



# GHG Impact Assessment and Mitigation Procedure Update

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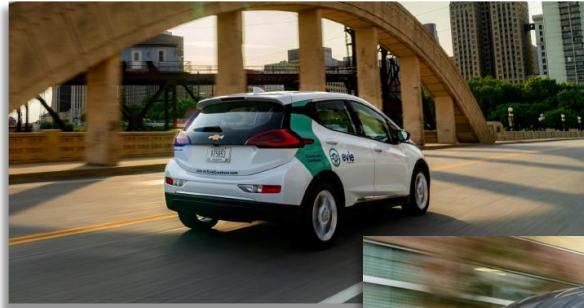
June 12, 2025

# Greenhouse Gas Assessments – The Big Picture

- Minnesota has climate goals and is committed to reduce greenhouse gas in the transportation sector
- To meet these goals, the 2023 Legislature direct that emission impacts of transportation investments be offset and reduced
- For project sponsors, this means that we have to consider a broader range of solutions and coordinate earlier on transportation projects.

# Reducing Emissions in the Transportation Sector

## Fuels



## Miles



# Reducing Emissions in the Transportation Sector

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## Miles



# Impact to New Highway Expansion Projects

When new projects are identified by MnDOT or local partners, must answer:

- Will the expansion project add more than a half-mile of lane (2,500ft) or create a new interchange on the highway system?
- What increases in GHG and VMT are the added lanes or interchange expected to generate over 20 years?
- How will the project offset the estimated increase in GHG and VMT?

# Assessment Procedure Steps

When new projects are identified by MnDOT or local, they will:

**Step 1:** Determine if project is a capacity expansion project

**Step 2:** Conduct initial estimate of how much GHG and VMT will increase

**Step 3:** Develop initial plan for offsetting estimated GHG and VMT increases

**Step 4:** Project with offsets proceeds for inclusion in the STIP or TIP

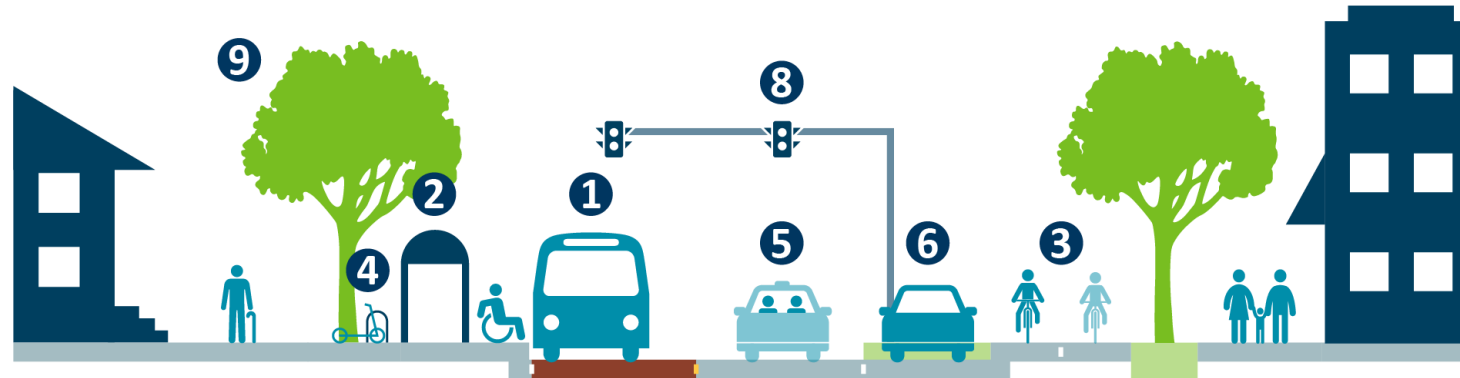
**Step 5:** Determine final estimate of how much GHG and VMT will increase based on final layout or 30% design

**Step 6:** Update plan to offset final estimate of GHG and VMT impact

# How are GHG and VMT Impacts be Estimated?

- Project proposers have **two options available to assess increased VMT:**
  - Estimate increased VMT using simple unit elasticity function
  - Model increased VMT with their MPO's travel demand forecast model (if available)
- VMT calculation converted to GHG using Minnesota Infrastructure Carbon Estimator (MICE)

# What Counts for Offsets?



## 1 Transit Expansion

Expanding public transit, like adding new bus routes

## 2 Transit Service Improvements

Improving public transit, like making bus platforms and stations accessible

## 3 Active Transportation Infrastructure

Making walking and biking safe and practical transportation options

## 4 Micromobility

Supporting smaller modes of travel, like scooters

## 5 Transportation Demand Management

Making transportation more efficient, like by carpooling and rideshare grouping

## 6 Parking Management

Right-sizing on and off-street parking to use space efficiently

## 7 Land Use Changes

Promoting transportation-efficient land uses, like mixed-use and transit-oriented developments

## 8 Infrastructure Improvements Related to Traffic Operations

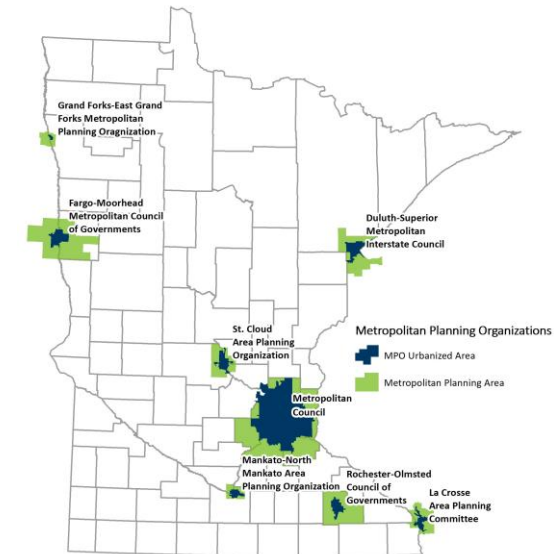
Improving traffic efficiency by upgrading infrastructure, like traffic signal timing

## 9 Natural Systems

Conserving and incorporating natural systems into projects, like trees and green stormwater infrastructure

# Who is Responsible?

- **Within metropolitan planning areas:** the Metropolitan Planning Organization must assess prior to including a project in their Transportation Improvement Program (TIP)
- **Outside of metropolitan areas:** MnDOT must assess prior to including a project in the State Transportation Improvement Program (STIP)
- All assessments are reviewed and validated by the Technical Advisory Committee



## Technical Advisory Committee

Department of Transportation - **Jon Solberg**

Metropolitan Council - **Jonathan Ehrlich**

County - **Lyndon Robjant**, Carver County  
City - **Marcus Culver**, City of Brooklyn Park

Pollution Control Agency - **Kate Knuth**

U of M: Center for Transportation Studies – **Eric Lind**

MPO from Greater Minnesota - **Stephanie Halford**

Active transportation - **Mitzi Alex**, Toole Design

National expert - **Robert Noland**, University of Rutgers



## Project Example: New Interchange

# Hypothetical Expansion Project

- County X identifies the conversion of an existing, at-grade intersection to a new, grade-separated interchange.
- The project meets the legislation's definition of a capacity expansion project.
- Potential impacts must be assessed, offsets identified, and conformance determined.

# Assess the Impact New Interchange

<b>Estimated Additional VMT</b> (per year)	<i>EPA MOVES Emissions Factors w/ MN Fleet</i> (average grams of emissions per mile)	<b>Impact Estimate</b> (metric tons of additional emissions over 20-years)
~2 million	2026: 435.621 gGHG/mi ↓ 2045: 201.370 gGHG/mi	~11,000 metric tons

# Works With Partners to Identify Offsets

- County, MPO, RDC and MnDOT begin initial discussions for how to offset the 11,000 metric tons of carbon increase due to the project
- Meet with local cities to identify potential land use and development changes, parking management opportunities, and active transportation infrastructure
- Meet with transit agency to explore possibilities for new routes or improvements (greater frequency, better amenities)
- Meet with local governments, nonprofits and transportation management organizations to consider micromobility and transportation demand management

# Identify Offsets – How It Adds Up

	<b>Metric Tons of CO2e Offset Per unit over the lifecycle</b>	<b>Total Metric Tons of CO2e Offset (20 years)</b>
<b>(1) Transit expansion</b> New electric demand response service with 50,000 new riders/boardings annually	1,019	1,019
<b>(2) Transit service improvements</b> Bus Priority Treatment with electric buses with priority treatment	2,782	2,782
<b>(3) Separated bike facility</b> Shared use path 10 miles [per mile]	237	2,370 (10 miles)
<b>(5) Land use density increases</b> Rezoning for development	485	5,613
	<b>Total</b>	<b>11,784</b>



## Project Example: Suburban Lane Add

# Hypothetical Expansion Project

- County X identifies a 2.5-mile section of highway to expand from 2 lanes to 3 lanes (5 additional lane miles total)
- The project meets the legislation's definition of a capacity expansion project.
- Potential impacts must be assessed, offsets identified, and conformance determined by the MPO.

## Project sponsor identifies VMT and GHG impacts

<b>Estimated Additional VMT</b> (per year)	<b><i>EPA MOVES Emissions Factors w/ MN Fleet</i></b> (average grams of emissions per mile)	<b>Impact Estimate</b> (metric tons of additional emissions over 20-years)
~7.6 million	2026: 435.621 gGHG/mi ↓ 2045: 201.370 gGHG/mi	<b>46,617 metric tons</b>

# Works With Partners to Identify Offsets

- County, MPO, and MnDOT begin initial discussions for how to offset the 45 thousand metric tons of carbon increase due to the project
- Meet with local cities to identify potential land use and development changes, parking management opportunities, and active transportation infrastructure
- Meet with transit agency to explore possibilities for new routes or improvements (greater frequency, better amenities)
- Meet with local governments, nonprofits and transportation management organizations to consider micromobility and transportation demand management

# Draft Offset Plan

- Transit expansion – Additional 1,000 service hours/year, New electric demand response service with 50,000 new riders/boardings annually
- Transit service improvements - Bus Priority Treatment with electric buses with priority treatment and buses converted to battery electric buses
- Separated facility - Shared use path 10 miles [per mile], sidewalk network connectivity 20 miles
- Micromobility (Docked bicycles – 13,300 new trips/year)
- Transportation demand management - Park and Ride facility (80 new spaces, utilized 250 days/year at a 56.8% utilization rate and average commuter trip length is 17.4 miles)
- Land use changes – three project communities eliminate single family zoning and minimum parking requirements and create incentive zone for downtown core with expected increase in 500 dwelling units and 2000 new jobs within half mile of existing transit stops

# How It Adds Up

	<b>Metric Tons of CO2e Offset Per unit over the lifecycle</b>	<b><i>Total</i> Metric Tons of CO2e Offset (20 years)</b>
<b>(1) Transit expansion</b>	11,019	11,019
<b>(2) Transit service improvements</b>	2,782	14,107
<b>(3) Active transportation infrastructure</b>	237	2,370
<b>(4) Micromobility</b>	63	6,300
<b>(5) Transportation demand management</b>	1,118	1,118
<b>(7) Land use</b>	9,900*	9,900*
<b>Total</b>		<b>44,814</b>

# Need Help or Additional Guidance?

## **MnDOT's Webpage for the Assessment Guidance:**

[Transportation Greenhouse Gas Emissions Impact Assessment - Sustainability and Public Health - MnDOT](#)

## **Real, Live People to Help:**

MnDOT's Office of Sustainability & Public Health

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