How can we cost-effectively expand equitable access across Minnesota's metro areas?

Bus Rapid Transit.

February 2023

Metro Areas Include

- Duluth/Superior
- Rochester
- St Cloud
- Mankato
- Moorhead/Fargo

Metro Areas and VMT

- When it comes to increasing VMT, metro areas are the problem
- Fortunately Metro Areas are also the solution
  - If the Legislature is willing to fund BRT, we can build it quickly
  - We can fund it with Metro Area-only revenue

HUMAN TRANSIT

How Clearer Thinking about Public Transit Can Enrich Our Communities and Our Lives

Jarrett Walker

"Bus Neglect" Is A Nationwide Problem

- Both in regions that don't invest in transit generally and also regions that do
- Minnesota is not immune
- Stereotypes vs. policy choices

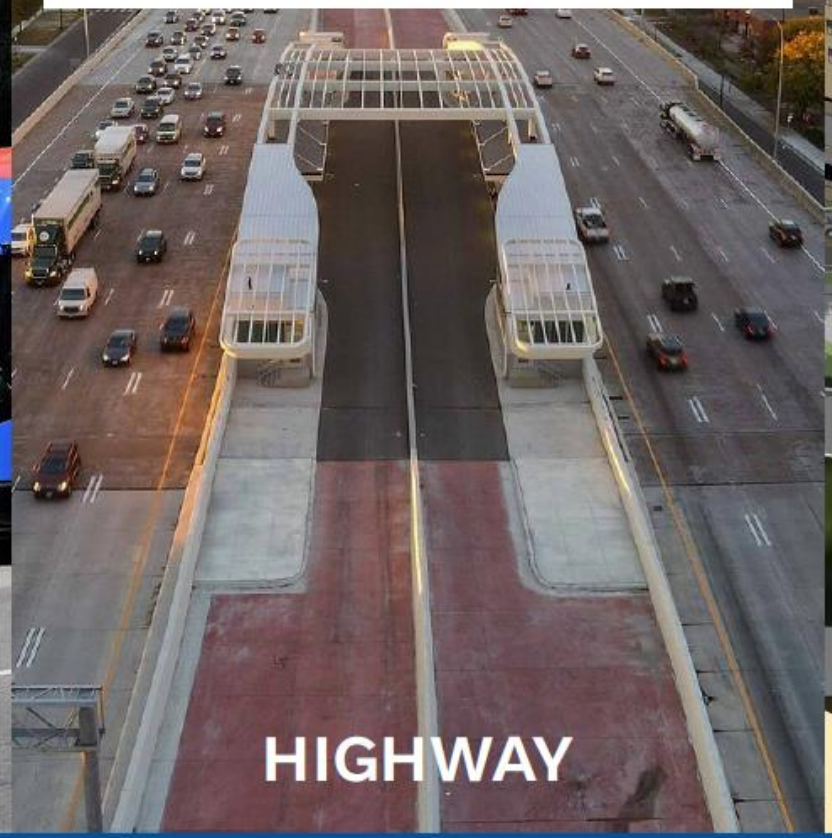
We Can Make Other Choices

- Minnesota has everything is needs to build a transit network that serves the whole region

- Primarily in mixed traffic, some bus-only lanes

ARTERIAL

- Primarily HOV/HOT lanes



HIGHWAY

- Exclusive BRT guideway

GUIDEWAY

Three varieties of BRT, one METRO system

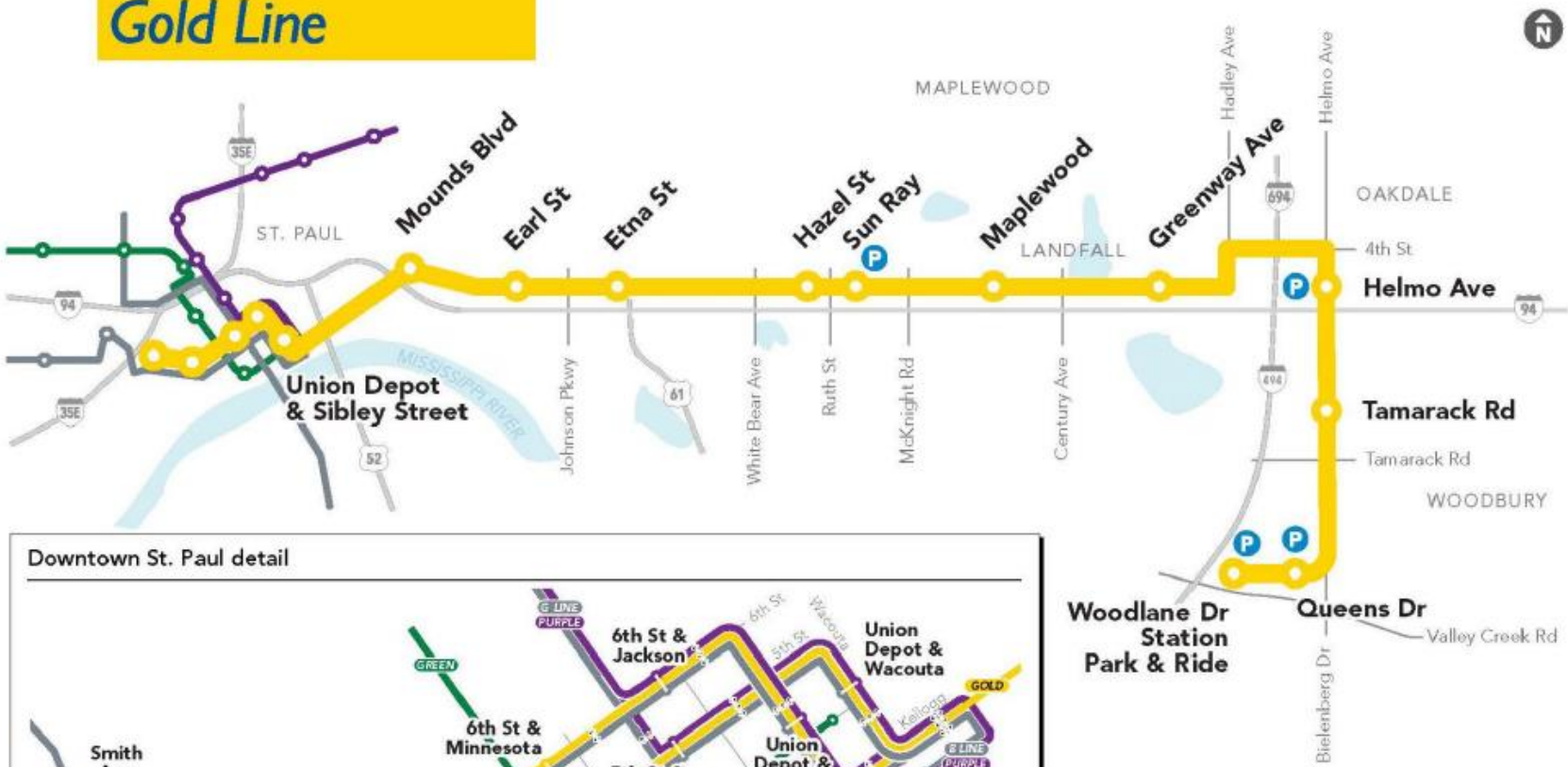
"Bus vs. Rail" is not helpful – Rail Has Advantages:

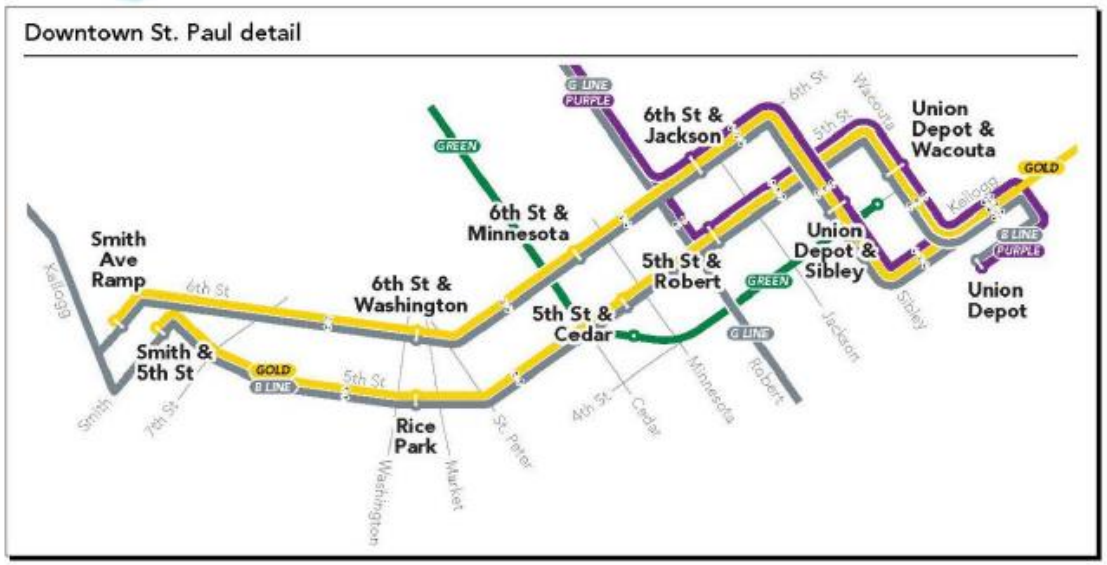
- Higher capacity
- Lower per passenger operating expenses
- Economic development catalyst
- Accessibility from level boarding
- Superior ability to cut through snow
- Higher speed (with longer distances between stops)

METRO

Gold Line

December 2021





METRO Gold Line...Premium BRT as an alternative to LRT

- Budget: $505.3 million
- Frequent, all-day service operating primarily in bus-only lanes with 8 grade-separated BRT crossings
- 10-miles & 21 new stations
- 17 BRT-branded 60’ buses (12 diesel, 5 electric)
- 4 park-and-rides
- **Premium platform and boarding experience with the feel of LRT**

#1. Dedicated Guideway BRT

- Key Feature is the dedicated lane → speed & reliability
- “Like LRT, but on rubber tires”
- Most expensive version of BRT,
  - but still cheaper than rail

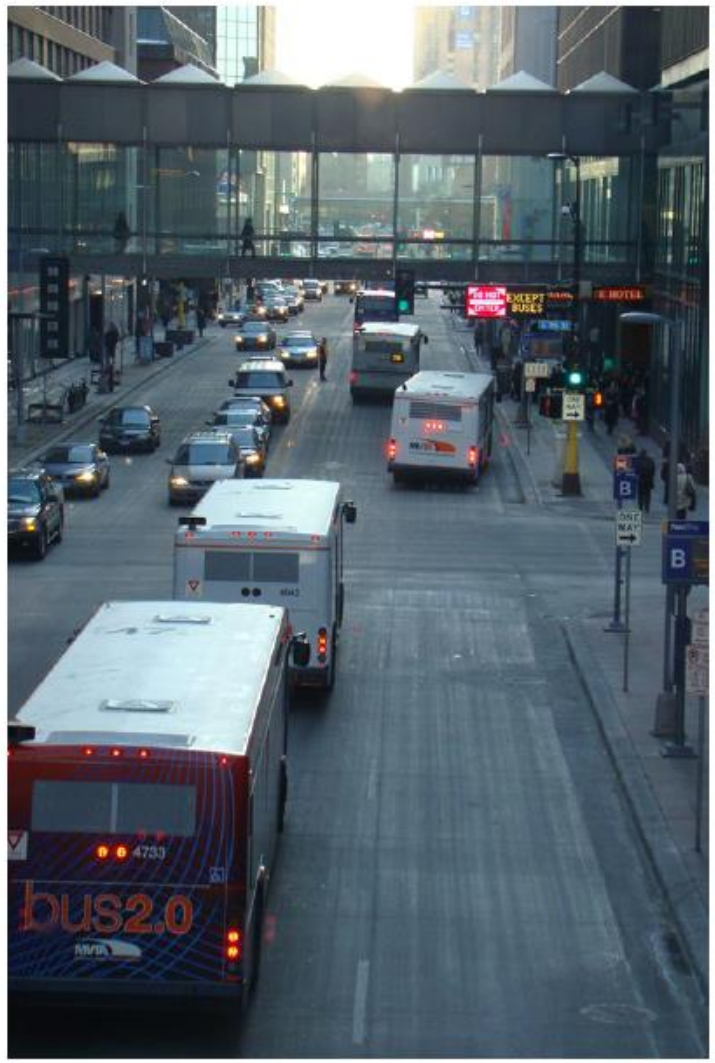
METRO Orange Line

- Opened for service December 4, 2021
- Downtown Minneapolis to Burnsville
- Builds on express and limited-stop service in the corridor
- 17-mile route with 12 stations, primarily traveling on I-35W
- 14 three-door, articulated buses
- $150 million capital cost, completed under budget

#2. Highway BRT

- Key feature is running in an HOV or HOT lane → speed & reliability
- “Let’s put transit in the fast lane!”
  - Shoulder lane also used further out from downtowns
- 20 Years

Built incrementally, for decades



METRO


I-35W & LAKE ST STATION

+/- of Highway BRT

- Disadvantages:
  - Freeways are not the ideal location for economic development, but that will be less of a factor in the future as transportation electrifies.*
- Advantages:
  - Express service and station-to-station service in the same ROW
  - Very visible to drivers in the same travel-shed → seeing buses pass you by in the fast lane is an incentive for drivers to try BRT.

Arterial Bus Rapid Transit

#3. "Arterial" BRT

- On city streets
- Not necessarily in its own lane
- Whatever you call it, it's extremely valuable
- Upgrade to existing slow service

Key Features of All Three BRT Types

- Frequency
- Service on evenings & weekends
- Off board payment → speed
- All door boarding → speed
- High quality stations including amenities real time signage, network information, lighting, emergency call boxes
- Signal priority or signal pre-emption

2019: C Line open for service
2021: Partnership with City of Minneapolis to add bus lanes

A Line and C Line: Early BRT Success

- Opened 2016 (A Line) and 2019 (C Line); >30% Ridership growth/corridor
- Over 3 million BRT rides 2019, 2.4 million 2020
- BRT has retained more ridership throughout the pandemic than any other type of transit service

Snelling Avenue in Saint Paul

Penn Avenue in North Minneapolis

METRO

Designed to be faster, more reliable, and easy to use

- 2-3 stations per mile, designed for faster stops
- High-tech, high-amenity, secure stations
- Pre-boarding fare payment for faster stops
- Higher-capacity buses & boarding through all doors
- Bus priority signals & lanes
- Faster, frequent, all-day service

METRO

BRT Success = Asking What Riders Want From A Transit System

- Speed & reliability
- Frequency
- Safety
- High quality stations including amenities real time signage, call boxes
- Service evenings & weekends
- Legibility
- Access to more destinations
- Sidewalks to stations
- These qualities = FREEDOM.
  - Which we can measure…

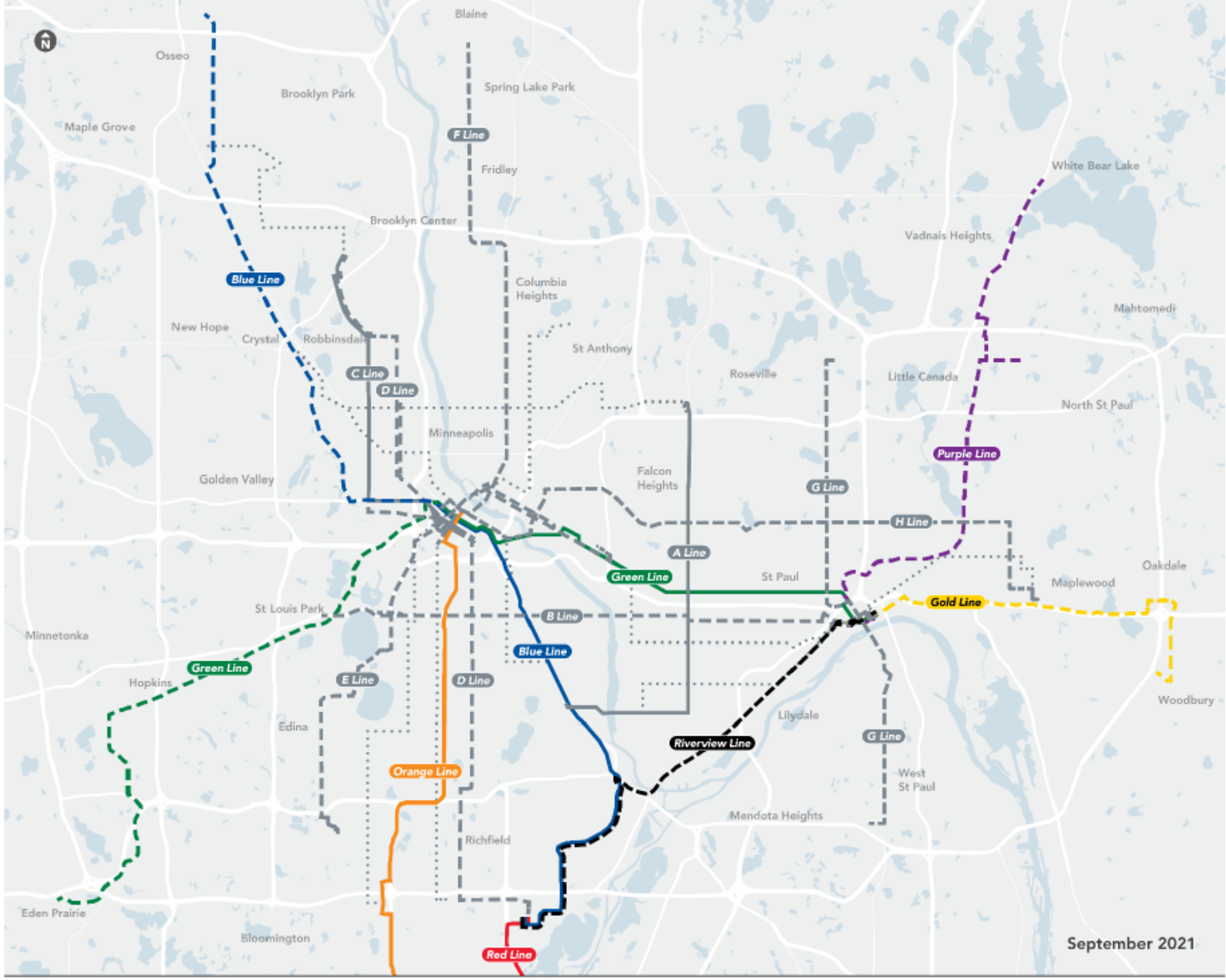
A Map of Freedom

Different Forms of BRT Serve Different Markets

- Arterial BRT in core cities and 1st and 2nd ring suburbs
- Highway BRT and Guideway BRT can go much farther out from the core

$470 million program of six arterial BRT lines in active development

- A Line (Snelling): Open 2016
- C Line (Penn): Open 2019
- ***D Line (Chicago/Fremont) Opens December 3, 2022***
- ***B Line (Lake/Marshall/Selby) Opens 2024***
- ***E Line (Hennepin/France) Opens 2025***
- ***F Line (Central Avenue) Opens 2026, pending full funding***
- ***G Line (Rice/Robert – Routes 62/68) Opens 2027, pending full funding***
- ***H Line (Como/Maryland – Route 3) Opens 2028, pending full funding***



Arterial BRT is an Upgrade to Existing Service

- Speed = saving money
- Role of counties, cities & legislators
- Highway BRT needs a home

Biases in Transportation Policy

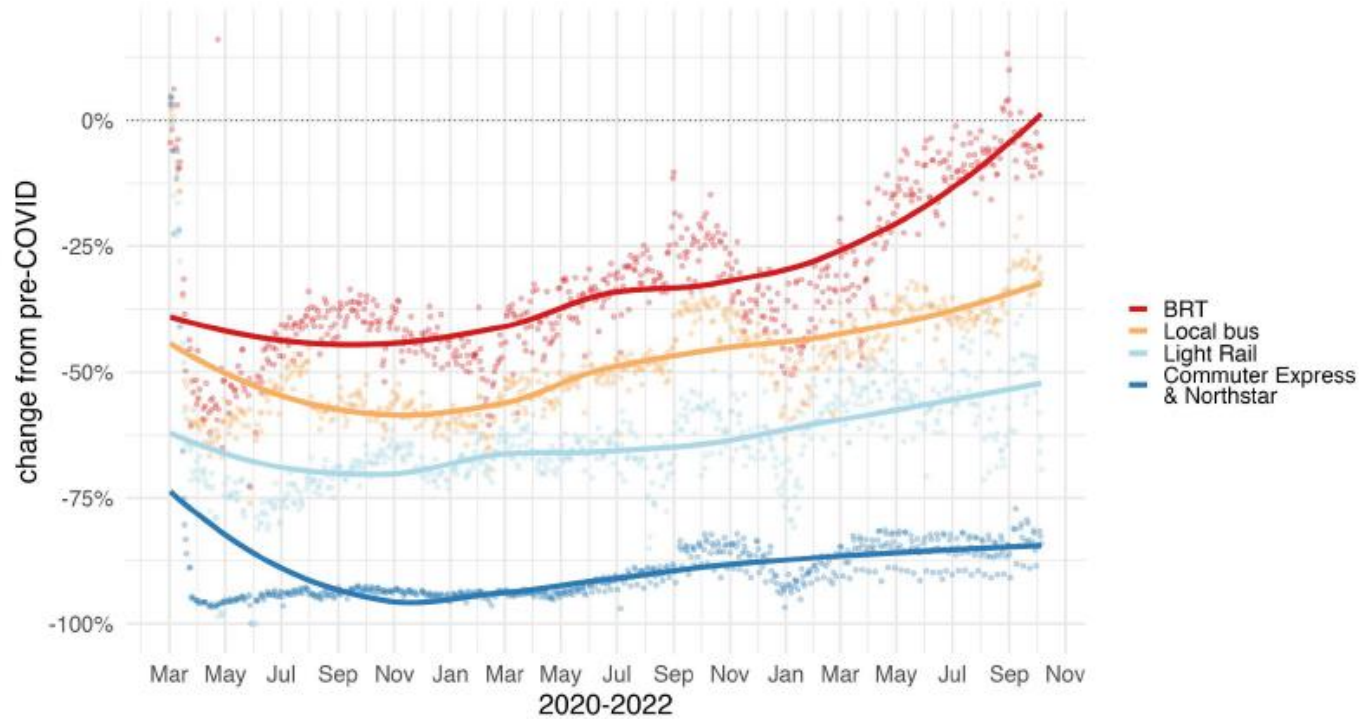
- Allocation of Funding by Mode
- Allocation of Public Space
- Allocation of Resources by Congestion vs. Access
- Governance by “Equality” of Jurisdiction vs. Equality of People
- Transit Funding Decisions Against the Most-Efficient Customers

THANK YOU

- Let’s seize this opportunity to build an equitable and sustainable transportation system.

Ridership

- Steady growth on all modes
  - September 2022 highest monthly ridership since pandemic
- Local bus -33%
- Light rail -50%
- BRT almost even
- All-day, all-purpose trips

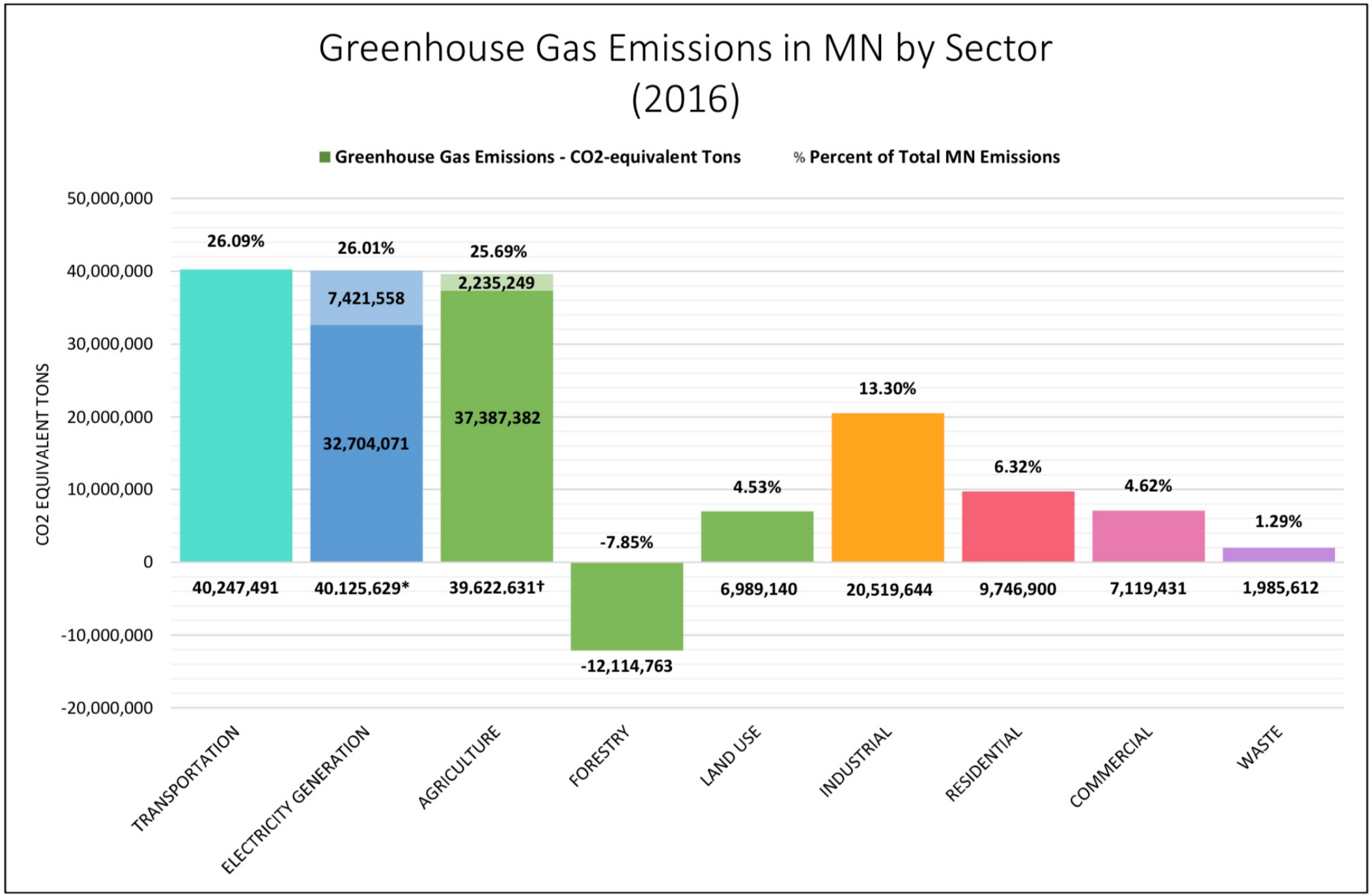


Non-Climate Benefits of Transit

Status Quo is Bad for:

- Public Health
- Affordability
- Economic Competitiveness
- Equity
- Political Polarization

Greenhouse Gas Emissions in MN by Sector (2016)



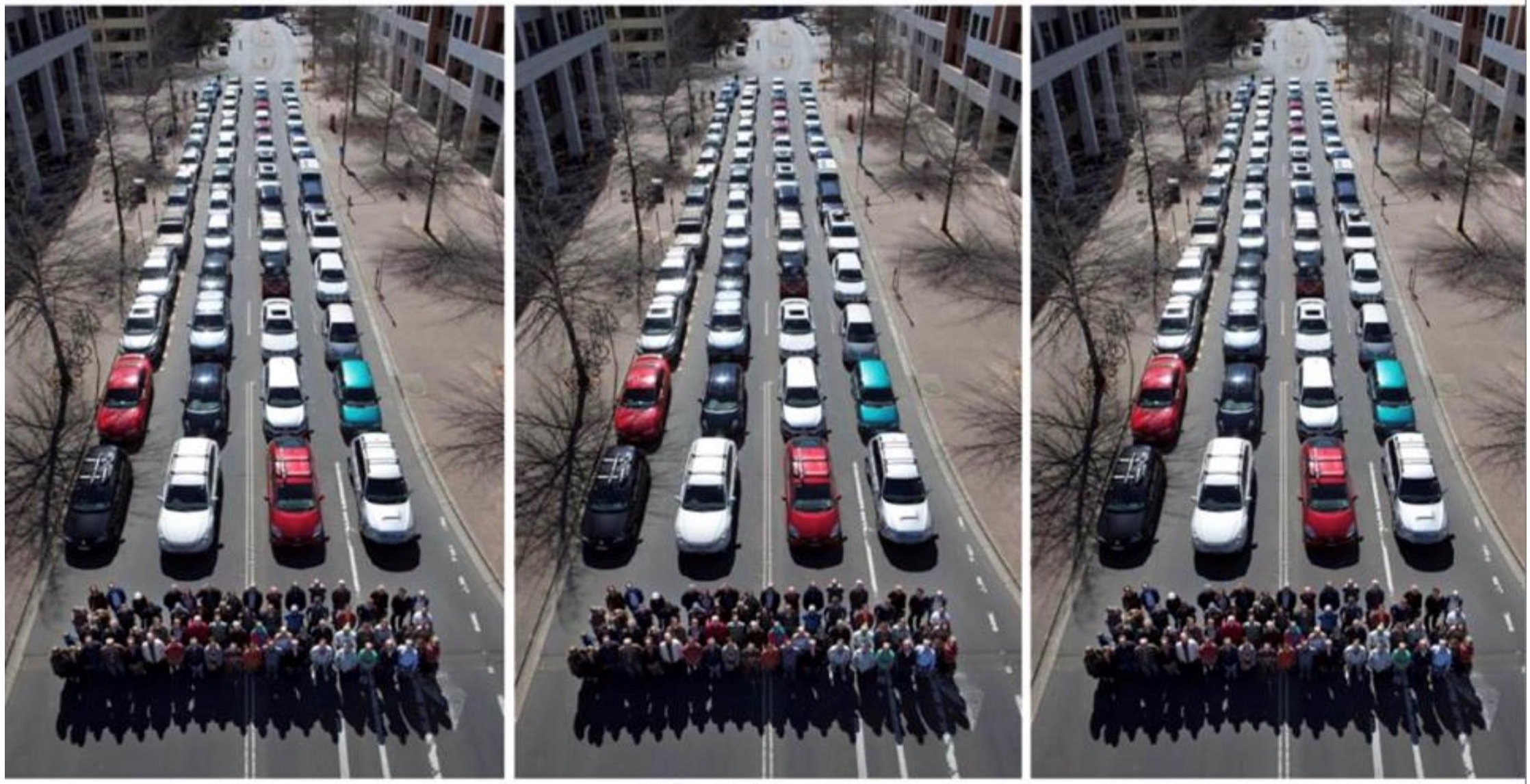
*Dark blue indicates electricity "generated in MN," light blue indicates "imported."

Reduce	Reduce
Reuse	Electrify
Recycle	De-carbonize

Space Required for Transporting 48 People

48 Passenger Cars vs. 1 Transit Bus

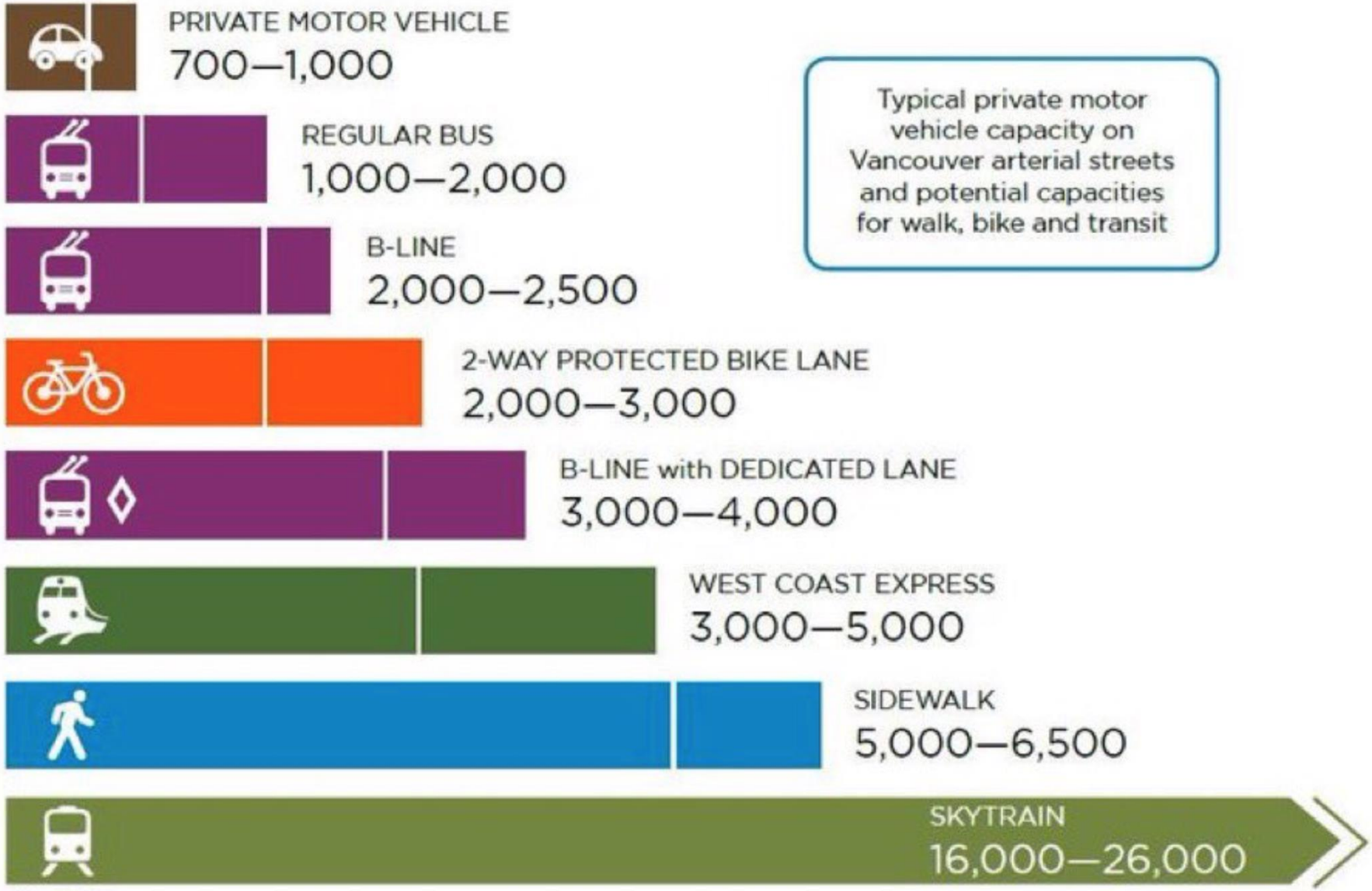
Space Required to Transport 48 People



Car | Electric Car | Autonomous Car

PEOPLE-MOVING CAPACITY: Vancouver Urban Transportation Modes
(in persons per hour per direction - 3 metre lane width)

CITY OF VANCOUVER



Typical private motor vehicle capacity on Vancouver arterial streets and potential capacities for walk, bike and transit

July 2017

Highway BRT Variations

- On Highways, with three types of stations
  - On-Line
  - In-Line
  - Off-Line