FHWA-HOP-25-195

2024 URBAN CONGESTION TRENDS

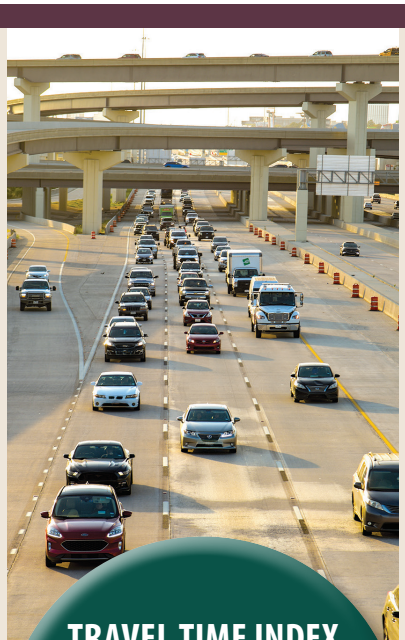
U.S. Department of Transportation
Federal Highway Administration

CONGESTED HOURS
DAILY CONGESTION

+38 MINUTES FROM 2023

2024 .....3:23
2023 .....2:45

Daily hours of congestion averaged across 52 of the largest Metropolitan Statistical Areas (MSAs) with populations more than 1 million.



TRAVEL TIME INDEX
AVERAGE CONGESTION

+3 POINTS FROM 2023

2024 .....1.27
2023 .....1.24

Annual average Travel Time Index (TTI) across 52 of the largest MSAs. Relates extra time needed during a normal rush hour.

PLANNING TIME INDEX
WORST DAY CONGESTION

+6 POINTS FROM 2023

2024 .....1.94
2023 .....1.88

Annual average Planning Time Index (PTI) across 52 of the largest MSAs. Relates extra time needed during the worst rush hour.

For more 2024 trend information, see page 6.

Source: Graphic and images Texas A&M Transportation Institute Communications.

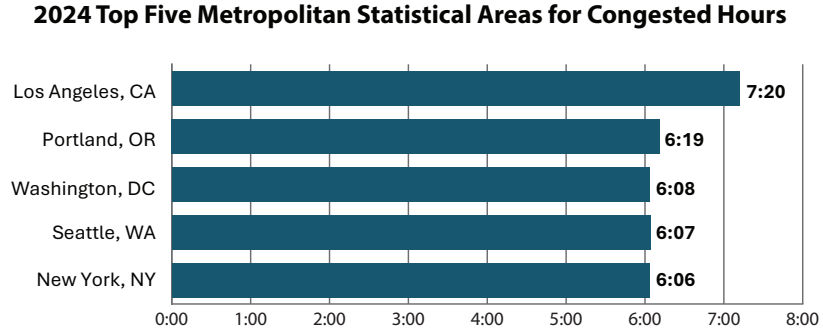
DEFINITIONS AND HISTORICAL TRENDS

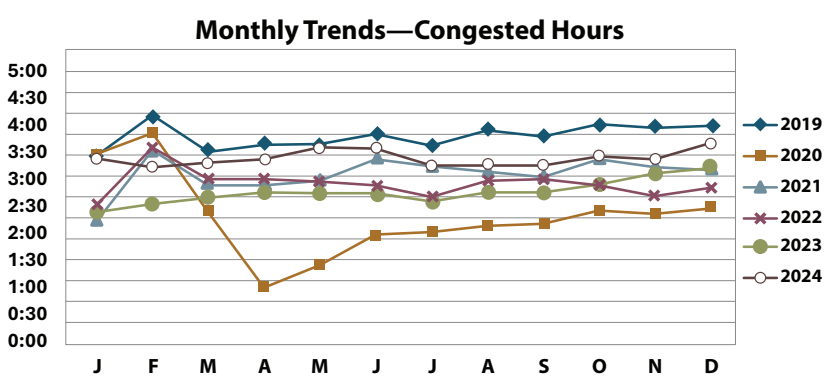
Congestion Measure Definitions

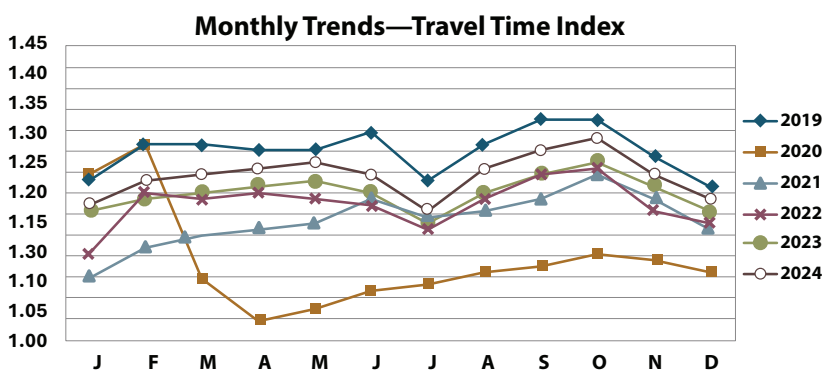
Congested Hours—average amount of time in hours across the 52 MSAs when freeways operate in congested conditions during a day (where congested conditions means a speed less than 90 percent of the free-flow speed between 6 a.m. and 10 p.m.). Averages across the MSAs are weighted by vehicle miles traveled (VMT) to calculate national numbers for this report.

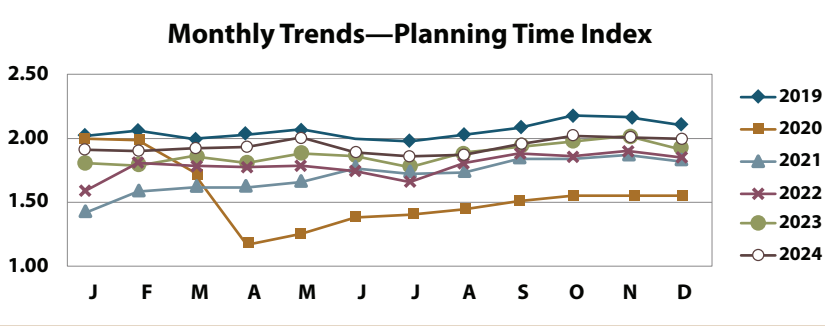
Travel Time Index —the ratio of peak-period travel time to free-flow travel time. For example, a TTI of 1.30 indicates a 20-minute free-flow trip takes 26 minutes (20 × 1.30) during the rush hours (weekdays 6 –9 a.m. and 4–7 p.m.). It describes additional time typically needed for a trip to complete on an average day. Averages across the MSAs are weighted by VMT to calculate national numbers for this report.

Planning Time Index — the ratio of the 95th percentile travel time to the free-flow travel time. For example, a PTI of 1.60 indicates a 20-minute free-flow trip takes more than 32 minutes (20 × 1.60) during the worst rush hours (weekdays 6–9 a.m. and 4–7 p.m.). It can be described as additional time usually needed to complete a trip on one of the most congested workdays of the month (e.g., 1 workday per month). Averages across the MSAs are weighted by VMT to calculate national numbers for this report.







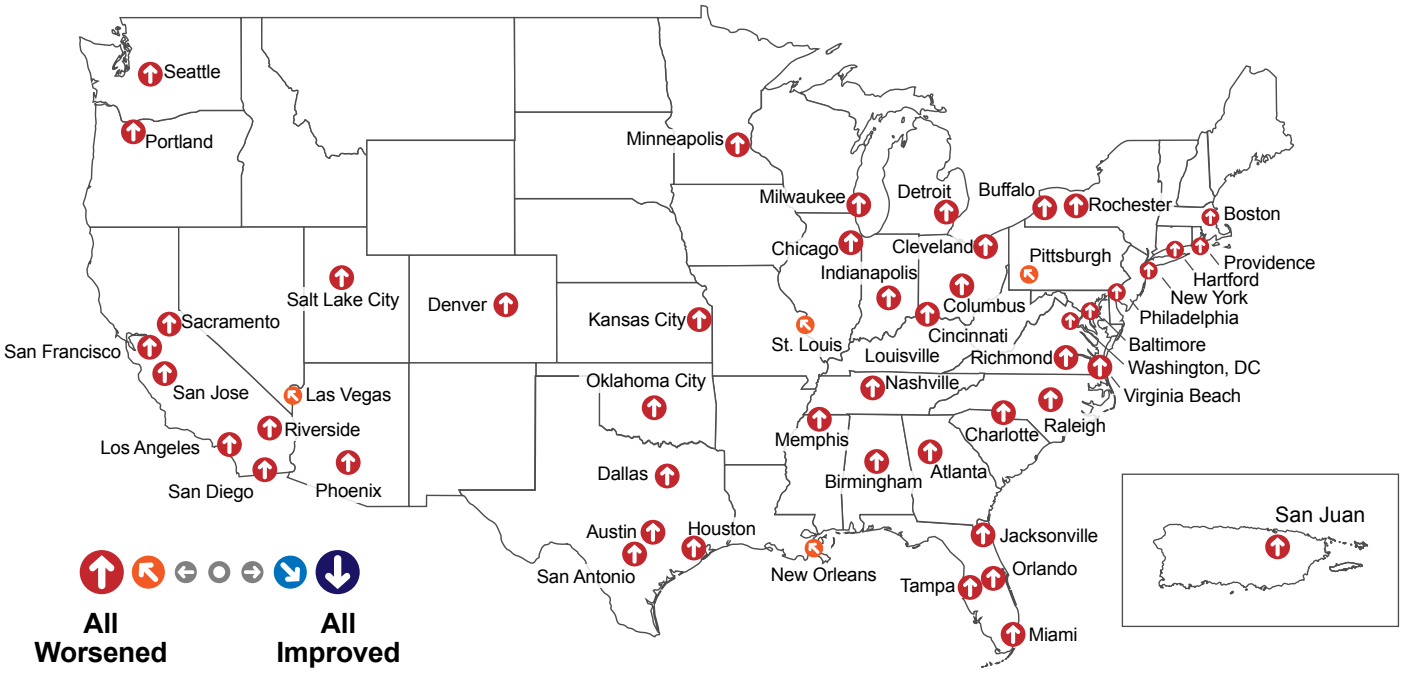


Source: FHWA and National Performance Management Research Data Set (NPMRDS).

NATIONAL SUMMARY

Urban Congestion Trends

Year-to-Year Congestion Trends in the United States (2023–2024)

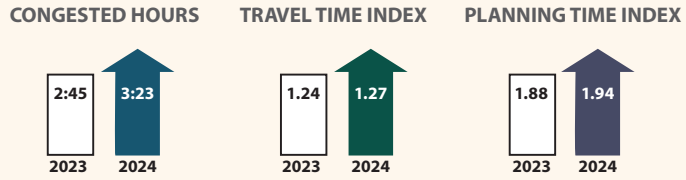


0% of MSAs had **all three congestion measures improve**

8% of MSAs had **no change or mixed results**

92% of MSAs had **all three congestion measures worsen**

Source: FHWA and NPMRDS.



+38 minutes
Average Duration of Daily Congestion

+3 points
Average Congestion

+6 points
Worst Day Congestion

Congestion Facts

- From 2023 to 2024, the overall average national congestion measures worsened.
- The hours of congestion on an average day increased in all of the MSAs, averaging about 38 minutes more in 2024 than in 2023.
- Across the country, 92 percent of the MSAs had worse conditions in 2024 than in 2023 across all three congestion measures.
- At least one congestion measure improved in just four of the MSAs (Pittsburgh, PA; St. Louis, MO; New Orleans, LA; and Las Vegas, NV).
- Travel time on the worst day of the month increased in 94 percent of the MSAs.
- MSAs with the highest PTIs were Los Angeles, CA; San Juan, PR; Miami, FL; Portland, OR; and Houston, TX.
- MSAs with the largest increase in PTIs for 2024 were Tampa, FL; Baltimore, MD; Austin, TX; Indianapolis, IN; and Charlotte, NC.
- MSAs with the highest TTIs were Los Angeles, CA; San Juan, PR; Miami, FL; Seattle, WA; and Portland, OR.

CASE STUDY

Variable Speed Limits on I–95 in Northern Virginia

The I–95 Variable Speed Limit (VSL) System was implemented to address traffic congestion and safety issues on a 15-mile section of northbound I–95, a critical corridor for travel on the eastern seaboard. This area is known for frequent congestion and crashes, particularly during weekends and holidays.

Problem and Solution:

Problem: Heavy traffic demand leads to frequent congestion and crashes, with significant economic costs.

Solution: Implement a VSL system with traffic surveillance tools to improve safety and traffic flow.

TSMO Planning and Deployment:

VSL System: Replaces traditional speed limit signs with dynamic ones that adjust based on real-time traffic conditions.

Algorithm: Traffic engineers developed it using agile methods to proactively reduce speeds.

Data-Driven Decisions: The system used per-vehicle data to track and measure speed distributions.

Communications and Public Awareness:

Virginia DOT Campaign: Emphasized the importance of reducing speed during congestion with the tagline "Reduce your speed when there's a need."

Outreach: Included videos, physical signs, digital advertising, and social media messaging to educate travelers.

Outcomes and Benefits:

Safety Improvements: Data from the first 2 years of operations show an 18-percent reduction in fatal and injury crashes and a more than 21-percent reduction in rear end crashes.

Traffic Flow: The system reduces speed differentials and delays, leading to fewer sudden stops and smoother traffic flow.

Reduced Travel Time: The system's activation has reduced corridor travel times by an average of 6 percent and improved travel time reliability by more than 17 percent since 2022.

For more information, visit: https://www.vdot.virginia.gov/projects/fredericksburg-district/i-95-northbound-variable-speed-limits/.

Source: Virgina Department of Transportation.

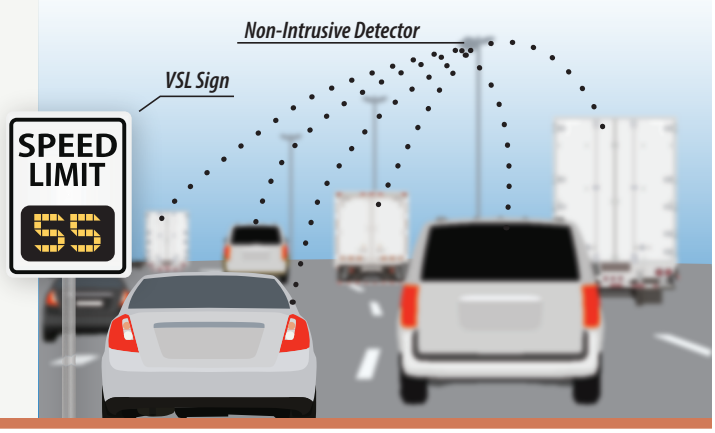
IN SUMMARY: The VSL system on I–95 demonstrates a proactive approach to traffic management, leveraging real-time data and innovative algorithms to enhance safety, reliability, and efficiency for travelers.

Virginia's I–95 VSL involves:

DATA COLLECTION: Real-time data such as speed, volume and occupancy data are collected from traffic detectors. Data are sent every 30 seconds.

ALGORITHM AND SPEED RECOMMENDATION: A traffic management center collects traffic flow data and feeds them into an algorithm that determines the optimal speed limit.

SPEED LIMIT POSTING: The system anticipates congestion and reduces speeds incrementally to maintain smooth traffic flow. New speed limits are posted as often as every 60 seconds.



Source: FHWA.

CASE STUDY

I–80 Integrated Corridor Mobility Program in California

The I–80 Integrated Corridor Mobility (ICM) Program aims to enhance safety, reduce travel times, and optimize the transportation network using intelligent transportation system (ITS) technologies. The project uses ICM strategies that consider freeway, arterial, transit, and parking systems within the corridor together as a system rather than separately as individual managed assets. Key aspects include:

Deployment Background

Location: I–80 between the Carquinez Bridge and the San Francisco-Oakland Bay Bridge.

Challenges: Severe congestion, unreliable travel times, and traffic diversion to local arterials.

Deployment Overview

Goals: Improve traffic operations and safety and provide efficient travel options.

Technologies: Real-time data collection, dynamic message signs, and adaptive traffic signal timings.

Strategies

ICM Strategies: Standard operating procedures, interagency engagement, real-time traveler information, dynamic wayfinding, and modified signal control.

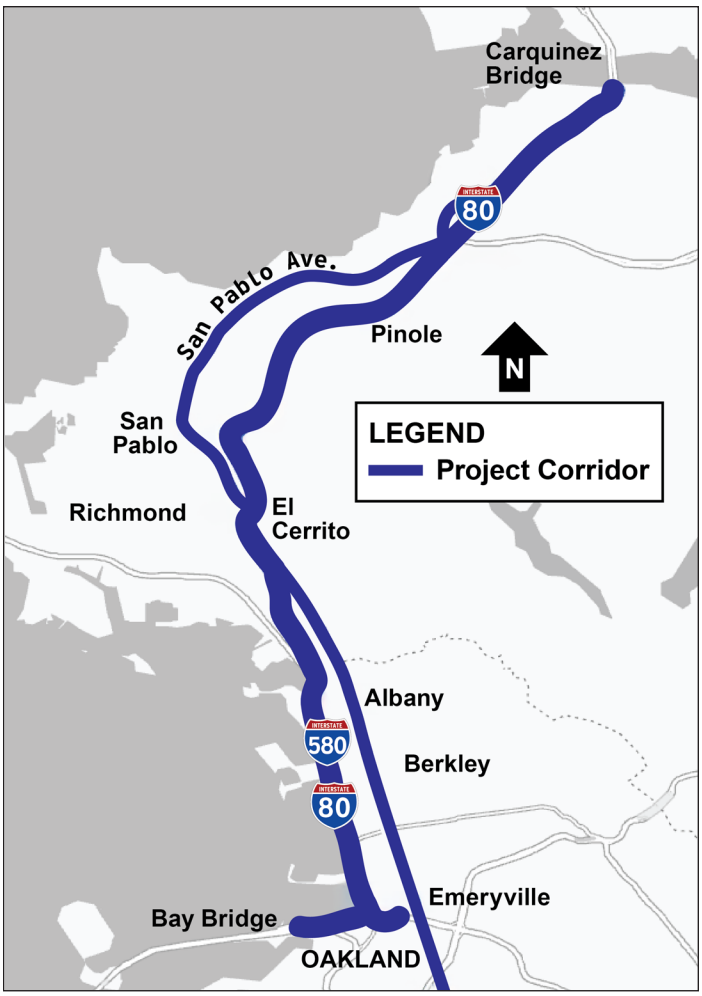
Active Traffic Management Strategies: VSLs, adaptive ramp metering, transit signal priority, and incident management.

Active Demand Management Strategies: Dynamic routing and predictive traveler information.

Benefits

Safety: A 3-percent reduction in total collisions in the westbound direction, where gantries and incident response efforts were focused (year 2017 versus 2016). This decrease contrasts with an overall increase in collisions regionally over this same time period

Mobility: Maintained travel times and speeds despite an 8.5-percent increase in VMT. Improved throughput at bottlenecks due to adaptive ramp metering (when ramp metering was unavailable due to communications failures, the peak period travel times along these segments increased by 50 percent).



Source: California Department of Transportation.

IN SUMMARY: The I–80 ICM Project is an example for future projects, demonstrating improvements in safety and mobility through coordinated efforts and advanced technologies.

Lessons Learned

Institutional: Regional agencies may be better suited for certain project phases due to community outreach capabilities.

Operational: Public acceptance varies; targeted outreach and education are crucial.

Systems: Reliable network communications and a single integrated platform are essential for effective ICM deployment.

For more information about this ICM project, visit: https://ops.fhwa.dot.gov/publications/fhwahop24017/fhwahop24017.pdf.

Summary of Performance Measure Trends for Calendar Year 2024

In 2024, overall congestion levels increased significantly across the large metropolitan areas. Among the 52 largest MSAs, the average daily congested hours rose by 38 minutes—a more than 20-percent increase from 2 hours and 45 minutes in 2023. This growth rate far exceeded the national year-over-year increase in VMT, which has remained below 1.8 percent since 2022. While congestion worsened in 2024, the average congested hours remained below the pre-COVID-19 pandemic high of 3 hours and 47 minutes recorded in 2019. VMT traveled declined by 11 percent in 2020 from 2019, rebounded by 8.1 percent in 2021, and have since grown slightly above the long-term average annual rate of 1.4 percent observed from 1993 to 2023.

Reliability also declined, with increases in both the TTI and the PTI across nearly all MSAs. In 2024, 92 percent of MSAs experienced worsening across all three key congestion measures, and 94 percent saw increases in PTI, which reflects the extra time needed to ensure ontime arrival during the most congested days of the month. Los Angeles, San Juan, Miami, Portland, and Houston recorded the highest PTIs, while Tampa, Baltimore, Austin, Indianapolis, and Charlotte experienced the largest year-over-year increase.

To support improved mobility and safety, this 2024 report includes two example case studies of operational strategies. On I–95 in Northern Virginia, a VSL system was deployed along a 15-mile northbound segment known for frequent congestion and crashes. The results showed an 18-percent reduction in fatal and injury crash rates, a 21-percent decrease in rear-end crashes, and a 6-percent improvement in average corridor travel times.

In the San Francisco Bay Area, the I–80 ICM Program used ITS to coordinate freeway, arterial, transit, and parking operations. The program achieved a 3-percent reduction in total collisions and maintained stable travel times and speeds, even with an 8.5-percent increase in VMT during the evaluation period—highlighting the value of integrated, system-wide management approaches.

Source: (top) Texas Department of Transportation and (bottom) Texas A&M Transportation Institute Communications.

The ***FHWA 2024 Urban Congestion Trends report*** details annual trends and the current state of congestion and reliability on the National Highway System in 52 of the largest MSAs in the United States. This report historically also includes examples of how agencies are using the National Performance Management Research Data Set for performance reporting and analysis. This report includes two example case studies of operational strategies.

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Contact Information

Visit the Operations Performance Measurement Program Quarterly Urban Congestion Reports web page for quarterly congestion trend updates: https://ops.fhwa.dot.gov/perf_measurement/ucr/index.htm.