

Colorado's Transportation Greenhouse Gas Planning Standard

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A reality check on Colorado's climate targets

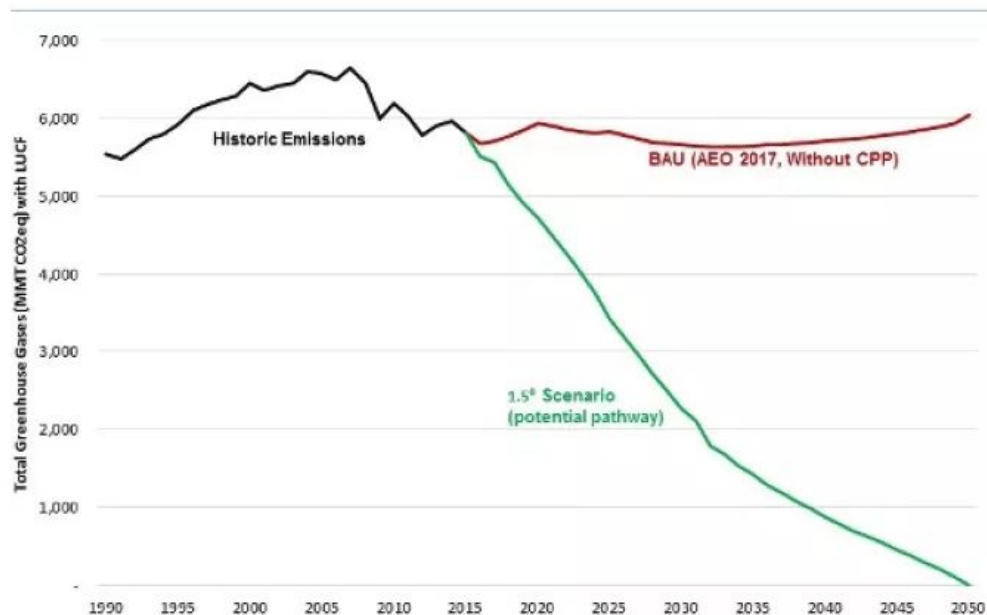
2025 GHG Reduction Estimates and Targets by Sector from GHG Regulations Adopted by December 2021				
Sector	Most Current Reported or Inventory GHG Emissions (MMT CO2e)	2025 Reductions from AQCC Rulemakings (MMT CO2e)	2025 Target (MMT CO2e)	2030 Target (MMT CO2e)
Electricity	31.4	9.1	21	8
Oil and Gas	20.26	7.3	13	8
Transportation	33.11	0.81	23	18
Residential, Commercial, Industrial Energy Use	27.81	0.12	26	20
Other	19.6	0.56	19.9	15.6
Total	132.18	17.89	102.9	69.6

Colorado is on track to surpass the 2025 transportation GHG target by 9.3 million metric tons.

To meet the 2030 target, we would need to cut transportation emissions by 45% between 2025 and 2030.

Net-zero emissions by 2050 is critical, but so are the 2025 and 2030 targets because of the cumulative GHG emissions.

One U.S. Pathway to Paris 1.5C Goal



How do we cut GHG pollution from transportation?

1. **Electrify all cars, trucks, and buses on the road and fuel them with clean electricity;**
2. **Build a connected multimodal transportation system with safe, affordable, and reliable infrastructure for transit, biking, and walking to give people low-carbon alternatives to driving;**
3. **Develop smart land use policies that put housing closer to jobs and other services to reduce driving trips and distances; and**
4. **Less funding for highway expansions and interchange projects that increase VMT and GHGs through induced demand and by enabling sprawl.**

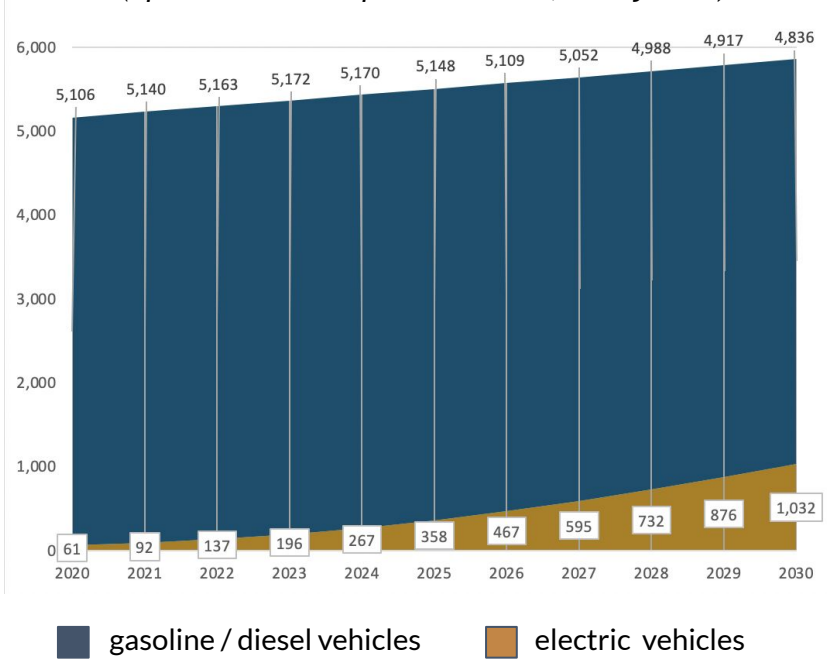
Colorado needs a combination of vehicle electrification AND vehicle miles traveled (VMT) reduction to hit our climate targets.



EVs are absolutely necessary but insufficient on their own to hit our 2030 GHG reduction targets and other transportation goals.

- Colorado’s population expected to increase by 750,000 (13%) by 2030, 2 million by 2050.
- EVs deliver big GHG reductions after 2030. Fleet turnover won’t happen fast enough - The average vehicle is on the road for 13 years. We replace about 334,000 or 6% per year.
- In a high EV adoption scenario, the number of EVs grows from 41,000 in 2021 to 1 million in 2030. There are still 4.8 million gas cars in 2030.
- In addition to electrification, we also need to implement **VMT reduction strategies** (big co-benefits for safety, access, and affordability while also making it easier to hit our EV targets.)

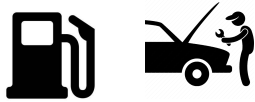
Total light-duty vehicles in CO from 2020 to 2030
(optimistic EV adoption scenario, 1M by 2030):



Source: Southwest Energy Efficiency Project (SWEET)

The Benefits of CDOT's GHG Planning Rule: \$40 Billion by 2050

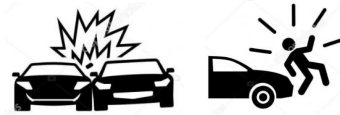
Vehicle Operating Costs



\$11 Billion Savings

Consumer savings from lower fuel & maintenance costs.

Safety (Crashes)



\$19 Billion Savings

Lower costs associated with traffic fatalities or injuries such as medical costs, insurance, vehicle property damage, lost workplace productivity.

Traffic Delay



\$9 Billion Savings

Decreased travel time for commuting, errands, personal travel & freight movement.

Air Pollution



\$270 Million Savings

Lower healthcare costs from less local air pollution.

Social Cost of Carbon



\$1.2 Billion Savings

Avoided financial losses and costs to pay for damages caused by climate change.

Physical Inactivity

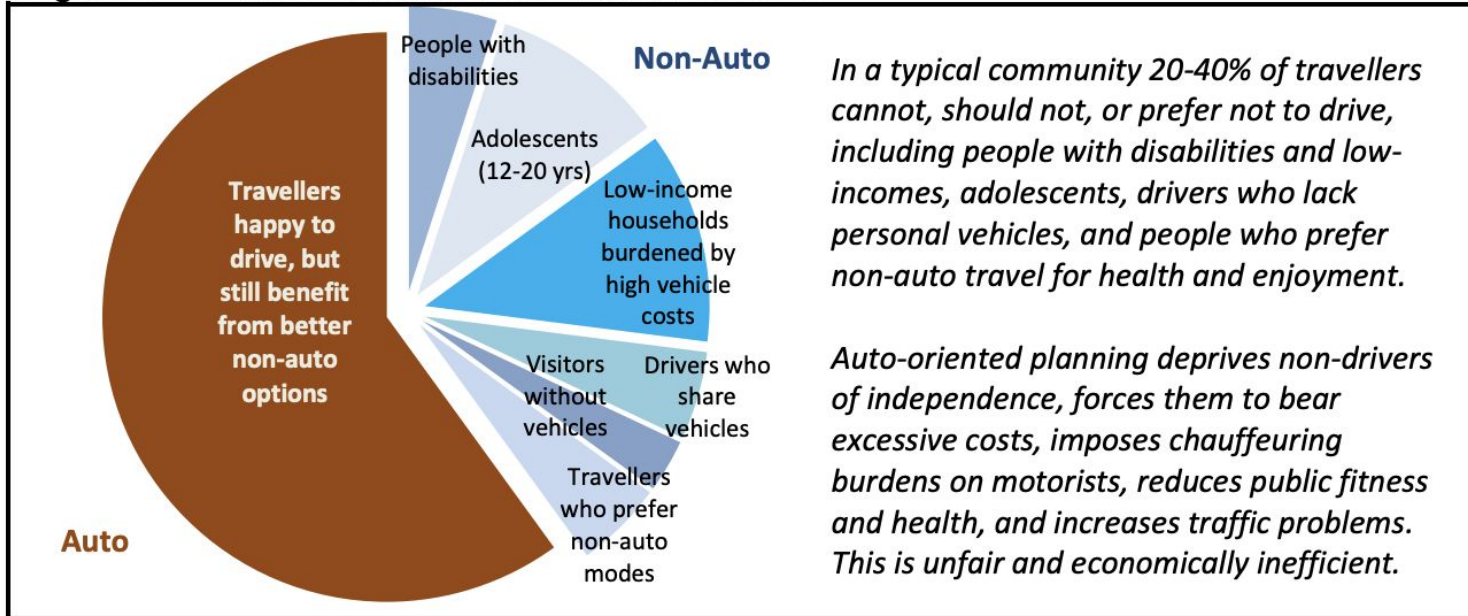


\$618 Million Savings

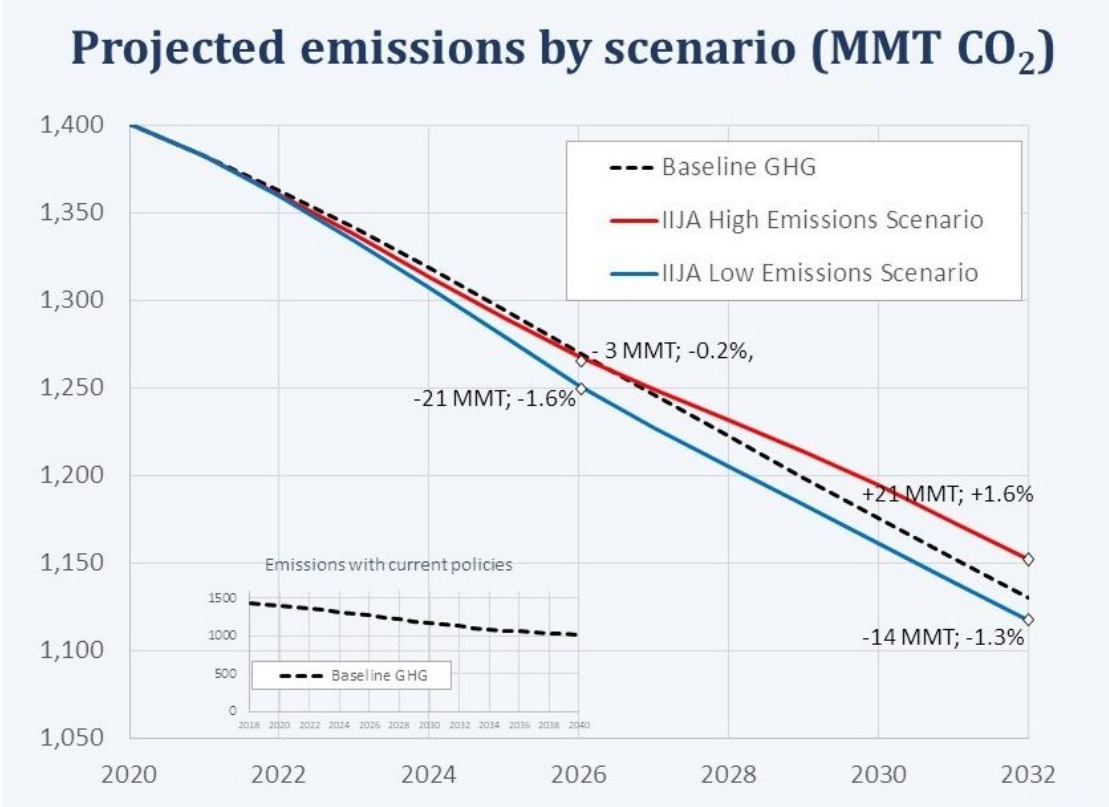
Improved health from more physical activity such as walking and biking.

Pent up demand for non-auto transportation options

Figure 5 Auto and Non-Auto Travel Demands



GHG impact of the federal Bipartisan Infrastructure Law (BIL)



Source: Georgetown Climate Center

BIGGER ROADS, MORE TRAFFIC

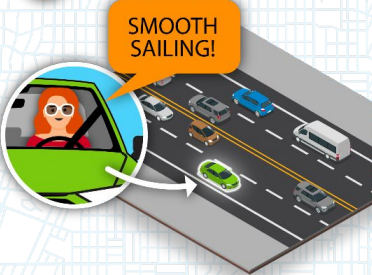
1 For years, governments tried to tackle congestion by widening our roads.



ADD MORE LANES!

UGH.

2 Adding a lane often helps at first.



SMOOTH SAILING!

3 However, over time the wider highway creates even more traffic than before.

Why?

- MORE & LONGER TRIPS**
People may choose to drive more often than before, and to destinations farther away.
- MORE DRIVERS**
People who normally carpool, take transit, walk or bike decide to drive instead.
- DISPERSED LAND USES**
New development is built further from existing neighborhoods, forcing longer trips and reducing open space.



4 Building bigger roads often creates more traffic. And more traffic means more pollution, noise, crashes, and maintenance expense.



THERE'S GOT TO BE A BETTER WAY.

YUCK!

5 There ARE better solutions. If we make thoughtful decisions about transportation and land use, we can make it easier for people to take fewer and shorter car trips.

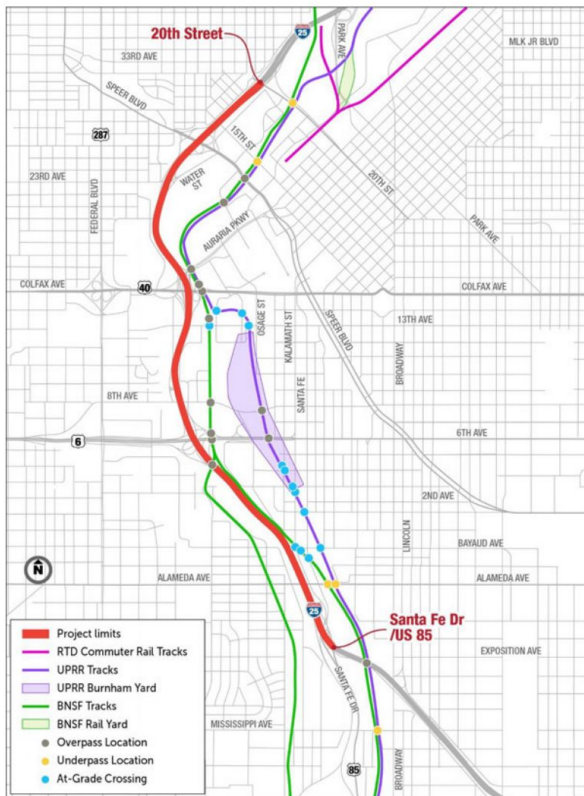


WHEE!!!

For more information on how Caltrans is working to reduce Californians' time behind the wheel, visit dot.ca.gov/programs/sustainability/sb-743



Proposed I-25 Valley Expansion: GHG Impacts



Source: Denver, 2018

~70 million additional VMT/year
(Vehicle Miles Travelled)

Denver-Aurora currently has **769 lane miles** of Interstate highway on which **~6350 million** vehicle miles are travelled per year.

A project adding **9 lane miles** would induce an additional **~70 million** vehicle miles travelled per year. Under today's conditions, the annual emissions from this are the same as **~5600** passenger cars and light trucks or **~2.9 million** gallons of gas.

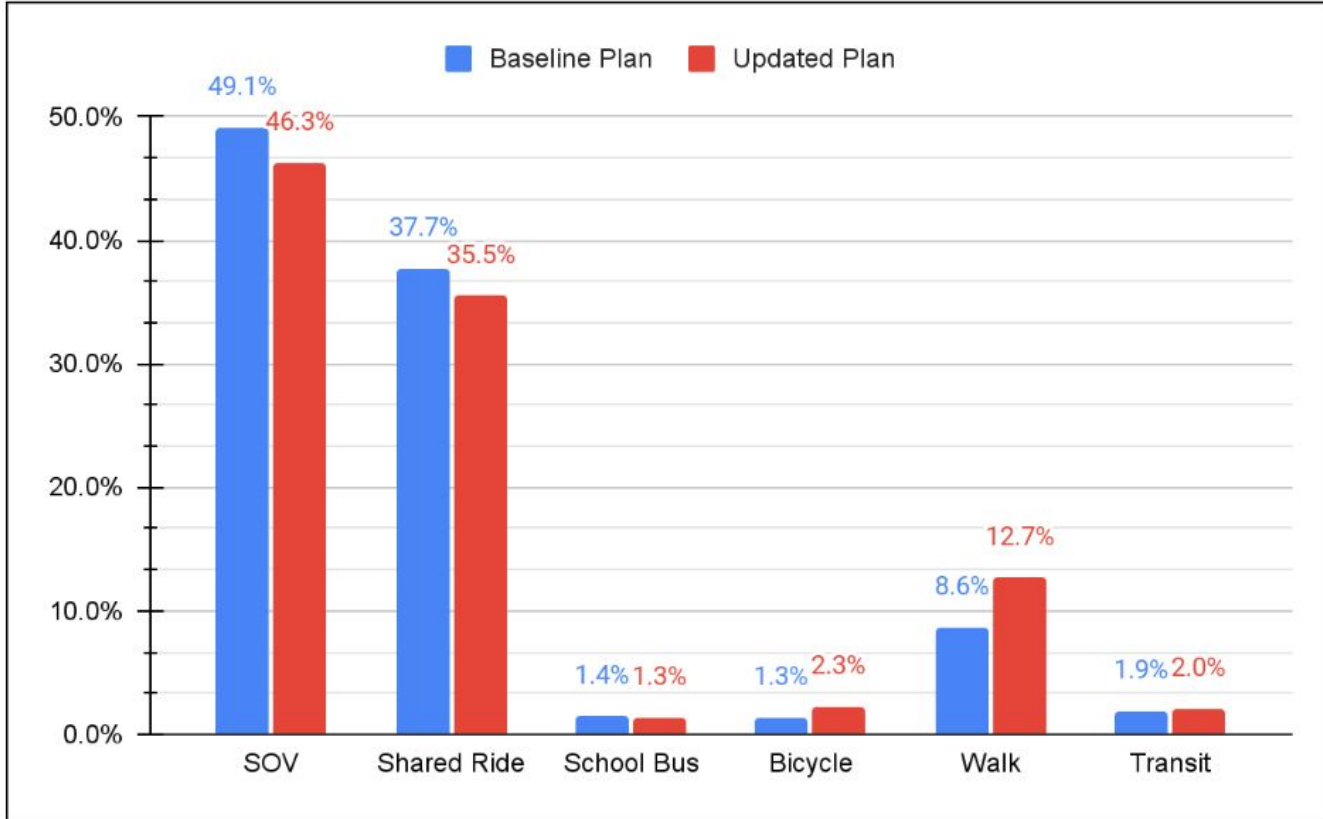
Cumulative emissions projections range from **0.3** MMT CO₂e to **0.9** MMT CO₂e and are shown in the following table:

Cumulative Emissions Added Through 2050

	'Climate Mitigation' Scenario	BAU Scenario
Direct Emissions	~0.3 MMT CO ₂ e	~0.5 MMT CO ₂ e
Lifecycle Emissions	~0.5 MMT CO ₂ e	~0.9 MMT CO ₂ e

This calculation is using an elasticity of **1.0**.

Figure 6: Impact of GHG Planning Standard on Mode Share in DRCOG region by 2030.

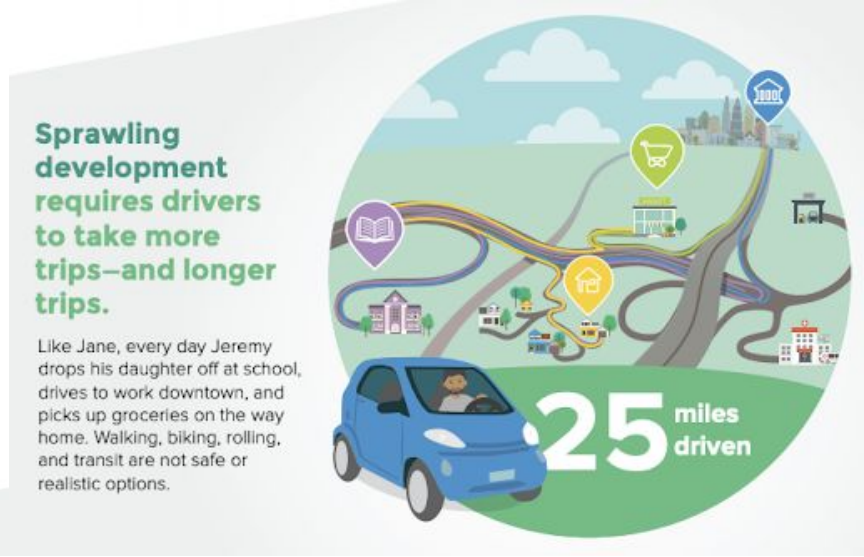


We cannot clean up transportation without addressing land use.



Clustered development allows drivers to take fewer, shorter trips

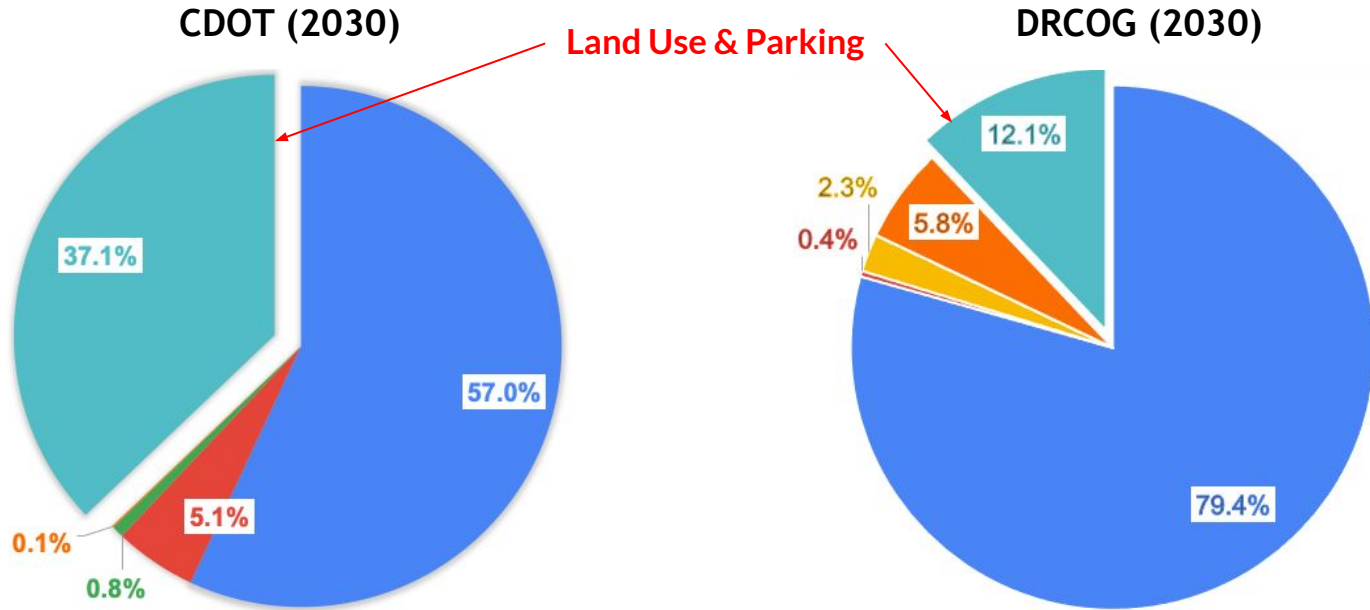
Every day Jane drops her granddaughter off at daycare, drives to work, and picks up groceries on the way home. Walking, biking, rolling, or transit are usually safe and convenient options.



Sprawling development requires drivers to take more trips—and longer trips.

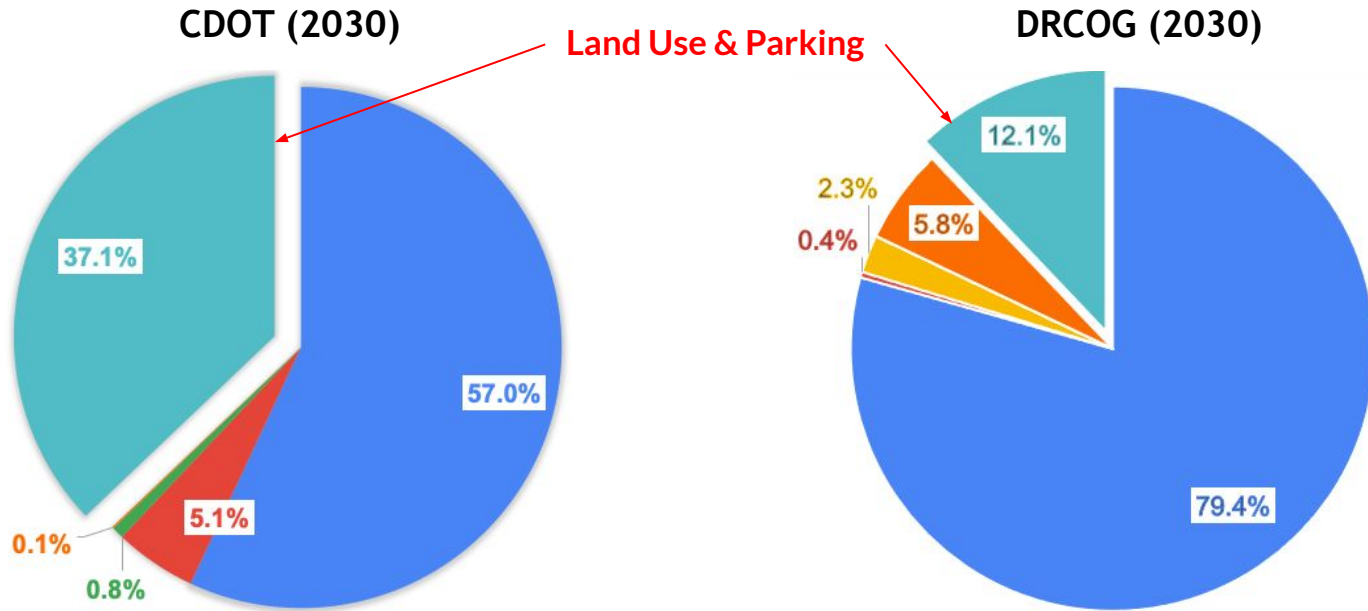
Like Jane, every day Jeremy drops his daughter off at school, drives to work downtown, and picks up groceries on the way home. Walking, biking, rolling, and transit are not safe or realistic options.

How did transportation agencies comply with the GHG targets?



- Updated Model Run: Less highway widening & more Bus Rapid Transit, telecommuting, and bike/ped infrastructure
- Transit Service (Bustang, rural transit, electric buses)
- Complete Streets & Pedestrian Infrastructure
- Transportation Demand Management (TDM)
- Signal Timing and Roundabouts
- Land Use & Parking Management

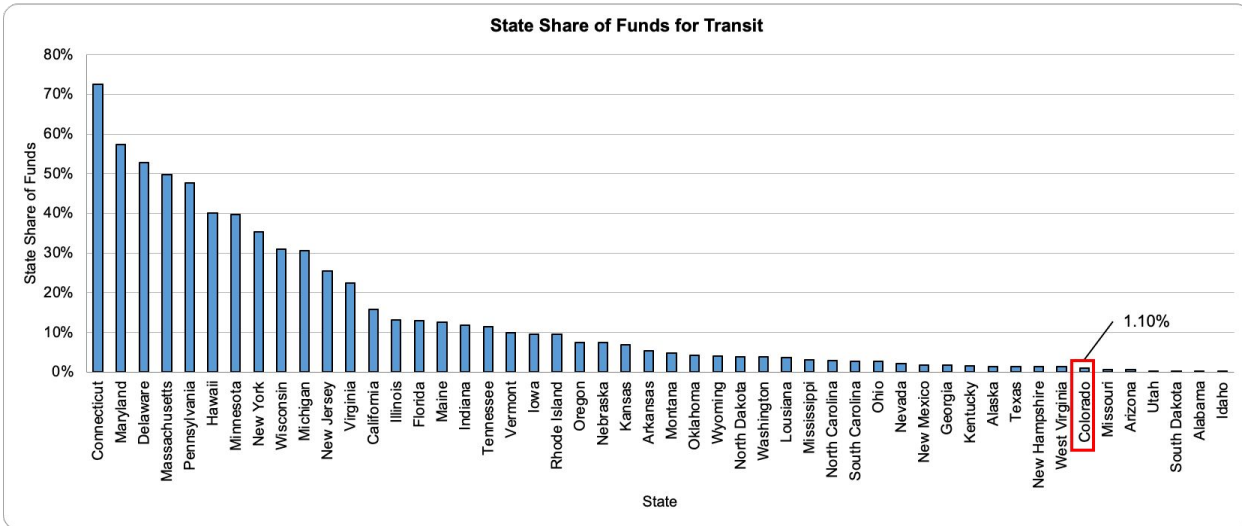
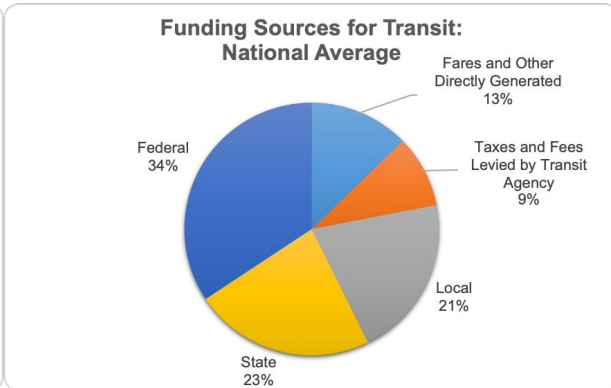
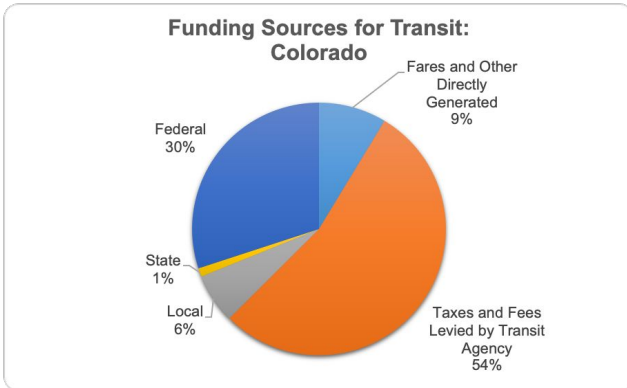
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“It is important to note that these rezonings are wholly within the authority of the local government. Land use is an area where CDOT has no authority. Any rezonings that occur will be voluntary, and responsive to local policy, market, and demographic factors.”

- CDOT GHG Transportation Report

Transit Funding



Source: Federal Transit Administration's National Transit Database

How can we improve the Standard and make it more effective?

- Strengthen the GHG reduction targets and supplement with VMT reduction targets.
- Require transportation agencies to revisit and re-examine projects in the queue and assess whether they align with our current goals including safety, climate, equity, affordability, and access.
- Continuously improve to the modeling and develop a standard approach to calculate induced travel.
- Require agencies to demonstrate a direct connection between plan updates and GHG reductions,
- Require local governments to do their part. Update CDOT and MPO project scoring criteria to incorporate climate and encourage transportation-efficient land use practices.
- Develop an Transportation Equity Index to measure the impact of transportation investments on Disproportionately Impacted Communities (DICs),
- Explore strategies that adjust the price of driving to accurately reflect its social and environmental costs,
- Take Vision Zero seriously and improve safety for pedestrians and cyclists.

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