

GHG IMPACT ASSESSMENT AND MITIGATION PROCEDURE UPDATE

Marc Culver, City of
Brooklyn Park

GREENHOUSE GAS ASSESSMENTS — THE BIG PICTURE

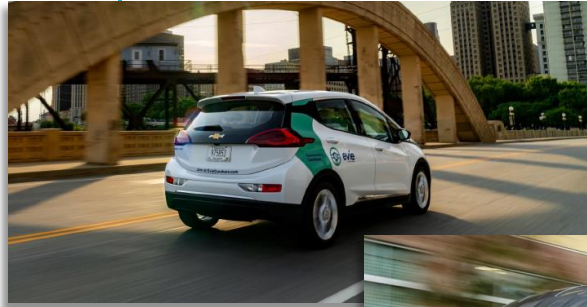
Minnesota has climate goals and is committed to reduce greenhouse gas in the transportation sector

To meet these goals, the 2023 Legislature directed that emission impacts of transportation investments on trunk highways 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

Fuels



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

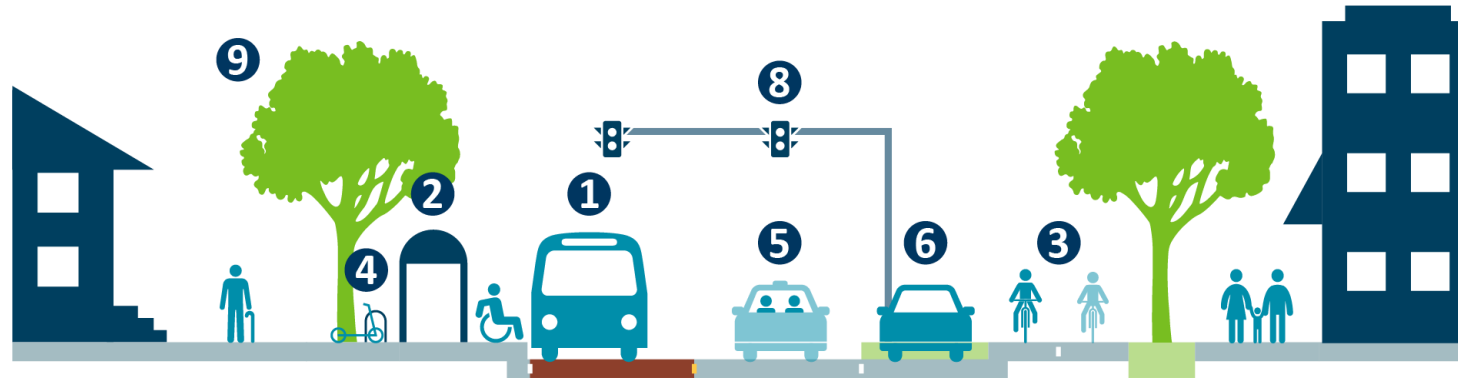
Step 3: Develop initial plan for offsetting estimated GHG and VMT increases

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

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

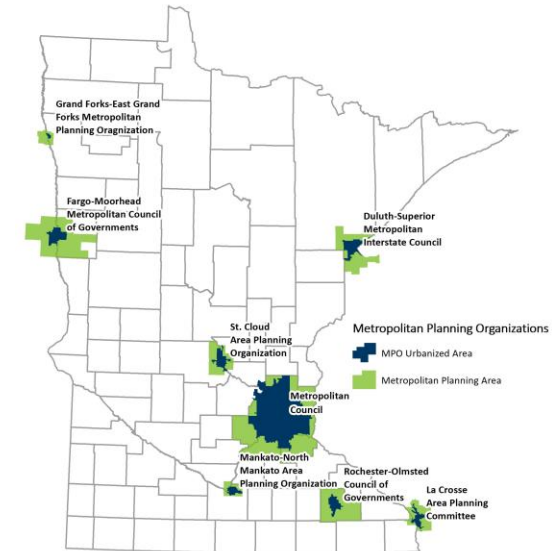
Conserving and incorporating natural systems into projects, like trees and green stormwater infrastructure

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 Robjent**, 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

Estimated Additional VMT (per year)	EPA MOVES Emissions Factors w/ MN Fleet (average grams of emissions per mile)	Impact Estimate (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

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



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.

STEP 2 (CONTINUED)

Project sponsor identifies VMT and GHG impacts

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

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

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

WHAT DOES THIS MEAN FOR ME?

Project development will take longer on these larger expansion projects

Initial estimates show overall project costs increasing by 20-30%

Your customers, MnDOT, counties and cities, will have to find more money to fund the required offsets

May mean more construction projects for the offsets (roundabouts, active transportation elements, etc.)

This may lead to less overall money for actual highway expansion projects as more funds are directed towards the offsets

LOOKING AHEAD

To date everything the TAC has talked about is theoretical – we have not reviewed an actual project

Right now every new project would be reviewed individually – impacts and offsets

Eventually MnDOT, MPO's should be reviewing projects and offsets from a portfolio of projects across regions and the state

As practitioners, we really don't know the full impact of this yet – stay tuned!

NEED HELP OR ADDITIONAL GUIDANCE?

MnDOT's Webpage for the Assessment Guidance:

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

Google “mndot ghg impact assessment”

Real, Live People to Help:

marc.culver@brooklynpark.org

MnDOT's Office of Sustainability & Public Health

Maurice.Roers@state.mn.us

Anna.M.Pierce@state.mn.us

