

**AGENDA**  
**SPECIAL BOARD OF DIRECTORS MEETING**  
**Wednesday, October 6, 2021**  
**4 p.m. – 5:30 p.m.**  
**VIDEO/WEB CONFERENCE**  
**Denver, CO**

1. Call to Order

2. Public Comment

Up to 45 minutes is allocated now for public comment and each speaker will be limited to 3 minutes. If there are additional requests from the public to address the Board, time will be allocated at the end of the meeting to complete public comment. The chair requests that there be no public comment on issues for which a prior public hearing has been held before this Board. Consent and action items will begin immediately after the last speaker.

**CONSENT AGENDA**

3. Move to Approve Consent Agenda

- a) Minutes of September 15, 2021  
(Attachment A)

**ACTION ITEM**

4. Discussion on the Greenhouse Gas (GHG) transportation planning rulemaking  
(Attachment B) Ron Papsdorf, Director, Transportation Planning and Operations

**ADMINISTRATIVE ITEMS**

5. Next Meeting – October 20, 2021

6. Other Matters by Members

7. Adjourn

**ATTACH A**

SUMMARY  
BOARD OF DIRECTORS  
WEDNESDAY, September 15, 2021

Members/Alternates Present

Ashley Stolzmann, Chair	City of Louisville
Steve O'Dorisio	Adams County
Claire Levy	Boulder County
George Teal	Douglas County
Mike Coffman (Alternate)	City of Aurora
Larry Vittum	Town of Bennet
Aaron Brockett	City of Boulder
Adam Cushing	City of Brighton
William Lindstedt	City and County of Broomfield
Deborah Mulvey	City of Castle Pines
Jason Gray	Town of Castle Rock
Tammy Mauer	City of Centennial
Randy Weil	City of Cherry Hills Village
Nicole Frank	City of Commerce City
Nicholas Williams	City and County of Denver
Kevin Flynn	City and County of Denver
Steve Conklin	City of Edgewater
Linda Olson	City of Englewood
Linda Montoya	City of Federal Heights
Josie Cockrell	Town of Foxfield
Lynette Kelsey	Town of Georgetown
Jim Dale	City of Golden
George Lantz	City of Greenwood Village
Tracy Kraft-Tharp	Jefferson County
Jacob LaBure	City of Lakewood
Wynne Shaw	City of Lone Tree
Joan Peck	City of Longmont
Colleen Whitlow	Town of Mead
John Diak	Town of Parker
Neal Shah	Town of Superior
Jessica Sandgren	City of Thornton
Anita Seitz	City of Westminster
Bud Starker	City of Wheat Ridge
Rebecca White	Colorado Department of Transportation
Bill Van Meter	Regional Transportation District

Others Present: Douglas W. Rex, Executive Director, Melinda Stevens, Executive Assistant, DRCOG; Lynn Baca, Janet Lundquist, Chris Chovan, Adams County; Mac Callison, Aurora; Cindy Copeland, Boulder County; Sarah Grant, Broomfield; Tim Dietz, Castle Rock; Brent Soderlin, Commerce City; Art Griffith, Lauren Pulver, Douglas County; Cheryl Wink, Englewood; Kent Moorman, Julia Marvin, Thornton; Debra Baskett, Westminster; Jordan Rudel, Jan Rowe, Michael Timlin, CDOT; Lynn Guissinger, Shelly Cook, RTD; Nathan Batchelder, Randle Loeb, Joanna Rosa-Saenz, Matt Frommer, Paul Culnan, Travis Madsen, Brent Goodlet, Citizen; and DRCOG staff.

Chair Ashley Stolzmann called the meeting to order at 6:30 p.m. with a quorum present.

Move to approve agenda

Director Teal **moved** to approve the agenda. The motion was **seconded** and **passed** unanimously.

Report of the Chair

- Director Conklin reported the Performance and Engagement Committee met on September 1 and received two informational briefings:
  - A discussion on the 2021 Board Workshop, which the committee brought up agenda items as possible topics for upcoming Board meetings.
  - A follow-up and further discussion on DRCOG's executive director annual performance evaluation process.
- Director Shaw reported the Finance and Budget Committee met and approved two resolutions authorizing the executive director to:
  - accept funds of \$80,000 from the City of Aurora to support transportation services for its older adult residents.
  - distribute approximately \$580,000 in 2022 NSIP funds to contracted nutrition providers.

Report of the Executive Director

- ED Rex thanked the Board for participating in the Collaboration Assessment.
- DRCOG's WayToGo staff will begin working on the annual GoTober event after the Bike To Work Day event concludes.
- DOLA Grants: There is a current grant opportunity through the department of local affairs to assist local governments in development of innovative solutions to promote the development of affordable housing across the state. The deadline for applications is September 20<sup>th</sup>.
- Front Range Passenger Rail: ED Rex encouraged directors to read the informational item regarding the process for the selection of DRCOG representatives to the FRPR District Board.
- Bike to Work day is scheduled for September 22<sup>nd</sup> of this year.

Public Comment

Randle Loeb reported that he is working on a new program with Jefferson County to take care of the gaps that exist in housing.

Travis Madsen urged the Board to support the transportation planning pollution standard that is currently under consideration at the Transportation Commission.

Joanna Rosa-Saenz requested DRCOG embrace the proposed rules and make the provisions for reducing driving and pollution even stronger.



Brent Goodlet wanted to reiterate to the Board that the greenhouse gas reduction levels listed in the draft rules, specifically tables one and two, are not sufficient to meet the state's greenhouse gas reduction roadmap, as stipulated by HB19 1261.

Move to approve consent agenda

Chair Stolzmann **moved** to approve the consent agenda as amended (The removal of Consent Agenda Item 7-iv: FY 2022-2025 Transportation Improvement Program (TIP) Amendments). The motion was **seconded** and **passed** unanimously.

Items on the consent agenda included:

- Summary of the August 18, 2021 meeting
- FY 2022-2025 Transportation Improvement Program (TIP) Supplemental Wait List Call for Projects waiting list additions
- Project Funding Recommendation for the FY 2022-2023 Community Mobility Planning and Implementation (CMPI) set-aside

FY 2022-2025 Transportation Improvement Program (TIP) Amendments

Josh Schwenk provided a brief overview of the amendments to the Board. DRCOG's transportation planning process allows for Board-approved amendments to the current Transportation Improvement Program (TIP) on an as-needed basis. 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. The TIP projects to be amended are shown are as follows:

- New Project Design Pool: CDOT Region 1 Misc/Design
- New Project Region 4 Mobility Hub Pool
- New Project SH-7/95th St. Intersection Improvements
- 2012-121 Region 4 Non-Regionally Significant RPP Pool
- 2020-098 I-70 Noise Walls
- 2020-100 Region 1 Mobility Hub Pool

The proposed amendments to the [\*FY 2022-2025 Transportation Improvement Program\*](#) have been found to conform with the State Implementation Plan for Air Quality.

Director Teal recused himself from the discussion.

Director Gray opposed Project 2020-100 Region 1 Mobility Hub Pool because there would no access to it from Castle Rock and they think the money should not be invested in this project. Chair Stolzmann clarified that the opposition was for one component of the proposed TIP amendment (removal of the Castle Rock Mobility Hub), which Director Gray confirmed.

Chair Stolzmann asked if this was a time sensitive vote on approval the projects as a package. Director White said that if the board needed more time for discussion on these projects, that it could be brought back to the Board in October for a vote.

Ron Papsdorf explained that because the motion has been modified, this item would have to go back to the Regional Transportation Committee (RTC) for the TIP amendments to move forward.

Director Gray **moved** to adopt the attached amendments to the 2022-2025 Transportation Improvement Program (TIP), with the amendment that CDOT and DRCOG do their due diligence to come to the most satisfactory conclusion with all the jurisdictions and then bring Project 2020-100 Region 1 Mobility Hub Pool back to Board. The motion was **seconded** by and **passed** unanimously.

DRCOG's Title VI Implementation Plan, Limited English Proficiency Plan, and Americans with Disabilities Act Program Access Plan.

Alvan-Bidal Sanchez, provided an overview of the plans to the board. DRCOG is a recipient of federal financial assistance and all agencies that receive federal funds are required to comply with various nondiscrimination laws and regulations. DRCOG adheres to other federal nondiscrimination statutes that afford legal protection. DRCOG is also committed to engaging and involving all residents of the Denver region. Every three years, DRCOG prepares the Title VI Implementation Plan, Limited English Proficiency Plan and Americans with Disabilities Act Program Access Plan to document the ongoing Title VI-related activities pursued by DRCOG over the previous period. The drafts of the three nondiscrimination plans were the subject of a public review and comment period July 1-July 31.

Director Flynn **moved** to adopt Resolution No. 10, 2021, adopting the Title VI Implementation Plan and the associated Limited English Proficiency Plan and Americans with Disabilities Act Program Access Plan. The motion was **seconded** and **passed** unanimously.

Update on the Greenhouse Gas (GHG) transportation planning rulemaking

Ron Papsdorf provided an overview of the rulemaking to the board. HB19-1261 concerns the reduction of greenhouse gas pollution and establishing statewide greenhouse gas pollution reduction goals. On January 14, 2021, Colorado released its Greenhouse Gas Pollution Reduction Roadmap, which establishes a pathway to meet the state's HB19-1261 climate targets and shows Colorado's largest sources of GHG emissions. SB21-260 includes new requirements for CDOT guidelines and procedures for the Department and the state's MPOs related to transportation planning and projects. CDOT is embarking on a rulemaking process to develop a new pollution reduction planning framework for the transportation sector. On July 15, 2021 the Colorado Transportation Commission adopted a resolution authorizing CDOT to commence the rulemaking process to establish a greenhouse gas (GHG) pollution-reduction standard, including compliance and enforcement requirements. CDOT filed the formal notice for the rulemaking on August 13 and released the [draft rulemaking schedule](#). At the August 4, 2021 Board Work Session, staff provided background and information related to CDOT's rulemaking and schedule and at the August 18, 2021 Board Meeting, staff provided an overview of the proposed GHG Transportation Planning Rule that was introduced. At the September 1, 2021 Board Work Session, the Board continued its discussion of the proposed rule, through the compliance section.

Staff presented [additional analysis](#) of the proposed rule and asked Board members for feedback on issues and options aimed at improving the rule. Directors voiced all questions and concerns to DRCOG staff and had a very robust, in-depth discussion on this topic. Directors were informed that there would be a special Board meeting on October 6<sup>th</sup>, where members will be asked to vote on DRCOG's formal comments related to the rulemaking.

Update on the FY 2024-2027 TIP Policy.

Chair Stolzmann **moved** to have agenda item #13: Update on the FY 2024-2027 TIP Policy moved to the October Board meeting. The motion was **seconded** and **passed** unanimously

Committee Reports

To ensure that there was adequate time for the topics on this agenda, committee reports were postponed until the October meeting.

Next meeting – October 6, 2021

Other matters by members

There were no other matters by members.

Adjournment

The meeting adjourned at 9:04 p.m.

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Ashley Stolzmann, Chair  
Board of Directors  
Denver Regional Council of Governments

ATTEST:

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Douglas W. Rex, Executive Director

**ATTACH B**

To: Chair and Members of the Board of Directors

From: Douglas W. Rex, Executive Director  
303-480-6701 or [drex@drco.org](mailto:drex@drco.org)

Meeting Date	Agenda Category	Agenda Item #
October 6, 2021	Action	4

#### SUBJECT

Discussion of draft DRCOG Board comments on the proposed greenhouse gas (GHG) transportation planning rulemaking.

#### PROPOSED ACTION/RECOMMENDATIONS

N/A

#### ACTION BY OTHERS

N/A

#### SUMMARY

Based on the Board's previous discussions, staff has developed a set of draft comments for the Board's discussion and consideration. The draft comments take into account feedback from the Board and is aimed at suggestions to clarify and strengthen the proposed rule to maximize the opportunity for the rule to help achieve the state and region goals to reduce GHG emissions and balancing the rule with DRCOG's federal responsibilities.

Staff has also reviewed the Cost-Benefit Analysis (CBA) prepared by CDOT for the proposed rule. Staff intends to submit technical comments and requests for clarification on the CBA. The DRCOG staff review comments are attached for your information.

#### Background

House Bill 19-1261 was signed into law on May 30, 2019. The bill concerns the reduction of greenhouse gas pollution and establishing statewide greenhouse gas pollution reduction goals. The law sets statewide goals to reduce greenhouse gas emissions from 2005 levels by at least 26% by 2025, at least 50% by 2030, and at least 90% by 2050.

On January 14, 2021, Colorado released its [Greenhouse Gas Pollution Reduction Roadmap](#). The Roadmap establishes a pathway to meet the state's HB19-1261 climate targets. An executive summary of the Roadmap (also included in the full report) is available in [English](#) and in [Spanish](#).

The Roadmap shows Colorado's largest sources of GHG emissions, in order, are **transportation, electricity generation, oil and gas development and fuel use in homes, business, and industrial applications**. Findings show that meeting the 2025 and 2030 goals is achievable with existing cost-effective technologies but progressing toward these goals will require additional policies beyond the actions the state has taken already.

SB21-260 includes new requirements for CDOT guidelines and procedures for the Department and the state's MPOs related to transportation planning and projects. CDOT is embarking on a rulemaking process to develop a new pollution reduction planning framework for the transportation sector. On July 15, 2021 the Colorado Transportation Commission adopted a resolution authorizing CDOT to commence the

rulemaking process to establish a greenhouse gas (GHG) pollution-reduction standard, including compliance and enforcement requirements in accordance with HB19-1261 and SB21-260.

At the August 4, 2021 Board Work Session, staff provided background and information related to CDOT's rulemaking and schedule.

At the August 18, 2021 Board Meeting, staff provided an overview of the proposed GHG Transportation Planning Rule that was introduced August 13, 2021.

At the September 1, 2021 Board Work Session, the Board continued its discussion of the proposed rule, through the compliance section.

At the September 15, 2021 Board Meeting, the Board continued its discussion of the proposed rule, including the compliance and enforcement sections and was able to discuss the overall rule.

**Anticipated Next Steps:**

- October 7, 2021 – Submit DRCOG Board comment letter to CDOT (if approved)
- August 13 – October 15: written comment period
- September 17 – October 5: nine Transportation Commission rulemaking hearings (9/23 – Swansea Recreation Center (Denver), 9/27 – South Suburban Sports Complex (Littleton))

<b>PREVIOUS DISCUSSIONS/ACTIONS</b>
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[August 4, 2021](#) - Board Work Session discussion

[August 18, 2021](#) – Board discussion of proposed rule

[September 1, 2021](#) – Board Work Session discussion

[September 15, 2021](#) – Board discussion of proposed rule

<b>PROPOSED MOTION</b>
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Move to approve the DRCOG Board comments to the Transportation Commission on the proposed greenhouse gas reduction transportation planning requirements and direct the Chair to send the comment letter on the Board's behalf.

<b>ATTACHMENT</b>
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1. Staff Presentation
2. Proposed Rule with DRCOG comments mark-up
3. Draft Comment Letter
4. Staff comments on the Cost-Benefit Analysis for the proposed rule

<b>ADDITIONAL INFORMATION</b>
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If you need additional information, please contact Douglas W. Rex, Executive Director, at 303-480-4701 or Ron Papsdorf, Division Director, Transportation Planning & Operations, at 303-480-6747 or [rpapsdorf@drcog.org](mailto:rpapsdorf@drcog.org) or Robert Spotts, Mobility Analytics Program Manager, at 303-480-5626 or [rspotts@drcog.org](mailto:rspotts@drcog.org).



# Greenhouse Gas Transportation Planning Rulemaking

Board of Directors – Work Session  
October 6, 2021

**Ron Papsdorf**  
Division Director, Transportation  
Planning & Operations

# GOALS FOR TODAY



- Rule context
- Draft DRCOG comments
- Board discussion and direction



# RULEMAKING SCHEDULE



## DRAFT Rulemaking Timeline

subject to change and refinement due to TC action and rulemaking development

### Authorize Rulemaking

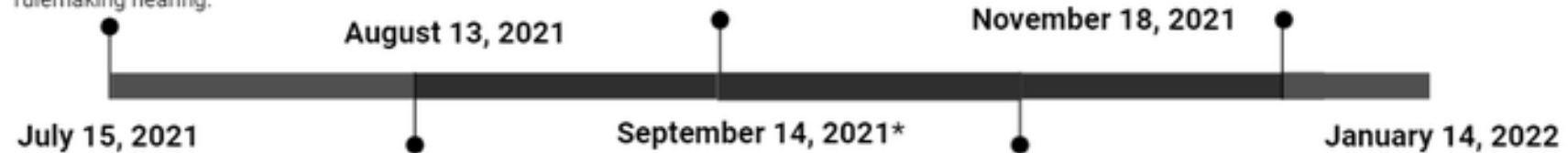
Transportation Commission authorize staff to commence rulemaking and delegates a Hearing Officer to conduct rulemaking hearing.

### Rulemaking Hearings

Opportunity for Public Testimony

### Rule Effective

Rule becomes effective.



### Notice Rulemaking

Notice the rulemaking with Secretary of State and public comment period begins.

### Adopt Rule

The Transportation Commission considers Proposed Rule for Adoption.



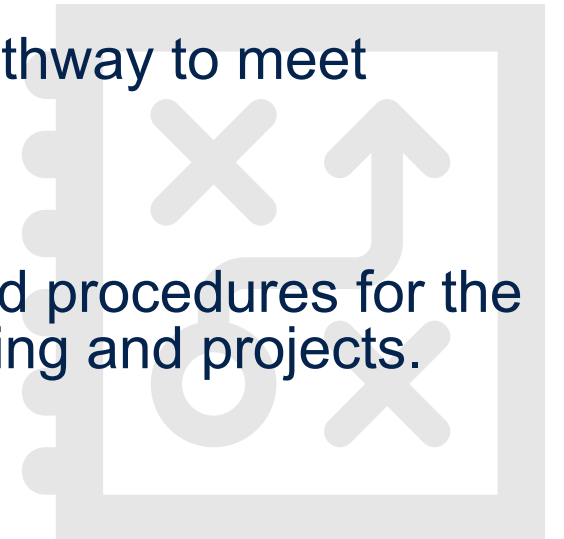
60 Day Written Comment Period  
Starts 8/13 and Ends 10/12

*\*Hearings may be held on or after September 14, 2021.  
Hearings to be a mix of virtual/in-person and held in multiple locations around the state.*

# RULE CONTEXT



- **Metro Vision and RTP:** the region meets or exceeds applicable federal, state and local requirements and regional targets for air quality.
- **HB19-1261:** reduce greenhouse gas pollution and establish statewide GHG reduction goals.
- **GHG Pollution Reduction Roadmap:** establishes pathway to meet HB19-1261 climate targets.
- **SB21-260:** new requirements for CDOT guidelines and procedures for the department and MPOs related to transportation planning and projects.



# ADDITIONAL CONTEXT



- **Applicable Planning Document:** RTP adoption and amendments, CDOT 10-Year Plan adoption and amendments, CDOT Four-Year Prioritized Plan adoption and amendments, TIP adoption in DRCOG/NFRMPO
- **Regionally Significant Project** for the purposes of the proposed rule (and federal air quality conformity) – DRCOG
  - **New** regional roadway segment
  - Road **widening** of one or more lanes on regional system
  - **New** or converted managed lane
  - **New** interchanges or other interchange **capacity improvements**
  - **New** dedicated rapid transit lanes, rail lines, or rail line extensions
  - **New** rail rapid transit stations
- **Not the same as a "regional" TIP project for regional share**

**At least 1 mile long**

# ADDITIONAL CONTEXT



- **DRCOG's MPO Role** – federal law and regulations
  - Responsible for transportation planning in urban areas – **setting for effective decision-making**
  - **Identify and evaluate alternatives** to meet future needs and to provide a safe and efficient transportation system that meets mobility while not creating adverse impacts to the environment
  - MPOs prepare and adopt a long-range, multimodal **Regional Transportation Plan (RTP)** covering at least 20 years (update every 4 years)
    - Congress included 10 planning factors the process must consider
  - Prepare and adopt a **Transportation Improvement Program (TIP)** covering four years
  - Involve the **public** and other **stakeholders**



# PROPOSED GHG RULE SUMMARY

# RULE COMPONENTS



- **Amends 2 CCR 601-22:** Rules governing statewide transportation planning process and transportation planning regions
  - Preamble
  - Definitions (1.00)
  - Statewide Transportation Plan (4.06)
  - Amendments to the Regional and Statewide Transportation Plans (6.00)





# RULE COMPONENTS



- New § 8.00 – GHG Emission Requirements
  - 8.01 – Establishment of Regional GHG Transportation Planning Reduction Levels
  - 8.02 – Process for Determining Compliance
  - 8.03 – GHG Mitigation Measures
  - 8.04 – Air Pollution Control Division (APCD) Confirmation and Verification
  - 8.05 – Enforcement
  - 8.06 - Reporting



# SUMMARY – SUCCESSFUL CDOT-MPO PARTNERSHIP



- Remove the Baseline Projections from Table 1 and adopt baselines in a Transportation Commission policy directive and reference them in the Rule to allow refinement based on MPO modeling and more frequent updates.
- Revise §8.02.1 to state “Such analysis shall include the existing transportation network, implementation of future completed regionally significant projects, and other non-regionally significant transportation system investments included in the Plan.”
- Revise §8.02.1 to state that “The emissions analysis must estimate total CO<sub>2</sub>e emissions in million metric tons (MMT) for each year in Table 1 and compare these emissions to the Baseline specified in Table 1 value derived by subtracting the Reduction Level from the Baseline Projection for that same year.”
- Revise §8.02.1 to add the following before the last sentence of the section. “When adopting a TIP, the required emissions analysis will apply to one horizon year corresponding with the last year of the TIP, using interpolation between Table 1 horizon years if the last year of the TIP does not correspond to a designated horizon year in Table 1.”



# SUMMARY – SUCCESSFUL CDOT-MPO PARTNERSHIP (CONT.)



- Revise §8.02.3 to state “By April 1, 2022, CDOT shall establish an ongoing administrative process and guidelines, through a public process and in consultation with MPOs, for selecting, measuring, confirming, and verifying GHG Mitigation Measures, ~~so that~~ CDOT and MPOs ~~can~~ may incorporate one or more GHG Mitigation Measures into ~~each of~~ their plans in order to reach the Regional GHG Planning Reduction Levels in Table 1. Such a process and guidelines shall include, but not be limited to, how CDOT and MPOs should ~~determine~~ the relative impacts of GHG Mitigation Measures, and ~~measure~~ and ~~prioritize~~ localized impacts to communities and Disproportionately Impacted Communities in particular. The mitigation credit awarded to a specific solution shall consider both aggregate and community impact.
- Revise §8.02.5.1.2 to state “In MPO areas that are in receipt of federal suballocations pursuant to the CMAQ and/or STBG programs, the MPO utilizes some or all of those funds on ~~projects or approved~~ GHG Mitigation Measures that reduce GHG emissions, and CDOT utilizes some or all 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in that MPO area, on projects that reduce GHG emissions as necessary to achieve the GHG Reduction Levels in MMT of CO<sub>2</sub>e for each compliance year in Table 1.

# SUMMARY – SUCCESSFUL CDOT-MPO PARTNERSHIP (CONT.)



- Add a provision in Section 8.03 to require sponsors of regionally significant roadway capacity projects to identify and include GHG Mitigation Measures when including the project in a TIP or the STIP.
- Revise §8.05.2 to state “If the Commission determines, by resolution, the requirements of Rule 8.02.5 have not been met, the Commission shall restrict the use of all CMAQ, STBG, and 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in the area ~~funds pursuant to Rules 8.02.5.1.1 or 8.02.5.1.2, as applicable,~~ to projects and approved GHG Mitigation Measures that reduce GHG.
- Revise §8.05.2 to state “~~Prior to the enforcement of such restriction, an~~ An MPO in a Metropolitan Planning Area, or CDOT and/or a TPR in a non-MPO outside a Metropolitan Planning Area ~~area,~~ may, within ~~thirty~~ sixty (3060) days of Commission action, ~~issue one or both of the following opportunities to seek a waiver or to ask for reconsideration as provided for in Rule 8.05.2.1 or Rule 8.05.2.2. Enforcement of such restriction shall not begin until the Commission has taken action on such requests under Rule 8.05.2.3.~~ accompanied by an opportunity to submit additional information:”

# SUMMARY – SUCCESSFUL CDOT-MPO PARTNERSHIP (CONT.)



- Revise §8.05.2.1 to state “Request a waiver from the Commission imposing restrictions on specific Regionally Significant projects not expected to reduce GHG emissions. The Commission may waive the restrictions on specific projects on the following basis:”
- In §8.05.2.3, strike “If no action is taken within this time period, the waiver or reconsideration request shall be deemed to be denied.”

# CONTINUING EFFORTS AND INVOLVEMENT



- **GHG Mitigation Measures procedure and guidelines development (by April 1, 2022)**
- **Agency consultation and agreements on model assumptions and other assessment methods**
- **Establishing practices for assessing plans against the GHG emission reduction targets**
- **Review of the DRCOG Regional Transportation as required under SB21-260 (by October 1, 2022)**
- **FY 2024-2027 TIP development (during 2022 and 2023)**
- **Ongoing coordination, consultation, learning, refinements, etc.**

# NEXT STEPS



- **August 13 – October 15:** written comment period
- **October 7:** Submit DRCOG Board comment letter to CDOT (if approved)
- **September 17 – October 7:** nine Transportation Commission rulemaking hearings (9/23 – Swansea Recreation Center (Denver), 9/27 – South Suburban Sports Complex (Littleton))
- **November 18:** Transportation Commission considers proposed rule for adoption



**THANK YOU!**  
**QUESTIONS?**

Ron Papsdorf | [rpapsdorf@drcog.org](mailto:rpapsdorf@drcog.org)



## DEPARTMENT OF TRANSPORTATION

### Transportation Commission

## RULES GOVERNING STATEWIDE TRANSPORTATION PLANNING PROCESS AND TRANSPORTATION PLANNING REGIONS

### 2 CCR 601-22

[Editor's Notes follow the text of the rules at the end of this CCR Document.]

August 13, 2021, Version

**Please note the following formatting key:**

Font Effect	Meaning
<u>Underline</u>	New Language
<del>Strikethrough</del>	Deletions
[Blue Font Text]	Annotation

Dark Blue Underlined

DRCOG Additions

~~Green Strike-Through~~

~~DRCOG Deletions~~

### STATEMENT OF BASIS AND PURPOSE, ~~AND~~ STATUTORY AUTHORITY AND PREAMBLE

The purpose of the Rules Governing the Statewide Transportation Planning Process and Transportation Planning Regions (Rules) is to prescribe the statewide transportation planning process through which a long-range ~~multimodal~~ Multimodal, comprehensive ~~statewide~~ Statewide transportation Transportation plan Plan will be developed, integrated, updated, and amended by the Colorado Department of Transportation (Department ~~or~~ CDOT), in cooperation with local governments, Metropolitan Planning Organizations (MPOs), Regional Planning Commissions, Indian tribal governments, relevant state and federal agencies, the private sector, transit and freight operators, ~~special interest groups~~, and the general public. This cooperative process is designed to coordinate regional transportation planning, guided by the statewide transportation policy set by the Department and the ~~transportation~~ Transportation ~~commission~~ Commission of Colorado ("Commission"), as a basis for developing the ~~statewide~~ Statewide transportation Transportation plan Plan. The result of the statewide transportation planning process shall be a long-range, financially feasible, environmentally sound, ~~multimodal~~ Multimodal transportation system plan for Colorado that will reduce traffic and smog.

Further, the purpose of the Rules is to define the state's Transportation Planning Regions for which long-range Regional Transportation Plans are developed, prescribe the process for conducting and initiating transportation planning in the non-MPO Transportation Planning Regions and coordinating with the ~~Metropolitan Planning Organizations~~ MPOs for planning in the metropolitan areas. Memoranda of Agreement (MOA) that serve as the Metropolitan Planning Agreements (MPAs) ~~per~~ pursuant to 23 C.F.R. § 450 between the Department, each MPO, and applicable transit provider(s) further prescribe the transportation planning process in the MPO ~~transportation~~ Transportation planning Planning regions Regions. In addition, the purpose of the Rules is to describe the organization and function of the

Statewide Transportation Advisory Committee (STAC) as established by § 43-1-1104, Colorado Revised Statutes (C.R.S.).

The Rules are promulgated to meet the intent of both the U.S. Congress and the Colorado General Assembly for conducting a continuing, cooperative, and comprehensive statewide performance-based ~~multimodal~~ Multimodal transportation planning process for producing a Statewide Transportation Plan and Regional Transportation Plans that address the transportation needs of the ~~state~~ State. This planning process, through comprehensive input, results in systematic project prioritization and resource allocation.

The Rules, governing the statewide planning process, emphasize Colorado's continually greater integration of Multimodal, cost-effective, and environmentally sound means of transportation which leads to cleaner air and reduced traffic. The Rules reflect the Commission's and the Department's focus on Multimodal transportation projects including highways, transit, rail, bicycles and pedestrians. Section 8 of these Rules establishes an ongoing administrative process for identifying, measuring, confirming, and verifying those best practices and their impacts, so that CDOT and MPOs can easily apply them to their plans in order to achieve the pollution reduction levels required by these Rules.

The Rules are promulgated by the Commission pursuant to the specific statutory authority in § 43-1-1103 (5), C.R.S., and § 43-1-106 (8)(k), C.R.S.

### **Preamble for 2018 Rulemaking**

In 2018, rulemaking was initiated to update the rules to conform to recently passed federal legislation, update expired rules, clarify the membership and duties of the ~~Statewide Transportation Advisory Committee~~ STAC pursuant to HB 16-1169 and HB 16-1018, and to make other minor corrections. ~~The Rules are intended to be consistent with and not be a replacement for the federal transportation planning requirements contained in 23 United States Code (U.S.C.) §§ 134, 135 and 150, Pub. L. No. 114-94 (Fixing America's Surface Transportation Act or the "FAST Act") signed into law on December 4, 2015, and its implementing regulations, where applicable, contained in 23 Code of Federal Regulations (C.F.R.) Part 450, including Subparts A, B and C and 25 C.F.R. § 170.421 in effect as of August 1, 2017, which are hereby incorporated into the Rules by this reference, and do not include any later amendments. All referenced laws and regulations shall be available for copying or public inspection during regular business hours from the Office of Policy and Government Relations, Colorado Department of Transportation, 2829 W. Howard Pl., Denver, Colorado 80204.~~

~~Copies of the referenced United States Code may be obtained from the following address:~~

~~Office of the Law Revision Counsel  
U.S. House of Representatives  
H2-308 Ford House Office Building  
Washington, DC 20515  
(202) 226-2411~~

~~Copies of the referenced Code of Federal Regulations may be obtained from the following address:~~

~~U.S. Government Publishing Office  
732 North Capitol Street, N.W.  
Washington, DC 20401  
(202) 512-1800~~

~~The Statewide Planning Rules, governing the statewide planning process, emphasize Colorado's continually greater integration of multimodal, cost-effective and environmentally sound means of transportation. The Rules reflect the Department's focus on multimodal transportation projects including highways, aviation, transit, rail, bicycles and pedestrians.~~



The Rules are promulgated by the Commission pursuant to the specific statutory authority in § 43-1-1103 (5), C.R.S., and § 43-1-106 (8)(k), C.R.S. The Commission may, at their discretion, entertain petitions for declaratory orders pursuant to § 24-4-105(11), C.R.S.

## **Preamble for 2021 Rulemaking**

### **Overview**

Section 8 of these Rules establishes Greenhouse Gas (GHG) pollution reduction planning levels for transportation that will improve air quality, reduce smog, and provide more sustainable options for travelers across Colorado. The purpose of these requirements is to limit the GHG pollution which would result from the transportation system if the plan was implemented, consistent with the state greenhouse gas pollution reduction roadmap. This is accomplished by requiring CDOT and MPOs to establish plans that meet targets through a mix of projects that limit and mitigate air pollution and improve quality of life and Multimodal options. CDOT and MPOs will be required to demonstrate through travel demand modeling and approved air quality modeling that statewide and regional aggregate emissions resulting from its state or regional plans do not exceed a specified emissions level in total. In the event that a plan fails to comply, CDOT and MPOs have the option to commit to implementing GHG Mitigation Measures that provide travelers with cleaner and more equitable transportation options such as safer pedestrian crossings and sidewalks, better transit and transit-access, or infrastructure that supports access to housing, jobs, and retail.

Examples of these types of mitigations, which also benefit quality of place and the economic resilience of communities, will include but not be limited to: adding bus rapid transit facilities and services, enhancing first-and-last mile connections to transit, adding bike-sharing services including electric bikes, improving pedestrian facilities like sidewalks and safe accessible crosswalks, investments that support vibrant downtown density and local zoning decisions that favor sustainable building codes and inclusive multi-use facilities downtown, and more. The process of identifying and approving mitigations will be established by a policy process that allows for ongoing innovations from local governments and other partners to be considered on an iterative basis.

If compliance still cannot be demonstrated, even after committing to GHG Mitigation Measures, the Commission shall restrict the use of certain funds, requiring that dollars be focused on projects that help reduce transportation emissions and are recognized as approved mitigations. These requirements address the Colorado General Assembly's directive to reduce statewide GHG pollution in § 25-7-102(2)(g), C.R.S., as well as the directive for transportation planning to consider environmental stewardship and reducing GHG emissions, § 43-1-1103(5), C.R.S.

### **Context of Section 8 of these Rules Within Statewide Objectives**

The passage of House Bill (HB)19-1261 set Colorado on a course to dramatically reduce GHG emissions across all sectors of the economy. In HB 19-1261, now codified in part at §§ 25-7-102(2) and 105(1)(e), C.R.S., the General Assembly declared that "climate change adversely affects Colorado's economy, air quality and public health, ecosystems, natural resources, and quality of life[.]" acknowledged that "Colorado is already experiencing harmful climate impacts[.]" and that "many of these impacts disproportionately affect" certain Disproportionately Impacted Communities. see § 25-7-102(2), C.R.S. The General Assembly also recognized that "[b]y reducing [GHG] pollution, Colorado will also reduce other harmful air pollutants, which will, in turn, improve public health, reduce health care costs, improve air quality, and help sustain the environment." see § 25-7-102(2)(d), C.R.S.

Since 2019, the State has been rigorously developing a plan to achieve the ambitious GHG pollution reduction goals in § 25-7-102(2)(g), C.R.S. In January 2021, the State published its Greenhouse Gas Pollution Reduction Roadmap (Roadmap). The Roadmap identified the transportation sector as the single largest source of statewide GHG pollution as of 2020, with passenger vehicles the largest contributor within the transportation sector. Additionally, the Roadmap determined that emissions from transportation

are a “significant contributor to local air pollution that disproportionately impacts lower-income communities and communities of color.” see Roadmap, p. XII.

A key finding in the Roadmap recognized that “[m]aking changes to transportation planning and infrastructure to reduce growth in driving is an important tool” to meet the statewide GHG pollution reduction goals. see Roadmap, p. 32. Section 8 of these Rules also advances the State’s goals to reduce emissions of other harmful air pollutants, including ozone.

### **Why the Commission is Taking This Action**

Senate Bill 21-260, signed into law by the Governor on June 17, 2021, and effective upon signature, includes a new § 43-1-128, C.R.S., which directs CDOT and MPOs to engage in an enhanced level of planning, modeling and other analysis to minimize the adverse environmental and health impacts of planned transportation capacity projects. Section 43-1-128, C.R.S. also directs CDOT and the Commission to take steps to account for the impacts of transportation capacity projects on GHG pollution and Vehicle Miles Traveled and to help achieve statewide GHG pollution targets established in § 25-7-102(2)(g), C.R.S.

Under Colorado law governing transportation planning, CDOT is charged with and identified as the proper body for “developing and maintaining the state transportation planning process and the state transportation plan” in cooperation with Regional Planning Commissions and local government officials. see § 43-1-1101, C.R.S.

The Commission is responsible for formulating policy with respect to transportation systems in the State and promulgating and adopting all CDOT financial budgets for construction based on the Statewide Transportation Improvement Programs. see § 43-1-106(8), C.R.S. The Commission is statutorily charged “to assure that the preservation and enhancement of Colorado’s environment, safety, mobility and economics be considered in the planning, selection, construction and operation of all transportation projects in Colorado.” see § 43-1-106(8)(b), C.R.S. In addition, the Commission is generally authorized “to make all necessary and reasonable orders, rules and regulations in order to carry out the provisions of this part . . .” see § 43-1-106(8)(k), C.R.S.

As such, CDOT and the Commission are primarily responsible for ensuring compliance with GHG reductions in transportation planning.

### **What Relevant Regulations Currently Apply to Transportation Planning**

Transportation planning is subject to both state and federal requirements. Under federal law governing transportation planning and federal-aid highways, it is declared to be in the national interest to promote transportation systems that accomplish a number of mobility objectives “while minimizing transportation-related fuel consumption and air pollution through metropolitan and statewide transportation planning processes...” see 23 U.S.C. § 134; see also 23 U.S.C. § 135(a)(1). In the metropolitan planning process, consideration must be given to projects and strategies that will “protect and enhance the environment, promote energy conservation, improve the quality of life...” see 23 U.S.C. § 134(h)(1)(E); see also 23 C.F.R. Part 450, Subpart B (federal regulations governing statewide transportation planning and programming). The same planning objective applies to statewide transportation planning. see 23 U.S.C. § 135(d)(1)(E); see also 23 C.F.R. Part 450, Subpart C (governing metropolitan transportation planning and programming). Further, the Statewide Transportation Plan shall be developed, as appropriate, in consultation with State...local agencies responsible for...environmental protection...” see 23 U.S.C. § 135(f)(2)(D)(i).

Under conforming Colorado law, the Statewide Transportation Plan is developed by integrating and consolidating Regional Transportation Plans developed by MPOs and regional transportation planning organizations into a “comprehensive statewide transportation plan” pursuant to rules and regulations promulgated by the Commission. see § 43-1-1103(5), C.R.S. The Statewide Transportation Plan must

address a number of factors including, but not limited to, “environmental stewardship” and “reduction of greenhouse gas emissions.” see § 43-1-1103(5)(h) and (j), C.R.S.

Regional Transportation Plans must account for the “expected environmental, social, and economic impacts of the recommendations in the plan, including a full range of reasonable transportation alternatives...in order to provide for the transportation and environmental needs of the area in a safe and efficient manner.” see § 43-1-1103(1)(d), C.R.S. Further, in developing Regional Transportation Plans, MPOs “[s]hall assist other agencies in developing transportation control measures for utilization in accordance with state...regulations...and shall identify and evaluate measures that show promise of supporting clean air objectives.” see § 43-1-1103(1)(e), C.R.S.

### **Putting Section 8 of these Rules into Perspective**

Section 8 establishes GHG regulatory requirements that are among the first of their kind in the U.S. However, from an air pollutant standpoint, connecting transportation planning to emissions is not a new policy area. In fact, transportation conformity provisions within the Clean Air Act approach ozone much the same way. Transportation conformity ensures that federally funded or approved highway and transit activities within a Nonattainment Area are consistent with or “conform to” a state’s plan to reduce emissions. Colorado’s front range has been in ozone nonattainment for many years, which has required the North Front Range and the Denver Regional Council of Governments’ MPOs to demonstrate conformity with each plan adoption and amendment.

However, because the transportation sector encompasses the millions of individual choices people make every day that have an impact on climate, a variety of strategies are necessary to achieve the State’s climate goals. Section 8 of these Rules is one of many steps needed to achieve the totality of reduction goals for the transportation sector.

### **Purpose of GHG Mitigation Measures**

The transportation modeling conducted for this rulemaking may demonstrate that certain projects increase GHG pollution for a variety of reasons. These reasons may include factors such as induced demand as a result of additional lane mileage attracting additional vehicular traffic, or additional traffic facilitated by access to new commercial or residential development in the absence of public transit options or bicycle/pedestrian access that provides consumers with other non-driving options. Transportation infrastructure itself can also increase or decrease GHG and other air pollutants by virtue of factors like certain construction materials, removal or addition of tree cover that captures carbon pollution, or integration with vertical construction templates of various efficiencies that result in higher or lower levels of per capita energy use. The pollution impacts of various infrastructure projects will vary significantly depending on their specifics and must be modeled in a manner that is context-sensitive to a range of issues such as location, footprint of existing infrastructure, design, and how it fits together with transportation alternatives.

Furthermore, other aspects of transportation infrastructure can facilitate reductions in emissions and thus serve as mitigations rather than contributors to pollution. For example, the addition of transit resources in a manner that can displace Vehicle Miles Traveled can reduce emissions. Moreover, improving downtown pedestrian and bike access, particularly in areas that allow individuals to shift multiple daily trips for everything from work to dining to retail, can improve both emissions and quality of life.

There is an increasing array of proven best practices for reducing pollution and smog and improving economies and neighborhoods that can help streamline decision-making for state and local agencies developing plans and programs of projects.

**[ Note: The Commission proposes to repeal Section 1 of these Rules in its entirety and re-enact Section 1 of these Rules below to re-format the numbering of the administrative rules into alphabetical order.]**

**1.00 — Definitions.**

- 1.01 — Accessible — ensure that reasonable efforts are made that all meetings are reachable by persons from households without vehicles and that the meetings will be accessible to persons with disabilities in accordance with the Americans with Disabilities Act (ADA), and also accessible to persons with limited English proficiency. Accessible opportunities to on planning related matters include those provided on the internet and through such methods as telephone town halls.  
comment
- 1.02 — Attainment Area — any geographic region of the United States that meets the national primary or secondary National Ambient Air Quality Standards (NAAQS) for the pollutants as defined in the Clean Air Act (CAA) (Amendments of 1990).
- 1.03 — Commission — the transportation commission of Colorado created by § 43-1-106, C.R.S.
- 1.04 — Corridor — a transportation system that includes all modes and facilities within a described geographic area.
- 1.05 — Corridor Vision — a comprehensive examination of a specific transportation corridor, which includes a determination of needs and an expression of desired state of the transportation system that includes transportation modes and facilities over a planning period.
- 1.06 — Department — the Colorado Department of Transportation created by § 43-1-103, C.R.S.
- 1.07 — Division — the Division of Transportation Development within the Colorado Department of Transportation.
- 1.08 — Division Director — the Director of the Division of Transportation Development.
- 1.09 — Fiscally Constrained — the financial limitation on transportation plans and programs based on the projection of revenues as developed cooperatively with the MPOs and the rural TPRs and adopted by the Commission that are reasonably expected to be available over the long-range transportation planning period and the Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP) programming periods.
- 1.10 — Intergovernmental Agreement — an arrangement made between two or more political subdivisions that form associations for the purpose of promoting the interest and welfare of said subdivisions.
- 1.11 — Intermodal Facility — A site where goods or people are conveyed from one mode of transportation to another, such as goods from rail to truck or people from passenger vehicle to bus.
- 1.12 — Land Use — the type, size, arrangement, and use of parcels of land.
- 1.13 — Limited English Proficiency (LEP) — individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English.
- 1.14 — Long-range Planning — a reference to a planning period with a minimum 20-year planning horizon.
- 1.15 — Maintenance Area — any geographic region of the United States previously designated by the U.S. Environmental Protection Agency (EPA) as a nonattainment area pursuant to the Clean Air Act (CAA) Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended in 1990.
- 1.16 — Memorandum of Agreement (MOA) — a written agreement between two or more parties on an intended plan of action.

- ~~1.17 — Metropolitan Planning Agreement (MPA)—a written agreement between the MPO, the State, and the providers of public transportation serving the metropolitan planning area that describes how they will work cooperatively to meet their mutual responsibilities in carrying out the metropolitan planning process.~~
- ~~1.18 — Metropolitan Planning Area—a geographic area determined by agreement between the Metropolitan Planning Organization for the area and the Governor, in which the metropolitan transportation planning process is carried out pursuant to 23 U.S.C. § 134.~~
- ~~1.19 — Metropolitan Planning Organization (MPO)—an organization designated by agreement among the units of general purpose local governments and the Governor, charged to develop the regional transportation plans and programs in a metropolitan planning area pursuant to 23 U.S.C. § 134.~~
- ~~1.20 — Mobility—the ability to move people, goods, services, and information among various origins and destinations.~~
- ~~1.21 — Multimodal—an integrated approach to transportation that takes into account all modes of travel, such as bicycles and walking, personal mobility devices, buses, transit, rail, aircraft, and motor vehicles.~~
- ~~1.22 — National Ambient Air Quality Standards (NAAQS)—are those established by the U.S. Environmental Protection Agency for air pollutants considered harmful to public health and environment. These criteria pollutants are: carbon monoxide, lead, nitrogen dioxide, ozone, small particles, and sulfur dioxide.~~
- ~~1.23 — Nonattainment Area—any geographic region of the United States which has been designated by the EPA under section 107 of the CAA for any pollutants for which an NAAQS exists.~~
- ~~1.24 — Non-metropolitan Area—a rural geographic area outside a designated metropolitan planning area.~~
- ~~1.25 — Plan Integration—Plan integration is a comprehensive evaluation of the statewide transportation system that includes all modes, an identification of needs and priorities, and key information from other related CDOT plans.~~
- ~~1.26 — Planning Partners—local and tribal governments, the rural Transportation Planning Regions and MPOs.~~
- ~~1.27 — Project Priority Programming Process (“4P”)—the process by which CDOT adheres to 23 U.S.C. § 135 and 23 C.F.R. Part 450 when developing and amending the statewide transportation improvement program (STIP).~~
- ~~1.28 — Regional Planning Commission (RPC)—a planning body formed under the provisions of § 30-28-105, C.R.S., and designated under these Rules for the purpose of transportation planning within a rural Transportation Planning Region.~~
- ~~1.29 — Regional Transportation Plan (RTP)—a long-range plan designed to address the future transportation needs for a Transportation Planning Region including, but not limited to, anticipated funding, priorities, and implementation plans, pursuant to, but not limited to, § 43-1-1103, C.R.S. and 23 C.F.R. Part 450. All rural and urban Transportation Planning Regions in the state produce RTPs.~~
- ~~1.30 — State Transportation System—refers to all state-owned, operated, and maintained transportation facilities in Colorado, including, but not limited to, interstate highways, other highways, and aviation, bicycle and pedestrian, transit, and rail facilities.~~

- ~~1.31 — Statewide Transportation Advisory Committee (STAC) — the committee created by § 43-1-1104, C.R.S., comprising one representative from each Transportation Planning Region and one representative from each tribal government to review and comment on Regional Transportation Plans, amendments, and updates, and to advise both the Department and the Commission on the needs of the transportation system in Colorado.~~
- ~~1.32 — Statewide Transportation Improvement Program (STIP) — a staged, fiscally constrained, multi-year, statewide, multimodal program of transportation projects which is consistent with the statewide transportation plan and planning processes, with metropolitan planning area plans, Transportation Improvement Programs and processes, and which is developed pursuant to 23 U.S.C. § 135.~~
- ~~1.33 — Statewide Transportation Plan — the long-range, comprehensive, multimodal statewide transportation plan covering a period of no less than 20 years from time of adoption, developed through the statewide transportation planning process described in these Rules and 23 U.S.C. § 135, and adopted by the Commission pursuant to § 43-1-1103, C.R.S.~~
- ~~1.34 — System Continuity — includes, but is not limited to, appropriate intermodal connections, integration with state modal plans, and coordination with neighboring Regional Transportation Plans, and, to the extent practicable, other neighboring states' transportation plans.~~
- ~~1.35 — Traditionally Underserved — refers to groups such as seniors, persons with disabilities, low-income households, minorities, and student populations, which may face difficulties accessing transportation systems, employment, services, and other amenities.~~
- ~~1.36 — Transit and Rail Advisory Committee (TRAC) — an advisory committee created specifically to advise the Executive Director, the Commission, and the Division of Transit and Rail on transit and rail-related activities.~~
- ~~1.37 — Transportation Commonality — the basis on which Transportation Planning Regions are established including, but not limited to: Transportation Commission Districts, the Department's Engineering Regions, travelsheds, watersheds, geographic unity, existing intergovernmental agreements, and socioeconomic unity.~~
- ~~1.38 — Transportation Improvement Program (TIP) — a staged, fiscally constrained, multi-year, multimodal program of transportation projects developed and adopted by MPOs, and approved by the Governor, which is consistent with an MPO's RTP and which is developed pursuant to 23 U.S.C. § 134.~~
- ~~1.39 — Transportation Mode — a particular form of travel including, but not limited to, bus, motor vehicle, rail, transit, aircraft, bicycle, pedestrian travel, or personal mobility devices.~~
- ~~1.40 — Transportation Planning and Programming Process — all collaborative planning-related activities including the development of regional and statewide transportation plans, the Department's Project Priority Programming Process, and development of the Transportation Improvement Programs (TIPs) and Statewide Transportation Improvement Program (STIP).~~
- ~~1.41 — Transportation Planning Region (TPR) — a geographically designated area of the state, defined by section 2.00 of these Rules in consideration of the criteria for transportation commonality, and for which a regional transportation plan is developed pursuant to the provisions of § 43-1-1102 and 1103, C.R.S. and 23 U.S.C. § 134. The term TPR is inclusive of these types: non-MPO Transportation Planning Regions, MPO Transportation Planning Regions, and Transportation Planning Regions with both MPO and non-MPO areas.~~



- ~~1.42 Transportation Systems Planning provides the basis for identifying current and future deficiencies on the state highway system and outlines strategies to address those deficiencies and make improvements to meet Department goals.~~
- ~~1.43 Travelshed the region or area generally served by a major transportation facility, system, or corridor.~~
- ~~1.44 Tribal Transportation Improvement Program (TTIP) a multi-year fiscally constrained list of proposed transportation projects developed by a tribe from the tribal priority list or tribal long-range transportation plan, and which is developed pursuant to 25 C.F.R. Part 170. The TTIP is incorporated into the STIP without modification.~~
- ~~1.45 Urbanized Area an area with a population of 50,000 or more designated by the Bureau of the Census.~~
- ~~1.46 Watershed a land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.~~

[ Note: The Commission proposes to add nineteen (19) new definitions. New proposed defined terms include: Applicable Planning Document, Approved Air Quality Model, Baseline, Carbon Dioxide Equivalent, Congestion Mitigation and Air Quality, Disproportionately Impacted Communities, Four-Year Prioritized Plan, Greenhouse Gas, Greenhouse Mitigation Measures, Greenhouse Gas Reduction Levels, Mitigation Action Plan, MPO Model, Multimodal Transportation and Mitigation Options Fund, Regionally Significant Project, State Interagency Consultation Team, Statewide Travel Model, Surface Transportation Block Grant, Vehicle Miles Traveled, and 10-Year Plan. Only minor non-substantive changes, such as correcting grammar errors or capitalizing defined terms, were made to the existing forty-six (46) defined terms.]

## **1.00 Definitions.**

- 1.01 Accessible - ensure that reasonable efforts are made that all meetings are reachable by persons from households without vehicles and that the meetings will be accessible to persons with disabilities in accordance with the Americans with Disabilities Act (ADA), and also accessible to persons with Limited English Proficiency. Accessible opportunities to comment on planning related matters include those provided on the internet and through such methods as telephone town halls.
- 1.02 Applicable Planning Document - refers to MPO Fiscally Constrained RTPs, TIPs for MPOs in NAAs, CDOT's 10-Year Plan and Four-Year Prioritized Plan in non-MPO areas, and amendments to the MPO RTPs and CDOT's 10-Year Plan and Four-Year Prioritized Plan in non-MPO areas that include the addition of Regionally Significant Projects.
- 1.03 Approved Air Quality Model - the most recent Environmental Protection Agency issued model that quantifies GHG emissions from transportation.
- 1.04 Attainment Area - any geographic region of the United States that meets the national primary or secondary National Ambient Air Quality Standards (NAAQS) for the pollutants as defined in the Clean Air Act (CAA) (Amendments of 1990).
- 1.05 Baseline - estimates of GHG emissions for each of the MPOs, and for the non-MPO areas, prepared using the MPO Models or the Statewide Travel Model. Estimates must include GHG emissions resulting from the existing transportation network and implementation of the most recently adopted RTP for all MPOs and the 10-Year Plan in non-MPO areas as of the effective date of these Rules.

- 1.06 Carbon Dioxide Equivalent (CO<sub>2</sub>e) - a metric measure used to compare the emissions from various GHG based upon the 100-year global warming potential (GWP). CO<sub>2</sub>e is multiplying the mass amount of emissions (metric tons per year), for each GHG constituent by that gas's GWP, and summing the resultant values to determine CO<sub>2</sub>e (metric tons per year). This calculation allows comparison of different greenhouse gases and their relative impact on the environment over different time periods.
- 1.07 Commission - the Transportation Commission of Colorado created by § 43-1-106, C.R.S.
- 1.08 Congestion Mitigation and Air Quality (CMAQ) - a federally mandated program established in 23 U.S.C § 149 to improve air quality in Nonattainment and Maintenance Areas for ozone, carbon monoxide, and particulate matter. References related to this program include any successor programs as established by the federal government.
- 1.09 Corridor - a transportation system that includes all modes and facilities within a described geographic area.
- 1.10 Corridor Vision - a comprehensive examination of a specific transportation Corridor, which includes a determination of needs and an expression of desired state of the transportation system that includes Transportation Modes and facilities over a planning period.
- 1.11 Department or CDOT - the Colorado Department of Transportation created by § 43-1-103, C.R.S.
- 1.12 Disproportionately Impacted Communities - defined in § 24-38.5-302(3), C.R.S. as a community that is in a census block group, as determined in accordance with the most recent United States Decennial Census where the proportion of households that are low income is greater than forty percent (40%), the proportion of households that identify as minority is greater than forty percent (40%), or the proportion of households that are housing cost-burdened is greater than forty percent (40%).
- 1.13 Division - the Division of Transportation Development within CDOT.
- 1.14 Division Director - the Director of the Division of Transportation Development.
- 1.15 Fiscally Constrained - the financial limitation on transportation plans and programs based on the projection of revenues as developed cooperatively with the MPOs and the rural TPRs and adopted by the Commission that are reasonably expected to be available over the long-range transportation planning period and the TIP and STIP programming periods.
- 1.16 Four-Year Prioritized Plan - a four-year subset of the 10-Year Plan consisting of projects prioritized for near-term delivery and partial or full funding.
- 1.17 Greenhouse Gas (GHG) - for purposes of these Rules, GHG is defined as the primary transportation greenhouse gases: carbon dioxide, methane, and nitrous oxide.
- 1.18 Greenhouse Gas (GHG) Reduction Level - the amount of the GHG expressed as CO<sub>2</sub>e reduced from the projected Baseline that CDOT and MPOs must attain through transportation planning.
- 1.19 Greenhouse Gas (GHG) Mitigation Measures - non-Regionally Significant Project strategies implemented by CDOT and MPOs that reduce transportation GHG pollution and help meet the GHG Reduction Levels.
- 1.20 Intergovernmental Agreement - an arrangement made between two or more political subdivisions that form associations for the purpose of promoting the interest and welfare of said subdivisions.



- 1.21 Intermodal Facility - a site where goods or people are conveyed from one mode of transportation to another, such as goods from rail to truck or people from passenger vehicle to bus.
- 1.22 Land Use - the type, size, arrangement, and use of parcels of land.
- 1.23 Limited English Proficiency - individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English.
- 1.24 Long-Range Planning - a reference to a planning period with a minimum 20-year planning horizon.
- 1.25 Maintenance Area - any geographic region of the United States previously designated by the U.S. Environmental Protection Agency (EPA) as a Nonattainment Area pursuant to the Clean Air Act (CAA) Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under § 175A of the CAA, as amended in 1990.
- 1.26 Memorandum of Agreement (MOA) - a written agreement between two or more parties on an intended plan of action.
- 1.27 Metropolitan Planning Agreement (MPA) - a written agreement between the MPO, the State, and the providers of public transportation serving the Metropolitan Planning Area that describes how they will work cooperatively to meet their mutual responsibilities in carrying out the metropolitan planning process.
- 1.28 Metropolitan Planning Area - a geographic area determined by agreement between the MPO for the area and the Governor, in which the metropolitan transportation planning process is carried out pursuant to 23 U.S.C. § 134.
- 1.29 Metropolitan Planning Organization (MPO) - an organization designated by agreement among the units of general purpose local governments and the Governor, charged to develop the RTPs and programs in a Metropolitan Planning Area pursuant to 23 U.S.C. § 134.
- 1.30 Mitigation Action Plan - an element of the GHG Transportation Report that specifies which GHG Mitigation Measures shall be implemented that help achieve the GHG Reduction Levels.
- 1.31 Mobility - the ability to move people, goods, services, and information among various origins and destinations.
- 1.32 MPO Models - one (1) or more of the computer-based models maintained and operated by the MPOs which depict the MPO areas' transportation systems (e.g., roads, transit, etc.) and development patterns (i.e., number and location of households and jobs) for a defined year (i.e., past, present, or forecast) and produce estimates of roadway VMT, delays, operating speeds, transit ridership, and other characteristics of transportation system use.
- 1.33 Multimodal - an integrated approach to transportation that takes into account all modes of travel, such as bicycles and walking, personal mobility devices, buses, transit, rail, aircraft, and motor vehicles.
- 1.34 Multimodal Transportation and Mitigation Options Fund (MMOF) - a program created in the State Treasury pursuant to § 43-4-1003, C.R.S. which funds bicycle, pedestrian, transit and other Multimodal projects as defined in § 43-4-1002(5), C.R.S. and GHG Mitigation projects as defined in § 43-4-1002(4.5), C.R.S.
- 1.35 National Ambient Air Quality Standards (NAAQS) - are those established by the U.S. Environmental Protection Agency for air pollutants considered harmful to public health and

- environment. These criteria pollutants are: carbon monoxide, lead, nitrogen dioxide, ozone, small particles, and sulfur dioxide.
- 1.36 Nonattainment Area - any geographic region of the United States which has been designated by the EPA under section 107 of the CAA for any pollutants for which a NAAQS exists.
- 1.37 Non-Metropolitan Area - a rural geographic area outside a designated Metropolitan Planning Area.
- 1.38 Plan Integration - a comprehensive evaluation of the statewide transportation system that includes all modes, an identification of needs and priorities, and key information from other related CDOT plans.
- 1.39 Planning Partners - local and tribal governments, the rural TPRs and MPOs.
- 1.40 Project Priority Programming Process - the process by which CDOT adheres to 23 U.S.C. § 135 and 23 C.F.R. Part 450 when developing and amending the STIP.
- 1.41 Regional Planning Commission (RPC) - a planning body formed under the provisions of § 30-28-105, C.R.S., and designated under these Rules for the purpose of transportation planning within a rural TPR.
- 1.42 Regionally Significant Project - a transportation project that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network or state transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel. If the MPOs have received approval from the EPA to use a different definition of regionally significant project as defined in 40 C.F.R. § 93.101, the State Interagency Consultation Team will accept the modified definition. Necessary specificity for MPO Models or the Statewide Travel Model will be approved by the State Interagency Consultation Team.
- 1.43 Regional Transportation Plan (RTP) - a long-range plan designed to address the future transportation needs for a TPR including, but not limited to, Fiscally Constrained or anticipated funding, priorities, and implementation plans, pursuant to, but not limited to, § 43-1-1103, C.R.S. and 23 C.F.R. Part 450. All rural and urban TPRs in the state produce RTPs.
- 1.44 State Interagency Consultation Team - consists of the Division Director or the Division Director's designee, the Colorado Department of Public Health and Environment (CDPHE) Director of Air Pollution Control Division or the Director's designee, and the Director of each MPO or their designee.
- 1.45 State Transportation System - refers to all state-owned, operated, and maintained transportation facilities in Colorado, including, but not limited to, interstate highways, other highways, and aviation, bicycle and pedestrian, transit, and rail facilities.
- 1.46 Statewide Transportation Advisory Committee (STAC) - the committee created by § 43-1-1104, C.R.S., comprising one representative from each TPR and one representative from each tribal government to review and comment on RTPs, amendments, and updates, and to advise both the Department and the Commission on the needs of the transportation system in Colorado.
- 1.47 Statewide Transportation Improvement Program (STIP) - a Fiscally Constrained, multi-year, statewide, Multimodal program of transportation projects which is consistent with the Statewide

- Transportation Plan and planning processes, with Metropolitan Planning Area plans, Transportation Improvement Programs and processes, and which is developed pursuant to 23 U.S.C. § 135.
- 1.48 Statewide Travel Model - the computer-based model maintained and operated by CDOT which depicts the state's transportation system (roads, transit, etc.) and development scale and pattern (number and location of households, number and location of firms/jobs) for a selected year (past, present, or forecast) and produces estimates of roadway VMT and speed, transit, ridership, and other characteristics of transportation system use.
- 1.49 Statewide Transportation Plan - the long-range, comprehensive, Multimodal statewide transportation plan covering a period of no less than 20 years from time of adoption, developed through the statewide transportation planning process described in these Rules and 23 U.S.C. § 135, and adopted by the Commission pursuant to § 43-1-1103, C.R.S.
- 1.50 Surface Transportation Block Grant (STBG) - a flexible federal funding source established under 23 U.S.C. § 133 for state and local transportation needs. Funds are expended in the areas of the State based on population. References related to this program include any successor programs established by the federal government.
- 1.51 System Continuity - includes, but is not limited to, appropriate intermodal connections, integration with state modal plans, and coordination with neighboring RTPs, and, to the extent practicable, other neighboring states' transportation plans.
- 1.52 Traditionally Underserved - refers to groups such as seniors, persons with disabilities, low-income households, minorities, and student populations, which may face difficulties accessing transportation systems, employment, services, and other amenities.
- 1.53 Transit and Rail Advisory Committee (TRAC) - an advisory committee created specifically to advise the Executive Director, the Commission, and the Division of Transit and Rail on transit and rail-related activities.
- 1.54 Transportation Commonality - the basis on which TPRs are established including, but not limited to: Transportation Commission Districts, the Department's Engineering Regions, Travelsheds, Watersheds, geographic unity, existing Intergovernmental Agreements, and socioeconomic unity.
- 1.55 Transportation Improvement Program (TIP) - a staged, Fiscally Constrained, multi-year, Multimodal program of transportation projects developed and adopted by MPOs, and approved by the Governor, which is consistent with an MPO's RTP and which is developed pursuant to 23 U.S.C. § 134.
- 1.56 Transportation Mode - a particular form of travel including, but not limited to, bus, motor vehicle, rail, transit, aircraft, bicycle, pedestrian travel, or personal mobility devices.
- 1.57 Transportation Planning and Programming Process - all collaborative planning-related activities including the development of regional and Statewide Transportation Plans, the Department's Project Priority Programming Process, and development of the TIPs and STIP.
- 1.58 Transportation Planning Region (TPR) - a geographically designated area of the state, defined by section 2.00 of these Rules in consideration of the criteria for Transportation Commonality, and for which a regional transportation plan is developed pursuant to the provisions of § 43-1-1102 and 1103, C.R.S. and 23 U.S.C. § 134. The term TPR is inclusive of these types: non-MPO TPRs, MPO TPRs, and TPRs with both MPO and non-MPO areas.

- 1.59 Transportation Systems Planning - provides the basis for identifying current and future deficiencies on the state highway system and outlines strategies to address those deficiencies and make improvements to meet Department goals.
- 1.60 Travelshed - the region or area generally served by a major transportation facility, system, or Corridor.
- 1.61 Tribal Transportation Improvement Program (TTIP) - a multi-year Fiscally Constrained list of proposed transportation projects developed by a tribe from the tribal priority list or tribal long-range transportation plan, and which is developed pursuant to 25 C.F.R. Part 170. The TTIP is incorporated into the STIP without modification.
- 1.62 Urbanized Area - an area with a population of 50,000 or more designated by the Bureau of the Census.
- 1.63 Vehicle Miles Traveled (VMT) - the traffic volume of a roadway segment or system of roadway segments multiplied by the length of the roadway segment or system.
- 1.64 Watershed - a land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.
- 1.65 10-Year Plan - a vision for Colorado's transportation system that includes a specific list of projects categorized across priority areas as identified in the Statewide Transportation Plan.

## **2.00 Transportation Planning Regions (TPR).**

- 2.01 Transportation Planning Region Boundaries. ~~Transportation Planning Region~~TPRs are geographically designated areas of the state with similar transportation needs that are determined by considering transportation commonalities. Boundaries are hereby established as follows:
- 2.01.1 The Pikes Peak Area ~~Transportation Planning Region~~TPR comprises the Pikes Peak Area Council of Governments' metropolitan area within El Paso and Teller counties.
- 2.01.2 The Greater Denver ~~Transportation Planning Region~~TPR, which includes the Denver Regional Council of Governments' planning area, comprises the counties of Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Gilpin, Jefferson, and parts of Weld.
- 2.01.3 The North Front Range ~~Transportation Planning Region~~TPR comprises the North Front Range Transportation and Air Quality Planning Council's metropolitan area within Larimer and Weld counties.
- 2.01.4 The Pueblo Area ~~Transportation Planning Region~~TPR comprises Pueblo County, including the Pueblo Area Council of Governments' metropolitan area.
- 2.01.5 The Grand Valley ~~Transportation Planning Region~~TPR comprises Mesa County, including the Grand Valley Metropolitan Planning Organization's metropolitan area.
- 2.01.6 The Eastern ~~Transportation Planning Region~~TPR comprises Cheyenne, Elbert, Kit Carson, Lincoln, Logan, Phillips, Sedgwick, Washington, and Yuma counties.
- 2.01.7 The Southeast ~~Transportation Planning Region~~TPR comprises Baca, Bent, Crowley, Kiowa, Otero, and Prowers counties.

- 2.01.8 The San Luis Valley ~~Transportation Planning Region~~TPR comprises Alamosa, Chaffee, Conejos, Costilla, Mineral, Rio Grande, and Saguache counties.
  - 2.01.9 The Gunnison Valley ~~Transportation Planning Region~~TPR comprises Delta, Gunnison, Hinsdale, Montrose, Ouray, and San Miguel counties.
  - 2.01.10 The Southwest ~~Transportation Planning Region~~TPR comprises Archuleta, Dolores, La Plata, Montezuma, and San Juan counties, including the Ute Mountain Ute and Southern Ute Indian Reservations.
  - 2.01.11 The Intermountain ~~Transportation Planning Region~~TPR comprises Eagle, Garfield, Lake, Pitkin, and Summit counties.
  - 2.01.12 The Northwest ~~Transportation Planning Region~~TPR comprises Grand, Jackson, Moffat, Rio Blanco, and Routt counties.
  - 2.01.13 The Upper Front Range ~~Transportation Planning Region~~TPR comprises Morgan County, and the parts of Larimer and Weld counties, that are outside both the North Front Range and the Greater Denver (metropolitan) TPRs.
  - 2.01.14 The Central Front Range ~~Transportation Planning Region~~TPR comprises Custer, El Paso, Fremont, Park, and Teller counties, excluding the Pikes Peak Area Council of Governments' metropolitan area.
  - 2.01.15 The South Central ~~Transportation Planning Region~~TPR comprises Huerfano, and Las Animas Counties.
- 2.02 Boundary Revision Process.
- 2.02.1 TPR boundaries, excluding any MPO-related boundaries, will be reviewed by the Commission at the beginning of each regional and statewide transportation planning process. The Department will notify counties, municipalities, MPOs, Indian tribal governments, and RPCs for the TPRs of the boundary review revision requests. MPO boundary review shall be conducted pursuant to 23 U.S.C. § 134 and 23 C.F.R. Part 450 Subpart B and any changes shall be provided to the Department to update the Rules. All boundary revision requests shall be sent to the Division Director, and shall include:
    - 2.02.1.1 A geographical description of the proposed boundary change.
    - 2.02.1.2 A statement of justification for the change considering transportation commonalities.
    - 2.02.1.3 A copy of the resolution stating the concurrence of the affected ~~Regional Planning Commission~~RPC.
    - 2.02.1.4 The name, title, mailing address, telephone number, fax number and electronic mail address (if available) of the contact person for the requesting party or parties.
  - 2.02.2 The Department will assess and STAC shall review and comment (as set forth in these Rules) on all ~~non~~Non-metropolitan Metropolitan area Area TPR boundary revision requests based on transportation commonalities and make a recommendation to the Commission concerning such requests. The Department will notify the Commission of MPO boundary changes. The Commission may initiate a rule-making proceeding under the ~~State~~ Colorado Administrative Procedure Act, § 24-4-103, C.R.S. to consider a

boundary revision request. Requests received for a MPO or non-metropolitan TPR boundary revision outside of the regularly scheduled boundary review cycle must include the requirements identified above.

- 2.02.3 In the event that the Commission approves a change to the boundary of a TPR that has a ~~Regional Planning Commission~~RPC, the RPC in each affected TPR shall notify the Department of any changes to the ~~intergovernmental~~ Intergovernmental agreement Agreement governing the RPC as specified in these Rules.

2.03 Transportation Planning Coordination with MPOs.

- 2.03.1 The Department and the MPOs shall coordinate activities related to the development of ~~Regional Transportation Plan~~RTPs, the Statewide Transportation Plan, TIPs, and the STIP in conformance with 23 U.S.C. § 134 and 135 and § 43-1-1101 and § 43-1-1103, C.R.S. The Department shall work with the MPOs to resolve issues arising during the planning process.

2.04 Transportation Planning Coordination with Non-MPO RPCs.

- 2.04.1 The Department and RPCs shall work together in developing ~~Regional Transportation Plan~~RTPs and in planning future transportation activities. The Department shall consult with all RPCs on development of the Statewide Transportation Plan; incorporation of RTPs into the Statewide Transportation Plan; and the inclusion of projects into the STIP that are consistent with the RTPs. In addition, the Department shall work with the RPCs to resolve issues arising during the planning process.

2.05 Transportation Planning Coordination among RPCs.

- 2.05.1 If transportation improvements cross TPR boundaries or significantly impact another TPR, the RPC shall consult with all the affected RPCs involved when developing the ~~regional transportation plan~~RTP. In general, RPC planning officials shall work with all ~~planning~~ Planning partners Partners affected by transportation activities when planning future transportation activities.

2.06 Transportation Planning Coordination with the Southern Ute and the Ute Mountain Ute Tribal Governments.

- 2.06.1 Regional transportation planning within the Southwest TPR shall be coordinated with the transportation planning activities of the Southern Ute and the Ute Mountain Ute tribal governments. The long-range transportation plans for the tribal areas shall be integrated in the Statewide Transportation Plan and the ~~Regional Transportation Plan~~RTP for this TPR. The TTIP is incorporated into the STIP without modification.

**3.00 Statewide Transportation Advisory Committee (STAC).**

- 3.01 Duties of the ~~Statewide Transportation Advisory Committee~~ (STAC). Pursuant to § 43-1-1104 C.R.S. the duties of the STAC shall be to meet as necessary and provide advice to both the Department and the Commission on the needs of the transportation system in Colorado including, but not limited to: budgets, ~~transportation improvement programs~~TIPs of the ~~metropolitan planning organizations~~MPOs, the ~~Statewide Transportation Improvement Program~~STIP, transportation plans, and state transportation policies.

The STAC shall review and provide to both the Department and the Commission comments on:



- 3.01.1 All ~~Regional Transportation Plan~~RTPs, amendments, and updates as described in these Rules.
- 3.01.2 Transportation related communication and/or conflicts which arise between RPCs or between the Department and a RPC.
- 3.01.3 The integration and consolidation of RTPs into the Statewide Transportation Plan.
- 3.01.4 Colorado's ~~mobility~~ Mobility requirements to move people, goods, services, and information by furnishing regional perspectives on transportation problems requiring interregional and/or statewide solutions.
- 3.01.5 Improvements to modal choice, linkages between and among modes, and transportation system balance and ~~system~~ System continuityContinuity.
- 3.01.6 Proposed TPR boundary revisions.
- 3.02 Notification of Membership
  - 3.02.1 Each RPC and tribal government shall select its representative to the STAC pursuant to § 43-1-1104(1), C.R.S. The Ute Mountain Ute Tribal Council and the Southern Ute Indian Tribal Council each appoint one representative to the STAC. Each TPR and tribal government is also entitled to name an alternative representative who would serve as a proxy in the event their designated representative is unable to attend a STAC meeting and would be included by the Department in distributions of all STAC correspondence and notifications. The Division Director shall be notified in writing of the name, title, mailing address, telephone number, fax number and electronic mail address (if available) of the STAC representative and alternative representative from each TPR and tribal government within thirty (30) days of selection.
- 3.03 Administration of ~~Statewide Transportation Advisory Committee~~STAC
  - 3.03.1 STAC recommendations on Regional and Statewide Transportation Plans, amendments, and updates shall be documented in the STAC meeting minutes, and will be considered by the Department and Commission throughout the statewide transportation planning process.
  - 3.03.2 The STAC shall establish procedures to govern its affairs in the performance of its advisory capacity, including, but not limited to, the appointment of a chairperson and the length of the chairperson's term, meeting times, and locations.
  - 3.03.3 The Division Director will provide support to the STAC, including, but not limited to:
    - 3.03.3.1 Notification of STAC members and alternates of meeting dates.
    - 3.03.3.2 Preparation and distribution of STAC meeting agendas, supporting materials, and minutes.
    - 3.03.3.3 Allocation of Department staff support for STAC-related activities.
- 4.00 **Development of Regional and Statewide Transportation Plans.**
  - 4.01 ~~Regional Planning Commission~~RPCs, MPOs, and the Department shall comply with all applicable provisions of 23 U.S.C. § 134 and § 135, 23 C.F.R. Part 450, and § 43-1-1103, C.R.S. and all

applicable provisions of Commission policies and guidance documents in development of regional and statewide transportation plans, respectively.

#### 4.02 Public Participation

4.02.1 The Department, in coordination with the RPCs of the rural TPRs, shall provide early and continuous opportunity for public participation in the transportation planning process. The process shall be proactive and provide timely information, adequate public notice, reasonable public access, and opportunities for public review and comment at key decision points in the process. The objectives of public participation in the transportation planning process include: providing a mechanism for public perspectives, needs, and ideas to be considered in the planning process; developing the public's understanding of the problems and opportunities facing the transportation system; demonstrating explicit consideration and response to public input through a variety of tools and techniques; and developing consensus on plans. The Department shall develop a documented public participation process pursuant to 23 C.F.R. Part 450.

4.02.2 Statewide Plans and Programs. Pursuant to 23 C.F.R. Part 450 Subpart B, the Department is responsible, in cooperation with the RPCs and MPOs, for carrying out public participation for developing, amending, and updating the ~~statewide~~ Statewide transportation Transportation planPlan, the ~~Statewide Transportation Improvement Program~~ (STIP), and other statewide transportation planning activities.

4.02.3 MPO Plans and Programs. Pursuant to 23 C.F.R. Part 450 Subpart C, the MPOs are responsible for carrying out public participation for the development of ~~regional transportation plan~~ RTPs, ~~transportation improvement programs~~ TIPs and other related regional transportation planning activities for their respective ~~metropolitan~~ Metropolitan planning Planning areasAreas. Public participation activities carried out in a metropolitan area in response to metropolitan planning requirements shall by agreement of the Department and the MPO, satisfy the requirements of this subsection.

4.02.4 Non-MPO TPR Plans and Programs. ~~Regional Planning Commission~~ RPCs for non-MPO TPRs are responsible for public participation related to regional planning activities in that TPR, in cooperation with the Department. Specific areas of cooperation shall be determined by agreement between the ~~Regional Planning Commission~~ RPC and the Department.

4.02.5 Public Participation Activities. Public participation activities at both the rural TPR and statewide level shall include, at a minimum:

4.02.5.1 Establishing and maintaining for the geographic area of responsibility a list of all known parties interested in transportation planning including, but not limited to: elected officials; municipal and county planning staffs; affected public agencies; local, state, and federal agencies eligible for federal and state transportation funds; local representatives of public transportation agency employees and users; freight shippers and providers of freight transportation services; public and private transportation providers; representatives of users of transit, bicycling and pedestrian, aviation, and train facilities; private industry; environmental and other interest groups; Indian tribal governments and the U.S. Secretary of the Interior when tribal lands are involved; and representatives of persons or groups that may be underserved by existing transportation systems, such as minority, low-income, seniors, persons with disabilities, and those with ~~limited~~ Limited English ~~proficiency~~ Proficiency; and members of the general public expressing such interest in the transportation planning process.

- 4.02.5.2 Providing reasonable notice and opportunity to comment through mailing lists and other various communication methods on upcoming transportation planning-related activities and meetings.
- 4.02.5.3 Utilizing reasonably available internet or traditional media opportunities, including minority and diverse media, to provide timely notices of planning-related activities and meetings to members of the public, including ~~LEP Limited English Proficiency~~ individuals, and others who may require reasonable accommodations. Methods that will be used to the maximum extent practicable for public participation could include, but not be limited to, use of the internet; social media, news media, such as newspapers, radio, or television, mailings and notices, including electronic mail and online newsletters.
- 4.02.5.4 Seeking out those persons or groups ~~traditionally Underserved~~ by existing transportation systems including, but not limited to, seniors, persons with disabilities, minority groups, low-income, and those with ~~limited Limited~~ English ~~proficiencyProficiency~~, for the purposes of exchanging information, increasing their involvement, and considering their transportation needs in the transportation planning process. Pursuant to § 43-1-601, C.R.S., the Department shall prepare a statewide survey identifying the transportation needs of seniors and of persons with disabilities.
- 4.02.5.5 Consulting, as appropriate, with ~~Regional Planning Commission~~RPCs, and federal, state, local, and tribal agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation concerning the development of long-range transportation plans.
- 4.02.5.6 Providing reasonable public access to, and appropriate opportunities for public review and comment on criteria, standards, and other planning-related information. Reasonable public access includes, but is not limited to, ~~LEP Limited English Proficiency~~ services and access to ADA-compliant facilities, as well as to the internet.
- 4.02.5.7 Where feasible, scheduling the development of regional and statewide plans so that the release of the draft plans may be coordinated to provide for the opportunity for joint public outreach.
- 4.02.5.8 Documentation of Responses to Significant Issues. ~~Regional Planning Commissions~~RPCs and the Department shall respond in writing to all significant issues raised during the review and comment period on transportation plans, and make these responses available to the public.
- 4.02.5.9 Review of the Public Involvement Process. All interested parties and the Department shall periodically review the effectiveness of the Department's public involvement process to ensure that the process provides full and open access to all members of the public. When necessary, the process will be revised and allow time for public review and comment per 23 C.F.R. Part 450.
- 4.03 Transportation Systems Planning. ~~Regional Planning Commission~~RPCs, and the Department, shall use an integrated ~~multimodal Multimodal transportation Transportation systems Systems planning Planning~~ approach in developing and updating the long-range ~~Regional Transportation PlansRTPs~~ and the long-range Statewide Transportation Plan for a minimum 20-year forecasting

period. ~~Regional Planning Commission~~RPCs shall have flexibility in the methods selected for ~~transportation~~ Transportation systems ~~Systems planning~~ Planning based on the complexity of transportation problems and available resources within the TPR. The Department will provide guidance and assistance to the ~~Regional Planning Commission~~RPCs regarding the selection of appropriate methods.

4.03.1 Transportation ~~systems~~ Systems planning Planning by ~~Regional Planning Commission~~RPCs and the Department shall consider the results of any related studies that have been completed. ~~Regional Planning Commission~~RPCs and the Department may also identify any ~~corridor~~Corridor(s) or sub-area(s) where an environmental study or assessment may need to be performed in the future.

4.03.2 Transportation ~~systems~~ Systems planning Planning by ~~Regional Planning Commission~~RPCs shall consider ~~corridor vision~~ needs and desired state of the transportation system including existing and future land use and infrastructure, major activity centers such as industrial, commercial and recreation areas, economic development, environmental protection, and modal choices.

4.03.3 Transportation ~~systems~~ Systems planning Planning by ~~Regional Planning Commission~~RPCs shall include operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and ~~mobility~~ Mobility of people goods, and services.

4.03.4 Transportation ~~systems~~ Systems planning Planning by the Department should include capital, operations, maintenance and management strategies, investments, procedures, and other measures to ensure the preservation and most efficient and effective use of the ~~state~~ State transportation Transportation systemSystem.

4.03.5 Transportation ~~systems~~ Systems Planning by the Department shall consider and integrate all modes into the Statewide Transportation Plan and include coordination with Department modal plans and modal committees, such as the ~~Transit and Rail Advisory Committee~~ (TRAC).

4.03.6 Transportation Systems Planning by the Department shall provide for the establishment and use of a performance-based approach to transportation decision-making to support the national goals described in 23 U.S.C. § 150 (FAST Act, P.L. 114-94). Performance targets that the Department establishes to address the performance measures described in 23 U.S.C. § 150, where applicable, are to be used to track progress towards attainment of critical outcomes for the state. The state shall consider the performance measures and targets when developing policies, programs, and investment priorities reflected in the Statewide Transportation Plan and STIP.

4.04 Regional Transportation Plans (RTP). Long-range ~~regional transportation plans~~RTPs shall be developed, in accordance with federal (23 U.S.C. § 134 and § 135) and state (§ 43-1-1103 and § 43-1-1104, C.R.S.) law and implementing regulations. Department selection of performance targets that address the performance measures shall be coordinated with the relevant MPOs to ensure consistency, to the maximum extent practicable.

4.04.1 Content of ~~Regional Transportation Plan~~RTPs. Each RTP shall include, at a minimum, the following elements:

4.04.1.1 Transportation system facility and service requirements within the MPO TPR over a minimum 20-year planning period necessary to meet expected demand, and the anticipated capital, maintenance and operating cost for these facilities and services.

- 4.04.1.2 State and federal transportation system planning factors to be considered by ~~Regional Planning Commission~~RPCs and the Department during their respective ~~transportation~~ Transportation systems Systems planning Planning shall include, at a minimum, the factors described in § 43-1-1103 (5), C.R.S., and in 23 U.S.C. § 134 and § 135.
- 4.04.1.3 Identification and discussion of potential environmental mitigation measures, ~~corridor~~ Corridor studies, or ~~corridor~~ Corridor visionsVisions, including a discussion of impacts to minority and low-income communities.
- 4.04.1.4 A discussion of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan.
- 4.04.1.5 For rural RTPs, the integrated performance-based ~~multimodal~~ Multimodal transportation plan based on revenues reasonably expected to be available over the minimum 20-year planning period. For metropolitan RTPs, a ~~fiscally~~ Fiscally constrained Constrained financial plan.
- 4.04.1.6 Identification of reasonably expected financial resources developed cooperatively among the Department, MPOs, and rural TPRs for ~~long~~Long-range Range planning Planning purposes, and results expected to be achieved based on regional priorities.
- 4.04.1.7 Documentation of the public notification and public participation process pursuant to these Rules.
- 4.04.1.8 A resolution of adoption by the responsible ~~Metropolitan Planning Organization~~MPO or the ~~Regional Planning Commission~~RPC.
- 4.04.2 Products and reviews
- 4.04.2.1 Draft Plan. ~~Transportation Planning Region~~TPRs shall provide a draft of the RTP to the Department through the Division ~~of Transportation Development~~.
- 4.04.2.2 Draft Plan Review. Upon receipt of the draft RTPs, the Department will initiate its review and schedule the STAC review (pursuant to these Rules). The Department will provide its comments and STAC comments to the ~~Transportation Planning Region~~TPR within a minimum of 30 days of receiving the draft RTP. ~~Regional transportation plan~~RTPs in metropolitan areas completed pursuant to the schedule identified in 23 C.F.R. § 450.322 shall be subject to the provisions of this section prior to being submitted to the Department for consideration as an amendment to the ~~statewide~~ Statewide transportation Transportation planPlan.
- 4.04.2.3 Final Plan. ~~Transportation Planning Region~~TPRs shall provide the final RTP to the Department through the Division ~~of Transportation Development~~.
- 4.04.2.4 Final Plan Review. Upon receipt of the final RTP, the Department will initiate its review and schedule the STAC review (pursuant to these

Rules) of the final RTPs to determine if the plans incorporate the elements required by the Rules. If the Department determines that a final RTP is not complete, including if the final RTP does not incorporate the elements required by these Rules, then the Department will not integrate that RTP into the statewide plan until the ~~Transportation Planning Region~~TPR has sufficiently revised that RTP, as determined by the Department with advice from the STAC. The Department will provide its comments and STAC comments to the ~~Transportation Planning Region~~TPR within a minimum of 30 days of receiving the final RTP. ~~Transportation Planning Region~~TPRs shall submit any RTP revisions based on comments from the Department and STAC review within 30 days of the Department's provision of such comments. ~~Regional transportation plans~~RTPs in metropolitan areas completed pursuant to the schedule identified in 23 C.F.R. § 450.322 shall be subject to the provisions of this section prior to being submitted to the Department for consideration as an amendment to the ~~statewide~~Statewide transportation ~~Transportation plan~~Plan.

4.05 Maintenance and Nonattainment Areas. Each RTP, or RTP amendment, shall include a section that:

4.05.1 Identifies any area within the TPR that is designated as a ~~maintenance~~Maintenance or ~~nonattainment~~Nonattainment areaArea.

4.05.2 Addresses, in either a qualitative or quantitative manner, whether transportation related emissions associated with the pollutant of concern in the TPR are expected to increase over the ~~long~~Long-range ~~Range planning~~Planning period and, if so, what effect that increase might have in causing a ~~maintenance~~Maintenance area ~~Area~~ for an NAAQS pollutant to become a ~~nonattainment~~Nonattainment areaArea, or a ~~non-~~attainmentNonattainment area ~~Area~~ to exceed its emission budget in the approved State Implementation Plan.

4.05.3 If transportation related emissions associated with the pollutant are expected to increase over the ~~long~~Long-range ~~Range planning~~Planning period, identifies which programs or measures are included in the RTP to decrease the likelihood of that area becoming a ~~nonattainment~~Nonattainment area ~~Area~~ for the pollutant of concern.

4.06 Statewide Transportation Plan. The ~~Regional Transportation Plans~~RTPs submitted by the ~~Regional Planning Commissions~~RPCs shall, along with direction provided through Commission policies and guidance, form the basis for developing and amending the Statewide Transportation Plan. The Statewide Transportation Plan shall cover a minimum 20-year planning period at the time of adoption and shall guide the development and implementation of a performance-based ~~multimodal~~Multimodal transportation system for the State.

4.06.1 The Statewide Transportation Plan shall:

4.06.1.1 Integrate and consolidate the RTPs and the Department's systems planning, pursuant to these Rules, into a long-range 20-year ~~multimodal~~Multimodal transportation plan that presents a clear, concise path for future transportation in Colorado.

4.06.1.2 Include the long-term transportation concerns of the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe in the development of the Statewide Transportation Plan.



- 4.06.1.3 Coordinate with other state and federal agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation.
- 4.06.1.4 Include a discussion of potential environmental mitigation activities and potential areas to carry out these activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan developed in consultation with federal, state, and tribal wildlife, land management and regulatory agencies.
- 4.06.1.5 Include a comparison of transportation plans to state and tribal conservation plans or maps and to inventories of natural or historical resources.
- 4.06.1.6 Provide for overall ~~multimodal~~ Multimodal transportation system management on a statewide basis.
- 4.06.1.7 The Statewide Transportation Plan shall be coordinated with metropolitan transportation plans pursuant to 23 C.F.R. Part 450, § 43-1-1103 and § 43-1-1105, C.R.S. Department selection of performance targets shall be coordinated with the MPOs to ensure consistency, to the maximum extent practicable.
- 4.06.1.8 Include an analysis of how the Statewide Transportation Plan is aligned with Colorado's climate goals and helps reduce, prevent, and mitigate GHG pollution throughout the State.
- 4.06.1.9 Includes the 10-Year Plan as an appendix.
- 4.06.2 Content of the Statewide Transportation Plan. At a minimum, the Statewide Transportation Plan shall include priorities as identified in the RTPs, as identified in these Rules and pursuant to federal planning laws and regulations. The Statewide Transportation Plan shall be submitted to the ~~Colorado Transportation~~ Commission for its consideration and approval.
- 4.06.3 Review and Adoption of the Statewide Transportation Plan.
- 4.06.3.1 The Department will submit a draft Statewide Transportation Plan to the Commission, the STAC, and all interested parties for review and comment. The review and comment period will be conducted for a minimum of 30 days. The Statewide Transportation Plan and appendices~~The publication~~ will be available in physical form upon request at public facilities, such as at the Department headquarters and region offices, state depository libraries, county offices, TPR offices, Colorado Division offices of the Federal Highway Administration and Federal Transit Administration, and made available on the internet.
- 4.06.3.2 The Department will submit the final Statewide Transportation Plan to the ~~Colorado Transportation~~ Commission for adoption.
- 5.00 Updates to Regional and Statewide Transportation Plans.**
- 5.01 Plan Update Process. The updates of ~~Regional Transportation Plan~~RTPs and the Statewide Transportation Plan shall be completed on a periodic basis through the same process governing development of these plans pursuant to these Rules. The update cycle shall comply with federal

and state law and be determined in consultation with the ~~Transportation~~ Commission, the Department, the STAC and the MPOs so that the respective update cycles will coincide.

- 5.02 Notice by Department of Plan Update Cycle. The Department will notify ~~Regional Planning Commission~~~~RPCs~~ and the MPOs of the initiation of each plan update cycle, and the schedule for completion.

## **6.00 Amendments to the Regional and Statewide Transportation Plans.**

### **6.01 Amendment Process**

6.01.1 The process to consider amendments to ~~Regional Transportation Plan~~~~RTPs~~ shall be carried out by rural RPCs and the MPOs. The amendment review process for ~~Regional Transportation Plan~~~~RTPs~~ shall include an evaluation, review, and approval by the respective RPC or MPO.

6.01.2 The process to consider amendments to the Statewide Transportation Plan shall be carried out by the Department, either in considering a proposed amendment to the Statewide Transportation Plan from a requesting RPC or MPO or on its own initiative.

6.01.3 The process to consider amendments to the 10-Year Plan shall be carried out by CDOT in coordination with the rural RPCs and the MPOs.

## **7.00 Transportation Improvement Programs (TIPs) and Statewide Transportation Improvement Program (STIP).**

7.01 TIP development shall occur in accordance with 23 C.F.R. Part 450, Subpart C. The Department will develop the STIP in accordance with 23 C.F.R. Part 450, Subpart B.

7.02 The Department will work with its ~~planning~~ ~~Planning partners~~ ~~Partners~~ to coordinate a schedule for development and adoption of TIPs and the STIP.

7.03 A TIP for an MPO that is in a ~~non-attainment~~~~Nonattainment~~ or Maintenance Area must first receive a conformity determination by FHWA and FTA before inclusion in the STIP pursuant to 23 C.F.R. Part 450.

7.04 MPO TIPs and Colorado's STIP must be ~~fiscally~~ ~~Fiscally constrained~~~~Constrained~~. Under 23 C.F.R. Part 450, each project or project phase included in an MPO TIP shall be consistent with an approved metropolitan RTP, and each project or project phase included in the STIP shall be consistent with the long-range ~~statewide~~ ~~Statewide transportation~~ ~~Transportation plan~~~~Plan~~. MPO TIPs shall be included in the STIP either by reference or without change upon approval by the MPOs and the Governor.

## **8.00 GHG Emission Requirements**

### **8.01 Establishment of Regional GHG Transportation Planning Reduction Levels**

8.01.1 The GHG emission reduction levels within Table 1 apply to MPOs and the Non-MPO area within the state of Colorado as of the effective date of these Rules. Baseline values are specific to each MPO and CDOT area and represent estimates of GHG emissions resulting from the existing transportation network and implementation of the most recently adopted RTP for all MPOs and the 10-Year Plan in non-MPO areas as of the effective date of these Rules. Table 2 reflects the difference in Baseline levels from year to year assuming a rapid growth in electric vehicles across the State (940,000 light duty electric vehicles in 2030, 3.38 million in 2040 and a total of 97% of all light duty vehicles in 2050).

Values in both tables include estimates of population growth as provided by the state demographer.

### 8.01.2 Regional GHG Transportation Planning Reduction Levels

**Table 1: GHG Transportation Planning Reduction Levels in MMT of CO<sub>2</sub>e**

Regional Areas	2025 Baseline Projections (MMT)	2025 Reduction Level (MMT)	2030 Baseline Projections (MMT)	2030 Reduction Level (MMT)	2040 Baseline Projections (MMT)	2040 Reduction Level (MMT)	2050 Baseline Projections (MMT)	2050 Reduction Level (MMT)
<u>DRCOG</u>	<u>14.9</u>	<u>0.27</u>	<u>11.8</u>	<u>0.82</u>	<u>10.9</u>	<u>0.63</u>	<u>12.8</u>	<u>0.37</u>
<u>NFRMPO</u>	<u>2.3</u>	<u>0.04</u>	<u>1.8</u>	<u>0.12</u>	<u>1.9</u>	<u>0.11</u>	<u>2.2</u>	<u>0.07</u>
<u>PPACG</u>	<u>2.7</u>	<u>N/A</u>	<u>2.2</u>	<u>0.15</u>	<u>2.0</u>	<u>0.12</u>	<u>2.3</u>	<u>0.07</u>
<u>GVMPO</u>	<u>0.38</u>	<u>N/A</u>	<u>0.30</u>	<u>0.02</u>	<u>0.30</u>	<u>0.02</u>	<u>0.36</u>	<u>0.01</u>
<u>PACOG</u>	<u>0.50</u>	<u>N/A</u>	<u>0.40</u>	<u>0.03</u>	<u>0.30</u>	<u>0.02</u>	<u>0.4</u>	<u>0.01</u>
<u>CDOT/Non-MPO</u>	<u>6.7</u>	<u>0.12</u>	<u>5.3</u>	<u>0.37</u>	<u>5.2</u>	<u>0.30</u>	<u>6.1</u>	<u>0.18</u>
<u>TOTAL</u>	<u>27.4</u>	<u>0.5</u>	<u>21.8</u>	<u>1.5</u>	<u>20.6</u>	<u>1.2</u>	<u>24.2</u>	<u>0.7</u>

### 8.01.3 Baseline Emissions Due to Projected Number of Light Duty Electric Vehicles

**Table 2: Baseline Emissions Due to Projected Number of Light Duty Electric Vehicles**

	2025 Projections (MMT)	2030 Projections (MMT)	2040 Projections (MMT)	2050 Projections (MMT)
<u>TOTAL</u>	<u>27.0</u>	<u>20.0</u>	<u>14.0</u>	<u>8.9</u>

DRCOG Comment - Remove the Baseline Projections from Table 1 and adopt baselines in a Transportation Commission policy directive and reference them in the Rule to allow refinement based on MPO modeling and more frequent updates.

## 8.02 Process for Determining Compliance

### 8.02.1 Analysis Requirements When Adopting or Amending an Applicable Planning Document -

Each MPO and CDOT shall conduct a GHG emissions analysis using MPO Models or the Statewide Travel Model, and the Approved Air Quality Model, to estimate total CO<sub>2</sub>e emissions. Such analysis shall include the existing transportation network, ~~implementation of future completed~~ regionally significant projects, and other non-regionally significant transportation system investments included in the Plan. The emissions analysis must estimate total CO<sub>2</sub>e emissions in million metric tons (MMT) for each year in Table 1 and compare these emissions to the ~~Baseline specified in Table 1~~ value derived by subtracting the Reduction Level from the Baseline Projection for that same year. When adopting a TIP, the required emissions analysis will apply to one horizon year corresponding with the last year of the TIP, using interpolation between Table 1 horizon years if the last year of the TIP does not correspond to a designated horizon year in Table 1. This provision shall not apply to MPO TIP amendments.

### 8.02.2 Agreements on Modeling Assumptions and Execution of Modeling Requirements. Prior to the adoption of the next RTP for any MPO, CDOT, CDPHE, and each MPO shall enter into an Intergovernmental Agreement which outlines CDOT, CDPHE, and MPO

responsibilities for development and execution of MPO Models or the Statewide Travel Model, and Approved Air Quality Model.

8.02.3 By April 1, 2022, CDOT shall establish an ongoing administrative process and guidelines, through a public process and in consultation with MPOs, for selecting, measuring, confirming, and verifying GHG Mitigation Measures, ~~so that~~ CDOT and MPOs ~~can~~ may incorporate one or more GHG Mitigation Measures into ~~each of~~ their plans in order to reach the Regional GHG Planning Reduction Levels in Table 1. Such a process and guidelines shall include, but not be limited to, how CDOT and MPOs should determine ~~ing~~ the relative impacts of GHG Mitigation Measures, and measuring ~~ing~~ and prioritize ~~ing~~ localized impacts to communities and Disproportionately Impacted Communities in particular. The mitigation credit awarded to a specific solution shall consider both aggregate and community impact

8.02.4 Timing for Determining Compliance

8.02.4.1 By October 1, 2022, CDOT shall update their 10-Year Plan and DRCOG and NFRMPO shall update their RTPs pursuant to § 43-4-1103, C.R.S. and meet the reduction levels in Table 1 or the requirements pursuant to § 43-4-1103, C.R.S and restrictions on funds.

8.02.4.2 After October 1, 2022

8.02.4.2.1 CDOT must for each Applicable Planning Document, meet either the reduction levels within Table 1 for Non-MPO areas or the requirements as set forth in Rule 8.05.

8.02.4.2.2 MPOs must meet either the corresponding reduction levels within Table 1 for each Applicable Planning Document, or the relevant MPO and CDOT each must meet the requirements as set forth in Rule 8.05.

8.02.5 Demonstrating Compliance. At least thirty (30) days prior to adoption of any Applicable Planning Document, CDOT for Non-MPO areas and the MPOs for their areas shall provide to the Commission a GHG Transportation Report containing the following information:

8.02.5.1 GHG emissions analysis demonstrating that the Applicable Planning Document is in compliance with the GHG Reduction Levels in MMT of CO<sub>2</sub>e for each compliance year in Table 1 or that the requirements in Rules 8.02.5.1.1 or 8.02.5.1.2., as applicable, have been met.

8.02.5.1.1 In non-MPO areas or for MPOs that are not in receipt of federal suballocations pursuant to the CMAQ and/or STBG programs, the Department utilizes 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in those areas on projects that reduce GHG emissions.

8.02.5.1.2 In MPO areas that are in receipt of federal suballocations pursuant to the CMAQ and/or STBG programs, the MPO utilizes ~~some or all~~ of those funds on ~~projects or approved~~ GHG Mitigation Measures that reduce GHG emissions, and CDOT utilizes ~~some or all~~ 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in that MPO area, on projects that reduce GHG emissions as necessary to achieve the GHG Reduction Levels in MMT of CO<sub>2</sub>e for each compliance year in Table 1.

- 8.02.5.2 Identification and documentation of the MPO Model or the Statewide Travel Model and the Approved Air Quality Model used to determine GHG emissions in MMT of CO<sub>2</sub>e.
- 8.02.5.3 A Mitigation Action Plan that identifies GHG Mitigation Measures needed to meet the reduction levels within Table 1 shall include:
  - 8.02.5.3.1 The anticipated start and completion date of each measure.
  - 8.02.5.3.2 An estimate, where feasible, of the GHG emissions reductions in MMT of CO<sub>2</sub>e achieved by any GHG Mitigation Measures.
  - 8.02.5.3.3 Quantification of specific co-benefits including reduction of co-pollutants (PM<sub>2.5</sub>, NO<sub>x</sub>, etc.) as well as travel impacts (changes to VMT, pedestrian/bike use, transit ridership numbers, etc. as applicable).
  - 8.02.5.3.4 Description of benefits to Disproportionately Impacted Communities.
- 8.02.6 Reporting on Compliance- Annually by April 1, CDOT and MPOs must provide a status report to the Commission on an approved form with the following items for each GHG Mitigation Measure identified in their most recent GHG Transportation Report:
  - 8.02.6.1 The implementation timeline;
  - 8.02.6.2 The current status;
  - 8.02.6.3 For measures that are in progress or completed, quantification of the benefit or impact of such measures; and
  - 8.02.6.4 For measures that are delayed, cancelled, or substituted, an explanation of why that decision was made.
- 8.03 GHG Mitigation Measures. When assessing compliance with the GHG Reduction Levels, CDOT and MPOs shall have the opportunity to utilize approved GHG Mitigation Measures as set forth in Rules 8.02.3 and 8.02.5.3 to offset emissions and demonstrate progress toward compliance. Illustrative examples of GHG Mitigation Measures include, but are not limited to:

DRCOG Comment - Add a provision in Section 8.03 to require sponsors of regionally significant roadway capacity projects to identify and include GHG Mitigation Measures when including the project in a TIP or the STIP.

  - 8.03.1 The addition of transit resources in a manner that can displace VMT.
  - 8.03.2 Improving pedestrian and bike access, particularly in areas that allow individuals to reduce multiple daily trips.
  - 8.03.3 Encouraging local adoption of more effective forms of vertical development and zoning plans that integrate mixed use in a way that links and rewards transportation project investments with the city making these changes.
  - 8.03.4 Improving first-and-final mile access to transit stops and stations that make transit resources safer and more usable by consumers.
  - 8.03.5 Improving the safety and efficiency of crosswalks for pedestrians, bicyclists, and other non-motorized vehicles, including to advance compliance with the ADA.

- 8.03.6 Adopting locally driven changes to parking policies and physical configuration that encourage more walking and transit trips.
- 8.03.7 Incorporating medium/heavy duty vehicle electric charging and hydrogen refueling infrastructure -- as well as upgrading commensurate grid improvements -- into the design of key freight routes to accelerate truck electrification.
- 8.03.8 Establishing policies for clean construction that result in scalable improvements as a result of factors like lower emission materials, recycling of materials, and lower truck emissions during construction.
- 8.03.9 Adoption of transportation demand management practices that reduce VMT.
- 8.04 Air Pollution Control Division (APCD) Confirmation and Verification
- 8.04.1 At least forty-five (45) days prior to adoption of any Applicable Planning Document, CDOT for Non-MPO areas and the MPOs for their areas shall provide to APCD for review and verification of the technical data contained in the draft GHG Transportation Report required per Rule 8.02.5. If APCD has not provided written verification within thirty (30) days, the document shall be considered acceptable.
- 8.04.2 At least thirty (30) days prior to adoption or amendment of policies per Rule 8.02.3, CDOT shall provide APCD the opportunity to review and comment. If APCD has not provided written comment within forty-five (45) days, the document shall be considered acceptable.
- 8.05 Enforcement. The Commission shall review all GHG Transportation Reports to determine whether the applicable reduction targets in Table 1 have been met and the sufficiency of any GHG Mitigation Measures needed for compliance.
- 8.05.1 If the Commission determines the requirements of Rule 8.02.5 have been met, the Commission shall, by resolution, accept the GHG Transportation Report.
- 8.05.2 If the Commission determines, by resolution, the requirements of Rule 8.02.5 have not been met, the Commission shall restrict the use of all CMAQ, STBG, and 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in the area funds pursuant to Rules 8.02.5.1.1 or 8.02.5.1.2, as applicable, to projects and approved GHG Mitigation Measures that reduce GHG. ~~Prior to the enforcement of such restriction, an An MPO in a Metropolitan Planning Area, or CDOT and/or a TPR in a non-MPO outside a Metropolitan Planning Area area, may, within thirty sixty (3060) days of Commission action, issue one or both of the following opportunities to seek a waiver or to ask for reconsideration as provided for in Rule 8.05.2.1 or Rule 8.05.2.2. Enforcement of such restriction shall not begin until the Commission has taken action on such requests under Rule 8.05.2.3, accompanied by an opportunity to submit additional information:~~
- 8.05.2.1 Request a waiver from the Commission imposing restrictions on specific Regionally Significant projects not expected to reduce GHG emissions. The Commission may waive the restrictions on specific projects on the following basis:
- 8.05.2.1.1 The GHG Transportation Report reflected significant effort and priority placed, in total, on projects and GHG Mitigation Measures that reduce GHG emissions; and
- 8.05.2.1.2 In no case shall a waiver be granted if such waiver results in a substantial increase in GHG emissions when compared to the required reduction levels in this Rule.



8.05.2.2 Request reconsideration of a non-compliance determination by the Commission and provide written explanation of how the requirements of Rule 8.02.5 have been met.

8.05.2.3 The Commission shall act, by resolution, on a waiver or reconsideration request within thirty (30) days of receipt of the waiver or reconsideration request or at the next regularly scheduled Commission Meeting, whichever is later. ~~If no action is taken within this time period, the waiver or reconsideration request shall be deemed to be denied.~~

8.05.3 Notwithstanding any other provision of this Rule, CDOT, DRCOG and NFRMPO must meet the requirements of § 43-4-1103, C.R.S.

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8.06 Reporting. Beginning July 1, 2025, and every 5 years thereafter, the Executive Director on behalf of CDOT shall prepare and make public a comprehensive report on the statewide GHG reduction accomplishments.

## **9.00 Materials Incorporated by Reference**

9.01 The Rules are intended to be consistent with and not be a replacement for the federal transportation planning requirements in Rule 9.01.1 and federal funding programs in Rules 9.01.2 and 9.01.3, which are incorporated into the Rules by this reference, and do not include any later amendments.

9.01.1 Fixing America's Surface Transportation Act or the "FAST Act"), 23 U.S.C. §§ 134, 135 and 150, Pub. L. No. 114-94, signed into law on December 4, 2015, and its accompanying regulations, where applicable, contained in 23 C.F.R. Part 450, including Subparts A, B and C in effect as of November 29, 2017, and 25 C.F.R. § 170 in effect as of November 7, 2016.

9.01.2 Congestion Mitigation and Air Quality Improvement (CMAQ) Program, 23 U.S.C. § 149, in effect as of March 23, 2018.

9.01.3 Surface Transportation Block Grant (STBG) Program, 23 U.S.C. § 133, in effect as of December 4, 2015.

9.02 Also incorporated by reference are the following federal laws and regulations and do not include any later amendments:

9.02.1 Americans with Disabilities Act (ADA), 42 U.S.C. § 12101, et. seq., in effect as of January 1, 2009.

9.02.2 Clean Air Act (CCA), 42 U.S.C. §§ 7407-7410, and 7505a, in effect as of November 15, 1990.

9.02.2 Transportation Conformity Regulations, 40 C.F.R. § 93.101, in effect as November 24, 1993.

9.03 Also incorporated by reference are the following documents, standards, and models and do not include any later amendments:

9.03.1 Greenhouse Gas Pollution Reduction Roadmap by the Colorado Energy Office and released on January 14, 2021.

9.03.2 MOVES3 Motor Vehicle Emissions Model for SIPs and Transportation Conformity released by the U.S. Environmental Protection Agency, in effect as of January 7, 2021.

9.04 All referenced laws and regulations are available for copying or public inspection during regular business hours from the Office of Policy and Government Relations, Colorado Department of Transportation, 2829 W. Howard Pl., Denver, Colorado 80204.

9.05 Copies of the referenced federal laws and regulations, planning documents, and models.

9.05.1 Copies of the referenced United States Code (U.S.C.) may be obtained from the following address:

Office of the Law Revision Counsel  
U.S. House of Representatives  
H2-308 Ford House Office Building  
Washington, DC 20515  
(202) 226-2411  
<https://uscode.house.gov/browse.xhtml>

9.05.2 Copies of the referenced Code of Federal Regulations (C.F.R.) may be obtained from the following address:

U.S. Government Publishing Office  
732 North Capitol State, N.W.  
Washington, DC 20401  
(866) 512-1800  
<https://www.govinfo.gov/>

9.0.5.3 Copies of the Greenhouse Gas Pollution Reduction Roadmap (Roadmap) may be obtained from the following address:

Colorado Energy Office  
1600 Broadway, Suite 1960  
Denver, CO 80202  
(303) 866-2100  
[energyoffice.colorado.gov](http://energyoffice.colorado.gov)

9.0.5.4 To download MOVES3 released by the U.S. Environmental Protection Agency may be obtained from the following address:

U.S. Environmental Protection Agency  
The Office of Transportation and Air Quality  
1200 Pennsylvania Ave, N.W.  
Washington, DC 20460  
(734) 214-4574 or (202) 566-0495  
[mobile@epa.gov](mailto:mobile@epa.gov)  
<https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves>

## **10.00 Declaratory Orders**

10.01 The Commission may, at their discretion, entertain petitions for declaratory orders pursuant to § 24-4-105(11), C.R.S.

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**Editor's Notes**

**History**

Entire rule eff. 12/15/2012.

Section SB&P eff. 05/30/2013.

Entire rule eff. 09/14/2018.

**Annotations**

Rules 1.22, 1.25, 1.42, 2.03.1 – 2.03.1.4, 4.01, 4.02.1 – 4.02.3, 4.02.5.9, 4.04.2.2, 4.04.2.4, 4.06.1.7, 6.01.2, 7.01, 7.03 – 7.04 (adopted 10/18/2012) were not extended by Senate Bill 13-079 and therefore expired 05/15/2013.

October 6, 2021

Colorado Transportation Commission  
2829 W Howard Pl  
Denver, CO 80204

VIA EMAIL SUBMITTAL to [dot\\_rules@state.co.us](mailto:dot_rules@state.co.us)

Dear Chair Hall and Commissioners,

I am writing on behalf of the Denver Regional Council of Governments' Board of Directors to provide comments on the proposed revisions to 2 CCR 601-22 to establish greenhouse gas (GHG) reduction transportation planning requirements.

As the designated Metropolitan Planning Organization (MPO) for the Denver region, DRCOG, in a cooperative process with CDOT and RTD, is responsible for transportation planning in the metropolitan area and is the venue for effective transportation decision making. Under federal law and regulation, DRCOG must:

- prepare and adopt a fiscally constrained, long-range, multimodal Regional Transportation Plan (RTP) that identifies specific transportation investments in projects, programs, and services to meet future needs and provide a safe and efficient transportation system that provides mobility while not adversely impacting the environment;
- prepare, adopt, and maintain a near-term Transportation Improvement Program (TIP) that identifies specific transportation investments in projects, programs, and services consistent with the RTP; and
- ensure the regional plans comply with all federal requirements, including air quality conformity, to maintain the region's eligibility to receive and expend federal transportation funding.

DRCOG and its partners must consider 10 specific planning factors throughout the transportation planning process. These factors include economic vitality, safety, security, accessibility and mobility of people and freight, protecting and enhancing the environment, transportation system connectivity, system management and operation, system preservation, system resiliency and reliability, and travel and tourism.

Beyond federal requirements, DRCOG supports the goal of reducing surface transportation GHG emissions. The unanimously adopted Metro Vision states that "We're working toward a future where the region has clean water and air, and lower greenhouse gas emissions," supported by objectives and initiatives to "[i]mprove air quality and reduce greenhouse gas emissions," with progress regularly measured against DRCOG's latest travel and air quality modeling results. Improving air quality is also one of the six overarching investment priorities identified in the 2050 RTP.

The following comments are offered in the spirit of clarifying and improving the proposed rule, maximizing the opportunity for the rule to help achieve state and region goals to reduce GHG emissions,

and balancing the rule with DRCOG's federal responsibilities. The comments are organized by section with specific suggestions and supporting discussion points.

### **Section 8.01 Establishment of Regional GHG Transportation Planning Reduction Levels**

- ❖ Remove the Baseline Projections from Table 1 and adopt baselines in a Transportation Commission policy directive and reference them in the Rule to allow refinement based on MPO modeling and more frequent updates.

There should be a reasonable mechanism outside of a formal rulemaking process to review and update the baseline projections to which the reduction levels will be applied. The baseline projections have been developed using the CDOT statewide travel model and then "allocating" GHG emissions to areas based on share of statewide VMT. The relationship between VMT and GHG emissions using this distribution method may not reflect the relative fleet mix or operating characteristics that also influence GHG emissions. Further, DRCOG is required by federal law to adopt a new Regional Transportation Plan every four years and must align growth expectations with the most recent available population and employment forecasts from the State Demography Office, which are updated annually. These annual changes in population and employment forecasts can have a significant impact on travel model results and represent just one example of myriad changes to model inputs and internal model improvements that can change regional baseline measurements.

### **Section 8.02 Process for Determining Compliance**

- ❖ Revise §8.02.1 to state "Such analysis shall include the existing transportation network, implementation of future completed regionally significant projects, and other non-regionally significant transportation system investments included in the Plan."  
§8.02.5.1 states that the required GHG Transportation Report contain a "GHG emissions analysis demonstrating that the Applicable Planning Document is in compliance with the GHG Reduction Levels in MMT of CO<sub>2</sub>e for each compliance year in Table 1..." Since these Applicable Planning Documents also include non-regionally significant program and project investments that have impacts on travel demand and GHG emissions, the required analysis should include the full set of investment priorities in order to fully assess the plan's estimated total CO<sub>2</sub>e emissions.
- ❖ Revise §8.02.1 to state that "The emissions analysis must estimate total CO<sub>2</sub>e emissions in million metric tons (MMT) for each year in Table 1 and compare these emissions to the Baseline specified in Table 1-value derived by subtracting the Reduction Level from the Baseline Projection for that same year."  
A comparison to the Baseline Projections by themselves is not meaningful in the context of the Rule. Determining compliance should be based on an assessment of the estimated GHG emissions of the Applicable Planning Document against reduced GHG emission value.
- ❖ Revise §8.02.1 to add the following before the last sentence of the section. "When adopting a TIP, the required emissions analysis will apply to one horizon year corresponding with the last year of the TIP, using interpolation between Table 1 horizon years if the last year of the TIP does not correspond to a designated horizon year in Table 1."

Federal regulations require TIPs to be consistent with Regional Transportation Plans and represent a near-term investment plan for those priorities established in the RTP. TIPs shall “reflect the investment priorities established in the current metropolitan plan...” (CFR 450.326(a)) and “each project or project phase included in the TIP shall be consistent with the approved [regional] transportation plan.” (CFR 450.325(i)). Further, since TIPs represent a near-term investment strategy, there is no meaningful result from analyzing those investments against longer-term horizon years well beyond the term of the TIP since such analysis will have been completed for the Regional Transportation Plan.

- ❖ Revise §8.02.3 to state “By April 1, 2022, CDOT shall establish an ongoing administrative process and guidelines, through a public process and in consultation with MPOs, for selecting, measuring, confirming, and verifying GHG Mitigation Measures; ~~so that~~ CDOT and MPOs ~~can~~ may incorporate one or more GHG Mitigation Measures into ~~each of~~ their plans in order to reach the Regional GHG Planning Reduction Levels in Table 1. Such a process and guidelines shall include, but not be limited to, how CDOT and MPOs should ~~determining~~ the relative impacts of GHG Mitigation Measures, and measuring and prioritizing ~~and prioritizing~~ localized impacts to communities and Disproportionately Impacted Communities in particular. The mitigation credit awarded to a specific solution shall consider both aggregate and community impact.

§8.02.3 states that CDOT shall establish an ongoing administrative process...for selecting...GHG Mitigation Measures...” A statewide process may not reflect that some measures may be more appropriate in one area or another and their relative impact will likely differ depending on the context. The Rule should allow flexibility for MPOs to select appropriate mitigation measures, through their decision-making processes, with guidance developed by CDOT.

- ❖ Revise §8.02.5.1.2 to state “In MPO areas that are in receipt of federal suballocations pursuant to the CMAQ and/or STBG programs, the MPO utilizes some or all of those funds on ~~projects or approved~~ GHG Mitigation Measures that reduce GHG emissions, and CDOT utilizes some or all 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in that MPO area, on projects that reduce GHG emissions as necessary to achieve the GHG Reduction Levels in MMT of CO<sub>2</sub>e for each compliance year in Table 1.

The language in §8.02.5.1.2 is not clear about whether all CMAQ and STBG funds would have to be used on “projects or approved GHG Mitigation Measures...”. In addition, specific federal requirements and regulations apply to the use of CMAQ funds. Restricting the use of all CMAQ funds as proposed in the Rule may limit nonattainment areas from meeting current federal air quality standards. Likewise, restricting the use of all STBG funds to projects that reduce GHG emissions may limit the ability of DRCOG to invest in important safety, operations, reconstruction, and other non-regionally significant projects necessary for the RTP to address all required federal planning considerations. The provisions in §8.02.5.1.2 should allow flexibility for the MPO to specify only those funds that are to be spent on additional mitigation measures necessary to achieve the GHG emissions levels.

### **Section 8.03 GHG Mitigation Measures**

- ❖ Add a provision to require sponsors of regionally significant roadway capacity projects to identify and include GHG Mitigation Measures when including the project in a TIP or the STIP.



Many of the what the Rule calls GHG Mitigation Measures are planned investments already identified in the DRCOG 2050 RTP. And in the context of a 30-year RTP, these investments are not “mitigations” and should not be reported annually. Mitigations are actions that are taken to avoid, minimize, or compensate for the impacts of a specific action (project).

Therefore, the more appropriate application of many mitigation measures is in the context of a specific roadway project and should be documented and tracked as part of the project’s implementation through the TIP or STIP.

### Section 8.05 Enforcement

- ❖ Revise §8.05.2 to state “If the Commission determines, by resolution, the requirements of Rule 8.02.5 have not been met, the Commission shall restrict the use of all CMAQ, STBG, and 10-Year Plan funds anticipated to be expended on Regionally Significant Projects in the area funds pursuant to Rules 8.02.5.1.1 or 8.02.5.1.2, as applicable, to projects and ~~approved~~ GHG Mitigation Measures that reduce GHG.

This clarification is necessary so that these funds are only fully restricted if compliance is not demonstrated under §8.02.5 are not met. If, however, the MPO demonstrates that it is using some CMAQ and/or STBG funds on mitigation measures as necessary to achieve the GHG reduction levels, then there should be no further restriction on the remaining funds.

- ❖ Revise §8.05.2 to state ~~“Prior to the enforcement of such restriction, an~~ An MPO in a Metropolitan Planning Area, or CDOT and/or a TPR in a non-MPO outside a Metropolitan Planning Area area, may, within ~~thirty~~ sixty (3060) days of Commission action, ~~issue one or both of the following opportunities to seek a waiver or to ask for reconsideration as provided for in Rule 8.05.2.1 or Rule 8.05.2.2. Enforcement of such restriction shall not begin until the Commission has taken action on such requests under Rule 8.05.2.3. accompanied by an opportunity to submit additional information.”~~

The language in §8.05.2 is unclear about whether CDOT on its own can seek a waiver for a project within an MPO area. We believe the intent is that waiver requests for projects within MPO areas must go through the MPO process prior to submittal. We also believe that 60 days is a more appropriate timeframe in which an MPO can deliberate and decide whether to seek a waiver or reconsideration.

- ❖ Revise §8.05.2.1 to state “Request a waiver from the Commission imposing restrictions on specific Regionally Significant projects not expected to reduce GHG emissions. The Commission may waive the restrictions on specific projects on the following basis:”

The Rule as written requires a waiver for any “specific project not expected to reduce GHG emissions” (e.g., safety, operations, reconstruction, multimodal corridor planning, TDM, etc.). MPOs should not be required to seek a waiver from the Transportation Commission to invest federal CMAQ or STBG funds in otherwise eligible projects or programs that are not regionally significant, would not have an adverse impact on GHG emissions, and are important for the MPO to achieve other important transportation objectives.

- ❖ In §8.05.2.3, strike “If no action is taken within this time period, the waiver or reconsideration request shall be deemed to be denied.”

The full consideration of these requests should be documented and acted upon by the Transportation Commission through a vote on the record. A default denial of a request should not be the result of no action by the Commission.

Ashley Stolzmann, Chair  
Kevin Flynn, Vice Chair  
Steve Conklin, Secretary  
Wynne Shaw, Treasurer  
John Diak, Immediate Past Chair  
Douglas W. Rex, Executive Director

DRCOG appreciates the state's leadership in addressing climate change and air quality challenges. We also want to thank CDOT staff for the outreach efforts to the MPOs during the development of this proposed rule.

DRCOG acknowledges that meeting the ambitious targets set by the rule is predicated on a partnership with the state on several critical issues that are largely outside of an MPO's authority to directly implement. The feasibility of achieving the targets will require the state to take meaningful action through supportive policies and direct funding within the DRCOG region to fully achieve the desired GHG reductions. We stand ready to continue working with the state to identify and implement relevant policies and funding initiatives.

Respectfully,

Ashley Stolzmann  
Chair of the Board of Directors

c: DRCOG Board of Directors  
Doug Rex, DRCOG Executive Director  
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# COLORADO

## Department of Transportation

### **COST-BENEFIT ANALYSIS FOR RULES GOVERNING STATEWIDE TRANSPORTATION PLANNING**

In performing a cost-benefit analysis, each rulemaking entity must provide the information requested for the cost-benefit analysis to be considered a good faith effort. The cost-benefit analysis must be submitted to the Office of Policy, Research and Regulatory Reform at least ten (10) days before the administrative hearing on the proposed rule and posted on your agency's web site. For all questions, please attach all underlying data that supports the statements or figures stated in this cost-benefit analysis.

<b>DEPARTMENT:</b>	Colorado Department of Transportation	<b>AGENCY:</b>	Transportation Commission
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<b>CCR:</b>		<b>DATE:</b>	August 31, 2021
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#### **RULE TITLE OR SUBJECT:**

**RULES GOVERNING STATEWIDE TRANSPORTATION PLANNING PROCESS AND TRANSPORTATION PLANNING REGIONS**

#### **1. The reason for the rule or amendment;**

The proposed "RULES GOVERNING STATEWIDE TRANSPORTATION PLANNING PROCESS AND TRANSPORTATION PLANNING REGIONS" will set a greenhouse gas standard for state and regional transportation plans. The purpose of the Proposal is to ensure ongoing greenhouse gas emissions reductions from Colorado's transportation sector, which helps achieve the reduction goals set by HB19-1261. This rule also responds to a requirement in SB21-260, directing CDOT and the Transportation Commission to address GHGs through transportation planning.

#### **Analysis Background**

This analysis assumes that capital dollars for transportation will always be finite -- based on available federal, state, and local resources -- and that the parameters and modeling requirements established in the rule will help transportation planning agencies to prioritize those dollars in ways that better balance air pollution reduction needs with other factors such as improving safety and reducing congestion, and ideally selecting a portfolio of projects that achieve all of those ends. All of these factors, and others, tend to increase economic competitiveness, and render transportation investments of all modes good economic investments.

In terms of the overall economic and societal benefits of the rule, which are described in more detail below, it assumes that the public sector budget for transportation investment is relatively fixed and that this rule will likely result in some meaningful yet nuanced and regionally tailored shifts in the nature of which projects are prioritized.

The baseline for this analysis assumes a status quo that tallies the sum of regional transportation plans (RTPs) across all five metropolitan planning areas. These RTPs include state projects that are within the Metropolitan Planning Organization (MPO) boundaries. For example: all CDOT projects within the Denver metropolitan area are also included in the RTP for the Denver Regional Council of Governments (DRCOG). These long range plans typically extend out for about 30 years, so unlike the more proximate plans established at both the state and MPO levels, many of the projects included in these plans are notional and far away from delivery.

Generally speaking, these RTPs are inclusive of capital investments but do not include maintenance budgets, which are typically paid for separately by the state and local governments respectively, without engagement by the MPOs.

As these plans are not fully fiscally constrained, meaning that in actuality they contain more projects than can be paid for with resource constraints, they typically fluctuate significantly before projects are transferred to nearer term, fiscally constrained plans (e.g. the first four years of the state's "ten year plan" and the MPO transportation improvement plans or TIPs). The current sum of the long range RTPs for all five MPO areas is approximately \$28 billion of projects, many of which are not fully funded or planned. Notably, this baseline does not include the state's many planned projects in rural Colorado, outside of the boundaries of the MPO areas and represented by rural transportation planning regions (TPRs). Virtually none of these rural projects would trigger the need for GHG Mitigation Measures under this rule because, with rare exception, they do not add capacity or change land use patterns. Rather, they are generally focused on state of good repair (e.g. repaving projects), safety and resiliency improvements like adding shoulders and passing lanes, and increasingly, supporting the economic vitality of communities by investing in revitalizing main streets across the state.

Using the sum of the RTPs as the baseline for the size of the transportation capital program that could be subject to mode shift, the analysis below assumes that, over several periods of performance, it is estimated that between a quarter and a third of resources would need to be shifted towards transportation project types that have air quality mitigation benefits -- as well as many societal co-benefits -- in order to achieve the targets set in the rule (and notably, if total spending shifted either higher or lower than in the scenario described here, it is likely that the proportions would be fairly similar). As explained in the table below, which assumes that spending is roughly consistent across the periods of time identified, this number is significantly lower in the immediate years and increases in the outyears. This, in large part, is because the early year projects are assumed to add significant transit service, which carry operating costs that aggregate. However, while the modeling assumes that about 20% of transit costs are paid back by farebox revenue, it does not factor in other revenue sources that often become available as a transit system grows. For example, federal formula funds for transit are allocated partially on the basis of existing ridership, so more ridership tends to result in more federal funding.

**Table 1**  
**Net Neutral Investment Levels and Dollars Shifted to Multimodal Transportation and other Environmentally Beneficial Transportation Investments**  
(net present value, millions of 2021 dollars)

Years	Total RTPs + 10-Year Plan	Total Shift to Mitigation	Percent Shift
2022-2025	\$3,842.07	\$417.90	11%
2026-2030	\$4,802.59	\$974.90	21%
2031-2040	\$9,605.17	\$2,655.80	28%

2041-2050	\$9,605.17	\$2,691.50	28%
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Importantly, the scenario described above means that important capacity projects remain, but that these are balanced out with other types of projects with offsetting impacts, like adding bus infrastructure to highway projects, improving crosswalks to make them safer for pedestrians, opening up main streets for communities to utilize downtowns with less car travel, improving first-and-last-mile connections to transit facilities, and more. There is already precedent for adding these types of complementary features to highway projects. For example, construction of a managed lane on US36 included bus infrastructure for the flatiron flyer service. In a similar vein building on that model, CDOT is currently constructing a series of “mobility hubs” as part of capacity expansion along I-25 North in preparation to run bus rapid transit service in those managed lanes. In another example, design for the Floyd Hill expansion project includes plans to build out both a new microtransit service operated by CDOT, as well as park-and-ride facilities to facilitate operation of that service.

Incorporating mitigation features into high priority capacity expansion projects is expected to complement investment in project types that do not require mitigation measures -- such as repaving broken roads and fixing bridges that are in poor or fair condition before they become worse and more expensive to fix. Thus, all dollars shifted away from certain capacity projects are assumed to fund worthy transportation investments that improve competitiveness, quality of place and life, safety, economic vitality, public health, air quality, and more. A breakdown of these specific benefits is tabulated below.

An important aspect of this rule is that it does not require a specific set of measures to be implemented by the State and its MPOs to achieve the rule’s targets. Those decisions are left to the implementing agencies who will also have ongoing opportunity to propose new mitigation measures for modeling to ensure that they result in emission reductions. Thus, in order to conduct this analysis, CDOT developed illustrative policy choice packages that assume implementation of three broad categories of VMT reduction measures: (1) expansion of transit service; (2) policies to encourage compact land use that reduces the need to drive by making it possible for travelers to access more of their preferred destinations easily within denser areas, in a manner that also facilitates strong and economically vibrant downtowns; and (3) various programs that expand travel choices through a variety of different approaches that could include investing in bicycle and pedestrian infrastructure and micro mobility services that assist with “first and last mile” connections to transit facilities; investments (e.g. in digital infrastructure) that help support tele-travel as an alternative to physical travel and also offer more workplace flexibility to employees in many work environments; or programs that encourage non-work travel by modes other than a single occupancy vehicle (e.g. a jurisdiction that provides transit passes to its residents).

The projected cost of these policy choice packages is assumed to be absorbed into current transportation plan budgets (a net neutral approach).



Per the provisions of 24-4-103(2.5)(a), Colorado Revised Statutes, the cost-benefit analysis must include the following:

## **2. The anticipated economic benefits of the rule or amendment, which shall include economic growth, the creation of new jobs, and increased economic competitiveness;**

### Anticipated Economic Benefits

Full implementation of this rule is expected to result in significant economic benefits in the form of cost savings to travelers and to the general public. Travelers will benefit from reductions in vehicle operating costs as a

result of expanded travel options (e.g., transit service, tele-travel, walking and bicycling), travel time savings, and the need to use personal vehicles less because of being provided with more options through state and regional transportation planning. Implementation of the rule will also reduce economic costs associated with carbon emissions, air pollution, motor vehicle crashes (road safety), and the health consequences of physical inactivity.

Businesses are also expected to receive a share of the economic benefits. Examples include congestion reduction that saves travel time for “on-the-clock” business travel, and reduced health care costs for employees as a result of reduced air pollution, motor vehicle crashes, and physical inactivity. They may also experience increased worker retention and satisfaction as a result of employees having expanded commute or work from home options.

Additionally, policies that facilitate and reward downtown density tend to have a markedly positive impact on “main street” small businesses such as restaurants and locally-owned retail. While these benefits can be somewhat difficult to quantify in the aggregate and are thus not fully accounted for in this analysis, results from the Colorado Department of Transportation’s “Revitalizing Main Street” program indicate that they are significant and widespread across the state. Well over 100 grants awarded to more than 70 communities have largely supported projects including downtown street repurposing and parklets, sidewalks and crosswalks, park and street improvements, shared streets between cars and pedestrians, and wayfinding and signage improvements. Many recipients have affirmed to CDOT that these grants significantly improved business and saved jobs during the COVID-19 pandemic, and, when surveyed, 67 percent of respondents said they would not have implemented these innovations without the program. Though grants supported many projects on a pilot basis, survey results showed that 81 percent of projects are likely to be maintained or repeated on a seasonal basis given their success. This data provides qualitative indication of the economic development benefits associated with many of the project types that this policy would encourage.

Table 2 shows the projected change in social costs through 2025, 2030, 2040, and 2050 respectively, for full implementation of the proposed rule using the illustrative mix of strategies. The net benefits reflect the effects of reduced highway investment as well as increased investment in GHG-reducing projects. Negative values (shown in parentheses) represent a net cost savings. Future savings are discounted at a rate of 2.5 percent, consistent with Colorado Senate Bill (SB) 21-260 which requires use of the social cost of carbon dioxide (CO<sub>2</sub>) and other pollutants using a discount rate of 2.5 percent or less. The most substantial benefits are from reduced crashes and reduced vehicle operating costs, resulting from reduced VMT. The net present value of total social benefits is roughly \$8 billion in the 2026-2030 timeframe and \$17 billion between 2031 and 2040.

**Table 2**  
**Economic Benefits (Cost Savings)**  
**(Net Neutral Investment Levels after Mode Shift )**  
**(net present value, millions of 2021 dollars)**

<b>Timeframe</b>	<b>Vehicle Operating Cost</b>	<b>Social Cost of Carbon</b>	<b>Air Pollution</b>	<b>Safety (Crashes)</b>	<b>Traffic Delay</b>	<b>Physical Inactivity</b>	<b>Total Social Cost Savings</b>
<b>2022 - 2025</b>	\$(372)	\$(60)	\$(21)	\$(481)	\$(774)	\$(17)	\$(1,724)



<b>2026 - 2030</b>	\$(1,781)	\$(258)	\$(82)	\$(2,332)	\$(3,098)	\$(75)	\$(7,626)
<b>2031 - 2040</b>	\$(4,670)	\$(589)	\$(125)	\$(7,183)	\$(4,693)	\$(237)	\$(17,497)
<b>2041 - 2050</b>	\$(4,210)	\$(323)	\$(42)	\$(9,027)	\$397	\$(289)	\$(13,494)

A brief description of each of these economic benefits and how they were quantified is provided below. With the exception of physical inactivity, which is related to increased bicycling and walking, all of these economic benefits are derived from reductions in VMT and/or traffic delay. As described earlier, many of these benefits accrue to businesses as they do to individuals (e.g. a reduction in crashes leads to less lost work time). Additional detail on the assumptions underlying these estimates of economic benefits is provided in Appendix A.

- Vehicle operating cost – Fuel and maintenance costs per mile driven. Costs per mile change over time consistent with projected changes in fuel prices and the mix of the vehicle fleet including conventional fuels (e.g. gasoline and diesel) versus zero emission vehicles (e.g. electric and hydrogen). Vehicle cost savings provide travelers with more out-of-pocket money that they can spend on other goods and services of higher value to them. Businesses also save money for work travel and goods movement expenses. These savings benefit the state’s economy.
- Social cost of carbon – Global climate change is expected to result in a variety of negative economic effects to the world and national economy, including Colorado. Examples include costs of flood prevention and mitigation, health care costs associated with excessive heat, and fire prevention, control, and damages. Carbon emissions are valued based on guidance issued by the Biden Administration<sup>1</sup> at a discount rate of 2.5 percent, consistent with Colorado Senate Bill (SB) 21-260. The social cost increases over time, from \$83 per metric ton of CO<sub>2</sub> emissions for emissions occurring in 2025 to \$116 per metric ton of CO<sub>2</sub> for emissions occurring in 2050.
- Air pollution – Costs associated with air pollution include higher health care costs, as well as damage to structures and natural systems. Values per ton of particulate matter (PM) and oxides of nitrogen (NOx) reduced are based on modeling conducted in support of Federal rulemakings on vehicle tailpipe emission standards.
- Safety (crashes) – Costs associated with crashes resulting in fatalities or injuries include higher medical costs, insurance costs, vehicle property damage, and lost workplace productivity. These costs impact Colorado’s economy. Motor vehicle crash reductions are estimated based on national average fatality and injury crash rates per VMT, and are valued based on federal guidance on the value of a statistical life and average value of injury crashes.
- Traffic delay -- Traffic delay results in increased travel time for “on-the-clock” business travel and freight movement, as well as more time spent traveling for commuting, errands, and other personal travel. These time losses negatively impact Colorado’s economy. To estimate delay reduction associated with

<sup>1</sup> “A Return to Science: Evidence-Based Estimates of the Benefits of Reducing Climate Pollution.” The White House, 2021. <https://www.whitehouse.gov/briefing-room/blog/2021/02/26/a-return-to-science-evidence-based-estimates-of-the-benefits-of-reducing-climate-pollution/>

emissions-reducing transportation investments, hours of traffic delay reduced (per VMT reduced) are derived from Texas Transportation Institute studies of national traffic congestion and mitigation measures including transit expansion. For highway capacity expansion projects, which reduce delay, hours of delay reduced are based on modeled relationships between volume, capacity, and travel time. Capacity expansion projects consider the effects of “induced demand”, or increased traffic that is observed to result over time after roads are expanded. This increased traffic may lead to net increases in greenhouse gas emissions as a result of the project, and may offset to some degree the delay reduction benefits.

- Physical inactivity -- A lack of physical activity is associated with increased mortality and other negative health outcomes, increasing health care costs. Investments in walking and bicycling infrastructure and transit services increase physical activity, reducing those associated costs. Physical inactivity in this analysis is valued based on health care cost savings per mile of walking and bicycling activity.<sup>2</sup>

Additionally, there are several categories of benefits from mitigation measures that are real, and may be quite large, but are difficult to quantify and therefore are not reflected in the chart above. These include:

- Reduced vehicle ownership costs - to the extent that areas comply with the GHG requirements by making land use decisions that reduce the need to travel long distances, make areas more walkable and bikeable, and add transit service, it is likely that this will enable more households to reduce their vehicle ownership, for example going from from a 2 car to a 1 car family. This is particularly true for land use changes, where there is a strong correlation between average number of vehicles per household and land use types. While the analysis above captures reduced vehicle operating costs, it does not capture the reduced costs from lower levels of vehicle ownership, including depreciation of vehicle value due to reduced use per vehicle owned, lower cost due to owning fewer vehicles, etc.. Nationwide, researchers have found that households within 1/2 mile of transit stations own on average 0.9 cars, while households in the rest of the metropolitan regions owned, on average, 1.6 vehicles.<sup>3</sup> According to AAA, the annual fixed cost to own a vehicle - including depreciation, insurance, license and registration fees, and finance charges - was on average \$6,200 in 2019, though these costs can range based on the cost and type of the vehicle, and household size.<sup>4</sup>
- Downtown/main street economic revitalization - policies that support dense, walkable downtowns and main streets tend to spark significant economic vitality in those areas, providing customers for restaurants and small businesses. Investments in transit also spur economic benefits such as

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<sup>2</sup> An alternative estimate of physical activity benefits was conducted using estimates of deaths prevented and the value of a statistical life based on U.S. Department of Transportation guidance. This method showed a much higher value of benefits -- nearly \$23 billion in the 2031-2040 timeframe in addition to benefits shown above. This alone is greater than the value of all other social benefits combined and could be considered as a consistent approach relative to other transportation modeling, since the cost benefit analysis for highway projects including capacity expansion projects typically incorporates the value of a statistical life on the benefits side when considering the safety impact of that project, for example safety improvements resulting from adding improved level of safety service at a chokepoint with an accident history. However, in the cases presented in the tables above, the value of benefits is based only on health care cost savings deriving from active transportation, and therefore represents a very conservative estimate of benefits.

<sup>3</sup> Dorn, J. (2004). Hidden in plain sight: capturing the demand for housing near transit. Oakland, CA: Center for Transit-Oriented Development. <https://ctod.org/pdfs/2004HiddenPlainSight.pdf>

<sup>4</sup> Average Cost of Owning and Operating an Automobile, Bureau of Transportation Statistics. <https://www.bts.gov/content/average-cost-owning-and-operating-automobilea-assuming-15000-vehicle-miles-year>

Polzin, S. E., Chu, X., & Raman, V. S. (2008). Exploration of a shift in household transportation spending from vehicles to public transportation (No. NCTR 576-02). <https://www.nctr.usf.edu/pdf/77722.pdf>

increased property values and agglomeration benefits from more efficient land use. These benefits are real<sup>5</sup>, but difficult to quantify and are not included in this analysis.

- Increased access to jobs - Because Colorado already has a very complete roadway network, households that have access to cars have the ability to access employment by driving. By contrast, for residents who do not own cars or have disabilities that preclude driving, many jobs are essentially inaccessible. A more robust transit network will increase access to jobs for these residents, and will provide a larger pool of potential employees for businesses. As an example, within the DRCOG region 6% of households do not have cars and 9% of residents have mobility disabilities<sup>6</sup>. While it is not quantified in this analysis, greater access to employment for these individuals could bring significant economic and equity benefits.

**3. The anticipated costs of the rule or amendment, which shall include the direct costs to the government to administer the rule or amendment and the direct and indirect costs to business and other entities required to comply with the rule or amendment;**

Direct costs to the government to administer the rule

In terms of regulatory implementation, one reason why the Transportation Commission, rather than the Air Quality Control Commission, is pursuing this rule is in order to optimize overhead and streamline implementation resources within the organizations that already house transportation planning functions and expertise.

However, there will be some administrative costs associated with implementing this policy change, especially within the initial years of implementation. Within the state, the Colorado Department of Transportation (CDOT) is largely relying on existing staff positions to support the Transportation Commission's rulemaking, however, CDOT expects to hire three new positions to focus on functions related to implementation. This likely amounts to a cost of up to \$350,000 per year including employee benefits and other costs. Over time, it is possible that the Colorado Department of Public Health and the Environment's Air Pollution Control Division could hire an additional staff modeler to support confirmation and verification of pollution reduction analytics. This cost would amount to roughly another \$125,000-\$150,000 (including benefits).

Moreover, it is expected that some metropolitan planning organizations (MPOs) may require additional staff members dedicated to emissions modeling, as well as additional modeling software. CDOT is exploring options to streamline these overhead expenses and achieve economies of scale, especially as relates to centralizing certain modeling and software capabilities for use as shared services between the state and MPOs. The recently passed state legislation, SB 260, updates the Multimodal and Mitigation Options Fund (MMOF) to allow funds directed into this program to be used for modeling support.

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<sup>5</sup> See for example, Liu and Shi, Understanding Economic and Business Impacts of Street Improvements for Bicycle and Pedestrian Mobility: A Multi-City, Multi-Approach Exploration, National Institute for Transportation and Communities, April, 2020, available at [https://ppms.trec.pdx.edu/media/project\\_files/NITC-RR-1031-1161\\_Understanding\\_Economic\\_and\\_Business\\_Impacts\\_of\\_Street\\_Improvements\\_for\\_Bicycle\\_and\\_Pedestrian\\_Mobility.pdf](https://ppms.trec.pdx.edu/media/project_files/NITC-RR-1031-1161_Understanding_Economic_and_Business_Impacts_of_Street_Improvements_for_Bicycle_and_Pedestrian_Mobility.pdf), which found significant increases in retail and food service income and employment associated with bicycle and pedestrian access improvements.

<sup>6</sup> Denver Regional Active Transportation Plan, DRCOG, 2019, available at [https://drcog.org/sites/default/files/resources/DRCOG\\_ATP.pdf](https://drcog.org/sites/default/files/resources/DRCOG_ATP.pdf)

## Costs to business and other entities required to comply with the rule

As described in detail in the background section above, it is assumed that costs to implementing agencies are net neutral -- representing some shift in how dollars are prioritized rather than an overall change in the amount of spending on transportation. For example, some, but by no means all, dollars would shift from highway capacity expansion projects to other types of transportation investment including but not limited to bus rapid transit lanes or queue jumps as part of road projects; walking and bicycling facilities; additional transportation services, including expanded transit service and ridesharing options; and/or consumer incentives to reduce travel or encourage travel by more efficient, lower-emissions modes (such as ridesharing or telecommuting incentives). Importantly, it is anticipated that all costs shifted towards these types of investments will themselves result in mobility benefits and economic development, as well as improvements to air quality and pollution reduction.

Importantly, as described above, it is assumed that only a portion -- roughly a third -- of capital program dollars are shifted towards projects that also serve as mitigation, in addition to providing mobility benefits of their own. This means that the most critical capacity projects are assumed to advance, likely paired with mitigation and significant investment in achieving and maintaining a state of good repair for roads, bridges, tunnels, and other transportation infrastructure assets across Colorado.

It is worthy of note that additional federal investment could augment overall resources, and especially those resources geared towards transit and multimodal investments. For example, the Senate-passed Infrastructure Investment and Jobs Act would expand transit formula funds over the next five years by about \$39.5 billion, a 43% increase over the FAST Act. Under current FTA funding formulas, Colorado could receive more than \$900 million over the course of 5 years, an increase of approximately \$40 million a year. The Act also contains \$66 billion for Amtrak while Colorado continues to work towards passenger rail along the front range.

Businesses are not expected to incur significant direct costs to comply with the rule under the proposed implementation of the rule. As noted previously, there are a variety of social benefits (cost savings) that will be realized by the rule, some of which will accrue to Colorado's businesses. Importantly, this rule does not require that businesses implement trip reduction strategies that would have been required in a separate rulemaking recently withdrawn by the Air Quality Control Commission (AQCC). While businesses are encouraged to pursue employee trip reduction on a voluntary basis, and MPO's and CDOT through their Travel Demand Management (TDM) programs are able to help and encourage businesses in this effort, nothing in this rule requires it.

Lastly, both the benefit and cost assumptions within the rule assume that implementing agencies come into full compliance with the rule over the period of performance. However, the way that the rule is structured, the enforcement mechanism for non-compliance requires that a portion of an agency's capital funds -- which for MPOs are only those funds sub-allocated via the state as well as those specifically noted in Senate Bill 260 as being conditioned in this manner -- become restricted to projects that are demonstrated to reduce pollution and improve mobility. The recipient retains discretion over what pollution reducing investments are made, so long as those investments are approved as mitigations pursuant to the process set forth in the proposed rule. No entity would lose funds as a result of the enforcement provisions becoming effectuated by not hitting the targets in totality. The goal of this policy is to perpetuate serious conversation and planning for how the choices that planning entities make can provide consumers with the choices that are needed to reduce pollution and

improve quality of life, not to diminish the ability of any entity to invest these dollars in mobility solutions for Coloradans.

#### 4. Any adverse effects on the economy, consumers, private markets, small businesses, job creation, and economic competitiveness; and

The proposed measures will affect Colorado industries in varying ways depending upon how spending increases or decreases for different types of vehicles, fuels, and equipment. Multipliers from the IMPLAN model were used to translate changes in spending for two industries directly affected by reductions in VMT -- gasoline and diesel sales and automotive maintenance and repairs -- into changes in direct gross state product (GSP) for those industries. IMPLAN is an economic input-output model that contains data on how spending in any one particular industry will directly and indirectly affect output, jobs, and other metrics in that industry and other industries. The IMPLAN multipliers used are \$0.18 million GSP change per \$million spending change on gasoline, and \$0.67 million GSP change per \$million spending change on automotive maintenance and repairs. The different impacts reflect the fact that more of the money spent on maintenance and repairs stays within the state of Colorado than money spent on gasoline and diesel fuel.

Table 3 shows the anticipated GSP effects for the combined VMT reduction measures for those directly affected industries, compared to baseline projected GSP levels for each industry in each year. The estimated effects are similar for both Comparison A and Comparison B since they reduce VMT to similar degrees to meet the same GHG reduction targets.

**Table 3**  
**Impacts on Directly Affected Industries**  
**(Gross State Product, 2021 \$millions)**

<b>Spending Category</b>	<b>2022 - 2025</b>	<b>2026 - 2030</b>	<b>2031 - 2040</b>	<b>2041 - 2050</b>
Gasoline and diesel sales	(\$54)	(\$231)	(\$479)	(\$288)
Automotive maintenance and repairs	(\$133)	(\$589)	(\$1,380)	(\$1,177)

These impacts should not be taken as a bottom line impact to Colorado's economy as a whole. The changes in costs and benefits described above will impact Colorado's economy in a variety of different ways. As shown in Table 2, Colorado's residents will save on vehicle operating costs as a result of increased travel options and the need to travel less by personal vehicle. The other social benefits resulting from the rule are also expected to result in economic impacts that may affect different sectors of the economy in a variety of ways. For example, reduced traffic crashes and air pollution will reduce spending in the health care sector, but provide consumers with correspondingly more money to spend on other goods and services that are of greater value to them. These various indirect effects are not quantified in this analysis.

#### Jobs Impact

Generally speaking, research shows that state and local infrastructure investment, along with other forms of government purchase of goods and services, rank<sup>7</sup> amongst the highest categories of spending in terms of yielding a "fiscal multiplier" -- with that multiplier ranging between 0.4 and 2.5. The macroeconomic impact of

<sup>7</sup> [https://www.brookings.edu/wp-content/uploads/2019/05/AutoStabilizers\\_framingchapter\\_web\\_20190506.pdf](https://www.brookings.edu/wp-content/uploads/2019/05/AutoStabilizers_framingchapter_web_20190506.pdf)

infrastructure spending, particularly when considering its impact as part of fiscal stimulus, does not tend to differentiate between the mode of transportation investment, largely because these impacts tend to be measured in terms of jobs created through fields like construction, engineering, and trucking which have more to do with the amount of work done than the substance of the end product. To that end, a rule that results in some shifting between project types should not have a significant net impact on jobs or the fiscal multiplier.

To the extent that there could be some shift in terms of how the modality of transportation spending impacts jobs, this might reflect in the breakdown between capital and operating expenses. For instance, if some portion of programmed transportation dollars shift to transit spending, that would likely entail a larger percentage of dollars spent on operating expenses relative to capital expenses -- as the analysis below shows. This might entail some shift in job type or classification, but should not result in a significant net change in jobs because, much like capital expenses, operating expenses translate directly into jobs in fields such as equipment operation (e.g. bus drivers), repair of both infrastructure and rolling stock (e.g. construction and mechanical work), technology operations (e.g. software and logistics and mapping systems, etc). Notably, there is significant overlap between the job types associated with capital versus operations. In sum, job impacts, much like the fiscal multiplier, are assumed to be strong and consistent so long as they are invested in transportation and irrespective of the specific type of transportation project that they support.

**Table 4**  
**NAICS Job Classifications for Transportation**

NAICS Job Classifications <sup>8</sup>	NAICS CODE
<p style="text-align: center;"><b>Heavy and Civil Engineering Construction</b></p> <p>The Heavy and Civil Engineering Construction subsector comprises establishments whose primary activity is the construction of entire engineering projects (e.g., highways and dams), and specialty trade contractors, whose primary activity is the production of a specific component for such projects. Specialty trade contractors in Heavy and Civil Engineering Construction generally are performing activities that are specific to heavy and civil engineering construction projects and are not normally performed on buildings. The work performed may include new work, additions, alterations, or maintenance and repairs.</p>	237
Highway, Street, and Bridge Construction	2373
Other Heavy and Civil Engineering Construction	2375
<p style="text-align: center;"><b>Transit and Ground Passenger Transportation</b></p> <p>Industries in the Transit and Ground Passenger Transportation subsector include a variety of passenger transportation activities, such as urban transit systems; chartered bus, school bus, and interurban bus transportation; and taxis. These activities are distinguished based primarily on such production process factors as vehicle types, routes, and schedules.</p>	485
Urban Transit Systems	4851
Other Transit and Ground Passenger Transportation	4859
Interurban and Rural Bus Transportation	4852

**5. At least two alternatives to the proposed rule or amendment that can be identified by the submitting agency or a member of the public, including the costs and benefits of pursuing each of the alternatives identified.**

Two alternative implementation scenarios for the rule were considered, including:

<sup>8</sup> [https://www.bls.gov/iag/tgs/iag\\_index\\_naics.htm](https://www.bls.gov/iag/tgs/iag_index_naics.htm)



Alternative 1: A lower level of pollution savings based on modeling assumptions that only factored in savings associated with travel choices: Programs to encourage non-work travel by non-single occupancy vehicle modes; programs to support and encourage tele-travel (e.g., on-line health care, education, and shopping) as a substitute for physical travel; investment in bicycle and pedestrian infrastructure and micromobility services; and reduction of transit fares. Essentially, this regulatory alternative achieves the lowest cumulative pollution reduction targets and assumes fewer illustrative choices by agencies to meet them.

Alternative 2: A pollution reduction scenario at a level where the model assumed an illustrative set of actions including travel choices and expanded transit service. Notably, since most of the costs assumed in the rule relate to the ongoing cost of transit operations, this scenario would reflect most of the costs associated with the current proposal.

In contrast to the illustrative package of policy choices used to evaluate the proposed rule, these alternatives do not include additional land use policies to reduce vehicle travel. As a result, they are less likely to achieve the required greenhouse gas reduction targets and therefore to support overall state goals for GHG reduction and climate change.

The economic benefits (reductions in social costs) from these alternatives are presented in Table 5. The “travel choices” alternative (Alternative 1) achieves the lowest greenhouse gas emission reductions. The “travel choices + transit” alternative (Alternative 2) results in additional social cost savings and greenhouse gas reductions. The proposed alternative for this rule (which includes travel choices, transit, and land use policies) results in a further increase in greenhouse gas benefits. These considerations resulted in proposing this alternative to analyze the effects of the final rule. As with the base alternative, the net costs of implementing the rule to the public sector would assume similar levels of overhead (staffing) at implementing agencies but would otherwise assume that topline funding remains the same with some portion shifted from planned highway expansion into other, emissions-reducing modes and services.

**Table 5**  
**Net Present Value of Economic Benefits (Cost Savings) for Alternatives (\$millions)**

<b>Scenario</b>	<b>Alternative 1: Travel Choices</b>	<b>Alternative 2: Travel Choices + Transit</b>
2022 - 2025	\$(1,527)	\$(1,644)
2026 - 2030	\$(6,776)	\$(7,268)
2031 - 2040	\$(14,852)	\$(16,102)
2041 - 2050	\$(10,603)	\$(11,397)

## **Appendix A. Detailed Analysis of Economic Benefits and Costs**

This appendix provides detailed information and assumptions supporting the estimates of economic benefits and costs for the proposed Colorado transportation greenhouse gas (GHG) reduction rule. Information is presented for each of the illustrative measures that are assumed to be implemented to achieve the targets set forth in the rule. This information includes a description of the measure and how it is expected to affect economic benefits and costs; a table showing the various estimated costs and benefits of the measure; and additional details about the key assumptions and data sources.

Some effects of the measures will show up as economic benefits to one party and costs to another party. For example, reduced transit fares are an additional cost to the public sector (lost fare revenue), but a benefit to consumers.

The social benefits were estimated based on the estimated reductions in vehicle-miles traveled (VMT) and GHG emissions from each measure. VMT and GHG reductions, and the associated economic benefits, were estimated cumulatively for the entire set of measures anticipated to be implemented under the proposed rule and its two alternatives, rather than individually for each measure. VMT, GHG, and associated cost changes are discussed in a separate section following the discussion of public sector implementation costs.

### **Analysis Timeframe**

Implementation of measures is assumed to start in 2022 or 2023 depending on the measure. The year in which measures are assumed to be fully implemented varies depending upon the measure.

The analysis considers impacts of the proposed rule in four timeframes: 2022-2025, 2026-2030, 2031-2040, and 2041-2050. Economic benefits and costs were estimated based on a time-stream of costs incurred between 2022 and 2050, expressed as net present values (NPV) for each timeframe. Costs are expressed in 2021 dollars.

### **Public Sector Costs**

#### Travel Choices: Household-Based Trip Reduction

This set of measures includes programs combining information, incentives, and services to encourage non-work trip reduction and mode shifting away from SOV travel. Trips may include school trips, shopping, personal business, recreation, etc. This set of measures includes what are sometimes called “individualized marketing” programs and incentive-based rideshare or trip reduction apps.

Individualized marketing programs and similar information/incentive-based programs were piloted in a number of cities in the early 2000’s and some continue to be implemented today, with some evolution of the programs (for example, to a focus on app-based incentives). One example is the Portland (OR) SmartTrips program, operated by the Portland Bureau of Transportation since 2003. In recent years this program has pivoted to focus on new households moving to the city and is now known as SmartTrips New Movers. Other agencies implementing programs have included Bellevue and King County, WA; Cambridge, MA; Chicago; Salt Lake City; San Francisco, and the Southern California Association of Governments. Washington State has proposed to create a voluntary “all trips” grant program funded at \$10 million per year that would expand on the success of the state’s Commute Trip Reduction program to address non-work trips.

These types of measures entail public sector investment in the form of staff time and materials for marketing, information, and outreach. The program may also provide consumer cost savings as a result of reduced VMT and associated vehicle operating costs, although consumers may also incur some additional costs for expenditures on transit fares, bikeshare services, etc. All of these examples are illustrative of what implementing agencies might select as part of their implementation strategies. Importantly, as noted above, this rule does **not** require any employer-based trip reduction programs that would have been required by a proposed rule that was recently withdrawn by the Air Quality Control Commission (AQCC).

Table A.1 shows the estimated public sector implementation costs for this measure.

**Table A.1**  
**Costs for Household-Based Trip Reduction Programs (millions of 2021 dollars)**

Description	\$ Value per Unit	2022-2025	2026-2030	2031-2040	2041-2050
Program costs	\$30 per HH per year	\$2.9	\$6.2	\$13	\$13

Basis for cost estimates:

- Programs that have been in operation in the U.S. have typically reported administrative costs of around \$15 to \$30 per year per household targeted. The Portland SmartTrips New Movers program is funded at \$250,000 per year at a cost of just under \$30 per household.<sup>9</sup>
- The total cost is based on the assumed participation of 3.2 percent of Colorado households (77,300 households in 2030) as described in the discussion of VMT reduction estimates for this measure below.

#### Travel Choices: Tele-Travel

This set of measures includes programs to encourage the substitution of “virtual” travel for commute trips as well as for non-work activities such as shopping, medical appointments, and education. Examples of state and MPO policies and actions to support virtual travel may include but would not be limited to programs to encourage and support employers in developing work from home policies; revision of health care regulations, if needed, to permit or encourage remote services to the degree feasible and appropriate; and directives to publicly funded post-secondary educational institutions to support distance learning.

Tele-travel will also be supported by investments to expand broadband infrastructure to cover all households in the state. The Colorado Broadband Office is already supporting broadband expansion with the aid of Federal grant programs as well as state funds. In the long run to maximize broadband use by all residents of Colorado, support may also be needed for low-income households that cannot afford service even if it is available. For this analysis it is assumed that additional state costs beyond ongoing infrastructure investment measures are minimal and limited to program support to encourage tele-travel and broadband adoption.

Table A.2 shows the estimated public sector implementation costs for this measure.

**Table A.2**  
**Costs for Tele-Travel Programs (millions of 2021 dollars)**

Description	\$ Value per Unit	2022-2025	2026-2030	2031-2040	2041-2050

<sup>9</sup> Portland Bureau of Transportation, “About Smart Trips”, <https://www.portlandoregon.gov/transportation/>

Program administration costs	\$131,000 / staff person	\$0.7	\$0.8	\$0.6	\$0.5
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Basis for cost estimates:

- Program administration - Two additional full-time staff people through 2030 including fringe and overhead for development and implementation of tele-travel programs, one staff person after 2030.

#### Travel Choices: Bicycle, Pedestrian, and Micro-Mobility Facilities, Policies, Initiatives

This set of measures includes bicycle and pedestrian infrastructure investment as well as incentives to support micro-mobility services such as shared or privately owned electric bicycles and scooters.

Public sector costs include infrastructure costs for pedestrian and bicycle facilities, and subsidies for low-income households to increase their participation in electrified micromobility options.

The costs for consumers who choose to purchase equipment like bicycles is subtracted from what those consumers might be expected to save by not operating vehicles. Importantly, though, micro-mobility options do not in any way require specific individuals to use those options; they merely expand the universe for personal choice. It is also assumed that the public sector provides an income-targeted subsidy in order to increase participation by low-income households.

Table A.3 shows the estimated public sector implementation costs for this measure.

**Table A.3**  
**Costs for Bicycle, Pedestrian, and Micro-Mobility Facilities, Policies, Initiatives (millions of 2021 dollars)**

Description	\$ Value per Unit	2022-2025	2026-2030	2031-2040	2041-2050
Infrastructure costs – sidewalk	\$170,000 / mile	\$100	\$112	\$187	\$32
Infrastructure costs – bicycle	\$25,000 / mile of lane \$250,000 / mile of special facility	\$46	\$50	\$84	\$15
Maintenance	10% of capital	\$46	\$145	\$496	\$566
Electric micromobility equipment subsidy	\$250 / HH / year	\$0.4	\$1.5	\$5.9	\$8.4

Basis for cost estimates:

- Data from the Denver region was used to estimate that there are about 18,800 miles of sidewalk in this region. The DRCOG regional travel demand model includes data on sidewalk density for each traffic analysis zone (TAZ). The model includes six area types, from central business district (CBD) to rural. The number of miles of sidewalk in each area type was estimated by multiplying the sidewalk density in each TAZ by the area of the TAZ, as shown in Table A.9, totalling nearly 19,000 existing miles. For illustrative purposes, it is assumed that 1,900 new or improved miles of sidewalk are added by 2030 and 4,700 new or improved miles of sidewalk are added by 2050 in metro areas and smaller communities across the state. These values represent 10 and 25 percent of the Denver region supply, respectively. It is assumed that this work may include upgrading deficient sidewalks as well as



constructing new sidewalks where none are currently provided. It is further assumed that this work occurs over a 20-year period (2022 – 2041) at a cost of \$170,000 per mile based on Florida DOT data.<sup>10</sup>

**Table A.4**  
**Existing Sidewalk Estimates, Denver Region**

Area Type	Sidewalk Miles
1 = Denver CBD	51
2 = CBD Fringe & Outlying CBD (ex. Boulder CBD)	448
3 = Urban Neighborhood	3,031
4 = Suburban Neighborhood	15,004
5 = Rural Area (Non-Mountainous)	224
6 = Rural Area (Mountainous)	37
<b>Total</b>	<b>18,795</b>

- Bicycle facilities: Construction is assumed of 2,500 linear miles of new bike lanes at \$25,000 per mile and 2,500 linear miles of new separated bike lanes and shared-use paths at an average cost of \$250,000 per mile, over a 20-year period, based on cost estimates from Cambridge Systematics (2020).<sup>11</sup> The estimate of the added length of facilities is described in the section on VMT reductions below and would occur in metro areas and smaller communities across the state.
- Sidewalk and bike facility maintenance: 10 percent annually of cumulative construction costs, based on industry estimation rules.
- Cost per e-bike: eBikesHQ.com (2019), assumed to decline from \$2,000 in 2019 declining to \$1,500 by 2025. Bicycle lifetime of 6 years from ITF (2020).<sup>12</sup>
- Number of new e-bikes purchased: Change in annual bike-miles traveled based on e-bike speed increase as described in the section on VMT reductions below, divided by 1,500 miles per bike per year (1 round-trip, 3 days a week, average length 5 miles, or per ITF (2020)).
- To estimate a subsidy value (public sector share of e-bike costs), it is assumed that 11 percent of households purchasing an e-bike are low-income (per statewide model) and receive a purchase voucher from the state.

#### Transit – Expansion of Service Coverage, Frequency, and/or Hours

This measure includes expansion of transit service, including fixed-route and demand-responsive buses as well as rail transit. It is also assumed that buses are electrified over time. However, the costs and benefits of bus electrification are not considered here, since bus electrification is not a VMT reduction measure. The costs shown in this section represent the incremental costs of adding service using existing technologies.

<sup>10</sup> Florida DOT (n.d.). “Cost Per Mile Models for Long Range Estimating“, <https://www.fdot.gov/programmanagement/estimates/lre/costpermilemodels/cpmsummary.shtml>.

<sup>11</sup> Cambridge Systematics, Inc. (2020) “Transportation and Climate Initiative - 2019/2020 TCI Investment Strategy Tool Documentation.” Prepared for Georgetown Climate Center.


<sup>12</sup> International Transport Forum (ITF). (2020). “Good to Go? Assessing the Environmental Performance of New Mobility.”

The public sector costs include additional operating costs for the expanded service, as well as additional capital investment for vehicles to provide the service. These added costs are partially offset by added fare revenue resulting from increased ridership (shown as a negative cost).


Travelers may incur some additional costs in the form of fares paid for new trips taken. These are subtracted from the vehicle operating cost savings for this measure.

Table A.5 shows the estimated annual public sector implementation costs for this measure.

**Table A.5**  
**Costs for Transit Service Expansion (millions of 2021 dollars)**

Description	\$ Value per Unit	2022-2025	2026-2030	2031-2040	2041-2050
Vehicle costs	\$435,000 per bus	\$38	\$136	\$394	\$452
Operating costs	See below	\$200	\$718	\$2,083	\$292
New transit fare revenue	\$0.75 per trip 	(\$68)	(\$243)	(\$706)	(\$809)

Basis of cost estimates:

- It is assumed that vehicle revenue-miles (VRM) are increased by 6 percent annually statewide between 2022 and 2030, with an annual increase of 2 percent between 2030 and 2050.
- Vehicle costs – \$435,000 per new bus (NREL, 2017); An average of 3.11 buses are needed per 100,000 VRM of service, the average for the “motor bus” mode for all Colorado operators, from the 2019 National Transit Database (NTD).
- Operating costs – Average operating costs are assumed to be \$5.96 per VRM. This is the average cost for “rapid bus” service operating in Colorado as of 2019 according to reporting for the 2019 NTD. For comparison, the cost per VRM for regular motor bus service is in the range of \$3.89 to \$6.28 for the state’s smaller MPOs and is \$9.20 for the Denver region. It is assumed that funds for additional transit expansion under this rule would be directed into services such as bus rapid transit that are more cost-effective from a GHG reducing perspective.
- New transit fare revenue/expenses – Public agencies recoup some of their operating costs through increased fare revenue. The estimate is based on an average fare per trip of \$0.75 based on 2019 NTD data for all Colorado operators. Transit ridership is assumed to increase in proportion to service levels, meaning that higher quality and frequency service results in more individuals choosing to use transit. 

### Transportation-Efficient Land Use

This measure includes policy changes and incentives, such as funding for planning and potential changes to transportation project selection criteria, to encourage transit-supportive land use and walkable neighborhoods that reduce vehicle-travel per household.

Land use measures are assumed to be achieved mainly through the operation of market forces responding to market demand for mixed-use neighborhoods that are supported by changes to local plans and zoning regulations. Therefore only minimal costs to the public sector are assumed for making administrative changes to plans and zoning.



Table A.6 shows the estimated annual public sector implementation costs for this measure.

**Table A.6**  
**Costs for Land Use Measures (millions of 2021 dollars)**

Description	\$ Value per Unit	2022-2025	2026-2030	2031-2040	2041-2050
Administrative costs	\$50,000 per municipality	\$7	\$8	\$13	\$11

Basis for cost estimates:

- Administrative costs – 272 municipalities in Colorado at an average of \$50,000 in planning costs per municipality per five-year period for updating and revising plans and zoning.

#### Reduced Investment in Adding Additional Roadway Capacity

This analysis assumes a reduction, but by no means an elimination, in spending on roadway capacity expansion relative to the “baseline” scenario of what is forecasted in long range regional transportation plans (RTPs) over the next several decades. That investment is anticipated to shift to other public investment in transportation mobility, illustrating a “net revenue neutral” implementation of the rule.

Table A.7 shows the estimated annual public sector implementation costs saved as a result of implementing fewer highway capacity expansion projects. These costs saved are assumed to be re-directed to other investments that reduce GHG and help offset the inclusion of other roadway capacity expansion projects remaining in the plans.

**Table A.7**  
**Assumed Cost Reduction for Roadway Capacity Expansion (millions of 2021 dollars)**

Description	\$ Value per Unit	2022-2025	2026-2030	2031-2040	2041-2050
Construction costs	\$5 million per lane mile (freeway) \$1.5 million per lane mile (arterial)	\$418	\$985	\$2,656	\$2,692

Key assumptions in this analysis include:

- Freeway and arterial expansion costs average \$5.0 million and \$1.5 million per lane-mile, respectively.
- Mix of investment is 75 percent for freeway capacity and 25 percent for arterial capacity (on a dollar basis).
- There is a lag of 2 years (for freeways) and 1 year (for arterials) between “spending” the funds and realizing the benefits (i.e., roadway open to service).

#### **Economic Benefits (Social Cost Savings)**

The various social cost savings estimated in this document rely on estimated changes in vehicle-miles of travel, traffic delay, and person-miles of walking and bicycling as a result of each measure. General modeling

tools used in this analysis are first discussed, followed by a discussion of assumptions specific to each measure. The social cost savings analysis also draws on key assumptions documented above in the assessment of public sector implementation costs.

### Modeling Tools

To estimate VMT reductions, the Colorado Department of Transportation statewide travel demand model and the Colorado implementation of the Energy and Emissions Reduction Policy Analysis Tool (EERPAT) were used, along with off-model spreadsheet-based analysis where needed to prepare model inputs and process model outputs.

The Colorado statewide travel demand model is a network-based model that predicts changes in traffic flows by mode and location based on future changes in demographics, job locations, costs, transportation networks, and other factors. At the time of the analysis the statewide model was set up for 2015, 2030, and 2045. Results from 2030 and 2045 runs were interpolated to obtain 2040 estimates. Results from 2045 runs were extrapolated to represent 2050.

EERPAT is a tool developed by the Federal Highway Administration and designed specifically for analysis of greenhouse gas reduction measures. EERPAT models policies at the regional level. In the Colorado application of the model, five regions are defined corresponding to the state's MPOs:

- DRCOG (Denver Regional Council of Governments) – Greater Denver area.
- GVMPO (Grand Valley MPO) – Grand Junction area.
- NFRMPO (North Front Range MPO) – Fort Collins area.
- PACOG (Pueblo Area Council of Governments) – Pueblo area.
- PPACG (Pikes Peak Area Council of Governments) – Colorado Springs area.

The statewide model and EERPAT each have strengths for evaluating different measures, so the best model for each measure was selected and the results then combined. Only personal light-duty vehicle travel within Colorado is considered, along with emissions from bus service that changes as part of the scenarios. To ensure a consistent baseline of VMT, percent VMT reductions from EERPAT for measures modeled in EERPAT were applied to total VMT from the statewide model.

GHG emissions were modeled using the U.S. Environmental Protection Agency Motor Vehicle Emission Simulator (MOVES3) emission factor model, based on VMT changes from the statewide model and EERPAT. The GHG modeling was conducted by the Colorado Department of Public Health and Environment – Air Pollution Control Division. The MOVES model accounts for Colorado-specific factors such as the age of the vehicle fleet, the distribution of VMT by different vehicle types and road types, and the speeds at which vehicles travel. MOVES provides GHG emissions in carbon dioxide equivalents (CO<sub>2</sub>e) considering tailpipe emissions of CO<sub>2</sub>, methane, and nitrous oxide. VMT changes for each measure, estimated as described below, were summed for all measures and used to revise MOVES inputs.

### Travel Choices: Tele-Travel

This strategy is evaluated using adjustments to statewide travel demand model inputs and outputs assuming that through incentives and voluntary options, more telework becomes feasible. Note that the model does not assume a policy that requires businesses to limit employee trips.

- Telework is modeled by increasing the fraction of workers choosing to telework compared to the base

year level.

- Tele-school is modeled by adjusting the mode-specific constant for higher education trips so that home schooling meets a target percentage.
- Other tele-travel is modeled by making adjustments to model output VMT to reflect an assumed market size of households reducing their travel and percent reduction in “personal business” travel per household.

The assumed effects of tele-travel policies are as follows:

- Telework (telecommuting): The percentage of workers teleworking at least part-time is increased by a factor of 3, from 6.3 percent to 18.9 percent, compared to baseline levels, reflecting a continuation of trends observed during the COVID pandemic.<sup>13</sup>
- Online participation in postsecondary education: The statewide model includes school trips. It is assumed that higher education students “tele-commute” 40 percent of the time, or on average about 2 days a week for a full-time course load. This is applied as a post-model adjustment to the statewide activity-based model (ABM) trip roster. The model would reflect similar values from an emissions perspective if students walked to class rather than participating virtually.
- Other substitution of travel: Other types of trips (medical, retail, etc.) are not individually modeled but are included as part of a personal business trip type. The number of households reducing their “personal business” travel is estimated using the following assumptions:
  - o Expansion of broadband infrastructure – The Colorado Broadband office tracks broadband coverage and supports programs to expand coverage, including tracking Federal grant programs. An overlay of 2021 broadband coverage on household data from the 2019 American Community Survey (ACS) estimates that 1.97 million of 2.39 million households in Colorado (82.6 percent) currently are in broadband service areas.<sup>14</sup> It is assumed that infrastructure expansion by 2030 will reach nearly all (97 percent) of the state’s households with broadband access, or an additional 344,000 households.
  - o It is also assumed that an additional 5 percent of Colorado households already served by broadband expand their use of teletravel in the future.
- Newly participating households are estimated to take 10 percent fewer “personal business” trips as a result of tele-travel options.<sup>15</sup> This is applied as a post-model adjustment to the ABM trip roster.

### Travel Choices: Bicycle, Pedestrian, and Micro-Mobility Facilities, Policies, Initiatives

This strategy is evaluated using a variety of adjustments to the statewide model, including increasing intersection density to represent expanded/more connected pedestrian networks; increasing walk and bike speeds to represent improved transit access and increased use of e-bikes and e-scooters; and adjusting various model parameters to reflect overall conditions that encourage walking and biking by all demographic

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<sup>13</sup> During the height of the pandemic (May 2020), work-at-home rates were as high as 35 percent. More recently (October 2020 to January 2021), the rate stabilized around 22 percent. Source: Data from Bureau of Labor Statistics, Current Population Survey Supplement, as analyzed by University of Colorado Leeds School of Business and presented to Denver Regional Transit District, April 13, 2021.

<sup>14</sup> Per the Colorado Broadband Office, broadband is defined as a minimum of 25 megabits per second (Mbps) download and 3 Mbps upload. See <https://broadband.co.gov/> for a map of broadband coverage. The overlay was done at the Census block group level, assuming that households are evenly distributed within a block group.

<sup>15</sup> While the statistics will vary for Colorado, the 2017 National Household Travel Survey shows an average annual VMT per U.S. household of 19,642, of which 31.8 percent is for shopping or other personal business (McGuckin and Fucci 2018, Table 6a). A 10 percent reduction in personal business travel would be a 3.2 percent reduction in overall travel for these households or 642 VMT per year. The Colorado statewide model may show different results, as changes in personal business travel may affect other types of travel.

groups. The model was adjusted so that the increase in bicycling matched a target estimate of total bicycle-miles of travel based on increasing bicycle travel related to additional bicycle infrastructure (new annual bike-miles traveled per new lane/path mile) as observed in other U.S. cities.

### *Pedestrian and Bicycle Improvements*

To model improved pedestrian conditions, intersection density was increased 10 percent in 2030 over the baseline, or 25 percent in 2050, in the “suburban” area type, representing the application of policies to increase street network connectivity. Numerically this is equivalent to an increase of 16 four-way intersections in each zone. This was applied only to area types 2 (outlying CBD & fringe), 3 (urban), and 4 (suburban). While the statewide model does not include data on sidewalk density, the relative increase in intersection density is consistent with the increase in sidewalk density assumed for cost estimation above. Intersection density was increased by 5 percent in 2030 and 15 percent in 2050 for the “urban” area type, with the smaller increase reflecting the generally more connected nature of streets in urban areas.

The total miles of bicycle facilities needed to achieve a complete network in all of the urbanized land area of Colorado (census-defined urbanized areas) was estimated by assuming a build-out of separated bike lanes or shared-use paths at one-mile intervals, along with on-street bike lanes every ½ mile in between. Previous research, considering literature and models on the effectiveness of bike investment in the U.S., has estimated the number of new bicycle-miles of travel per year per mile of new facility in urban and suburban neighborhoods of various densities (Cambridge Systematics, 2020). The values used in that analysis are shown in Table A.8. These are applied to the proportion of land in CBD or “CBD fringe”, “urban”, and “suburban” area types as defined in the statewide model. Values from that study are multiplied by the required length of facilities to build out a network.

**Table A.8**  
**New Bicycle Travel per New Facility-Mile**

<b>Area Type:</b>	<b>Core/High Urban</b>	<b>Medium Urban</b>	<b>Suburban</b>	
<b>Statewide Model Area Type:</b>	<b>CBD (1) or CBD Fringe (2)</b>	<b>Urban (3)</b>	<b>Suburban (4)</b>	<b>Average</b>
New annual bike-miles per new facility mile	146,000	82,000	26,000	64,000
% of urban land area in Colorado MPO areas	14%	39%	48%	

To estimate the extent of bike network added, a build-out of bike lanes and paths is assumed at ½ mile spacing for the entire urbanized area within Colorado (1,256 square miles) over a 20-year period between 2022 and 2041. This corresponds to 5,000 new miles of facility or 250 new miles per year. This is assumed to be split equally between on-street bike lanes and specialized facilities including physically separated bike lanes, bike boulevards, and off-street paths. The resulting increase in bicycle-miles of travel (BMT) compared to baseline conditions as estimated by the statewide model for years 2030 and 2045 is shown in Table A.9.

**Table A.9**  
**Bicycle Travel Increase From Facility Investment**

<b>Year</b>	<b>Baseline BMT (millions)</b>	<b>New Facility-Miles</b>	<b>Additional BMT (millions)</b>	<b>Total BMT (millions)</b>	<b>% Over Base</b>
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2030	346	2,250	144	474	37%
2045	405	5,000	320	717	77%

Additional statewide model adjustments to estimate the effects of improved walking and bicycling conditions included:

- Gender-specific constants for walking and biking: zeroing out negative terms for females; transferring positive coefficient for males to the bike or walk constant.
- Zeroing out negative terms for under age 20 other tour purposes.
- Reduction of disutility (negative interaction term) equivalent to 1.5 miles for rural area type term for bike to school tours.
- Walking interaction terms related to age 35 and age 50 thresholds changed to age 75 for work walk tours, other walk tours, other bike tours, and walk trip mode.
- Vehicular speed reduction of 2 to 11 mph, typically 6 mph, for access-oriented (versus mobility-oriented) facility types. Only applied in non-rural area types; applied to facility types 3 (principal arterial), 4 (minor arterial), and 5 (collector & local); peak and off-peak input speeds also adjusted if they would exceed the new free-flow speed.
- Walking speed (through perception of walking time) on transit access links increased to 5 mph from a base of 3 mph.
- Biking speed on transit access links increased from 12 to 13 or 14 mph.

### *Electric Bicycles*

It is assumed that with a connected network of infrastructure in place to serve walk and bike trips, electric bicycle (e-bikes) will become more widely used. To represent electrification, the average speed of bicycling in the statewide model was increased by 33 percent.<sup>16</sup> The share of bikes that are e-bikes was assumed to be 25 percent in 2030 and 50 percent in 2050, so the average speed increase across all bicycle trips is modeled as 8 percent in 2030 (from 12 to 13 mph) and 16 percent in 2050 (from 12 to 14 mph).

### Transit: Expansion of Service Coverage, Frequency, and/or Hours

The VMT effects of transit expansion are modeled in EERPAT using the following inputs:

- **Transit\_growth.csv:** Ratio of future transit revenue miles to base year transit revenue miles, as well as proportion of transit revenue miles that are electrified rail transit.

In 2019, based on data reported by Colorado's transit operators to the National Transit Database, 81 million vehicle revenue-miles of service were provided by all modes in Colorado's five metro areas. For this measure it is assumed that transit revenue-miles will increase by 6.0 percent per year between 2022 and 2030 (69 percent total growth between 2019 and 2030), and by 2.0 percent a year between 2030 and 2050 (151 percent total growth between 2019 and 2050) compared to base year (2019) service levels. This compares with a statewide growth in transit VRM of 2.9 percent annually (76 percent) between 2000 and 2019 (3.1 percent for the Regional Transit District, 1.2 percent average for other operators in the state).

<sup>16</sup> On average, e-bikes require 24% less total EE (kcal/kg/min) than conventional bicycles - Langford, B. C., Cherry, C. R., Bassett, D. R., Jr., Fitzhugh, E. C., & Dhakal, N. (2017). Comparing physical activity of pedal-assist electric bikes with walking and conventional bicycles. *Journal of Transport & Health*, 6, 463–473.  $1/(1 - 0.24) \approx 1.33$ .

The VMT reduction percentage was carried over into the statewide model by reducing the ABM trip roster by the same percentage for trips by residents of MPO zones.

### Transportation-Efficient Land Use

This strategy is modeled in EERPAT using the following input:

- **metropolitan\_urban\_type\_proportions.csv**: proportions of households in urban mixed-use areas.

Urban mixed-use areas are defined for this analysis as statewide model TAZs categorized as “urban” or higher area type (*AreaType* = 1, 2, or 3) with a population density of at least 2,000 per square mile and a retail/service job density (*Entertainmentemployment* + *Retailemployment* + *Restaurantemployment*) of at least 500 per square mile. This was the density threshold used in the Carbon-Free Boston study (Cambridge Systematics, 2019) which was based on evaluation of different thresholds and qualitative comparison against community characteristics such as walkability.

The base year (2015) number and percent of households in mixed-use urban areas was estimated using statewide model estimates of households and the mixed-use variable. This calculation was repeated for 2030 and 2045 to estimate the number of households in mixed-use areas under baseline forecast growth conditions in the future. The 2015 and 2030 data were interpolated to estimate 2023 values as the start year for additional land use policy implementation.

The 2023 percent of households in mixed-use areas ranges from 11 percent in the GVMPO region to 33 percent in the Denver region. Between 2023 and 2030, the fraction of growth in mixed-use areas ranges from 10 percent in the NFRMPO region to 43 percent in the Denver region. Under the policy scenario, this is assumed to increase to 75 percent in the Denver region and to 50 percent in other MPO regions between 2023 and 2050.

It is also assumed that some areas of existing households redevelop over time into mixed-use areas, through infill commercial development in neighborhood business districts. It is assumed that 4 percent of existing households per decade are in areas that change from non-mixed use to mixed-use. The resulting values of baseline and scenario projections for the percent of households in mixed-use areas, including new households and redeveloped areas, are shown in Table A.10..

**Table A.10**  
**Households in Mixed-Use Areas**

	Households in Mixed-Use Areas					% of 2023-2030 Growth in Mixed-Use Areas		% of 2030-2045 Growth in Mixed-Use Areas	
MPO Region	2023	2030 Base	2030 Scenario	2045 Base	2045 Scenario	Base	Scenario	Base	Scenario
DRCOG	32.5%	33.5%	38.5%	33.8%	47.1%	42.9%	75.0%	35.7%	75.0%
GVMPO	11.2%	12.4%	18.7%	16.8%	29.9%	20.3%	50.0%	34.7%	50.0%
NFRMPO	18.3%	17.1%	25.5%	16.2%	36.8%	10.0%	50.0%	13.4%	50.0%
PACOG	14.5%	16.0%	20.5%	14.7%	29.6%	28.9%	50.0%	6.1%	50.0%
PPACG	21.6%	20.9%	26.4%	21.9%	34.5%	13.9%	50.0%	27.3%	50.0%



The VMT reduction percentage was carried over into the statewide model by reducing the ABM trip roster by the same percentage for trips by residents of MPO zones.

### Reduced Investment in Roadway Capacity

Capacity additions can increase GHG emissions and other social costs related to vehicle-travel in the long term as a result of induced demand effects. Reducing spending on these capacity projects is likely to provide social benefits in the form of reduced GHG emissions, air pollution, vehicle operating costs, and crash costs associated with vehicle-travel. However, it is likely to increase costs related to travel time and delay. It is important to note that the alternative investments provided by funding made available for other projects will help offset the impacts of any roadway travel time increases.

Key assumptions to estimate the social costs and benefits of reduced road capacity investment include:

- Expanded roads have a base VMT of approximately 20,000 VMT per lane-mile for freeways and 10,000 VMT per lane-mile for arterials. This assumes a freeway lane capacity of 2,000 vehicles per lane per hour with 10 percent of daily traffic in the peak hour. Arterial capacities are reduced by half to account for intersection delay. Analysis of modeling conducted by Cambridge Systematics for a hypothetical freeway widening project in Virginia confirms that 20,000 VMT per lane-mile is a reasonable value.
- The long-run demand elasticity is assumed to be 0.67 for freeways and 0.5 for arterials. This elasticity represents the ratio of percent growth in VMT to percent growth in lane-miles. An elasticity of 0.5 means that a 10 percent increase in lane-miles in a given area would result in a 5 percent increase in VMT in that area. The value of 0.67 is consistent with recent modeling of corridor highway expansion projects conducted by Cambridge Systematics and is at the low end of recent values reported in a literature review, which found values ranging from 0.67 to 1.06 in the U.S.<sup>17</sup> That report also estimated that induced demand elasticities for arterials are 75 percent those of freeways. Since some of the induced demand in corridor studies may be due to growth being shifted from other locations in the same state, it is likely that overall induced demand for a statewide program of investments (such as is being evaluated in the Colorado analysis) is lower than levels found in corridor-specific studies.
- It is assumed that it takes five years to reach full response to induced demand, with effects in years 1-4 scaled up linearly between 0 and the final value.
- Delay savings (minutes saved per base VMT) are estimated based on modeling conducted by Cambridge Systematics. The value is 0.20 minutes per VMT at a demand elasticity of 0.67, which corresponds to a 3 mph average speed increase compared with a base speed of 30 mph. The delay savings are scaled to be zero at an induced demand elasticity of 1.0, and to increase in inverse proportion to the elasticity.
- Fuel savings per hour of delay are estimated at 0.44 gal/hour (mixed traffic – autos and trucks) for 2012 vehicles based on data from the 2012 Texas Transportation Institute Urban Mobility Report. These are scaled for 2022 and future vehicles based on actual and projected changes in fuel efficiency (mpg) and levels of fleet electrification. Energy use and GHG emissions from EVs are assumed not to be sensitive to the level of congestion or delay.

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<sup>17</sup> Volker, J.M.B., and S. L. Handy (2021). The Induced Travel Calculator and Its Applications. University of California Institute of Transportation Studies, UC-ITS-2021-04.

- Delay reduction from highway expansion is valued at \$16.50 per hour per the 2016 U.S. DOT benefit-cost analysis guidance and is calculated after induced demand effects.

## Total VMT and Vehicle Operating Cost Savings

Table A.11 shows baseline forecast VMT emissions for light-duty vehicles and the total projected VMT reductions for the illustrative implementation of the proposed rule and the two alternatives considered.

**Table A.11**  
**VMT by Year, Light-Duty Vehicles**

Scenario	Vehicle-Miles of Travel (millions)		
	2030	2040	2050
Baseline VMT Estimate	63,551	71,069	78,587
<b>Change from Baseline</b>			
Proposed Rule Implementation: Travel Choices + Transit + Land Use	(6,943)	(8,378)	(9,814)
Alternative 1: Travel Choices	(5,876)	(6,197)	(6,146)
Alternative 2: Travel Choices + Transit	(6,633)	(7,593)	(8,138)

Vehicle operating costs are based on gasoline and electricity consumption rates (miles per gallon equivalent) for conventional and electric vehicles from NREL (2017)<sup>18</sup> and fuel and electricity costs from the U.S. Department of Energy Outlook Annual Energy Outlook (AEO) 2021 Reference Case. For conventional and electric vehicles, a “weighted average” fuel efficiency is estimated based on the split of light duty vehicles and light duty trucks. Vehicle maintenance costs are also sourced from NREL (2017) and weighted by the LDV/LDT split. Table A.12 displays fuel prices, energy efficiency, and fuel and maintenance cost per mile for both conventional and electric vehicles from 2020 through 2050.

**Table A.12**  
**Light-Duty Vehicle Operating and Maintenance Costs (2021 \$)**

Operating Cost Inputs	2020	2025	2030	2040	2050
Gasoline Price (\$/gge)	2.22	2.37	2.58	2.91	3.06
Electricity Price (\$/gge)	3.91	3.80	3.69	3.60	3.31
Conventional Energy Efficiency (mpgge)	32.9	33.7	33.4	33.6	34.1
EV Energy Efficiency (mpgge)	104.7	109.7	111.6	116.9	125.2
Conventional Vehicle Cost – Fuel (\$/mi)	0.067	0.070	0.077	0.087	0.090
EV Cost – Fuel (\$/mi)	0.037	0.035	0.033	0.031	0.026
Conventional Vehicle Cost – Maintenance (\$/mi)	0.036	0.038	0.040	0.041	0.041
EV Cost – Maintenance (\$/mi)	0.029	0.030	0.032	0.033	0.033

To calculate total per-vehicle operation and maintenance costs, an annual VMT of 10,450 per vehicle is assumed. This is based on the number of vehicles forecast in 2030 (vehicles growing from current levels in

<sup>18</sup> Wood, E., et al. (2017). National Plug-In Electric Vehicle Infrastructure Analysis. National Renewable Energy Laboratory.

proportion to population) multiplied by miles per vehicle to match the VMT estimates provided by the statewide model.

The total electrified light duty fleet each year is estimated based on state targets, including around 940,000 vehicles in 2030 and 100 percent EV sales by 2040. Using projections from the AEO 2021 Reference Case on vehicle stock growth through 2050, as well as a vehicle turnover model, the EV vehicle stock for 2025, 2030, 2040, and 2050 is estimated alongside vehicle sales, as shown in Table A.13.

**Table A.13**  
**Light-Duty Vehicle Electrification Projections**

<b>Vehicle Category</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>
All Light-Duty Vehicle Stock	5,090,968	5,585,484	6,080,000	6,546,667	7,590,000
EV Stock	39,908	221,357	943,318	3,739,278	6,290,115
EV Sales %	5%	17%	50%	100%	100%
EV Sales	17,818	66,858	21,800	458,267	531,300
EV% of Stock	1%	4%	16%	57%	83%

## **GHG Emission Reductions and Social Cost of Carbon Savings**

Table A.14 shows projected total GHG emissions from on-road sources for the rule and alternatives, while Table A.15 shows the expected GHG reductions in 2025, 2030, 2040, and 2050 respectively, for the rule and alternatives. As noted above, the results assume a high level of electrification of the future vehicle fleet. As a result, the absolute GHG reductions from VMT measures are substantially lower in 2050 than in 2030, even though the cumulative effects of the measures on VMT will increase over time and be greatest in 2050.

**Table A.14**  
**GHG Emissions by Year and Alternative, All On-Road Vehicles**

<b>Scenario</b>	<b>GHG Emissions (million metric tons)</b>		
	<b>2030</b>	<b>2040</b>	<b>2050</b>
Proposed Rule Implementation: Travel Choices + Transit + Land Use	18.1	12.5	7.9
Alternative 1: Travel Choices	18.4	12.8	8.1
Alternative 2: Travel Choices + Transit	18.2	12.6	8.0

**Table A.15**  
**GHG Emissions Change from Baseline Forecast by Year**

	<b>GHG Emissions Change in Year (million metric tons)</b>		
<b>Scenario</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>
Proposed Rule Implementation: Travel Choices + Transit + Land Use	(1.70)	(1.20)	(0.70)
Alternative 1: Travel Choices	(1.43)	(0.88)	(0.44)
Alternative 2: Travel Choices + Transit	(1.62)	(1.09)	(0.59)

To estimate the social cost of carbon savings, greenhouse gas emissions in years between 2030 and 2050 were interpolated, and annual emissions savings before 2030 were ramped up from zero in 2022 to the 2030 level. The social cost of carbon value in each year was then applied to the greenhouse gas emissions in that year. The values used for the social cost of carbon based on the Biden administration guidance are shown in Table A.16 (The White House, 2021).

**Table A.16**  
**Social Cost of CO<sub>2</sub>, 2020-2050 (in 2020 dollars per metric ton of CO<sub>2</sub>)**

<b>Emissions Year</b>	<b>2.5% Discount Rate</b>
2020	76
2025	83
2030	89
2035	96
2040	103
2045	110
2050	116

## **Other Social Benefits**

Other social benefits were valued based on the following data sources and key assumptions.

### Air Pollution

These costs are associated with human health impacts – including mortality and morbidity – as well as crop and forest damage, ecosystem damage (e.g., from acid deposition, ozone damage, and particulate matter deposition), damage to buildings and materials, and reduced visibility. The costs of air pollution are primarily driven by human health.

Changes in emissions of particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) were estimated based on tailpipe emission rates (grams per mile) in each future year, multiplied by changes in light-duty vehicle VMT. Emission rates for internal combustion engine vehicles were sourced from runs of the U.S. EPA MOVES2014 model conducted by Cambridge Systematics in June 2021 for years 2032 and 2040. Emission rates for years prior to 2032 were interpolated with 2017 rates from analysis for the Carbon Free Boston study (2019) conducted by Cambridge Systematics. Emission rates for 2033-2039 were interpolated between 2022 and 2040 rates, and the 2040 rate was used for years after 2040. Tailpipe emissions from electric vehicles were assumed to be zero.

Damage values (\$/kg) are based on the U.S. EPA regulatory impact analysis for light-duty vehicle fuel economy and GHG standards (U.S. EPA, 2010), as reviewed by CS in 2012 for use in the Federal Transit Administration (FTA) New Starts Environmental Benefits Template. Table A.15 shows the damage values used. The damage values are the same as used by FTA in its most current (FY 2021) version of the New Starts and Small Starts reporting templates, with the exception that 2010 dollars have been converted to 2016 dollars using a consumer price index multiplier of 1.1. The EPA values are based on nationwide modeling using county-scale data on emissions, air pollution, and population exposure. The EPA and FTA sources list different damage values for mobile vs. electricity generation sources; the mobile source values are used here. The values used are an average of those provided by FTA for years 2025 and 2035.

**Table A.17**  
**Pollutant Damage Values (\$/kg)**

<b>Pollutant</b>	<b>Damage Value (\$/kg)</b>
PM <sub>2.5</sub>	\$976
NO <sub>x</sub>	\$17.69

## Safety

Safety costs represent costs associated with crashes resulting in fatalities or injuries. To estimate safety benefits, fatality and injury motor vehicle crashes are assumed to be reduced in proportion to VMT reduced. Average rates of 0.013 fatalities and 0.195 injuries per million vehicle-miles are used, based on Fatality Analysis Reporting System (FARS) fatality data from 2000-2009 and injury rates reported by the Bureau of Transportation Statistics (BTS) in National Transportation Statistics (Table 2-17: "Motor Vehicle Safety Data"). These rates were recommended by Cambridge Systematics for the FTA in 2012 and are still being applied by FTA for use in New Starts and Small Starts project evaluation.<sup>19</sup>

Crash reduction benefits are valued at \$9.6 million per fatality based on the latest (2016) U.S. DOT guidance on value of a statistical life. Disabling injuries are valued at \$490,000 based on the value provided in FTA's latest (FY 2021) New Starts and Small Starts reporting templates. The injury value has been inflated by FTA since the original 2012 work (when it was \$323,000) and is applied to the fatality and injury rates stated in the previous paragraph.

## Traffic Delay

<sup>19</sup> See: Federal Transit Administration, New Starts Environmental Benefits Template, available at <http://www.fta.dot.gov/12304.html>.

Hours of traffic delay reduced per VMT reduced are derived from data in the Texas A&M Transportation Institute (TTI) 2012 Urban Mobility Report (UMR). This report estimated potential nationwide reductions in VMT due to shifting to transit, and associated savings in travel delay. These values were used to estimate an average delay savings of 0.015 hours per mile of vehicle-travel reduced, representing a weighted average across metro area sizes. Delay savings were valued at \$16.50 per hour based on U.S. DOT 2021 Benefit-Cost Analysis Guidance.

### Physical Inactivity

A lack of physical activity is associated with increased mortality and other negative health outcomes. Investments in walking and bicycling infrastructure and transit services increase physical activity, reducing those associated costs. Physical inactivity is valued based on health care cost savings of \$0.21 per mile of walking and bicycling activity based on Gotschi (2011). Gotschi analyzed three investment plans in Portland, Oregon. Bicycle health benefits are estimated using a per-capita health care costs of \$544 annually attributable to inactivity (i.e., less than 30 minutes of activity per day), which he derives from three literature sources, with values adjusted for inflation. New bicyclists are assumed to realize these benefits by increasing physical activity from 15 to 45 minutes daily. Gotschi also cites the World Health Organization's Health Economic Assessment Tool (HEAT) for cycling, which uses a relative risk estimate for all cause mortality of 0.72 for 3 hours of bicycling to work per week, from a large Danish cohort study. Gotschi's resulting estimates of cumulative bike miles and cumulative health care savings between 1991 and 2040 equate to about \$0.18 in benefit per additional bike mile of travel, which was inflated to \$0.21 per mile for this study.<sup>20</sup>

An alternative estimate of physical activity benefits was conducted using estimates of deaths prevented and the value of a statistical life based on U.S. Department of Transportation guidance. Output from the HEAT developed for a study done by Cambridge Systematics in Massachusetts was used to estimate the benefits of increased bicycling and walking, along with additional analysis by Cambridge Systematics for use of this information in the Transportation and Climate Initiative Investment Strategy Tool.<sup>21</sup> HEAT provides estimates of benefits in terms of reduced mortality based on the daily increase in walk or bicycle person-kilometers traveled or walk or bicycle person-hours traveled.<sup>22</sup> The walk and bike PMT increases and deaths prevented were used to estimate an overall rate of 1.7 deaths prevented per million new walking PMT, and 0.5 deaths prevented per million new bicycling PMT. These factors were applied to the estimated increases in walking and bicycling due to active transportation and public transportation investments. (Due to data limitations the current analysis only includes new bicycle travel, as shown in Table A.7). Deaths prevented by physical activity were valued at the same \$9.6 million value of a statistical life used in the safety analysis.

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<sup>20</sup> Gotschi, T. (2011). "Costs and Benefits of Bicycling Investments in Portland, Oregon." *Journal of Physical Activity and Health*, 2011, 8(Suppl 1).

<sup>21</sup> Cambridge Systematics, Inc. (2020), *ibid*.

<sup>22</sup> The HEAT tool and documentation are available at: [https://www.who.int/gho/health\\_equity/assessment\\_toolkit/en/](https://www.who.int/gho/health_equity/assessment_toolkit/en/)