

I-94 EAST-WEST CORRIDOR PROJECT

Purpose and Need Summary



November 2021

The Purpose and Need describes the reason why the project is being considered. Purpose and Need factors for the I-94 East-West Corridor study remain the same as stated in the 2016 Final Environmental Impact Statement. The supporting information regarding the needs for the project has been updated to reflect current conditions. Purpose and Need updates include:

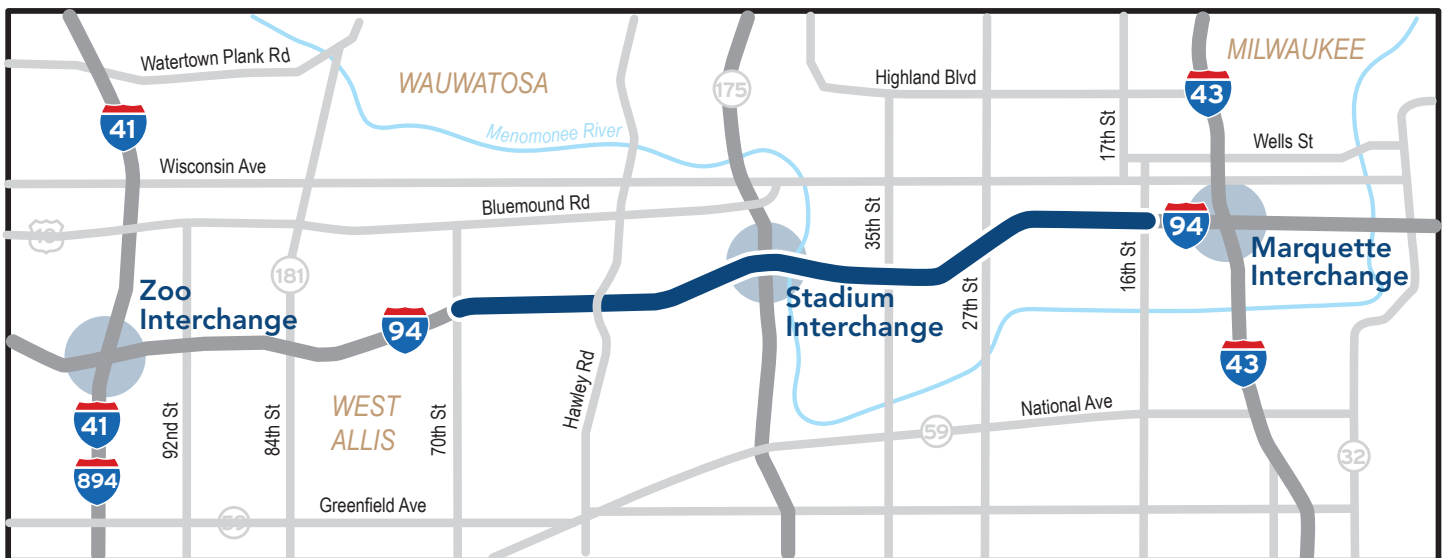
- Existing traffic data using 2019 numbers.
- Traffic forecasts with a horizon (design) year of 2050.
- Crash data from 2015-2019.
- Demographic information (population, jobs and business) from 2019.
- Focus and discussion of SEWRPC's most recent regional land use and transportation plan, *VISION 2050: A Regional Land Use and Transportation Plan for Southeastern Wisconsin*—SEWRPC Planning Report No. 55.

PURPOSE

The purpose of the I-94 East-West Corridor Project is to address the deteriorated condition of I-94, obsolete roadway and bridge design, existing and future traffic demand, and high crash rates on I-94 from 70th Street (western terminus) to 16th Street (eastern terminus). The project would provide a safer and more efficient I-94 while minimizing impacts to the natural, cultural, and built environment to the extent feasible and practicable.

PROJECT LOCATION

- I-94 from 70th Street to 16th Street.
- Located entirely in the City of Milwaukee, but also near Wauwatosa, West Allis, and West Milwaukee.



Project Limits

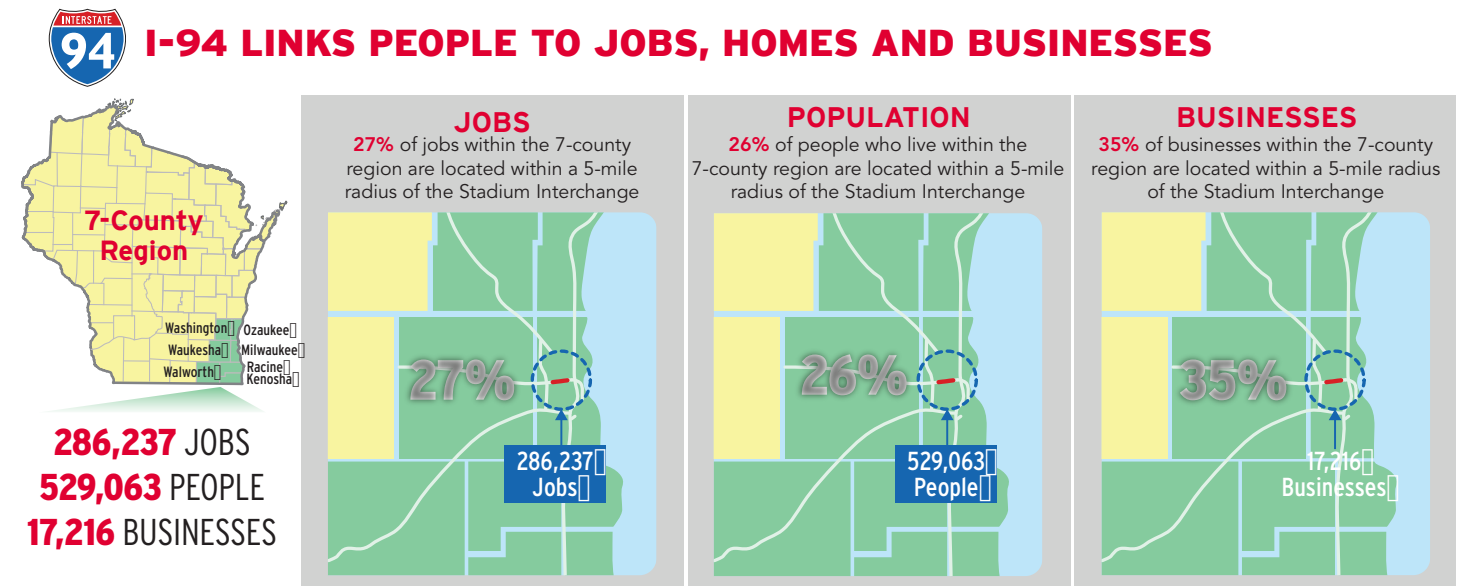
NEED FOR THE PROJECT

A combination of factors, demonstrates the transportation improvement need in the I-94 East-West Corridor:

- **Regional land use and transportation planning**
 - SEWRPC’s 2035 regional plan, referenced in the Final EIS, was replaced by *VISION 2050: A Regional Land Use and Transportation Plan for Southeastern Wisconsin*, which SEWRPC adopted in July 2016. This regional plan included expanding I-94 in the study area to eight lanes of traffic (four lanes in each direction). *VISION 2050* includes widening I-94 between 70th Street and 16th Street in the fiscally constrained transportation plan.
 - While *VISION 2050* forecasts a lower growth rate for the population and households in Milwaukee County compared to the 2035 plan, it forecasts higher increases in regional population, households, and urban development. *VISION 2050* forecasts a 23 percent increase in vehicle miles traveled between 2010 and 2050, which is a larger average annual increase (0.6 percent) than the 2035 plan (0.4 percent).
- **System linkage and route importance**
 - This section of I-94 is the link between the recently reconstructed Marquette Interchange and Zoo Interchange.
 - I-94 is a critical link in Milwaukee County’s freeway network. In addition to serving long-distance travelers and regional and national freight movement, I-94 in the study area is an important commuter route for many of the employees who work in Milwaukee County and for people who live in Milwaukee County and work in the surrounding counties.
- **High crash rates**
 - Over 2 times above state average across the entire study area, but in some areas several times higher than the state-wide average for urban freeways.
- **Existing and Future Traffic Volumes**
 - Far exceeding anticipated traffic volumes from when I-94 was originally constructed in the 1960s.
 - Current traffic volumes result in congestion and delays for all users of I-94.
 - Anticipated development and redevelopment adjacent to I-94 will add additional traffic to the already congested freeway segment.
 - An increase in traffic volume on I-94 is expected. By 2050 I-94 will be congested for several hours in both the morning and afternoon peak traffic periods.
 - By 2050, WisDOT and FHWA expect the level of service to be E or F, on a scale of A through F, for a majority of I-94 based on the traffic projections.
- **Pavement condition**
 - Three asphalt overlays since construction in early 1960s.
 - Original underlying pavement still in place; now nearly 60 years old.
- **Obsolete design**
 - Left-hand entrance and exit ramps with sub-standard taper rates.
 - Closely spaced interchanges.

Project needs have not changed since the 2016 Final EIS

I-94 LINKS PEOPLE TO JOBS, HOMES AND BUSINESSES



Demographic information (2019)

DETERIORATED CONDITION OF I-94



Underside of I-94 bridge over Yount Drive



I-94 bridge over 32nd Street



Deteriorating bridge pier at I-94 bridges over 70th Street

HIGH CRASH RATES

From 2015 to 2019, there were 2,300 crashes (not including deer/other animal crashes) on I-94 and interchange entrance/exit ramps in the study area, or roughly 1.3 crashes per day. Over 20 percent of the crashes resulted in injuries and 4 crashes were fatal. Crash rates for most of I-94 are at least 2 times higher than the statewide average for similar urban freeways, with eastbound I-94 approaching the Stadium Interchange more than 4 times higher than the statewide average.

On I-94 through lanes and entrance/exit ramps, the most common types of crashes are:

- Rear-end crashes (63 percent)
- Single vehicle off-road crashes (15 percent)
- Sideswipe crashes (18 percent)

Rear-end and sideswipe crashes are often indicators of congestion, as well as inadequate acceleration/deceleration lanes, weaving, and substandard ramp spacing. The presence of both left- and right-hand entrance and exit-ramps is also a contributing factor to these types of crashes. In general, off-road crashes by single vehicles usually indicate tight curves with inadequate banking and narrow shoulders.

Crashes within the I-94 East-West Corridor contribute to additional traffic congestion on I-94, which leads to increased travel times within the study area. The extent of the congestion depends on the severity of the crash and the number of lanes affected.

OBSELETE ROADWAY AND BRIDGE DESIGN

This segment of I-94 was completed in 1963. Over the years, the concrete pavement has become worn and cracked. WisDOT resurfaced I-94 in the mid-1970s, late 1990s, and again in 2011–2012, which returned a smooth riding surface to the roadway, but did not address the cracks in the concrete or the voids in the gravel base under the pavement that are the source of the problem for the roadway surface.

The condition of bridges in the study area has deteriorated over the years due to age, heavier than expected traffic, road salt, freeze-thaw cycles, and water entering cracks in the bridges. At some specific locations, bridge clearances (the vertical distance from the pavement to the lowest portion of the bridge above the roadway) are below current accepted criterion.

In addition to the physical condition, there are other substandard design elements, such as inadequate ramp spacing, that must be addressed. The most notable problems are the closely spaced service interchanges and the combination of left- and right-hand entrance and exit ramps, which are contrary to driver expectations.



Left-hand entrances and exits at Mitchell Boulevard interchange (looking east).



I-94 bridge over Mitchell Boulevard. Due to the low clearance of this bridge, several trucks crashed into the underside of the bridge and became stuck. The incidents have contributed to the deterioration of the bridge.

When combined, all of the identified functional deficiencies create substandard conditions throughout the I-94 East-West Corridor, resulting in a substantially higher than average crash rate in many locations.

Existing I-94 has the following design problems (see Functional Deficiencies Map, page 6-7):

- Eight locations do not meet minimum standards for decision sight distance (providing a driver sufficient time for safe decision making).
- Numerous locations have shoulders less than 12 feet wide.
- Sixteen bridges are too low.
- The interchanges are too close to each other.
- Eleven locations have left-hand entrances or exits.
- Ten entrance/exit ramps are not long enough for vehicles to accelerate/ decelerate safely.
- The existing design speed, the maximum safe speed that a driver can maintain over a specific section of highway, is less than the minimum recommended design speed based on stopping sight distance at several segments of the corridor.

EXISTING TRAFFIC

In the study area, I-94 currently carries between 158,000 and 178,000 vehicles per day (vpd) on an average weekday (Year 2019 volumes). Currently (based on 2019 data), during the heaviest traffic periods, the level of service on I-94 ranges between level of service D and level of service F. Year 2019 average weekday volumes on all Stadium Interchange ramps combined were 81,700 vpd (see Existing and Future No Build Traffic Volumes, page 8).

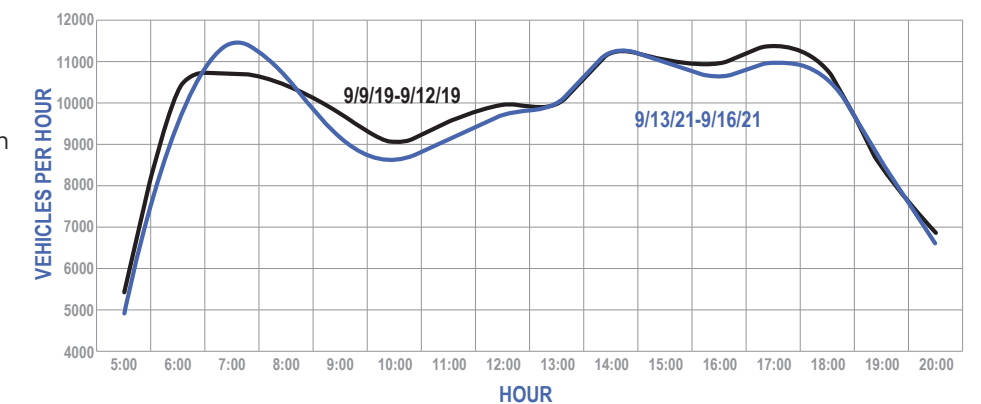
Between 2009 and 2019, there was an increase in traffic volumes on I-94 east of the Stadium Interchange. Average weekday traffic volumes increased by over 10 percent between the Stadium Interchange and 35th Street and at 26th Street. Traffic volumes west of the Stadium Interchange increased nearly 4 percent based on WisDOT traffic counts. This 10-year period included reconstruction of the Zoo Interchange (2014–2018).

The following segments of I-94, which includes most of the project area, operate at level of service E (severe congestion) or level of service F (extreme congestion) during the peak periods:

- Eastbound I-94 from 70th Street to 25th Street during the morning peak period.
- Eastbound I-94 from 68th Street to 25th Street during the afternoon peak period.
- Westbound I-94 from 16th Street to 68th Street during the morning peak period.
- Westbound I-94 from 16th Street to 68th Street during the afternoon peak period.

From a regional perspective, the I-94 East-West Corridor is one of the freeway and arterial corridors that experiences extreme congestion (defined by SEWRPC as level of service F) daily.

It should be noted that pandemic related impacts on I-94 traffic have been considered. The chart to the right displays 1-week snapshots of traffic counts taken near I-94 and 35th Street in September of 2019 and again in 2021. Although this chart may not completely represent all traffic changes in this corridor, it illustrates that traffic in the I-94 East-West Corridor has returned very close to pre-pandemic levels.



Level of service is a measure of roadway congestion that uses rankings from A to F. Freeway level of service is based on number of vehicles per lane per hour, with level of service A showing free flow traffic and level of service F showing severe congestion approaching gridlock. Level of service D is considered acceptable in urban areas, like this project area.

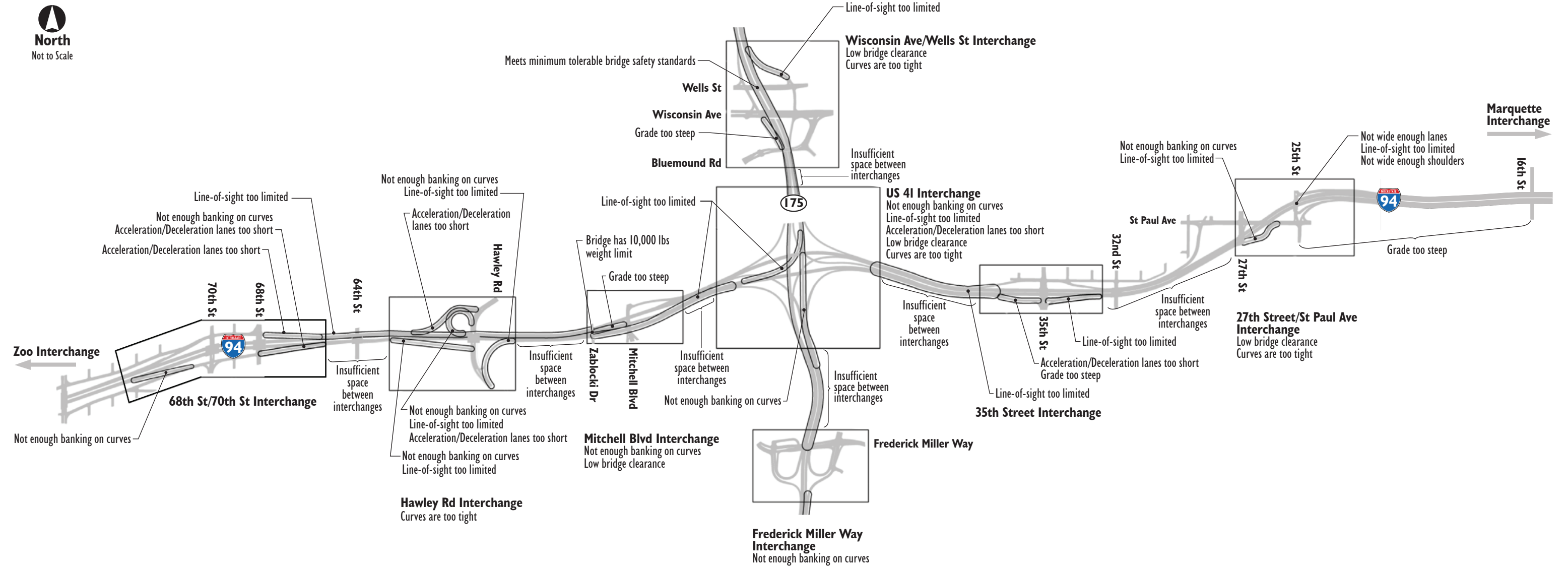
FUTURE TRAFFIC

SEWRPC 2050 travel forecasts take into account recent and planned development in or near the study area. An increase in traffic volume on I-94 is expected. By 2050 (the project's design year), traffic volumes are expected to rise to approximately 167,000 to 187,500 vehicles per day, which represents a 5-6 percent traffic increase over the current conditions (approximately 0.2 percent per year). By 2050, increased traffic volumes will generally cause I-94 eastbound to operate at level of service E or F during the morning and afternoon peak periods, while westbound I-94 will generally operate at level of service F during the the morning and afternoon peak periods. Between 2019 and 2050, average weekday traffic volumes on all Stadium Interchange ramps combined are expected to increase approximately 2.0 percent to 83,000 vpd. The areas currently operating at level of service E or F in 2019 (listed above) will continue to have congestion problems in the future.

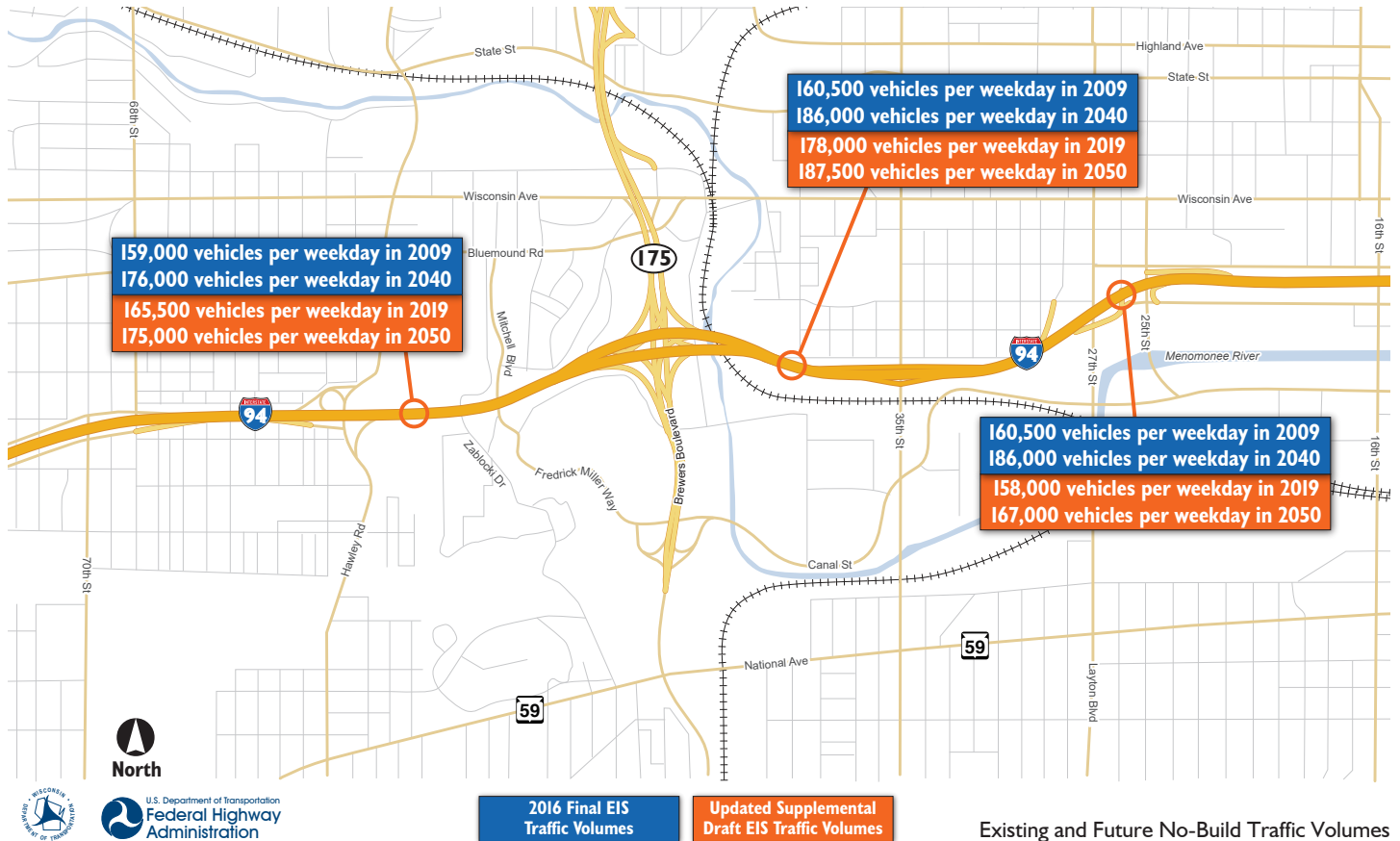
VARIOUS TRAFFIC SCENARIOS CONSIDERED

As part of the project's traffic analysis, WisDOT worked with SEWRPC to study future traffic volumes on I-94 based on unanticipated events. These include new transportation modes, changes in economic conditions, and pandemics, which are difficult to anticipate. A number of forecast year 2050 scenarios were considered in this analysis based on a range of assumptions for different variables (transit, vehicle occupancy, travel cost, average trip length, work from home, on-line shopping, and freeway capacity). Even under a scenario where all of the VISION 2050 transit strategies are enacted and no fares are charged for transit, along with an increase in vehicle occupancy, increase in travel cost, and more people working from home and on-line shopping, I-94 would continue to show congestion and operate at a level of service E or F.

I-94 EAST-WEST FUNCTIONAL DEFICIENCIES MAP

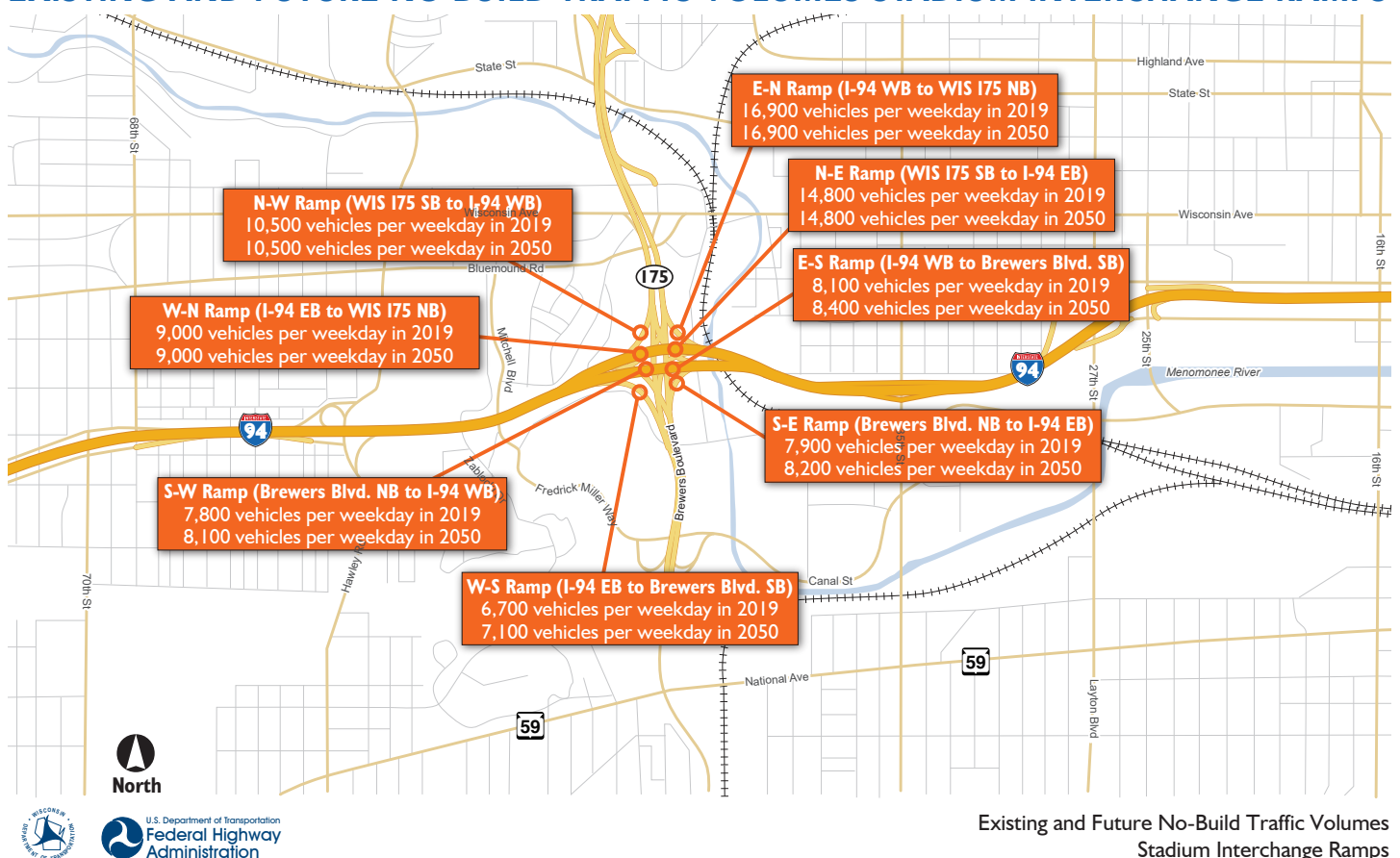


EXISTING AND FUTURE NO-BUILD TRAFFIC VOLUMES



Existing and Future No-Build Traffic Volumes

EXISTING AND FUTURE NO-BUILD TRAFFIC VOLUMES STADIUM INTERCHANGE RAMPS



Existing and Future No-Build Traffic Volumes Stadium Interchange Ramps