2022 Delaware Freight Emphasis Area Summary: Freight Congestion

D.3 Freight Congestion

D.3.1   Truck Bottlenecks

As part of federal TPM reporting requirements and 23 U.S.C. §150(e)(4), states must identify and describe the ways in which they are addressing congestion at freight bottlenecks. States and their planning partners are required to build a foundation for truck freight bottleneck reporting that combines data analysis, qualitative information, professional expertise, and stakeholder engagement.[7]

Delaware's statewide truck bottleneck identification and analyses are prepared and tracked independent of the freight plan. Delaware's process considers a range of quantitative details that include:

- Travel Reliability (based on volume-to-capacity and related level-of-service estimates for the average weekday AM peak, weekday PM peak, and summer peak)

- Daily Truck Traffic Volume (based on FHWA classes 5-7, and classes 8 and above)

- Daily Truck Traffic Percentage

- Daily Truck Trip Generation (based on zone estimates using employment details)

- Type of Route (based on NHFN, NHS, and other state-specific elements)

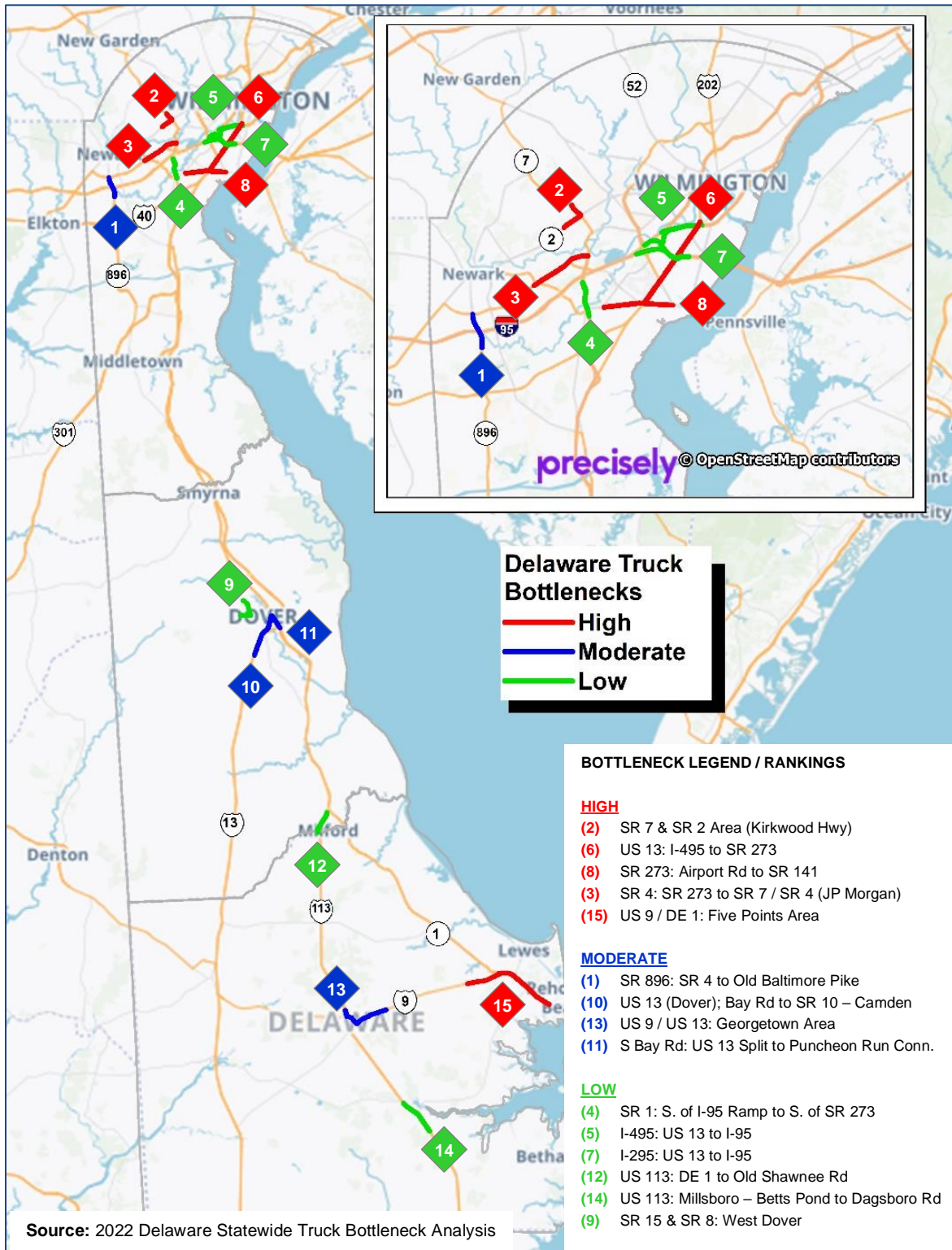- Crash Impacts (based on intersection safety details or rankings)

Specific details for the criteria listed above and a summary of Delaware's Statewide Truck Bottleneck Analysis is reported separately in Appendix F of this freight plan. These analyses were used to identify and rank (high-moderate-low) Delaware's top 15 truck bottlenecks as summarized in Exhibit D-8.

In addition to the identified truck bottleneck locations, this freight plan also provides a summary comparison of planned projects that overlap the state's top 15 truck bottlenecks. This comparison provides a means to help support project planning/programming decisions and track the potential improvements that will address congestion at the bottleneck locations. Potential truck bottleneck improvement projects are reported separately in Appendix G of this freight plan.

[7]   FHWA, Truck Freight Bottleneck Reporting Guidebook, July 2018, https://www.fhwa.dot.gov/tpm/guidance/hop18070.pdf.

Exhibit D-8: Delaware Top 15 Truck Bottlenecks

Delaware Truck Bottlenecks
— **High**
— **Moderate**
— **Low**

BOTTLENECK LEGEND / RANKINGS

HIGH
(2)   SR 7 & SR 2 Area (Kirkwood Hwy)
(6)   US 13: I-495 to SR 273
(8)   SR 273: Airport Rd to SR 141
(3)   SR 4: SR 273 to SR 7 / SR 4 (JP Morgan)
(15) US 9 / DE 1: Five Points Area

MODERATE
(1)   SR 896: SR 4 to Old Baltimore Pike
(10) US 13 (Dover); Bay Rd to SR 10 – Camden
(13) US 9 / US 13: Georgetown Area
(11) S Bay Rd: US 13 Split to Puncheon Run Conn.

LOW
(4)   SR 1: S. of I-95 Ramp to S. of SR 273
(5)   I-495: US 13 to I-95
(7)   I-295: US 13 to I-95
(12) US 113: DE 1 to Old Shawnee Rd
(14) US 113: Millsboro – Betts Pond to Dagsboro Rd
(9)   SR 15 & SR 8: West Dover

Source: 2022 Delaware Statewide Truck Bottleneck Analysis

D.3.2   Background Traffic Bottlenecks

In addition to the state's top truck bottlenecks identified in the previous section, general background traffic congestion along any route used by CMVs can impact overall freight transportation efficiency. As part of DelDOT's broader congestion management efforts, Transportation Operations Management Plans (TOMPs) are issued and updated by DelDOT for each of Delaware's three counties on a rotating basis. Data analysis conducted as part of the TOMPs focuses on travel time reliability (TTR) and traffic volume measures to assess the frequency and severity of congestion at multiple times during the day and throughout the various seasonal changes. These analyses support the identification of statewide congestion hotspots throughout Delaware that may also be referenced as needed in support of ongoing freight planning efforts and broader transportation planning/programming support (**Exhibit D-9**).

Exhibit D-9: Delaware Statewide Congestion Hotspots
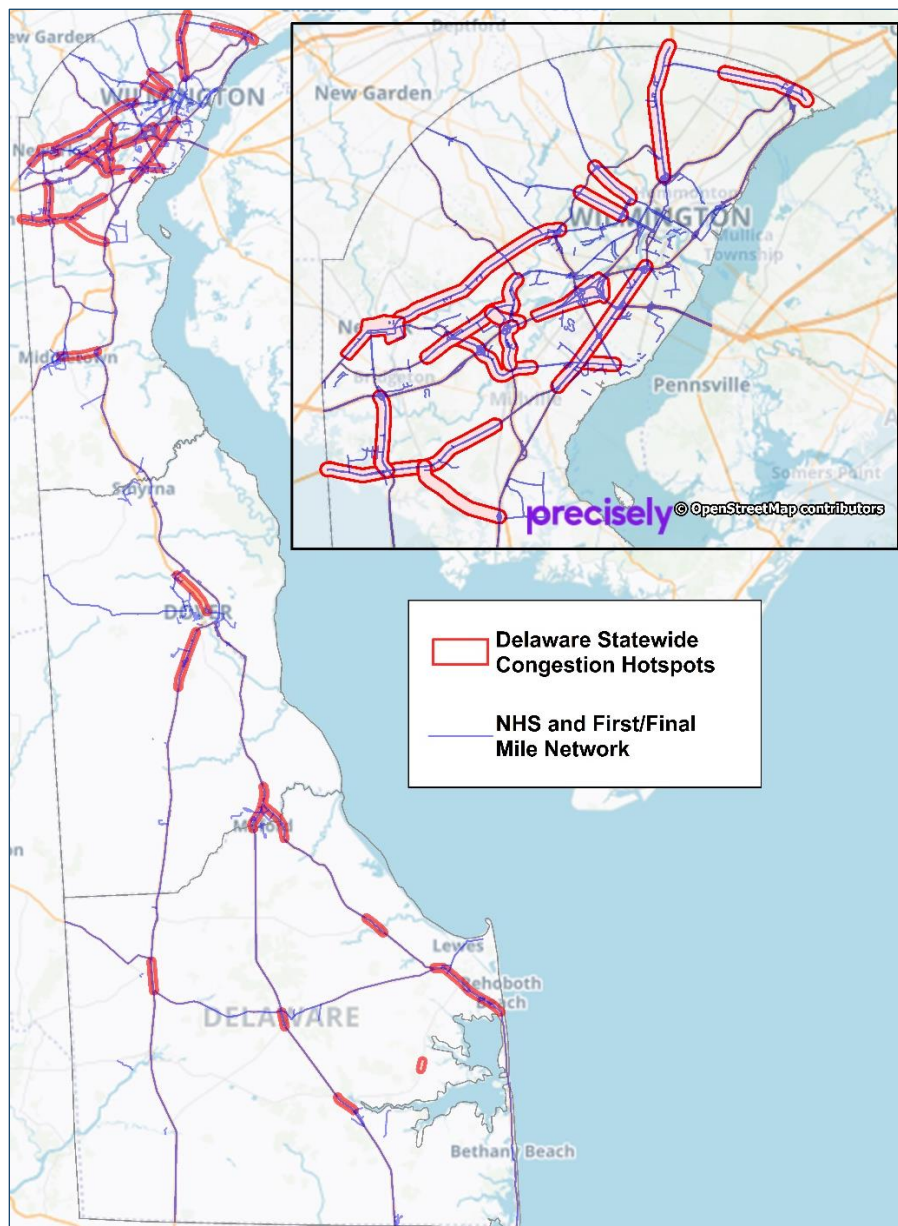
D.3.3   Truck Travel Time Reliability

Predictable travel time is an important element for facilitating consistent, efficient, and cost-effective goods movement. Tracking and managing travel reliability for trucks and for general travel along the interstate and the non-interstate NHS is included among federal TPM reporting requirements.[8]

TTTR: For trucks specifically, required measures include the Truck Travel Time Reliability (TTTR) index. The TTTR index generally represents the 95th percentile truck travel time divided by the 50th percentile truck travel time, calculated for individual roadway segments and five designated time periods. The maximum TTTR reflects final system performance where a higher TTTR index value indicates worse (less reliable) operations.

LOTTR: For general travel on the interstate and non-interstate NHS, required measures are assessed in terms of the Level of Travel Time Reliability (LOTTR). The LOTTR is defined as the ratio of longer (80th percentile) travel times to normal (50th percentile) travel times in 15-minute intervals during all time periods from 6:00 AM to 8:00 PM. The final LOTTR measures reflect the percent of person-miles traveled on the network that are considered reliable where a higher LOTTR value indicates better (more reliable) operations.

Reliability data were included as part of the truck bottleneck analyses described previously in Section D.3.1 of this appendix and in Appendix F. From a broader perspective as part of DelDOT's TPM reporting processes, summary trends and targets for truck reliability (based on TTTR index) and general travel reliability (based on LOTTR) are summarized in Exhibit D-10, Exhibit D-11, and Exhibit D-12. Based on these trend data and measurements (and not accounting for potential anomalies in the 2020-2021 timeframe), reliability conditions for truck traffic and general traffic were degrading slightly (i.e., becoming "less" reliable); however, all results still generally meet or exceed target expectations. It should be noted that this degradation was "expected" and intentionally planned for in previous target setting efforts, as it is primarily attributable to the influence of scheduled construction activities along I-95 and their related impact on travel reliability. Pending completion of the interstate improvements and future TPM reporting data updates, measured trends without the influence of major interstate work will be reassessed.

For the 2020-2021 timeframe, specifically, it is difficult to assess realistic long-term trends as the data shows substantial improvements in reliability that are almost certainly attributable to the influence of the COVID-19 pandemic and related decreases in overall traffic demand and volumes. As the impact of the pandemic (on travel) continues to decrease, and as travel conditions continue to "return to normal" or simply evolve (e.g., due to any residual or long-term effect of remote work activity on commuter travel schedules), future travel reliability data updates and/or target resetting will continue to be monitored.

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8   See FHWA TPM Rulemakings: System Performance/Freight/CMAQ Performance Measures Final Rule, 2017, https://www.fhwa.dot.gov/tpm/rule.cfm.

Exhibit D-10: Delaware Travel Reliability for Trucks (TTTR Index based)
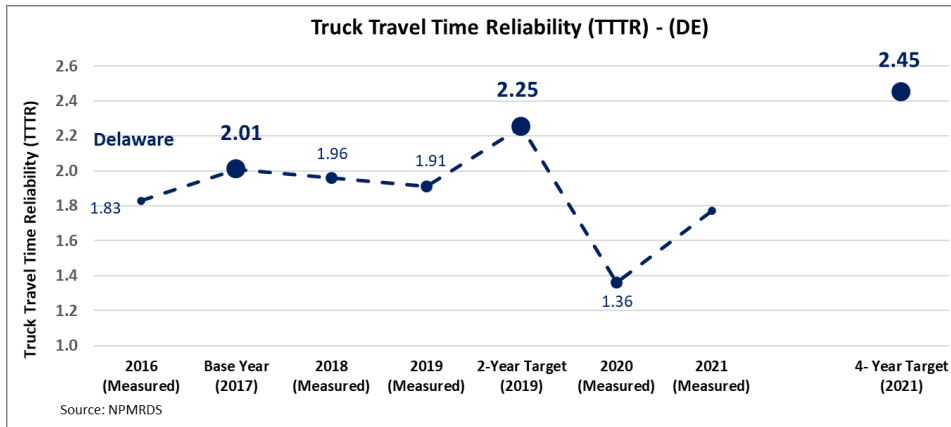

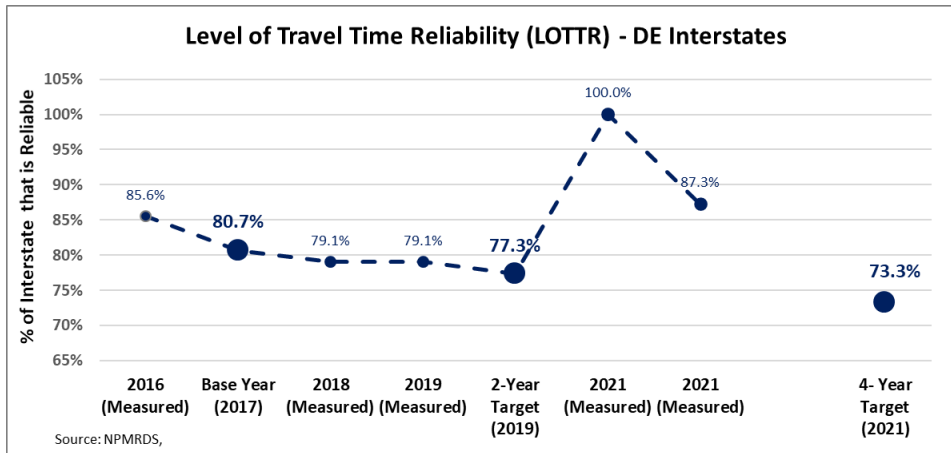*Exhibit D-11: Delaware Travel Reliability for Interstates (LOTTR based)*

Exhibit D-12: Delaware Travel Reliability for Non-Interstate NHS (LOTTR based)