

To: Chair and Members of the Board of Directors

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

Meeting Date	Agenda Category	Agenda Item #
July 20, 2022	Informational Briefing	9

**SUBJECT**

2050 Regional Transportation Plan (2050 RTP) greenhouse gas (GHG) analysis mitigation measures update.

**PROPOSED ACTION/RECOMMENDATIONS**

N/A

**ACTION BY OTHERS**

N/A

**SUMMARY**

At the July Board work session, staff presented the mitigation measure concepts proposed for inclusion in a Mitigation Action Plan to demonstrate compliance with the state GHG Transportation Planning Rule's emission reduction levels. Staff has continued to refine the proposed mitigation measures and begun preparing the Mitigation Action Plan (MAP) document.

The Mitigation Action Plan details the region's approach to using mitigation measures. The emission reductions associated with the set of proposed mitigation measures are analyzed and reported at the regional level. However, the mitigation measures are anticipated to be implemented in a portion of specific and strategic geographies where they could be most appropriate and viable. Staff's analysis demonstrates there are ample opportunities throughout the region for these mitigation measures to be considered and implemented and that we can expect successful implementation of enough of the mitigation measures in enough locations to show compliance over time.

At the local level, mitigation measures are voluntary, and the Mitigation Action Plan staff is developing does not require any local jurisdiction to implement any particular mitigation measure in any specific location. DRCOG staff will develop a process with local jurisdictions for tracking where mitigation measures are applied over time to support DRCOG's annual progress reporting to the Transportation Commission.

While the GHG rule defines general content requirements for a MAP, CDOT's Policy Directive 1610 (PD 1610) specifies the information that must be included. It must include a summary of the emissions analysis from the GHG Transportation Report, including the estimated gap to achieve the GHG Reduction Levels for each horizon year. It must also include a summary and description of each mitigation measure.

The MAP is the last step in the GHG analysis process and is needed only to close a "gap" (if one exists) between the proposed cumulative emission reduction amounts from all other strategies and the GHG rule's reduction levels for each analysis year (2025, 2030, 2040, 2050).

Based on the technical analysis conducted to date, staff estimates progress towards meeting the reduction levels as compared to the baseline for the 2030, 2040, and 2050 analysis years as shown in Table 1. These values are draft and will continue to be refined as staff completes analysis of additional programmatic investments.

**Table 1: Draft Progress Towards Achieving GHG Rule Reduction Targets**

<b>GHG Emission Results (MMT per year)</b>	<b>2025</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>
GHG Baseline Plan Model: 2050 RTP, Adopted 2021	10.50	9.23	6.22	3.7
GHG Updated Plan Model: 2050 RTP, 2022 Update	9.82	8.55	5.65	3.35
Modeled Reduction from Baseline	0.68	0.68	0.57	0.35
Additional Programmatic Investment	0.06	0.05	0.03	0.01
<b>Total GHG Reductions from Baseline</b>	<b>0.74</b>	<b>0.73</b>	<b>0.60</b>	<b>0.36</b>
Reduction Requirement from GHG Rule Table 1 (2 CCR 601-22, Section 8.02.6)	<b>0.27</b>	<b>0.82</b>	<b>0.63</b>	<b>0.37</b>
Remaining Gap	<b>N/A</b>	<b>-0.09</b>	<b>-0.03</b>	<b>-0.01</b>

As shown, staff estimates the reduction levels can be met for the 2025 analysis year without the need for mitigation measures. Therefore, the MAP would only apply for the 2030, 2040, and 2050 analysis years.

DRCOG staff is proposing to include the following mitigation measures, and associated GHG reduction levels, in a MAP:

**Table 2: Proposed Mitigation Measures & Associated GHG Reduction Amounts**

<b>Measure</b>	<b>GHG Reduction - Metric Tons</b>		
	<b>2030</b>	<b>2040</b>	<b>2050</b>
Increase Residential Density from <10 units / acre to at least 15/ acre	13,548	16,011	10,557
Increase Job Density from <0.5 FAR to at least 1.0 FAR	2,309	2,822	1,833
Mixed-Use TOD-higher intensity: Area rezoned for mixed-use TOD at least 25 units / acre and 150 jobs / acre	8,588	9,814	6,510

Mixed-Use TOD-moderate intensity: Area rezoned for mixed-use TOD at least 15 units / acre and 100 jobs / acre	18,397	21,157	14,455
Reduce or eliminate minimum requirements and set low maximum levels (residential)	37,750	43,795	29,573
Reduce or eliminate minimum requirements and set moderate maximum levels (residential)	18,332	21,281	14,347
Reduce or eliminate minimum requirements and set maximum levels (commercial)	4,373	3,940	3,511
Adopt local complete streets standards	369	243	44
<b>Grand Total</b>	<b>103,666</b>	<b>119,063</b>	<b>80,829</b>

Attachment 1 shows an example of how an individual mitigation measure (in this example, Mixed Use TOD-Moderate Intensity) would be described and analyzed in the MAP. While draft, this example is representative of how the mitigation measures will be profiled in the final MAP.

Finally, staff has been refining the anticipated public comment, public hearing, and adoption schedule for the revised 2050 RTP, MAP, and associated documents. The current anticipated schedule is:

- July 20 Board meeting: Board chair announces the September 7 public hearing
- August 3 Board work session: Briefing on final draft public review documents
- August 7: Publish legal notice in Denver Post/start 30-day public comment period
- August 8: Submit GHG Transportation Report and Mitigation Action Plan to the Transportation Commission
- September 7: Public comment period ends (32 days)
- **September 7 Board work session: Public hearing**
- September 14/15: Transportation Commission meeting
- September 19: TAC Meeting (recommend adoption):
- September 20: RTC meeting (recommend adoption)
- **September 21: Board meeting (adoption)**
- October 1: GHG rule deadline to update 2050 RTP

<b>PREVIOUS DISCUSSIONS/ACTIONS</b>
-------------------------------------

[July 6, 2022](#) - Board Work Session

<b>PROPOSED MOTION</b>
------------------------

N/A

**ATTACHMENTS**

1. Example MAP mitigation measure profile
2. Staff presentation

**ADDITIONAL INFORMATION**

If you need additional information, please contact Douglas W. Rex, Executive Director, at 303-480-4701 or [drex@drcog.org](mailto:drex@drcog.org); or Jacob Riger, Manager, Long Range Transportation Planning, at 303-480-6751 or [jriger@drcog.org](mailto:jriger@drcog.org)

## Attachment 1: Example Mitigation Action Plan Mitigation Measure Profile

*Mixed-use Transit-Oriented Development (moderate intensity)*. Rezone areas for mixed-use TOD accommodating at least 15 residential units/acre and 100 jobs/acre within ½ mile of high-frequency bus transit or fixed-guideway stations.

This analysis assumes that 1,314 acres in Urban Center/Pedestrian Focus Areas (24%) and Station/BRT Areas (76%) will be rezoned to allow mixed-use TOD accommodating at least 15 residential units/acre and 100 jobs/acre. This represents approximately 158 acres of vacant/redevelopable land in Urban Center/Pedestrian Focus Areas (2% of the region total) and approximately 195 acres of vacant and redevelopable land in Station/BRT Areas (1% of the region total). According to the PD 1610 evaluation, increasing mixed-use TOD areas with moderate residential and job density as described reduces VMT per acre by 109,269 per year resulting in reduced GHG emissions of 40 tons per rezoned acre in 2030, 23.2 tons per rezoned acre in 2040, and 11 tons per rezoned acre in 2050.

It is estimated that 35% of the opportunity land areas would be rezoned by 2030, 35% by 2040, and 30% by 2050.

### Assumptions:

Amount of Total Station/BRT Areas Included in Measure		
40%	5,533	acres
Amount of Total UC/Ped Focus Areas Included in Measure		
25%	1,767	acres
Amount of area that will develop/redevelop over 30 years		
30%	2,190	acres
<b>Amount subject to rezoning</b>	<b>60%</b>	<b>1,314 acres</b>

### GHG Reduction Calculations

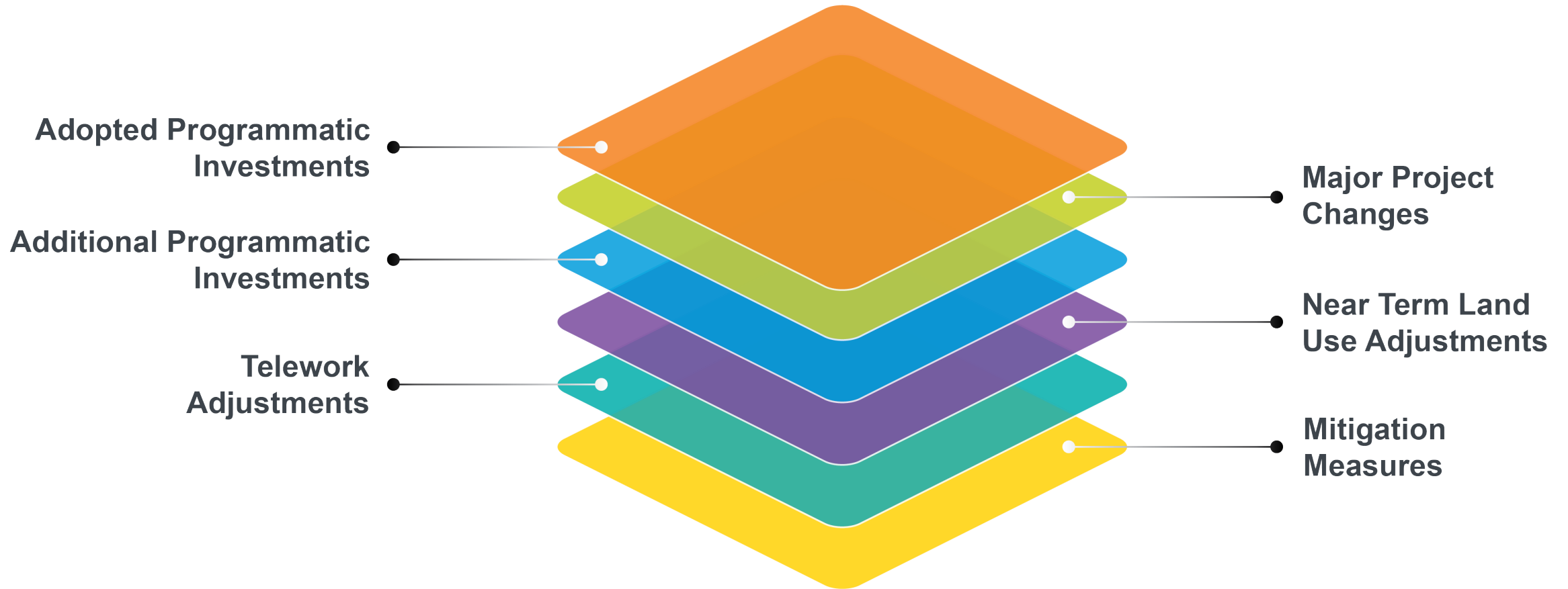
GHG Tons/acre rezoned	2025		2030		2040		2050	
	Reduction/acre		Reduction/acre		Reduction/acre		Reduction/acre	
	49		40		23		11	
GHG Tons reduced	2025		2030		2040		2050	
	Acres Rezoned	Reduction	Acres Rezoned	Reduction	Acres Rezoned	Reduction	Acres Rezoned	Reduction
	-	-	460	18,397	460	10,578	394	4,336
Amount rezoned per period	0%		35%		35%		30%	
Carryover	-	-	-	-	460	10,578	920	10,118
<b>Total Reduction</b>	-		<b>18,397</b>		<b>21,157</b>		<b>14,455</b>	

# 2050 MVRTP GHG Update Mitigation Measures & Mitigation Action Plan

DRCOG Board of Directors  
July 20, 2022

**Jacob Riger, AICP**  
Manager, Long Range Transportation Planning

# Framework to meet GHG reduction levels



# Mitigation Action Plan overview

- Needed as **last step** to close remaining reduction level gap
- Details **region's approach** to using mitigation measures
- Reports & analyzes measures at the **regional level**
- Implementation anticipated in **small fraction** of region in strategic/applicable geographies
- Ample opportunity to implement successfully **over time** to help achieve compliance





- Mitigation measures and MAP are **entirely voluntary**
- **Not required** to implement any particular measure in any specific location
- DRCOG will develop tracking mechanism with local jurisdictions for required annual reporting to Transportation Commission
- **Adjust mitigation measures and MAP** over time based on region's implementation progress



# Table 1: Draft progress towards achieving reduction levels

<b>GHG Emission Results (MMT per year)</b>	<b>2025</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>
GHG Baseline Plan Model: 2050 RTP, Adopted 2021	10.50	9.23	6.22	3.7
GHG Updated Plan Model: 2050 RTP, 2022 Update	9.82	8.55	5.65	3.35
Modeled Reduction from Baseline	0.68	0.68	0.57	0.35
Additional Programmatic Investment	0.06	0.05	0.03	0.01
<b>Total GHG Reductions from Baseline</b>	<b>0.74</b>	<b>0.73</b>	<b>0.60</b>	<b>0.36</b>
Reduction Requirement from GHG Rule Table 1 (2 CCR 601-22, Section 8.02.6)	<b>0.27</b>	<b>0.82</b>	<b>0.63</b>	<b>0.37</b>
Remaining Gap	<b>N/A</b>	<b>-0.09</b>	<b>-0.03</b>	<b>-0.01</b>

# Table 2: Proposed measures & reduction amounts

Measure	GHG Reduction - Metric Tons		
	2030	2040	2050
Increase Residential Density from <10 units / acre to at least 15 to 25 units / acre	13,548	16,011	10,557
Increase Job Density from <0.5 FAR to at least 1.0 FAR	2,309	2,822	1,833
Mixed-Use TOD-higher intensity: Area rezoned for mixed-use TOD at least 25 units / acre and 150 jobs / acre	8,588	9,814	6,510
Mixed-Use TOD-moderate intensity: Area rezoned for mixed-use TOD at least 15 units / acre and 100 jobs / acre	18,397	21,157	14,455
Reduce or eliminate minimum requirements and set low maximum levels (residential)	37,750	43,795	29,573
Reduce or eliminate minimum requirements and set moderate maximum levels (residential)	18,332	21,281	14,347
Reduce or eliminate minimum requirements and set maximum levels (commercial)	4,373	3,940	3,511
Adopt local complete streets standards	369	243	44
<b>Grand Total</b>	<b>103,666</b>	<b>119,063</b>	<b>80,829</b>

# Example profile: Mixed-Use TOD (Moderate Intensity)

## Assumptions:

Amount of Total Station/BRT Areas Included in Measure	40%	5,533	acres
Amount of Total UC/Ped Focus Areas Included in Measure	25%	1,767	acres
Amount of area that will develop/redevelop over 30 years	30%	2,190	acres
<b>Amount subject to rezoning</b>	<b>60%</b>	<b>1,314</b>	<b>acres</b>

## GHG Reduction Calculations

GHG Tons/acre rezoned	2025		2030		2040		2050	
	Reduction/acre		Reduction/acre		Reduction/acre		Reduction/acre	
	49		40		23		11	
GHG Tons reduced	2025		2030		2040		2050	
	Acres Rezoned	Reduction	Acres Rezoned	Reduction	Acres Rezoned	Reduction	Acres Rezoned	Reduction
	-	-	460	18,397	460	10,578	394	4,336
Amount rezoned per period	0%		35%		35%		30%	
Carryover	-	-	-	-	460	10,578	920	10,118
<b>Total Reduction</b>	-		<b>18,397</b>		<b>21,157</b>		<b>14,455</b>	

# Proposed comment period & adoption schedule

- July 20 Board meeting: Board chair announces September 7 public hearing
- August 3 Board work session: Briefing on final draft public review documents
- August 7: Publish legal notice in Denver Post/start 30-day comment period
- August 8: Submit GHG Transportation Report and Mitigation Action Plan to Transp. Comm.
- September 7: Public comment period ends (32 days)
- **September 7 Board work session: Public hearing**
- September 14/15: Transportation Commission meeting
- September 19 & 20: TAC & RTC Meetings (recommend adoption):
- **September 21: Board meeting (adoption) – (Oct. 1<sup>st</sup> deadline)**





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

**Jacob Riger, AICP**  
Manager, Long Range Transportation Planning  
[jriger@drcog.org](mailto:jriger@drcog.org)  
303-480-6751