FHWA-HOP-23-010

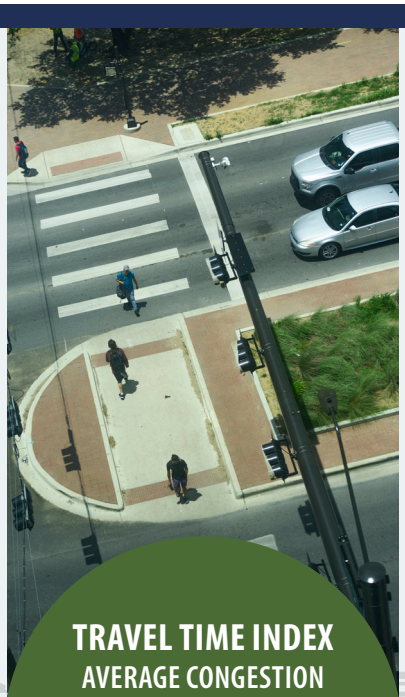
2022 URBAN CONGESTION TRENDS

U.S. Department of Transportation
Federal Highway Administration

CONGESTED HOURS
DAILY CONGESTION

↓ –10 MINUTES FROM LAST YEAR ↓

2022..... 2:55
2021..... 3:05



TRAVEL TIME INDEX
AVERAGE CONGESTION

↑ +3 POINTS FROM LAST YEAR ↑

2022 ..... 1.22
2021 ..... 1.19

PLANNING TIME INDEX
WORST-DAY CONGESTION

↑ +8 POINTS FROM LAST YEAR ↑

2022..... 1.80
2021..... 1.72

For more 2022 trend information, see page 6.

Source: Texas A&M Transportation Institute Communications.

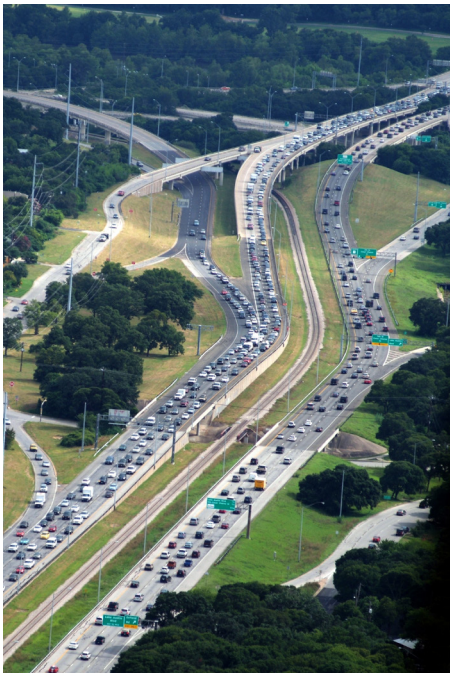
Congestion Measure Definitions

Congested Hours—average amount of time in hours when freeways operate in *congested conditions* during a day (*congested conditions* means at less than 90 percent of free-flow speed between 6 a.m. and 10 p.m.).

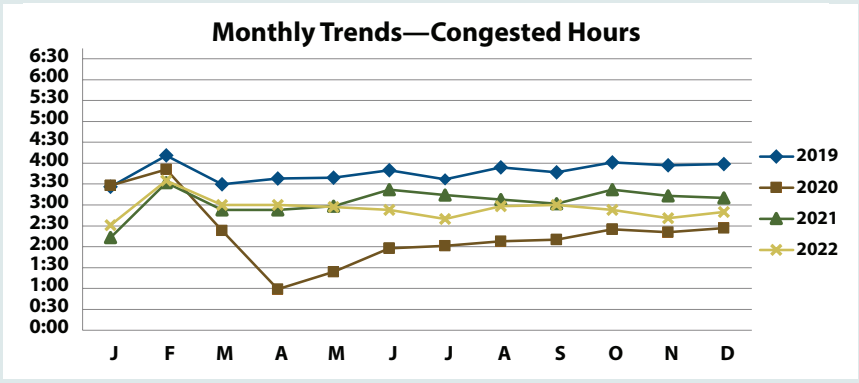
Travel Time Index (TTI)—time penalty for a trip on an average day. A TTI of 1.30 indicates a 20-minute free-flow trip takes 26 minutes (20 × 1.30) in the rush hours (weekdays 6 a.m. to 9 a.m. and 4 p.m. to 7 p.m.).

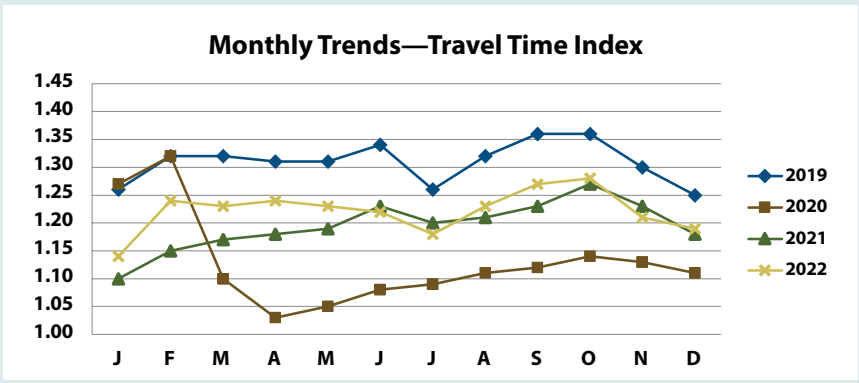
Planning Time Index (PTI)—time penalty for a trip to be on time for 95 percent of trips (e.g., late for work on 1 day per month). A PTI of 1.60 indicates a 20-minute free-flow trip takes more than 32 minutes (20 × 1.60) 1 day per month.

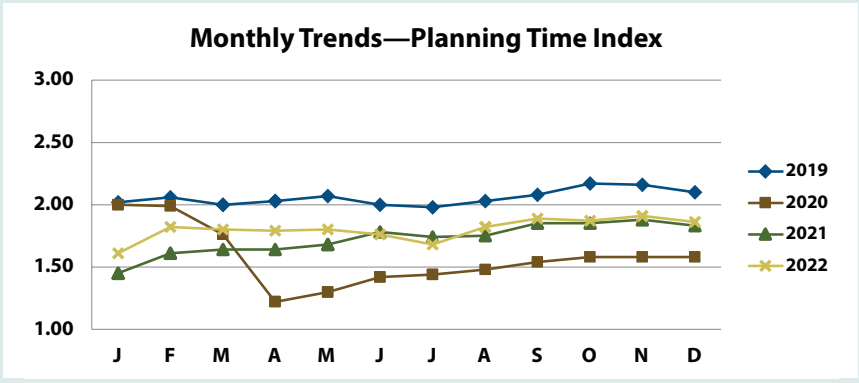
Source: Texas A&M Transportation Institute Communications.



Source: Texas A&M Transportation Institute Communications.

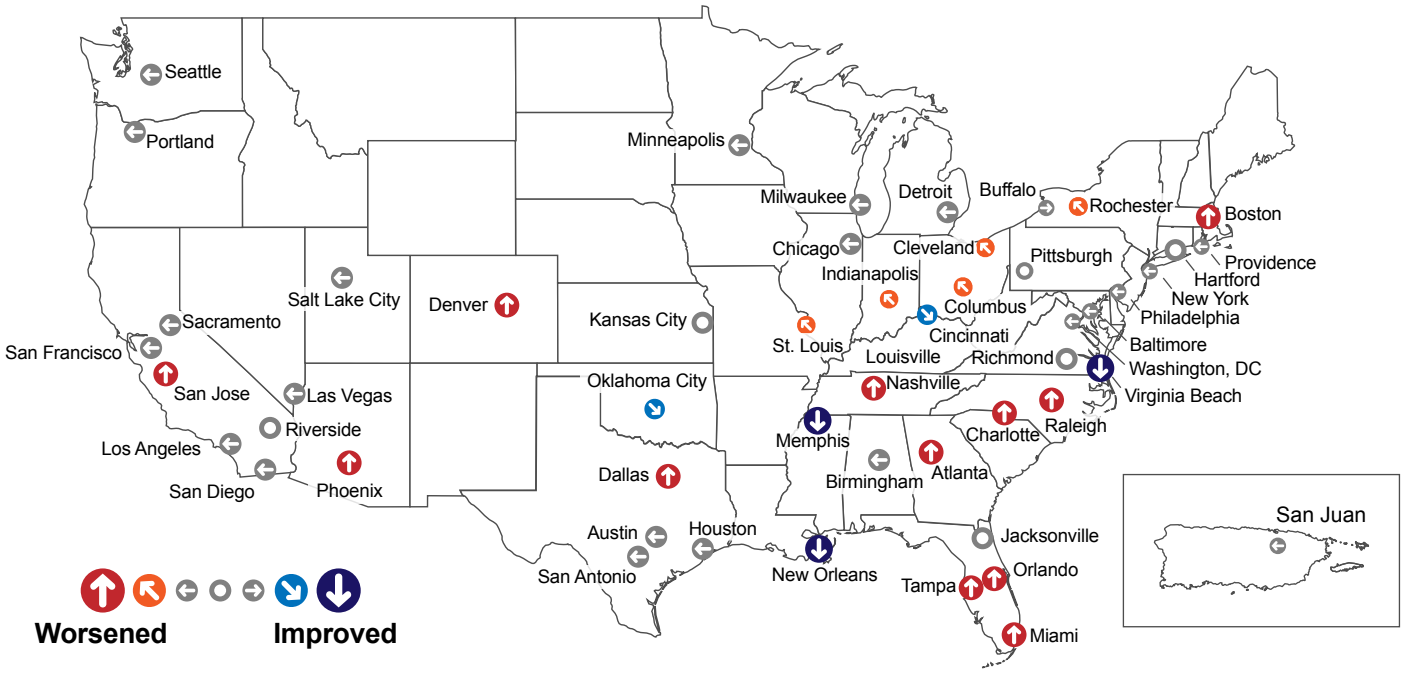






Urban Congestion Trends

Year-to-Year Congestion Trends in the United States (2021 to 2022)

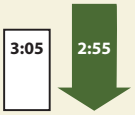


6% of cities had all three measures **improved**

73% of cities had **no change or mixed results**

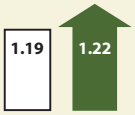
21% of cities had all three measures **worsen**

CONGESTED HOURS



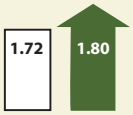
–10 minutes
Average duration of daily congestion

TRAVEL TIME INDEX



+3 points
Peak-period versus off-peak travel times

PLANNING TIME INDEX



+8 points
Unreliability (variability) of travel

Congestion Facts

- From 2021 to 2022, the overall average national congestion measures were mixed.
- Across the country, 73 percent of the 52 reported-on metropolitan statistical areas (MSAs) had mixed results across the three measures.
- At least one congestion measure improved in 37, or 71 percent, of the MSAs.
- The hours of congestion on an average day decreased in 71 percent of the MSAs, averaging about 15 minutes less than 2021 for those areas with a reduction.
- Travel time on the worst day of the month, however, increased in 90 percent of the MSAs.

Source: Texas A&M Transportation Institute Communications.

The National Performance Management Research Data Set (NPMRDS) Turns 10!

For the past 10 years, the Federal Highway Administration (FHWA) has procured observed travel time and speed data at 5-minute intervals on the National Highway System (NHS). These data can be used to support FHWA, State, and Metropolitan Planning Organization (MPO) performance management activities. The NPMRDS can also serve as a resource for meeting Federal requirements and activities, such as those associated with reporting third performance measures, or PM3, under the Moving Ahead for Progress in the 21st Century Act (MAP-21), Pub. L. No. 112-41 (July 6, 2012) and the Fixing America's Surface Transportation (FAST) Act, Pub. L. No. 114-94 (December 4, 2015).

Coverage geographically and temporally has improved over the last 10 years to where there are now roughly: 375,000 segments covering about 400,000 miles of roadway. Since 2017 the dataset has also included selected roadway attributes from the Highway Performance Monitoring System (HPMS) such as the number of lanes, urban area code, and the average annual daily traffic (AADT) for both cars and trucks. Over the last ten years there has been the opportunity to record roughly (375,000 segments x 3,652 days x 288 five-minute periods/day) 400,000,000,000 speed and travel time observations. The data are available across the NHS, with a spatial resolution defined by traffic message channel (TMC) location codes. A TMC represents a unique, directional roadway segment that is typically about a half-mile to a mile long in urban and suburban areas and could be as long as 10 miles in some rural areas.

The NPMRDS is available to State departments of transportation and metropolitan planning organizations (and their contractors) to use for performance management-related activities. The data are updated weekly and available through an easy-to-use Web-based interface.

For more information and examples of how the NPMRDS has been used over the past 10 years, visit https://ops.fhwa.dot.gov/perf_measurement/ or https://ops.fhwa.dot.gov/freight/freight_analysis/mobility_trends/index.htm or https://ops.fhwa.dot.gov/publications/fhwahop20028/index.htm.

For more information, visit: https://ops.fhwa.dot.gov/perf_measurement/.

Coverage geographically and temporally has improved over the last ten years to where there are now roughly:

375,000 segments

covering about

400,000 miles of roadway.

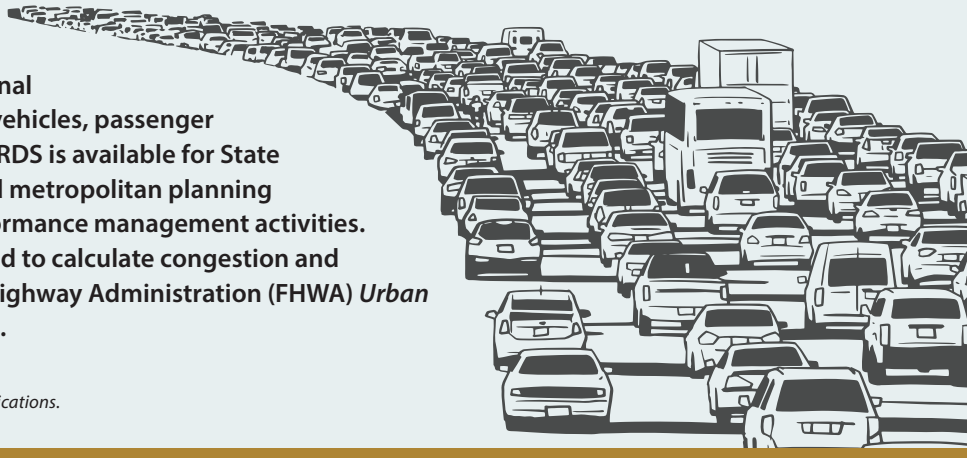
The NPMRDS is available to State departments of transportation and metropolitan planning organizations (and their contractors) to use for performance management-related activities.

The data are updated weekly and available through an easy-to-use Web-based interface.

Source: Texas A&M Transportation Institute Communications.

The NPMRDS includes actual, observed travel times on the National Highway System (NHS) for freight vehicles, passenger vehicles, and all vehicles. The NPMRDS is available for State departments of transportation and metropolitan planning organizations to use for their performance management activities. The travel time data have been used to calculate congestion and reliability metrics for the Federal Highway Administration (FHWA) *Urban Congestion Report* (UCR) since 2013.

Source: Texas A&M Transportation Institute Communications.



Tennessee Uses Crowdsourced Data To Collaborate and Improve Travel During I–40 Bridge Repair

Figure 1. Photo. Tennessee Department of Transportation bridge cracked beam.
Source: Tennessee DOT Library. (tn.gov)

The Tennessee Department of Transportation (TDOT) collaborates with the Arkansas Department of Transportation (ARDOT) to operate and maintain two bridges that cross the Mississippi River—the I–40 Hernando DeSoto Bridge and the I–55 Memphis-Arkansas Bridge. Constructed in the 1970s, the I–40 Bridge is crucial for local commutes and east-west freight movements. During a routine inspection in May 2021, transportation officials found a significant crack (Figure 1: Picture of cracked beam) in the I–40 Bridge structure requiring emergency repairs.

In managing the emergency bridge closure, TDOT used crowdsourced data to complement traditional intelligent transportation systems (ITS) technologies for better traveler information, multiagency collaboration, and operational enhancements to improve travel reliability and safety. TDOT maximized data from existing ITS technology—such as cameras, dynamic message signs, and roadside sensors—to manage the I–40 diversion. Although beneficial, these ITS technologies left monitoring gaps and created data stovepipes across agency boundaries. TDOT leveraged a third-party navigation interface to more quickly detect the location of collisions, disabled vehicles, debris, congestion, and other events that affected traffic flow and traffic safety across the Tennessee–Arkansas border area.

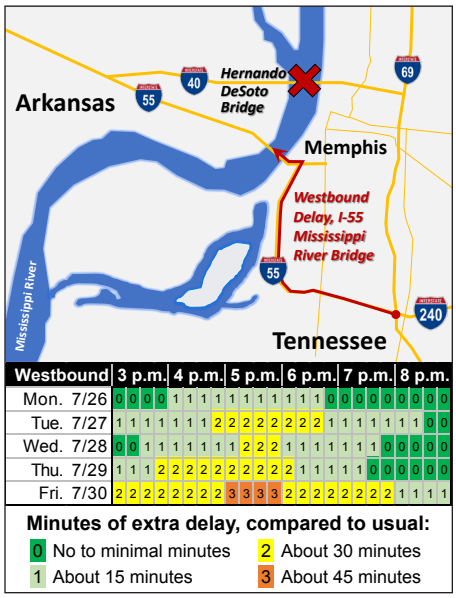


Figure 2. Map. I–40 Westbound detour and stylized version of the travel delay information shared with road users by TDOT.
Source: FHWA.

To help motorists better plan their commutes, TDOT provided estimated average travel delays by time of day and day of week, through a dedicated I–40 Web page on the TDOT website (Figure 2: Sample of Web information map from TDOT I–40 Web page) (https://www.tn.gov/tdot/projects/region-4/i-40-hernando-desoto-bridge.html). A crucial information element was promoting the preferred alternative route through commonly used in-vehicle navigation systems. TDOT used a third-party navigation interface to communicate road closures with travelers, enhancing the reach of traveler and public information efforts. Traveler information helped road users better understand the I–40 closure and plan travel accordingly. Crowdsourced data helped TDOT better collaborate with agencies to define, adjust, and improve diversion plans over the 2-month duration of the I–40 Bridge closure.

Monitoring these data helped TDOT implement a more tailored and timely response to incidents along the diversion route. TDOT noted there was a 40-percent reduction in peak period traffic delays within days after these solutions were implemented.

For more information, contact **James Colyar,** FHWA Office of Operations, James.colyar@dot.gov.

Summary of Performance Measure Trends for Calendar Year 2022

National-level traffic performance measures used by the *Urban Congestion Trends* Report were mixed in 2022. While it remains to be seen if there is a new normal, performance measure trends seem to be more in line with 2021 and reapproaching pre-COVID-19 pandemic years. Traffic volumes again increased for much of 2022, and as shown in this report, travel time variability increased for most MSAs, which resulted in some of the higher TTI and PTI measures across those MSAs. Congested hours across the MSAs decreased slightly, by an average of 10 minutes compared with 2021, and are still down 52 minutes in 2022 when compared with the 2019 congested hours measure.

Based on the TTI and using a notional 20-minute trip at free flow for comparison across years, travel time during rush hours was up by about 1 minute in 2022 compared with 2021, but still down compared with 2019. Similarly, based on the PTI and a 20-minute free-flow trip, in 2022, the longest trip out of 20 would have taken longer than 36 minutes, up only 2 minutes from 2021. In 2019, that same longest trip out of 20 would have taken more than 41 minutes.

Source: Texas A&M Transportation Institute Communications.

The continued collection of these data and measures from the UCR program allows for trend analysis of these three congestion measures. Trend analyses show 2022 to be approaching a new normal consistent with 2021 and congestion has noticeably improved from pre-COVID-19 pandemic levels.

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

The FHWA *2022 Urban Congestion Trends* report details trends and the current state of congestion and reliability on the NHS in 52 of the largest metropolitan areas in the United States. This report also includes examples of how agencies are using the NPMRDS for performance reporting and analysis, as well as for operational strategy evaluation and benefit calculation.

FHWA-HOP-23-010

Contact Information

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

U.S. Department of Transportation
Federal Highway Administration