2024 Annual Report on Roadway Traffic Congestion in the Denver Region

December 2025

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Introduction

The Denver region is vibrant and growing. With a continued increase in residents, tourism and economic activity, travel trends in the region are constantly changing. On average, drivers make about 10 million vehicle trips per day in the region, many of which also carry passengers, as well as goods and services required to satisfy regional demand. In total, vehicles travel around 85 million miles on the region's roadway network every day — this translates to about 191,000 vehicle hours of delay and 4 million gallons of gasoline and diesel fuel burned each day, contributing to congestion and diminishing air quality.

The Annual Report on Roadway Traffic Congestion in the Denver Region has consistently examined the performance of the region's roadways since 2006. Prepared by the Denver Regional Council of Governments (otherwise referred to as DRCOG), the report provides a snapshot of regional travel in 2024 and continues to explore the evolving dynamics related to the COVID-19 pandemic and subsequent recovery.

The report concludes with regional travel projections for 2050 associated with the 2050 Metro Vision Regional Transportation Plan as adopted in May 2024. The plan and broader local, regional and state planning efforts (including the statewide greenhouse gas rulemaking from Senate Bill 21-260) will continue to shape how DRCOG staff measure and monitor traffic congestion into the future.

Congestion management process

The federal government requires large metropolitan planning organizations like DRCOG to conduct a congestion management process. The U.S. Department of Transportation also requires DRCOG to address several planning factors, including "improving the resiliency and reliability of the transportation system." This planning factor is closely tied to the congestion management process. DRCOG's Annual Report on Roadway Traffic Congestion in the Denver Region is just one component of its congestion management process.

The process includes an extensive database of roadway attributes, traffic counts, vehicle crash incidents, other multimodal data metrics and performance measures. The effort also identifies severely congested segments on the designated Regional Roadway System. DRCOG and partner agencies use the resources to help define effective congestion reduction strategies and projects.

DRCOG's Metro Vision and 2050 Metro Vision Regional Transportation plans identify overarching desired outcomes and specific initiatives related to the region's transportation system and congestion management process:

- Metro Vision transportation outcomes: "The regional transportation system is well-connected and serves all travel modes. The transportation system is safe, reliable and well-maintained."
- 2050 Metro Vision Regional Transportation Plan initiative: Implement "new technology and other operational investments to improve reliability and mitigate increasing congestion and delays."

The congestion management process addresses specific objectives to help reach the outcomes identified in the regional transportation plan. The following objectives are applicable to all travel modes, as well as the movement of goods and freight:

1. Improve the multimodal reliability of the regional roadway system so **people and businesses experience fewer unexpected delays.**
2. Reduce the number and duration of crash events so the **transportation system operates more safely**, first responders work in a safer environment, and extensive travel delays and dangerous backups are reduced.
3. Reduce excessive travel delays faced by occupants of all types of motor vehicles so **people and businesses experience lower costs associated with severe traffic congestion.**
4. Increase and improve active transportation modes (such as walking and biking) and transit service so **people can choose a different mode and adapt to traffic congestion**.
5. Improve traveler information and alert systems so **people and businesses can be alerted to critical incidents** and make informed decisions about travel mode and route choices.
6. Improve day-to-day and major maintenance efforts to **enhance the safety and reliability of the entire multimodal transportation system**.
7. Expand the toolkit of congestion reduction strategies so **DRCOG's member governments and partner agencies have a full suite of project types to consider, fund and implement**.

8. Ensure that congestion management process projects and actions are implemented across the region so that **low-income and disadvantaged communities reap significant benefits** and are not burdened by negative impacts.

The congestion management process is also closely aligned with other key DRCOG planning efforts:

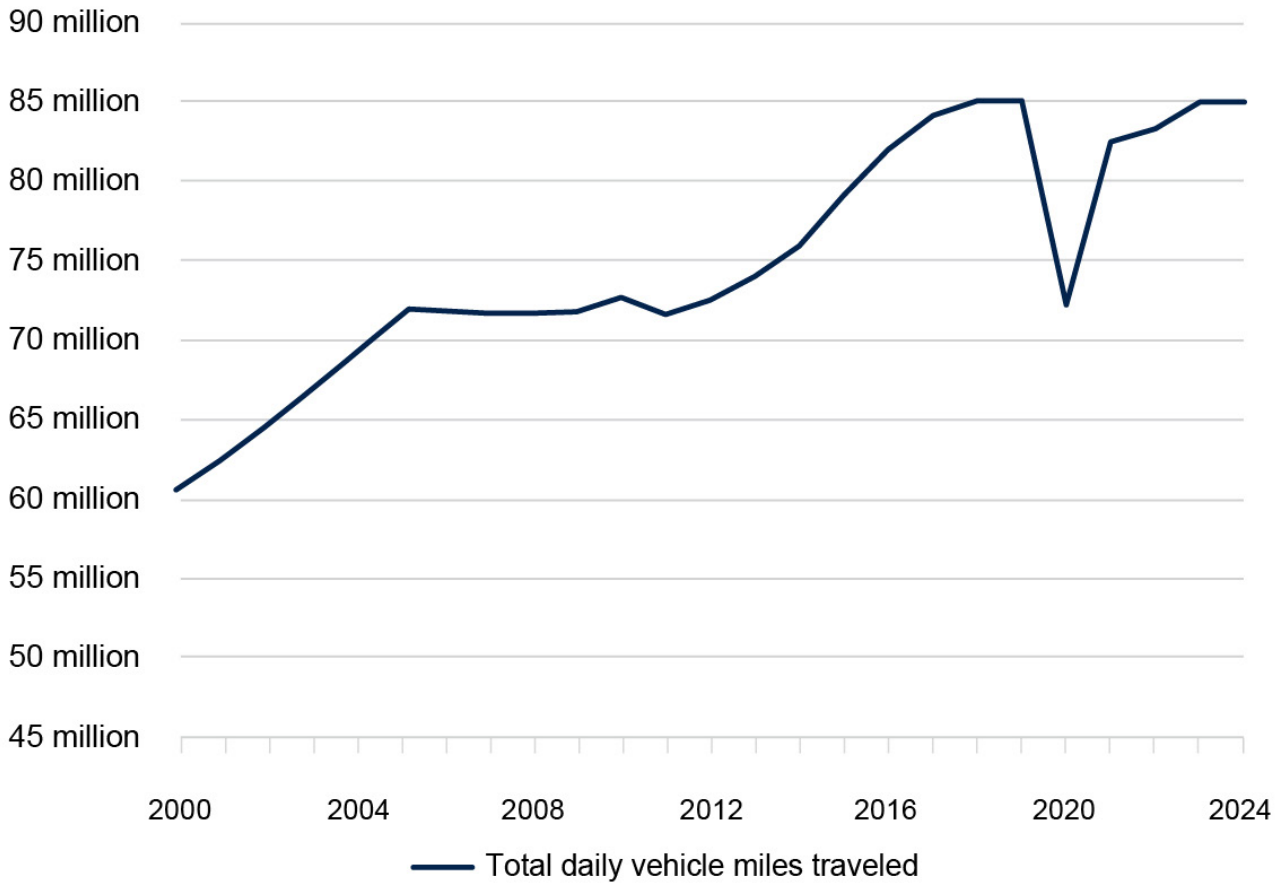
- Regional Transportation Operations and Technology Strategic Plan.
- Active Transportation Plan.
- Coordinated Transit Plan.
- Regional Complete Streets Toolkit.
- Taking Action on Regional Vision Zero.
- Transportation Demand Management Strategic Plan.

Vehicle miles traveled in 2024

Each year, DRCOG staff estimate the vehicle miles traveled on the region's roadways during an average weekday. Seasonal variations and other deviations from normal travel (such as large events, major construction or accidents) commonly affect average daily vehicle miles traveled throughout the year.

DRCOG staff estimate that in 2024, average vehicle miles traveled was 85 million per day.

Figure 1: Average daily vehicle miles traveled in the Denver region (2000-2024)



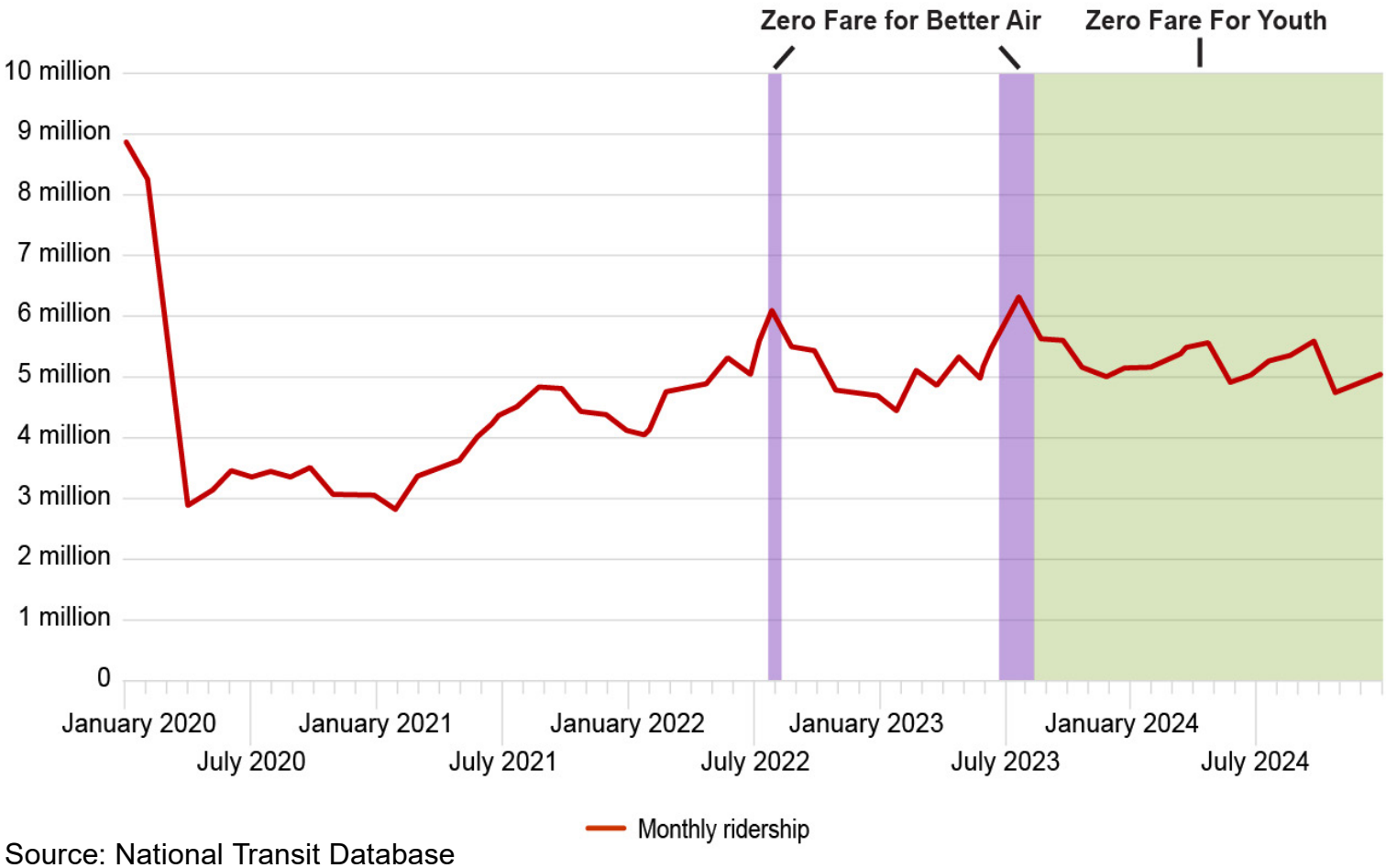
However, with an estimated population increase of approximately 25,000 residents over the same period, the average vehicle miles traveled per capita declined from 25.0 miles in 2023 to 24.8 miles in 2024. That's still below the pre-pandemic level of 25.7 vehicle miles traveled per capita in 2019.

As illustrated in Figure 1, total vehicle miles traveled in the region increased by approximately 40% from 2000 to 2019. During 2020, the pandemic brought a sharp decline of 15%. With a recovery from the pandemic, vehicle miles traveled in the region rebounded to 2019 levels in 2023 and remained unchanged in 2024.

Regional transit trends in 2024

Due to the COVID-19 pandemic, monthly transit ridership dropped 67% in April 2020 compared with average monthly ridership in 2019. While traffic volumes rebounded across the region by 2023, transit ridership has yet to return to pre-pandemic levels. Figure 2 illustrates the slow climb of transit ridership from the onset of the pandemic to the end of 2024. Fewer workers in office buildings, increased teleworking, reduced transit service levels, and health and safety concerns from the pandemic have all contributed to the sustained reduction in transit ridership.

Figure 2: Regional Transportation District ridership comparison



Source: National Transit Database

However, ridership reached its highest post-pandemic point in August 2023 with Colorado's Zero Fare for Better Air program, one of several initiatives introduced by the State of Colorado and the Reginal Transportation District (known as RTD). Zero Fare for Better Air was a statewide initiative to provide optional funding to local and metropolitan transit agencies to allow them to reduce or eliminate fares during the highest ozone months. RTD did not renew the initiative in 2024. Instead, it started a yearlong pilot of the Zero Fare for Youth program, which made transit free for all travelers ages 19 and younger from September 2023 to August 2024. RTD has since made the program permanent.

Analyzing 2024 monthly ridership data from the National Transit Database, illustrated in Figure 2, shows relatively consistent ridership throughout the year, except for some fluctuations from June to October when light rail maintenance was underway. Ridership declined again at the end of the year, potentially reflecting both seasonal travel reductions and lingering impacts from rail maintenance disruptions.

RTD has plans to boost transit services in 2025. While operator staffing and financial strain have served as barriers, RTD intends to continue implementing its system optimization plan, which aims to restore service to 85% of 2019 levels.

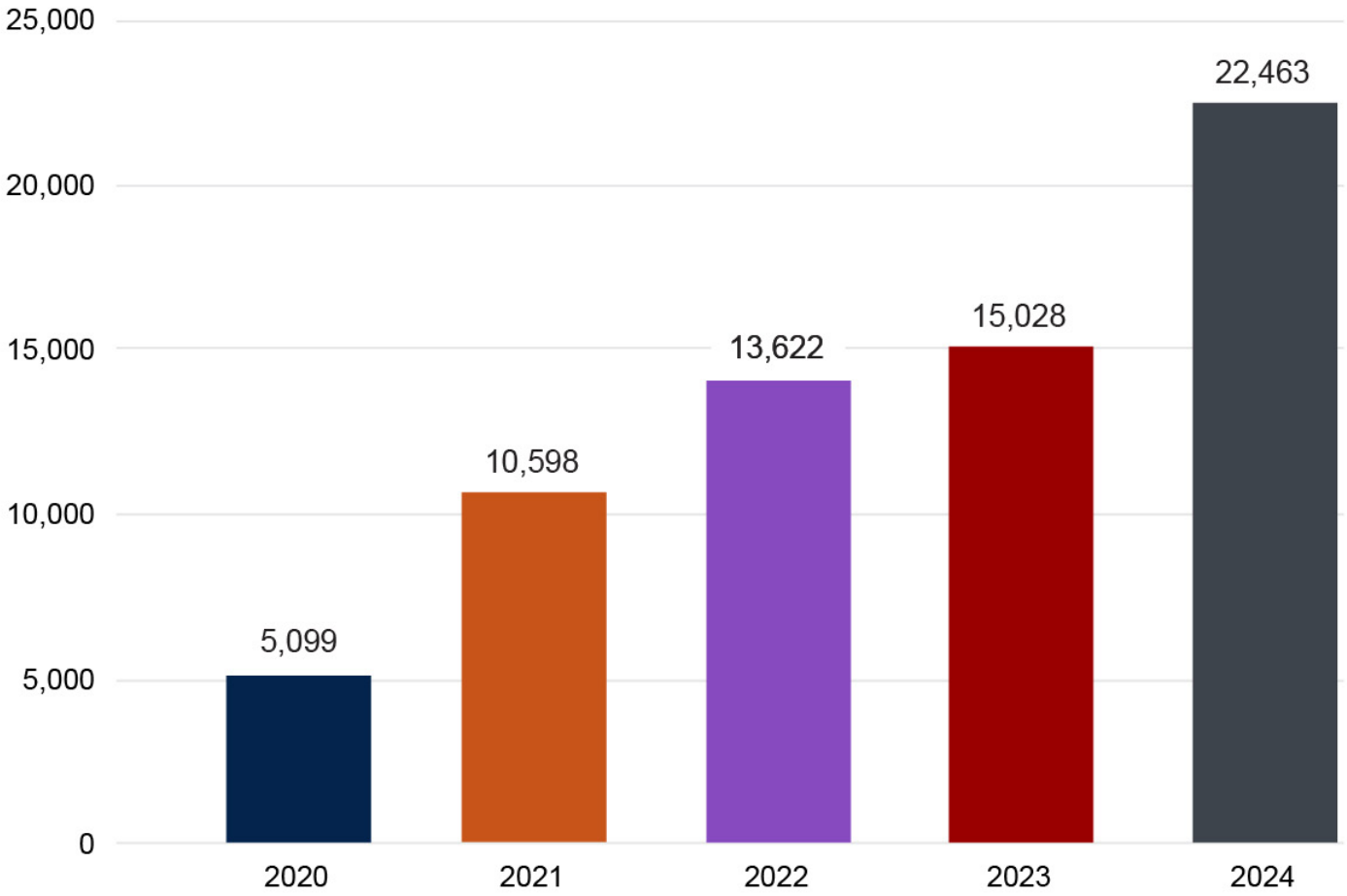
Photo courtesy of RTD

Shared micromobility in 2024

While transit ridership has yet to return to pre-pandemic levels, shared micromobility usage has exploded. Shared micromobility refers to shared, small, human- and electric-powered modes of transportation, including station-based bikeshare, dockless bikes and e-bikes, and e-scooters. Such vehicles are typically available for short-term rentals and can be used in designated service areas.

Figure 3 illustrates the annual average number of shared micromobility trips per day from 2020 to 2024 in the Denver region, which includes data for the cities of Arvada, Aurora, Boulder, Brighton, Denver, Littleton and Thornton. The number of trips on any given day varies greatly depending on multiple factors, including seasonality, weather and if school is in session. The total number of vehicles available and service area expansions have contributed to the increase in use. According to Ride Report data, in 2024, shared micromobility users took around 8.2 million total trips in the Denver region — a 49% increase from 2023.

Figure 3: Average number of micromobility trips per day



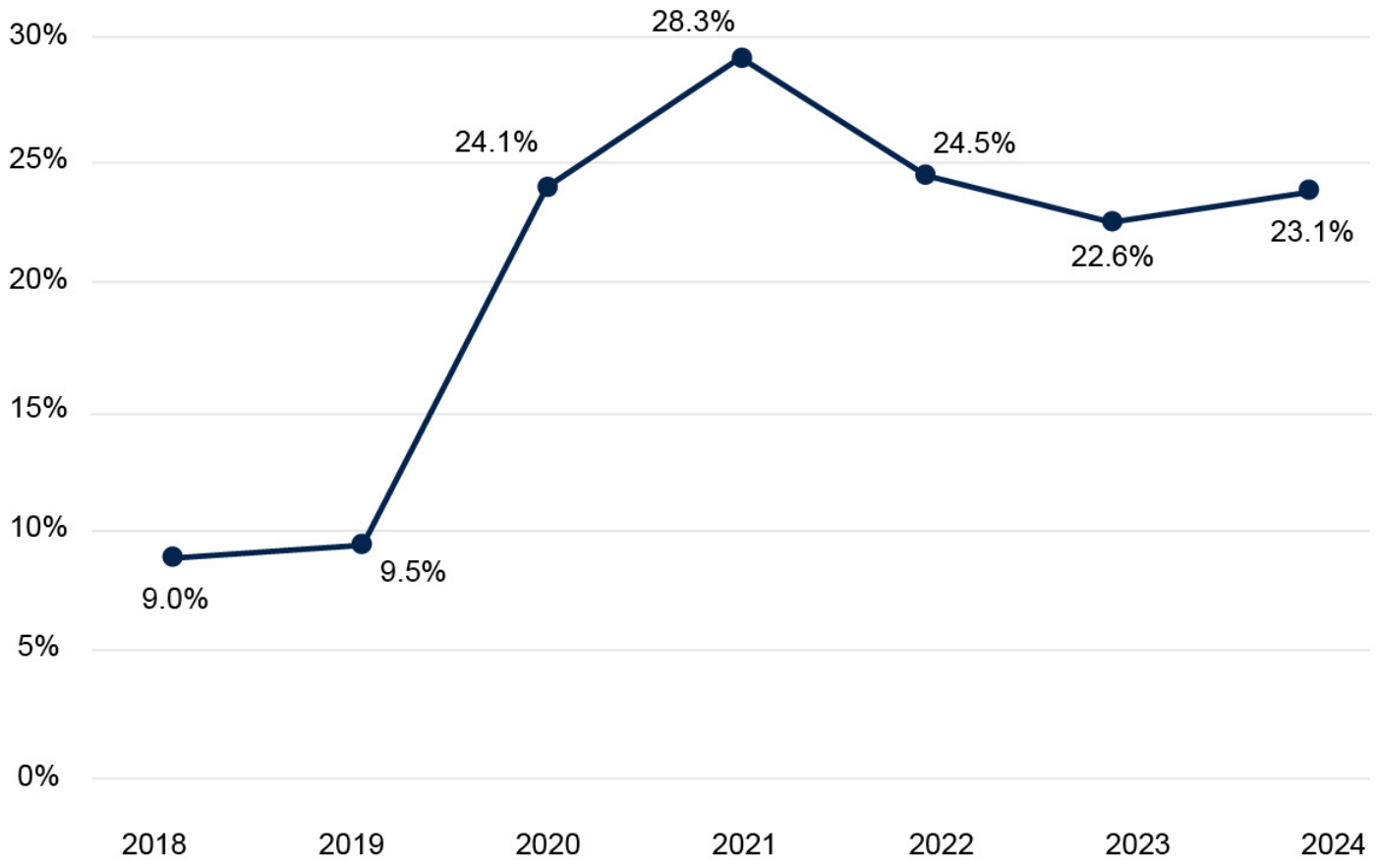
Source: Ride Report

Telework trends

As telework became a public health necessity during the COVID-19 pandemic, it rapidly changed the patterns and frequency with which people move throughout the region, especially those who previously commuted to an office job.

As local agencies lifted restrictions and concerns about health risks waned through 2021 and 2022, traffic congestion returned nationwide, including in the Denver region. However, telework remains a prevailing work option for many of the region's residents. Figure 4 illustrates the percentage of people working from home in the Denver region from 2018 to 2024.

Figure 4: Percentage of people who typically work from home in the Denver region, 2018 to 2024



Source: U.S. Census Bureau, American Community Survey 2018-2024 one-year estimates

Note: Data includes Adams, Arapahoe, Boulder, Denver, Douglas and Jefferson counties only.

Photo courtesy of RTD

Forecasted congestion in 2050

The Denver region is expected to grow and change over the next 30 years, and so will travel patterns and congestion. Using forecasts from the State Demography Office within the Colorado Department of Local Affairs, DRCOG staff anticipate the region will grow by around 850,000 people and add 700,000 jobs by 2050. The transportation system will change, with new facilities added across modes, and transit service will continue to evolve. Technological advancement will also impact available travel modes, mobility services and safety, changing how people get around and when they choose to travel.

The U.S. Department of Transportation has established goals to reduce congestion, improve system reliability and improve freight and goods movement. To track the region's progress at addressing congestion, DRCOG's System Performance Report (Appendix G of the Regional Transportation Plan) highlights the federally established goals and progress toward performance measures such as travel time reliability and annual hours of peak-hour excessive delay per capita.

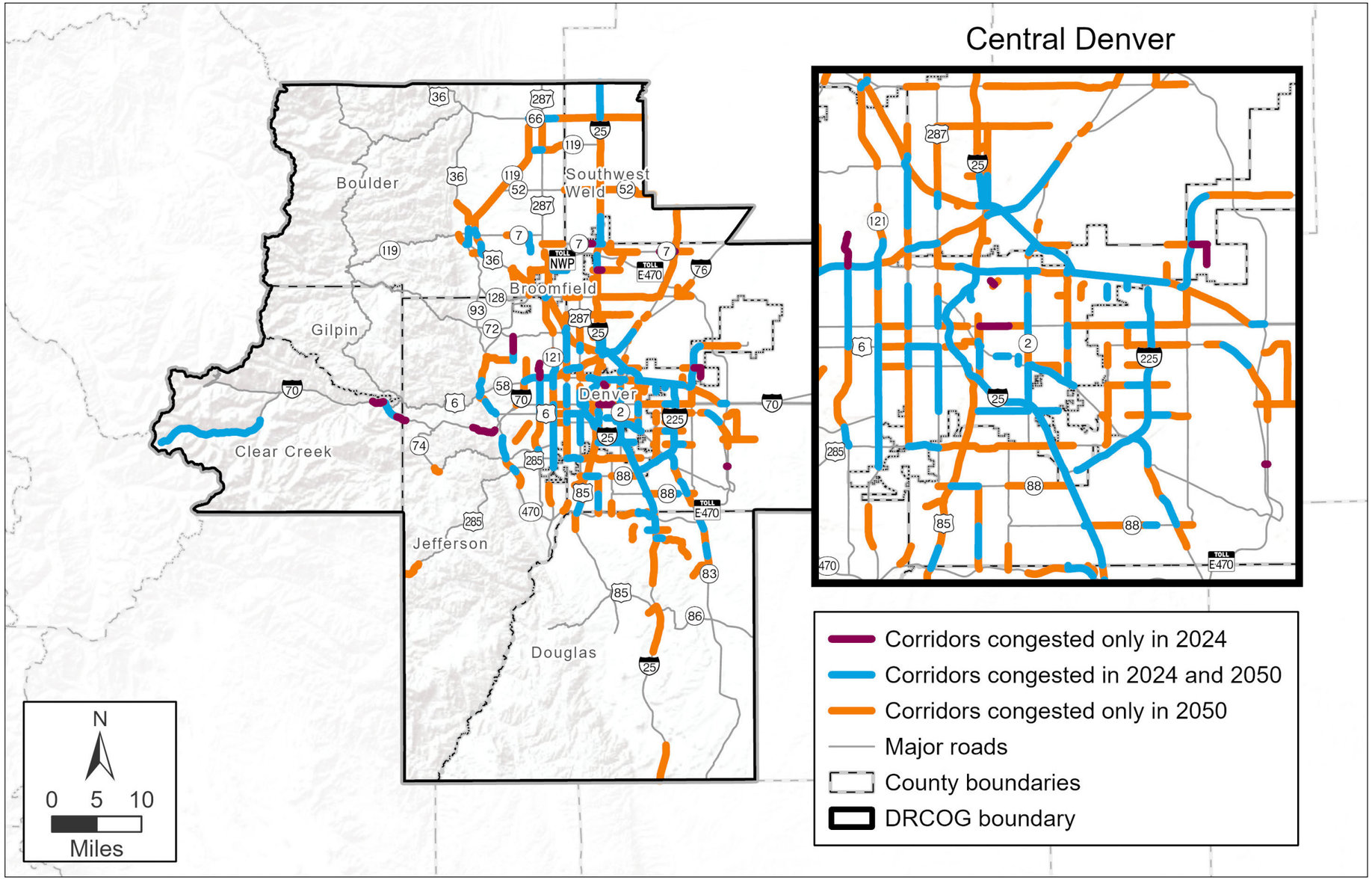
As for future progress as the region's population grows, the 2050 Metro Vision Regional Transportation Plan outlines how the region will continue to meet federal performance targets and improve transportation infrastructure and services. Between now and 2050, DRCOG's travel model forecasts a 43% increase in vehicle miles traveled in the region. With limited intervention, such a significant increase would result in a near tripling of both vehicle hours of delay and lane miles congested for longer than three hours a day.

The number of households in the Denver region is projected to increase by 31% by 2050, along with a 25% increase in population and a 32% rise in employment, as outlined in Table 1. Tables 2 through 6 include a comparison of congestion measures between 2024 and 2050. The projected congestion levels in Table 4 illustrate a substantial increase in both systemwide and per-capita delay by 2050. Based on the forecast detailed in Table 5, congestion at 2 p.m. in 2050 will be worse than it was at 5 p.m. in 2024 as more trips are taken across the day. Integrated strategies will be critical to mitigate future congestion impacts.

Map 1 on page 14 illustrates the most congested road segments from 2024 and reflects additional roads that will experience high levels of congestion by 2050 based on four key metrics:

- Severity: How bad is roadway congestion during rush hour?
- Duration: How many hours per day is the roadway congested?
- Magnitude: How many people (traffic volume) are affected by roadway congestion?
- Reliability: How often do crashes or incidents occur on the roadway?

Map 1: Key congested locations in 2024 and 2050



Reference the disclaimer at data.drcog.org/about.
If you need digital accessibility assistance, submit a request at drcog.org/access or call 303-455-1000. Please expect a response within 72 hours (three business days).

Author: Pete Jordan

Location: \\TPO\0-Projects\CMPP\00 - CMPP 2024\

Data source: DRCOG, Esri Basemap; SR 6428

Table 1: Population and employment growth between 2024 and 2050

Note: Data in this table is from the 2023 update of the Metro Vision Regional Transportation Plan.

Category	2024	2050	Change between 2024 and 2050
Households	1,414,000	1,859,000	31%
Population	3,525,000	4,416,000	25%
Employment	2,241,000	2,965,000	32%

Table 2: Vehicle-focused congestion measures on Denver freeways and major roads

Note: The measures in this table only relate to the designated Regional Roadway System.

Congestion measure	2024 average weekday	2050 average weekday	Change between 2024 and 2050
Vehicle miles traveled	64,824,000	92,481,000	43%
Vehicle hours traveled	1,387,000	2,214,000	60%

Table 3: Person-focused congestion measures on Denver freeways and major roads

Note: The measures in this table only relate to the designated Regional Roadway System.

Congestion measure	2024 average weekday	2050 average weekday	Change between 2024 and 2050
Person miles traveled	87,133,000	128,368,000	47%
Person hours traveled	1,894,000	3,063,000	62%

Table 4: Delay-related congestion measures on Denver freeways and major roads

Note: The measures in this table only relate to the designated Regional Roadway System.

Congestion measure	2024 average weekday	2050 average weekday	Change between 2024 and 2050
Vehicle hours of delay	191,000	499,000	160%
Person hours of delay	262,000	686,000	162%
Travel delay per resident	4 minutes	10 minutes	123%

Table 5: Other congestion measures on Denver freeways and major roads

Note: The measures in this table only relate to the designated Regional Roadway System.

Congestion measure	2024 average weekday	2050 average weekday	Change between 2024 and 2050
Percent of travel time in delayed conditions	14%	22%	62%
Additional travel time at 5 p.m. compared with free flow conditions	18%	37%	102%
Additional travel time at 2 p.m. compared with free flow conditions	13%	20%	50%
Percent of total lane miles congested for three hours or more	17%	35%	107%

Table 6: Economic congestion measures on Denver freeways and major roads

Note: The measures in this table only relate to the designated Regional Roadway System.

Congestion measure	2024 average weekday	2050 average weekday	Change between 2024 and 2050
Estimated costs to commercial vehicles (factoring $48.30 per hour per light-duty operator and $71 per hour per heavy-duty operator)	$1,092,000	$2,913,000	167%
Estimated costs to passenger vehicles (factoring $12 per hour per adult in the vehicle)	$2,846,000	$5,396,000	90%
Total estimated costs of congestion	$3,937,000	$8,309,000	111%

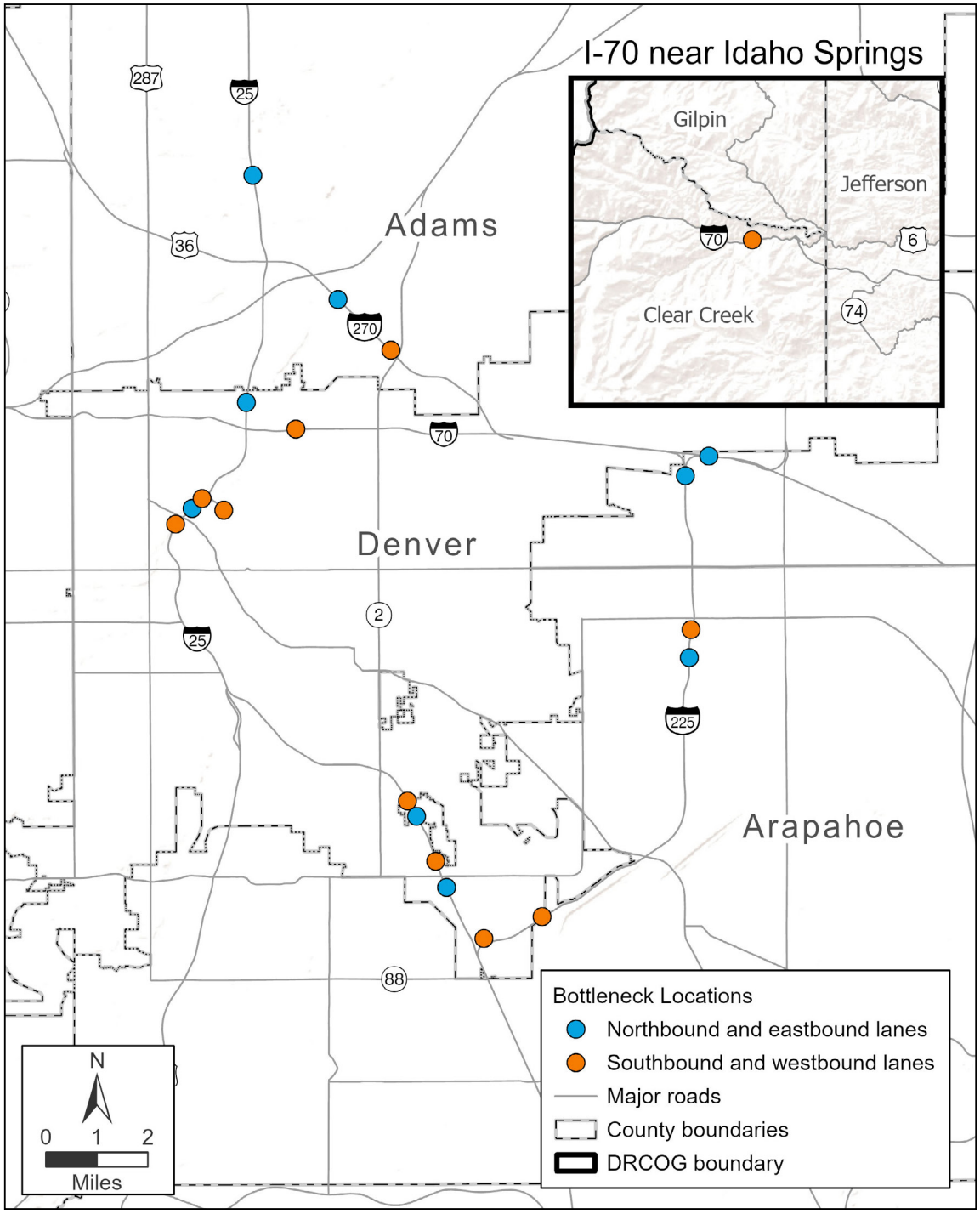
Bottlenecks in 2024

DRCOG staff used the Probe Data Analytics suite within the Regional Integrated Transportation Information System to identify the top 20 regional bottlenecks for 2024, providing insight into current congestion patterns. The Probe Data Analytics Bottleneck Ranking Tool analyzes all major interstates, highways and arterials to estimate bottlenecks based on delay, base impact and traffic volume data from transportation analytics provider INRIX. Staff analyzed bottleneck locations from January 1 to December 31, 2024, to identify the most critical bottlenecks in the region. Rankings are based on the total delay estimated by the tool.

Map 2 illustrates the top 20 bottleneck locations in the Denver region, with the majority of bottlenecks concentrated within Interstates 25, 225 and 270. Each point on Map 2 displays the starting point of each queue — the bottleneck point at northbound I-25 and Speer Boulevard, for instance, indicates queuing that extends south along I-25.

Photo courtesy of CDOT

Map 2: Top 20 bottleneck locations in Denver region



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Current projects to address congestion

DRCOG supports local governments, the Colorado Department of Transportation and RTD in completing projects to mitigate the effects of congestion. Tables 7, 8 and 9 list transportation projects addressing congestion and mobility that were completed or underway in 2023 and 2024.

The list is not comprehensive; rather, it illustrates several categories of relevant projects. Interchange and roadway projects address key bottlenecks in the region.

Transit, bicycle and pedestrian projects provide or enhance such travel options, enabling people to avoid congestion.

In addition to location-specific projects, programmatic investments throughout the region reduce congestion and help people avoid or adapt to it. DRCOG's Way to Go program partners with eight transportation management associations to implement a coordinated, comprehensive marketing and outreach program focused on behavior change, encouraging and enabling people to choose sustainable transportation options.

Table 7: Selected interchange and roadway projects addressing congestion and mobility completed or underway in 2023 and 2024

Interchange and roadway projects	Status
56th Avenue, Peoria Street and Peña Boulevard Operational Improvements	Complete
Quincy Avenue, Plains Parkway and Gun Club Road Operational Improvements	Complete
I-70 Picadilly Interchange Operational Improvements	Underway
I-70 Floyd Hill, Idaho Springs and County Road 65 Operational Improvements	Underway
I-25 and Crystal Valley Parkway Interchange Operational Improvements	Underway


ONE WAY

Table 8: Selected transit projects addressing congestion and mobility completed or underway in 2023 and 2024

Transit projects	Status
Coffman Busway: 1st to 9th (Longmont)	Complete
Broomfield FlexRide	Complete
Golden Free Transit Program	Underway
Lone Tree Mobility Hub at Sky Ridge Station	Underway
CO-7 Transit Service: Boulder to Brighton	Underway
East Colfax Bus Rapid Transit: Civic Center Station to Yosemite	Underway
I-25 and CO-7 Interchange Interim Transit Operational Improvements	Underway

Table 9: Selected active transportation projects addressing congestion and mobility completed or underway in 2023 and 2024

Bicycle and pedestrian projects	Status
C-470 Multi-Use Trail: Grade Separation at Yosemite Street	Complete
C-470 Grade-Separated Trail over Acres Green Drive	Complete
30th Street and Colorado Avenue Bike and Pedestrian Underpass (Boulder)	Complete
Peaks to Plains Trail (Jefferson County)	Underway
Mineral Station Multimodal Improvements	Underway
Buchtel Complete Street and Evans Intersection Improvements: University to Colorado (Denver)	Underway

Conclusion

Traffic volumes and roadway congestion continue to evolve in the wake of the COVID-19 pandemic. Expected growth in population and jobs in the Denver region requires thoughtful management of transportation system resources. As demand for roadway use increases, transportation demand management partners, transit agencies and new mobility technology innovations will be essential to mitigating negative congestion impacts on air quality, mobility, the economy and quality of life. DRCOG staff prioritize expanding and strengthening partnerships to mitigate the most severe effects of congestion.

Traffic congestion in the region is expected to worsen. In a growing region, this can be expected, unless large-scale societal and economic changes occur. However, to mitigate major increases in congestion (while simultaneously supporting economic growth and the reduction of emissions), effective planning, partnerships and innovation are paramount. DRCOG staff are committed to partnering with state, regional and local agencies to keep people, goods and services moving efficiently across all travel modes now and into the future.

Photo by Sang Gu Lee/DRCOG

Visit DRCOG's partner agency websites for more information:

Colorado Department of Transportation: codot.gov
Regional Transportation District: RTD-Denver.com
Colorado Department of Transportation Traveler Information: COTrip.org
For ways to avoid or adapt to congestion, visit Way to Go: WayToGo.org

Preparation of this report has been financed in part through grants from the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.
This report and others are available at DRCOG's congestion mitigation webpage.

Contact Sang Gu Lee, program manager, at slee@drcog.org for additional information regarding DRCOG's congestion mitigation program.

Photo courtesy of CDOT

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