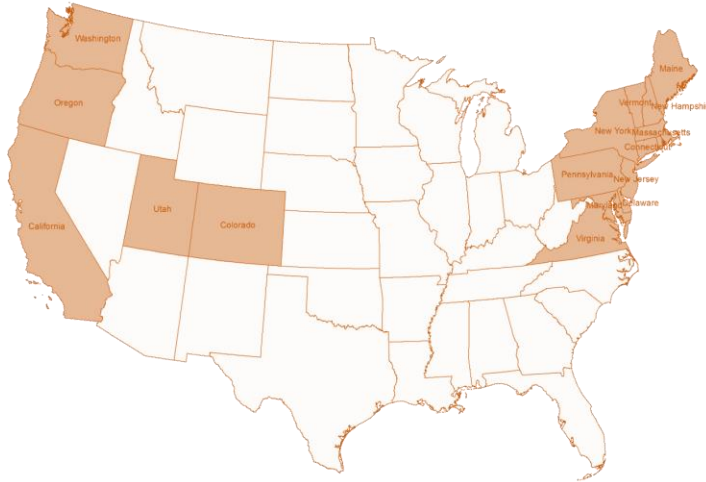
Project Partners



 <p>Strategic Broker for Clean Transportation Technology http://calstart.org</p>	<p>GEORGETOWN CLIMATE CENTER A Leading Resource for State and Federal Policy http://georgetownclimate.org</p>	
 <p>Northeast States for Coordinated Air Use Management http://nescaum.org</p>	<p>DGS GENERAL SERVICES California Department of General Services http://dgs.ca.gov</p>	
<p>ROSS STRATEGIC Ross Strategic http://rossstrategic.com</p>	 <p>Atlas Public Policy http://atlaspolicy.com</p>	
	<p>Columbia-Willamette Clean Cities Coalition (http://cwcleancities.org) Denver Metropolitan Clean Cities Coalition (http://denvercleancities.org) Granite State Clean Cities Coalition (http://granitestatecleancities.nh.gov) Long Beach Clean Cities Coalition (https://cleancities.energy.gov/coalitions/long-beach) New Jersey Clean Cities Coalition (https://cleancities.energy.gov/coalitions/new-jersey) Greater New Haven Clean Cities Coalition (http://nhcleancities.org) Ocean State Clean Cities Coalition (https://cleancities.energy.gov/coalitions/ocean-state) Sacramento Clean Cities (http://cleancitiessacramento.org) Western Washington Clean Cities (http://wwcleancities.org)</p>	

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16 Target States





Why Electric Vehicles?





Cheap Operation



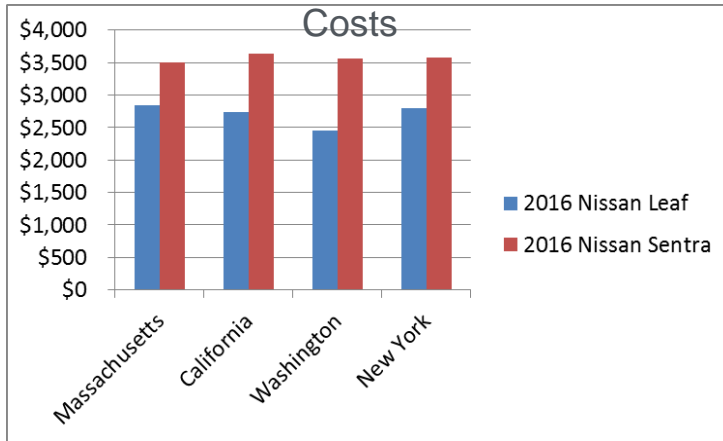
- Low maintenance
- \$1.05/eGallon
- \$500 - \$1000/year savings
- Stable costs

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Lower Operating Costs: Nissan Leaf vs. Sentra



Comparative Total Annual Operating Costs

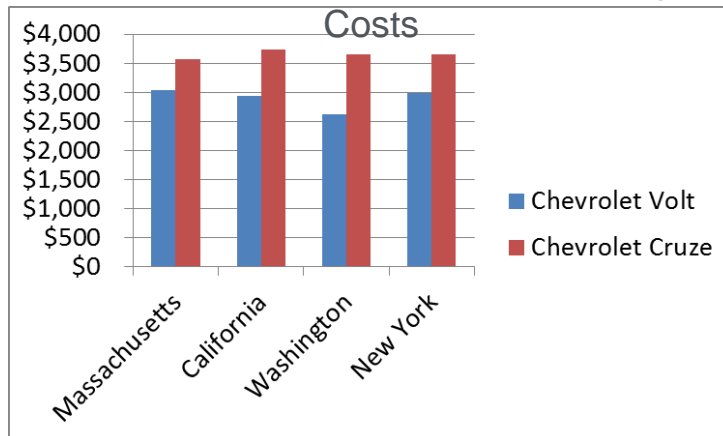


Source: U.S. DOE AFDC: <http://www.afdc.energy.gov/calc/>

Lower Operating Costs: Chevy Volt vs. Cruze



Comparative Total Annual Operating Costs



Source: U.S. DOE AFDC: <http://www.afdc.energy.gov/calc/>

Seattle Parking Authority TCO Case Study



$$TCO = Acquisition + Fuel + Maintenance - Salvage$$

Type	Description	Life	Acq.	Fuel	Maint.	Salvage	TCO
Gas	GO4 Scooter	7 yrs	\$32,660	\$6,886	\$19,220	\$6,532	\$52,234
EV	Nissan Leaf	7 yrs	\$33,612	\$1,820	\$5,480	\$10,255	\$30,657

Fleet cost for 78 GO4 Scooters: \$4,074,272

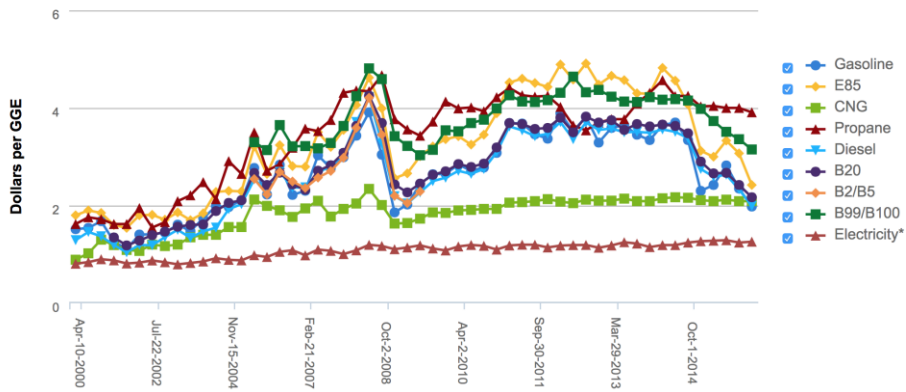
Fleet Cost for 78 Nissan Leafs: \$2,391,246

Savings: \$1,683,026

Low price and volatility



Average Retail Fuel Prices in the U.S.



Source: DOE Alternative Fuel Data Center


Domestic




Copyright Homemade-Preschool.com

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Fuel Price Volatility



COST PER GAL

\$5.00

\$4.00

\$3.00

\$2.00

\$1.00

\$0.00

Diesel

Retail price \$4.43/GGE (early 2008)

Gasoline

Retail price \$3.77/GGE (early 2008)

CNG

Retail price \$2.10/GGE (early 2008)


Electricity


Retail price \$1.14/eGallon

Fuel Type	Crude Oil	Refining	Distribution and Marketing	Taxes	Total Retail Price
Diesel	64%	21%	5%	10%	\$4.43/GGE
Gasoline	75%	10%	5%	10%	\$3.77/GGE
CNG	26%	42%	9%	18%	\$2.10/GGE
Electricity	25%	30%	30%	15%	\$1.14/eGallon

Clean Cities / 20

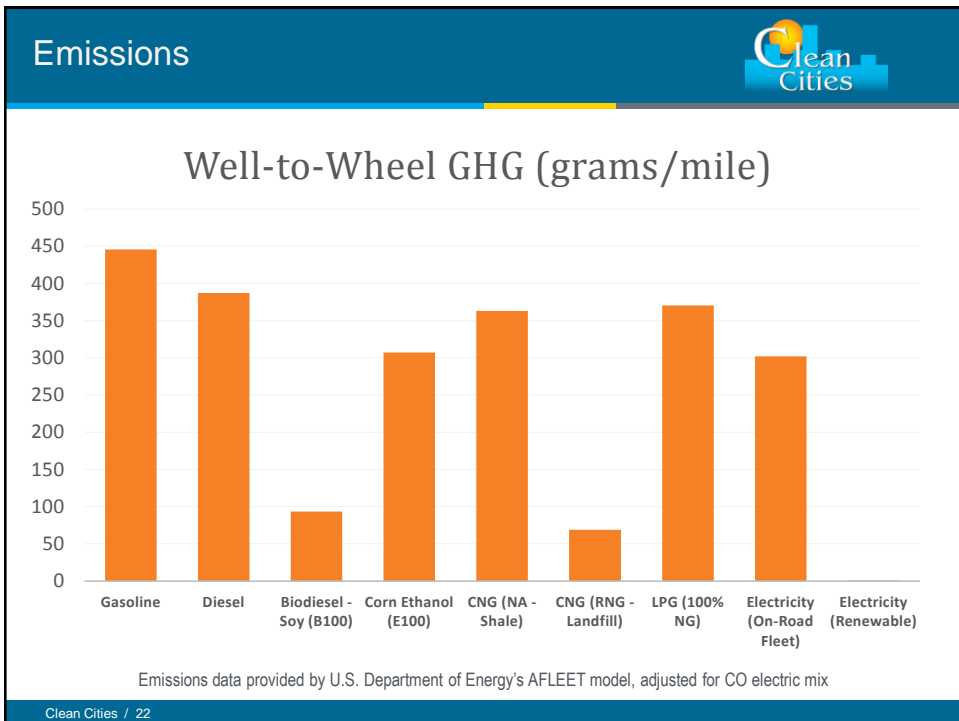
Source: US DoE EERE, EIA, and NGVA

Emissions 



- Zero tailpipe emissions
- Air quality investment
- Renewable options

Clean Cities / 21



Colorado Incentives



CHARGE AHEAD COLORADO

- Regional Air Quality Council, Colorado Energy Office
- Funded 100+ stations throughout Colorado

Funding Amounts

- EVSE Infrastructure: 80% of capital, installation, permit up to \$16,000/station (based on charging level)
- Vehicles: 80% of incremental vehicle cost up to \$8,260/vehicle

Websites

- cleanairfleets.org/programs/charge-ahead-colorado
- ChargeAheadColorado.com



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Sounds good... what's that catch?



5 Minutes of your time

EVSmartFleets.com/Survey

*MORE interested fleets =
LARGER discounts & BETTER model variety*



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Engage with Us!



EV Smart Fleets

Head to: <http://evsmartfleets.com>

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