

## Greenhouse Gas (GHG) Rule Overview and Initial Analysis

### Background

- HB19-1261 set statewide goals for GHG reductions compared to 2005 levels.
- The State's *GHG Pollution Reduction Roadmap*, finalized in January 2021, identified strategies and GHG reduction goals for each sector, including transportation.
- SB21-260 requires CDOT and the Transportation Commission (TC) to develop new policies and procedures for CDOT and Metropolitan Planning Organizations (MPOs) to address GHG emissions.

### Rule Overview

- The TC is proposing to revise the existing statewide transportation planning rules in 2 CCR 601-22.
- Nine rulemaking hearings are scheduled for 9/17/21-10/7/21. TC action is scheduled for November 2021.
- Rule identifies GHG Reduction Levels for each MPO and for CDOT in the non-MPO area for four compliance years: 2025, 2030, 2040, and 2050.
- Applicable plans, such as the Regional Transportation Plan (RTP) for MPOs and the 10-Year Plan for CDOT in non-MPO areas, would need to meet the GHG Reduction Levels through approved modeling and analysis.
- If GHG Reduction Levels are not achieved, any CMAQ and STBG funds available through the MPO would be restricted to projects that reduce GHGs. CDOT's 10-Year Plan funds for regionally significant projects would be restricted to projects that reduce GHGs. The Rule includes a waiver process that could allow specific projects to proceed.

### Concerns

- GHG Reduction Levels may not be feasible.
- Rulemaking schedule may not accommodate data-driven requirements or data-driven comments.
  - Modeling conducted by CDOT to set GHG Baselines and GHG Reduction Levels is incomplete and appears to have errors; CDOT has proposed re-analyzing.
  - NFRMPO requested GHG analysis using the NFRMPO travel model; analysis is underway by CDPHE staff.
  - CDOT is developing documentation of method and rationale for the GHG Baselines and GHG Reduction Levels; no timeline for availability.
- Rule should require periodic reassessment of GHG reduction levels.

- Due to updated growth forecasts and potential for MPO boundary changes, GHG Reduction Levels should account for change (either with per capita budgets or updates to the baselines and reduction levels).
- Many of the GHG strategies are outside the control of MPOs and CDOT, e.g.:
  - MPOs have no land use authority and very limited ability to encourage land use changes
  - MPOs cannot fund ongoing transit operations through CMAQ or STBG
- Implementers of GHG Mitigation Measures should not be restricted to only CDOT and MPO (i.e. local government efforts should also count).
- The rule lacks specificity on processes, roles, and responsibilities (e.g. no specified timing for TC determination, unclear when funding restrictions occur, lack of process for addressing any concerns from APCD).
- The GHG Mitigation Measure reporting process may be onerous without providing much value.
- If an area does not meet the GHG budget, non-regionally significant projects funded through CMAQ and STBG should not require a waiver to proceed, as with the 10-Year Plan Funds.



**Agenda**

- Greenhouse Gas (GHG) Budgets Background
- Transportation Commission (TC) Rulemaking Schedule
- GHG Rule Description
- Digging Deeper
  - Role of Modeling
  - Role of Population Growth
  - Feasibility of Reductions
  - Impact to Planning Process
- Initial Analysis and Council Discussion
  - Support
  - Concerns

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## GHG Budgets Background



- **HB19-1261** – Set statewide goals for GHG reductions compared to 2005 levels:
  - 2025 – 26% reduction
  - 2030 – 50% reduction
  - 2050 – 90% reduction
- **State’s GHG Pollution Reduction Roadmap** – Identified pathway to meet HB19-1261 goals with strategies and GHG reduction targets in each sector, including the following targets for transportation:
  - 2025 – 25% (7.7 MMT reduction)
  - 2030 – 40% (12.7 MMT reduction)
  - 2050 – 99% (30.5 MMT reduction)
- **SB21-260** – Section 30 creates new requirements for CDOT and MPOs to account for GHG emissions.

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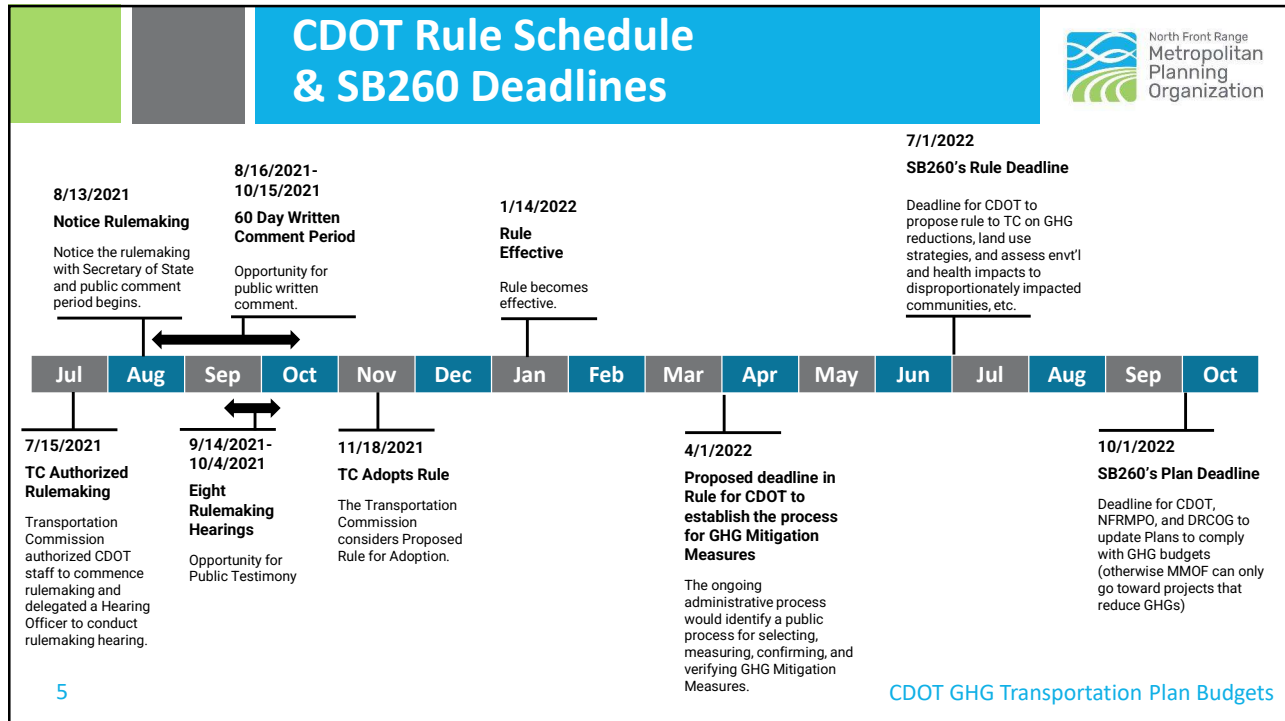
## Rule Notice



- TC is considering revising the rules on the **statewide transportation planning process** and transportation planning regions, 2 CCR 601-22.
- The revisions establish **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.
- CDOT and MPOs will be required to **establish plans that meet GHG transportation reduction targets through a mix of transportation 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.

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## Proposed Revision to State Transportation Planning Rules

- §1 – Definitions for 19 new terms
- §4.06 – Requires statewide plan to include analysis of GHG impact and include 10-Year Plan as an appendix
- §6.01 – Identifies amendment process for the 10-Year Plan (led by CDOT in coordination with TPRs)
- **§8 – GHG Emission Requirements**
  - §8.01 – GHG Reduction Levels
  - §8.02 – Compliance Determination
  - §8.03 – GHG Mitigation Measures
  - §8.04 – Air Pollution Control Division (APCD) Confirmation and Verification
  - §8.05 – Enforcement
  - §8.06 – CDOT Report on GHG (every five years)

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## GHG Reduction Levels (§8.01)




- **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.
- **GHG Reduction Level** - the amount of the GHG expressed as CO2e reduced from the projected Baseline that CDOT and MPOs must attain through transportation planning.
- **Compliance years** – 2025, 2030, 2040, and 2050

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## GHG Reduction Levels (§8.01)



**GHG Reduction Levels in Million Metric Tons (MMT) of CO2e by Compliance Year**

Regional Areas	2025		2030		2040		2050	
	Baseline	Reduction	Baseline	Reduction	Baseline	Reduction	Baseline	Reduction
DRCOG	14.9	0.27	11.8	0.82	10.9	0.63	12.8	0.37
<b>NFRMPO</b>	<b>2.3</b>	<b>0.04</b>	<b>1.8</b>	<b>0.12</b>	<b>1.9</b>	<b>0.11</b>	<b>2.2</b>	<b>0.07</b>
PPACG	2.7	N/A	2.2	0.15	2.0	0.12	2.3	0.07
GVMPO	0.38	N/A	0.30	0.02	0.30	0.02	0.36	0.01
PACOG	0.50	N/A	0.40	0.03	0.30	0.02	0.4	0.01
CDOT/Non-MPO	6.7	0.12	5.3	0.37	5.2	0.3	6.1	0.18
<b>TOTAL</b>	<b>27.4</b>	<b>0.5</b>	<b>21.8</b>	<b>1.5</b>	<b>20.6</b>	<b>1.2</b>	<b>24.2</b>	<b>0.7</b>

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## GHG Reduction Levels (§8.01)



### Extent of GHG Reduction Levels

	2025 Reduction Percentage	2030 Reduction Percentage	2040 Reduction Percentage	2050 Reduction Percentage
<b>NFRMPO</b>	<b>1.7%</b>	<b>6.7%</b>	<b>5.8%</b>	<b>3.2%</b>
CDOT/Non-MPO	1.8%	7.0%	5.8%	3.0%
<b>TOTAL</b>	<b>1.8%</b>	<b>6.9%</b>	<b>5.8%</b>	<b>2.9%</b>

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## Applicability (§8.02)



### Applicable Planning Documents for NFRMPO

- Regional Transportation Plan (RTP)
  - Amendments and New Plans
- Transportation Improvement Program (TIP)
  - New TIPs (Amendments are exempt)


### Applicable Planning Documents for CDOT

- CDOT's 10-Year Plan in non-MPO areas
  - Amendments and New Plans
- CDOT's Four-Year Prioritized Plan in non-MPO areas
  - Amendments and New Plans

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## GHG Transportation Report (§8.02)



A **GHG Transportation Report** is required for each Applicable Planning Document. The report must include:

- **GHG Emissions Analysis**
  - Travel Model and Air Quality Model Analysis of existing transportation network and implementation of **Regionally Significant Projects**.
  - Must estimate total CO<sub>2</sub>e emissions for each compliance year (2025, 2030, 2040, and 2050) and compare to the Baseline.
- **Mitigation Action Plan**
  - Identifies **GHG mitigation measures** needed to meet the GHG reduction levels.
  - For each measure, report start and completion dates, estimate of GHG emissions reductions (where feasible), co-benefits (other pollutants, travel impacts), and impact to Disproportionately Impacted Communities (as defined by SB21-260).

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Regionally Significant Projects


- Rule allows MPOs to use existing definitions
- In NFRMPO, includes new roadway capacity (2+ lane miles), new intersections, new or removed major transit, etc.

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.

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## GHG Transportation Report (§8.02)



The **GHG Transportation Report** must either:

- Demonstrate GHG Reduction Levels are met for each compliance year (2025, 2030, 2040, and 2050), OR
- The NFRMPO must utilize **CMAQ and STBG funds** on projects or approved GHG mitigation measures that **reduce GHG emissions**, and CDOT utilizes **10-Year Plan funds** anticipated to be expended on **Regionally Significant Projects** in the MPO area on projects that **reduce GHG emissions**.

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## Verification/Approval (§8.02, §8.04, and §8.05)



### APCD Verification

- ≥ 45 days prior to the NFRMPO's adoption of an Applicable Planning Document, submit technical data in the **GHG Transportation Report** to APCD for review and verification.
- APCD has 30 days to verify. If they do not, document is considered acceptable.

### TC Approval

- ≥ 30 days prior to the NFRMPO's adoption of an Applicable Planning Document, provide the TC a GHG Transportation Report.
- TC must determine by resolution if the **GHG Transportation Report** meets requirements.
- No time limit for TC to make the determination.
- If TC determines the requirements are not met, funding restrictions are imposed (for NFRMPO, applies to **CMAQ, STBG, and some 10-Year Plan funds**).

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## Waiver Process (§8.05)



- MPO, CDOT or a non-MPO TPR may request a waiver or ask for reconsideration of TC Determination.
  - **Waiver** – May request a waiver on specific projects not expected to reduce GHG emissions on the following basis:
    - GHG Transportation Report reflected significant effort and priority placed, in total, on projects and GHG Mitigation Measures that reduce GHG emissions; and
    - 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 the Rule.
  - **Reconsideration** – May request TC reconsider the non-compliance determination and include explanation of how requirements are met.
- TC has 30 days or until next TC meeting (whichever is later) to act. If no action is taken, request is denied.

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## Effective Dates (§8.02)



### By October 1, 2022

- NFRMPO and DRCOG must update their RTPs and CDOT must update 10-Year Plan and meet GHG reduction levels. If not, restrictions will be placed on **Multimodal Transportation and Mitigation Options Funds (MMOF)** per SB21-260.

### After October 1, 2022

- For each Applicable Planning Document, meet the corresponding GHG reduction levels. If not, restrictions will be placed on **CMAQ, STBG, and some 10-Year Plan funds** per proposed rule.

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## Additional Requirements (§8.02, §1)



### Intergovernmental Agreement

- Agreement between MPO, CDOT, CDPHE on modeling assumptions and agency responsibilities must be established prior to adoption of next RTP.

### State Interagency Consultation Team

- Consists of CDOT, CDPHE, and each MPO. Group will approve regionally significant project definitions as needed.

### Annual Status Report

- Annually, by April 1, each agency must provide a status report to the TC with the following info for each **GHG mitigation measure**:
  - Implementation timeline
  - Current status
  - Quantification of benefit or impact
  - Explanation for any delays, cancellations, or substitutions

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## GHG Mitigation Measure Process (§8.02)



### GHG Mitigation Measure Process

- By April 1, 2022 – CDOT shall establish an ongoing administrative process for selecting, measuring, confirming, and verifying **GHG Mitigation Measures**.
  - Determine the relative impacts of mitigation measures.
  - Measure and prioritize localized impacts to communities and Disproportionately Impacted Communities.
  - Mitigation credit awarded to a specific solution shall consider aggregate and community impact.

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## GHG Mitigation Measures (§8.03)



- CDOT and MPOs allowed to use approved GHG Mitigation Measures to offset emissions and demonstrate progress toward compliance.
- Illustrative examples in the Rule:
  - Addition of **transit** resources to displace VMT.
  - Improve **ped and bike** access.
  - Encourage local adoption of more effective forms of vertical **development and zoning** plans (mixed use) in a way that rewards transportation project investments.
  - Improve **first- and final-mile access** to transit.
  - Changes to **parking and other policies** that encourage walking/transit.
  - Medium/heavy duty vehicle electric charging and hydrogen refueling.
  - Establishing **clean construction** policies.
  - Adopting **transportation demand management (TDM)** practices that reduce VMT.

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## Digging Deeper



- Role of Modeling
- Role of Population Growth
- Feasibility of Reductions
- Impact to Planning Process

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## Role of Modeling



### **Travel Demand Model - MPO or Statewide**

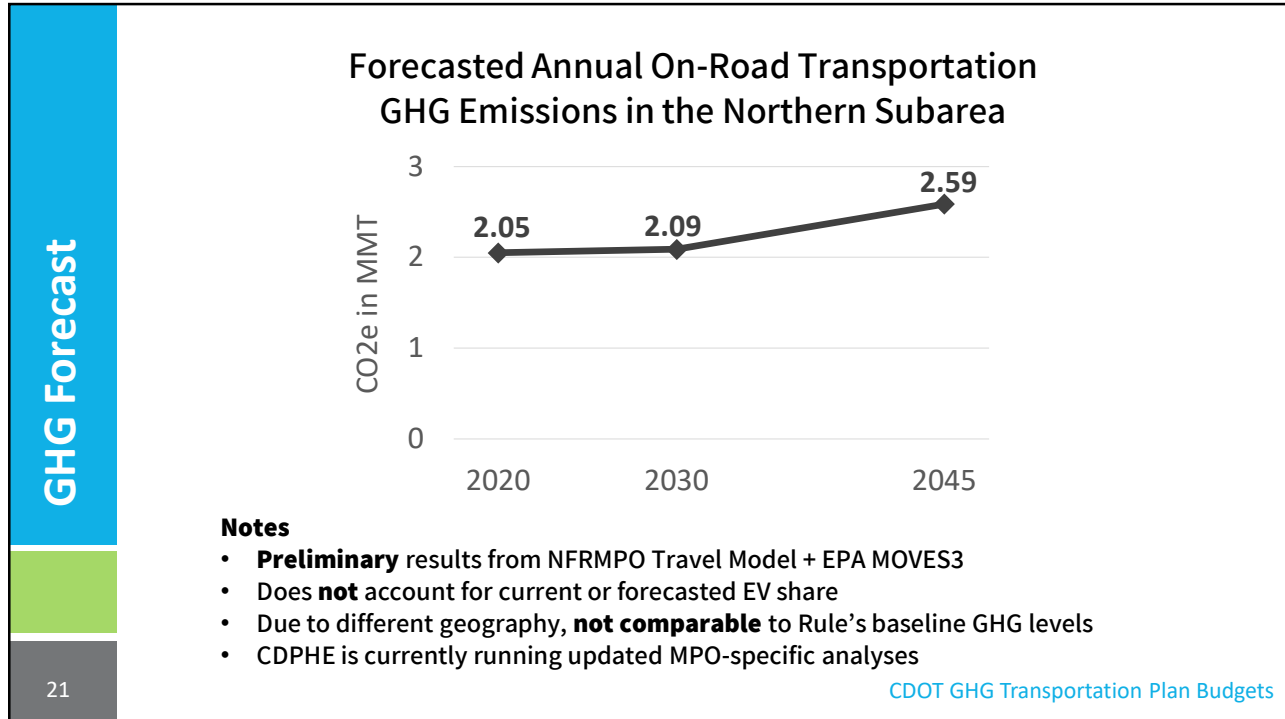
- Incorporates land use forecast, with forecasted growth in population and employment from the State Demographer
- Projects can be added/removed
- Outputs show travel demand and behavior
  - Mode: SOV, carpool, medium/heavy trucks, transit, bike, ped
  - Roadway speeds and volumes by time of day
  - Transit ridership
  - Origins and destinations by zone

### **EPA Motor Vehicle Emissions Simulator (MOVES)**


- Uses roadway speeds and volumes by time of day from the travel demand model
- Additional inputs include vehicle age distribution, vehicle types by roadway type, etc. from both local and national sources
- Outputs show emissions from on-road transportation
  - Ozone Precursors
  - GHG in CO<sub>2</sub>e
  - Other criteria pollutants

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## Modeling the GHG Baselines and Reduction Levels



**GHG Baselines**

- Baseline set using statewide travel model instead of MPO models.
- GHG emissions by area are proxies based on VMT, not determined based on each area’s GHG (which would account from congested speeds and VMT).

**GHG Reduction Levels**

- No explanation in rule or any published documentation on how the reduction levels were determined.
- Per CDOT, reductions were based on sketch modeling all the following strategies:
  - **Travel choices:** tripling telework, non-work trip reduction, broadband expansion, extensive sidewalk and bike improvements, e-bikes, arterial speed reductions, 50% transit fares
  - **Transit:** 6% annual service increase, 2022-2030; double service by 2050; bus fleet electrification
  - **Land Use:** 50% growth of urban mixed-use areas (≥ 2,000 people per sq mi and ≥ 500 retail/service jobs per sq mi) in NFRMPO, up from 10%

Are the GHG strategies used to set the GHG Reduction Levels applicable to MPOs?

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## Role of Population Growth



### CDOT's GHG Budgets Account for Current Forecast

- High growth forecasted by state demographer: 83% population and 67% jobs from 2015-2045 in NFRMPO
- The GHG Budget for each compliance year accounts for the growth forecast

### MPO Boundaries Can Change

- The MPO may choose to expand or may be required to expand due to updates to Urbanized Areas after a Decennial Census

### Growth forecasts are Updated for each Planning Cycle

- Per federal planning requirements, the NFRMPO obtains new growth forecasts prior to updating the RTP. Growth may be higher or lower than the previous forecast.

Could the rule set GHG budgets per capita instead of total GHG?

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## Feasibility of Reductions



### GHG Emissions Analysis (travel model analysis)

- Selecting a different mix of projects or building fewer/no capacity projects appears to have a limited impact on GHG – further analysis is underway

### GHG Mitigation Measures (off-model analysis)


- The process for determining these measures and how they will be evaluated will not occur until after the rule is finalized
- Preliminary analysis by NFR staff indicates these measures can only provide 10-15% of needed reductions

Feasibility of GHG Reduction Levels is unknown. Analysis is underway and more time may be needed to develop data-driven GHG reductions.

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## Impact to Planning Process



**Federal Requirements for the Metropolitan Planning Process**

- MPOs meet federal requirements for planning the multimodal surface transportation system. This includes consideration of 10 planning factors:
 

<ul style="list-style-type: none"> <li>• Economic Vitality</li> <li>• Safety</li> <li>• Security</li> <li>• Accessibility and Mobility (people and freight)</li> <li>• Environment</li> </ul>	<ul style="list-style-type: none"> <li>• Multimodal Integration</li> <li>• Efficient Operations</li> <li>• Preservation</li> <li>• Resiliency and Reliability</li> <li>• Travel and Tourism</li> </ul>
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**Federal Requirements for Surface Transportation Block Grant (STBG)**

- Restriction on providing STBG funds to specific transportation modes by a pre-set formula or percentage.

How will GHG rule interface with federal planning requirements?  
 Could the NFRMPO be restricted in providing STBG funds to important safety and operations projects?

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## Areas of Support



- Rule purpose and co-benefits to ozone and expanding transportation options
- Existence of a waiver process
- Establishing GHG Mitigation Measure process outside of the rulemaking (additional flexibility to update)
- Creation of State Interagency Consultation Team
- TC will not withhold funds from the MPO

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## Areas of Concern (1 of 2)



- GHG Reduction Levels may not be feasible.
- Rulemaking schedule may not accommodate data-driven requirements or data-driven comments.
  - Modeling conducted by CDOT to set GHG Baselines and GHG Reduction Levels is incomplete and appears to have errors; CDOT has proposed re-analyzing.
  - NFRMPO requested GHG analysis using the NFRMPO travel model; analysis is underway by CDPHE staff.
  - CDOT is developing documentation of method and rationale for the GHG Baselines and GHG Reduction Levels; no timeline for availability.
- Rule should require periodic reassessment of GHG reduction levels.
- Due to updated growth forecasts and potential for MPO boundary changes, GHG Reduction Levels should account for change (either with per capita budgets or updates to the baselines and reduction levels).

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## Areas of Concern (2 of 2)



- Many of the GHG strategies are outside the control of MPOs and CDOT, e.g.:
  - MPOs have no land use authority and very limited ability to encourage land use changes
  - MPOs cannot fund ongoing transit operations through CMAQ or STBG
- Implementers of GHG Mitigation Measures should not be restricted to only CDOT and MPO (i.e. local government efforts should also count).
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- The GHG Mitigation Measure reporting process may be onerous without providing much value.
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Next Steps




- **September 2, 2021** – Council Meeting Discussion
- **September 16, 2021** – TAC & Council Work Session
- **September 30 & October 5, 2021** – CDOT GHG Rulemaking Hearings in Larimer/Weld (additional seven hearings around the state 9/14-10/5)
- **October 6, 2021** – Council Meeting Discussion or Action to approve comments
- **October 14, 2021** – TAC & Council Work Session *(If Needed)*
- **October 15, 2021** – Deadline to submit public comment

CDOT Resources on the Proposed Rule, including the Redline and Notice:  
<https://www.codot.gov/business/rules/proposed-rules>

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CDOT GHG Rulemaking Hearings



Date	Location	Time
9/17/2021	Grand Junction	2-5 pm
9/23/2021	Denver	3-7 pm
9/24/2021	Colorado Springs	3-6 pm
9/27/2021	Littleton	3-7 pm
9/29/2021	Limon	2-5 pm
9/30/2021	Fort Collins	2-5 pm
10/4/2021	Glenwood Springs	2-5 pm
10/5/2021	Firestone	2-5 pm
10/7/2021	Durango	2-5 pm

**Hybrid Meetings**  
 To attend virtually, register at  
<https://www.codot.gov/programs/environmental/greenhousegas/publichearing>

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## Discussion Questions



- Should the NFRMPO submit a letter to the TC Hearing Officer requesting more time for the rulemaking?
- Does Council want to designate a Councilmember to provide policy comments at the Rulemaking Hearings on 9/30 and 10/5?
  - NFRMPO Staff would also attend and could provide technical comments
- What questions do you have on the proposed rule and initial analysis?
- What other information do you need to understand the proposed rule?
- What concerns and suggestions do you have?

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## Questions?



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