Delaware Statewide Truck Parking Study

Final Report

Prepared for:

WILMAPCO and DelDOT

Prepared by:

In association with:

CENTURY ENGINEERING

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Delaware Statewide Truck Parking Study

The objective of the Delaware Statewide Truck Parking Study is to address overnight parking hotspots as well as more localized, shorter-term truck parking and staging needs within the State of Delaware. An additional focus of this effort will include regular engagement with the local trucking community to help validate future strategies and recommendations.

Acknowledgements

The CPCS Team acknowledges and is thankful for the input of those consulted in the development of this Technical Memo, as well as the guidance and input of representatives from WILMAPCO, DelDOT and their study partners.

Opinions

Unless otherwise indicated, the opinions herein are those of the authors and do not necessarily reflect the views of WILMAPCO or DelDOT.

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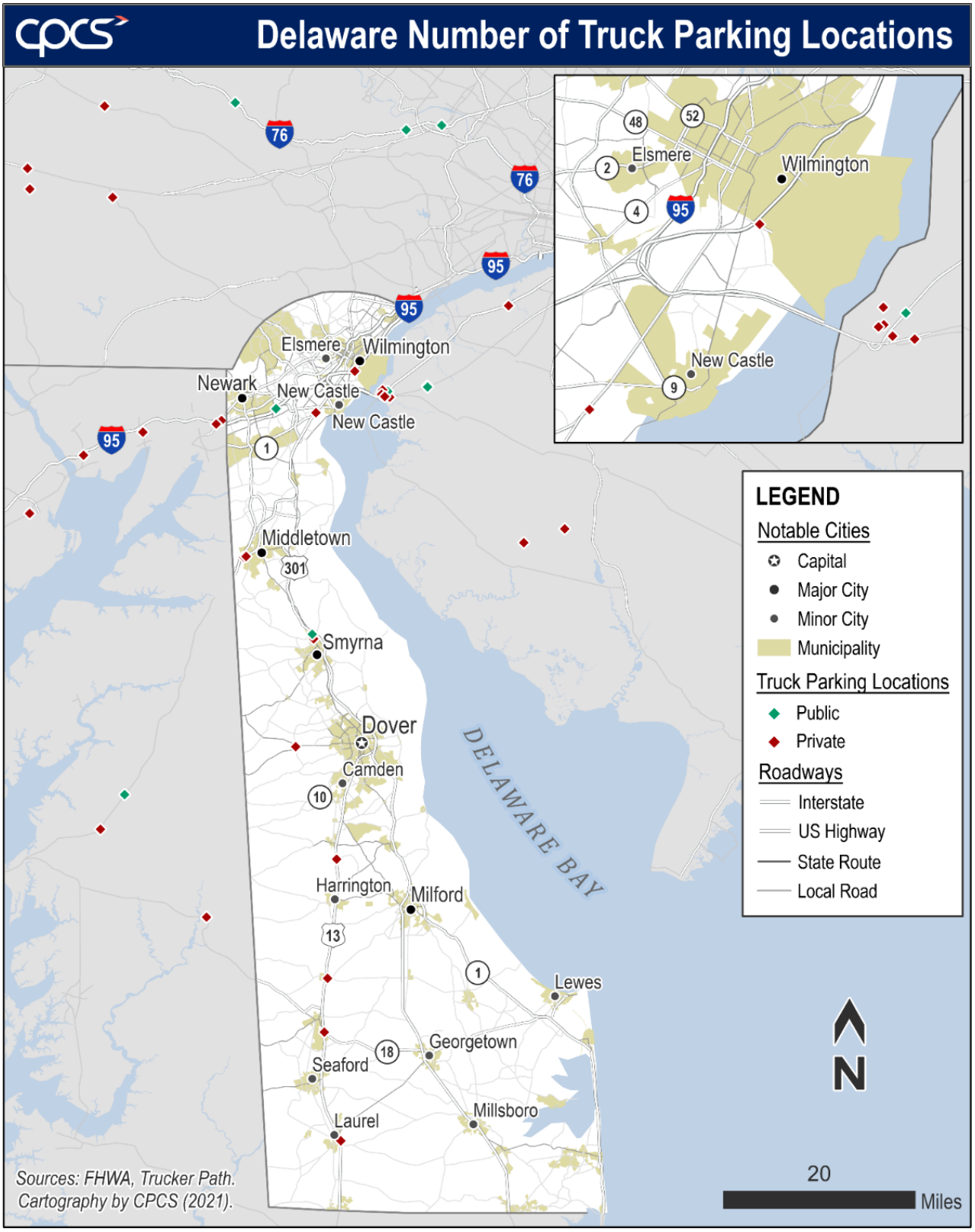
Acronyms / Abbreviations

ATCMTD	Advanced Transportation and Congestion Management Technologies Deployment
ATRI	American Transportation Research Institute
BUILD	Better Utilizing Investments to Leverage Development
CMAQ	Congestion Mitigation and Air Quality
CTP	Capital Transportation Program
DelDOT	Delaware Department of Transportation
DERA	Diesel Emissions Reduction Act
DMS	Dynamic message sign
DOT	Department of Transportation
DSP	Delaware State Police
DTC	Delaware Transit Corporation
FAST Act	Fixing America's Surface Transportation Act
FHWA	U.S. Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FY	Fiscal year
GPS	Global positioning system
HOS	Hours of Service
HSIP	Highway Safety Improvement Program
INFRA	Infrastructure for Rebuilding America
IVR	Interactive voice response
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHS	National Highway System
NHPP	National Highway Performance Program
NIMBY	Not In My Backyard
P3	Public-private partnership
PEL	Planning and Environmental Linkages
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
SR	State Route
STBG	Surface Transportation Block Grant Program
TIGER	Transportation Investment Generating Economic Recovery
TWIS	Truck Weight and Inspection
U.S.	United States
U.S. DOT	United States Department of Transportation
WILMAPCO	Wilmington Area Planning Council

Location Map



Executive Summary

Why Truck Parking Matters

The existing demand for truck parking exceeds the available supply of truck parking along key freight routes, near freight generating facilities, and surrounding urban areas in Delaware. As a result, trucks park in undesignated locations at the state's existing rest areas, along corridor and last-mile shoulders, and on last-mile roads, which poses negative impacts to Delaware's economy, safety, infrastructure, and quality of life.

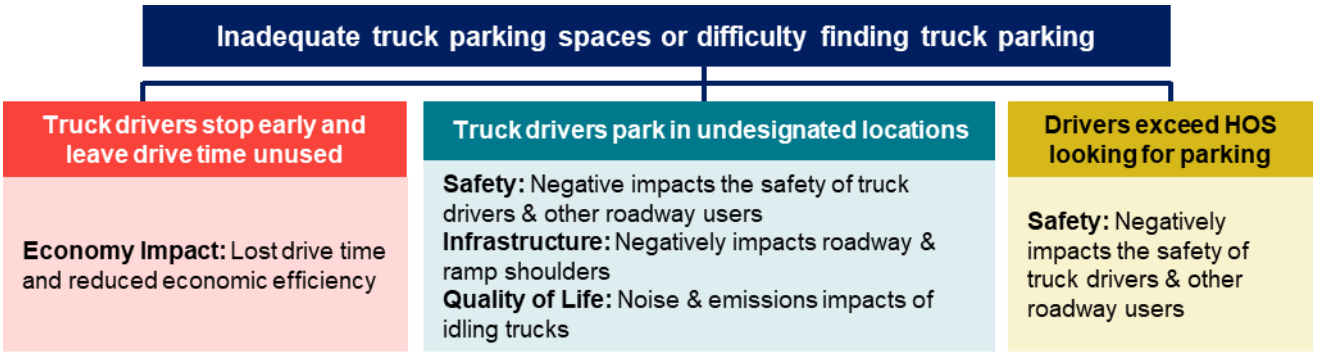
In Delaware and across the nation, truck parking is essential for the efficient movement of goods. Truck parking provides a location for truck drivers to safely take federally required hours of service (HOS) breaks, wait for shipper or receiver appointments (known as staging), and use amenities such as restrooms or refueling stations. However, truck drivers face a shortage of adequate truck parking nationwide.

Commercial drivers rank truck parking as the top trucking issue in 2020, ahead of driver compensation and delay at customer facilities.[1]

When truck drivers are unable to find designated truck parking at public or private truck parking locations, there are harmful impacts on safety, infrastructure, quality of life, and economic competitiveness (Figure ES 1). Given the importance of truck parking for the safe and efficient movement of freight throughout the nation, the Delaware Department of Transportation (DelDOT) undertook the Delaware Truck Parking Study (the Study) to understand existing truck parking conditions, identify opportunities and challenges, and develop strategies to address truck parking needs within Delaware.

In 2009, truck driver Jason Rivenburg was robbed, shot, and killed in his truck as he parked overnight at an abandoned gas station, waiting for his appointment time at his delivery destination. In the wake of Jason's death, his wife, Hope, worked to bring national attention and action to improve safe truck parking. In 2012, **Jason's Law** was enacted to address the truck parking shortage on U.S. highways.

Figure ES 1: Impacts of Inadequate Truck Parking



[1] ATRI, Critical Issues in the Trucking Industry, October 2020, https://truckingresearch.org/wp-content/uploads/2020/10/ATRI-Top-Industry-Issues-2020.pdf

Existing Truck Parking Conditions in Delaware

Undesignated truck parking refers to unmarked locations where trucks park and serves as the most noticeable indication of a truck parking issue.

An inventory of truck parking locations and spaces, space utilization by time of day, and undesignated parking provide an understanding of the state's existing truck parking conditions. The inventory and utilization of truck parking provide insights into the state's truck parking supply and demand, while the presence of undesignated parking signals an imbalance between truck parking supply and demand.

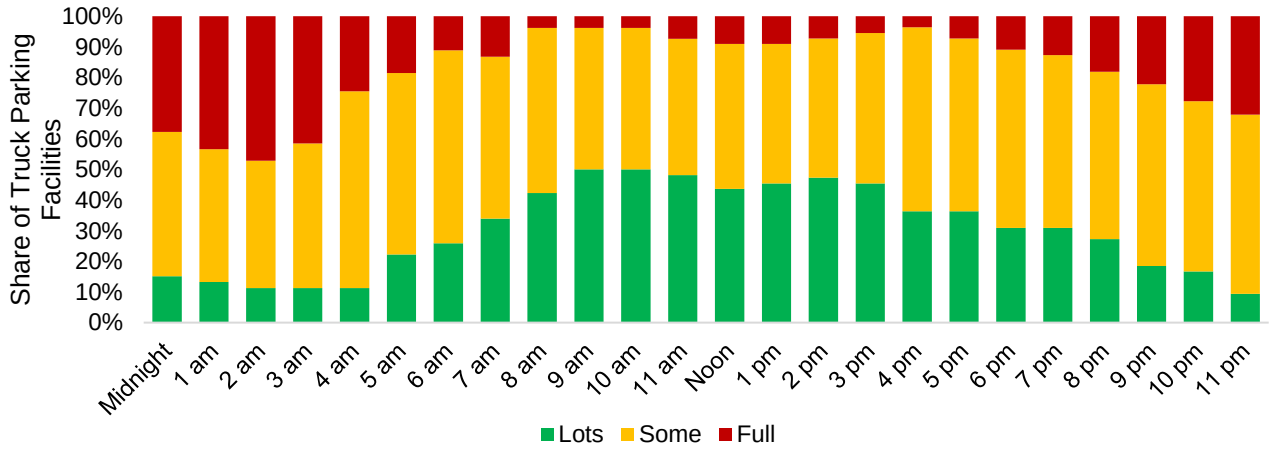
Delaware has 12 truck parking locations that offer a total of 337 truck parking spaces.

Among these truck parking locations, there are 10 private locations and 2 public locations. Classified among the public locations are the Smyrna Rest Area and the Biden Welcome Center, the latter of which is publicly owned, but privately operated.

Utilization at the state's truck parking facilities is highest during the early morning hours, peaking from 2 to 3 am, especially in urban areas.

While utilization is high at select facilities, notably in urban locations, many of Delaware's truck parking facilities do not reach full capacity, even during peak hours (Figure ES 3). Utilization also remains low in many areas of the state during the non-peak hours of the late morning and afternoon (Figure ES 2). However, those locations in Delaware that do experience high truck parking utilization also experience higher concentrations of undesignated parking.

Figure ES 2: Statewide Truck Parking Utilization



Source: CPCS analysis and modeling of Trucker Path

The research and analysis conducted for this Study identified 32 undesignated truck parking clusters in Delaware.

Across the state, the majority of identified undesignated truck parking clusters are located in a few select locations (Figure ES 4). While undesignated parking on corridor shoulders and for last-mile are the most common type of cluster, the largest single cluster of undesignated parking occurred at the Biden Welcome Center rest area.

Figure ES 3: Truck Parking Utilization (2 am to 3 am)

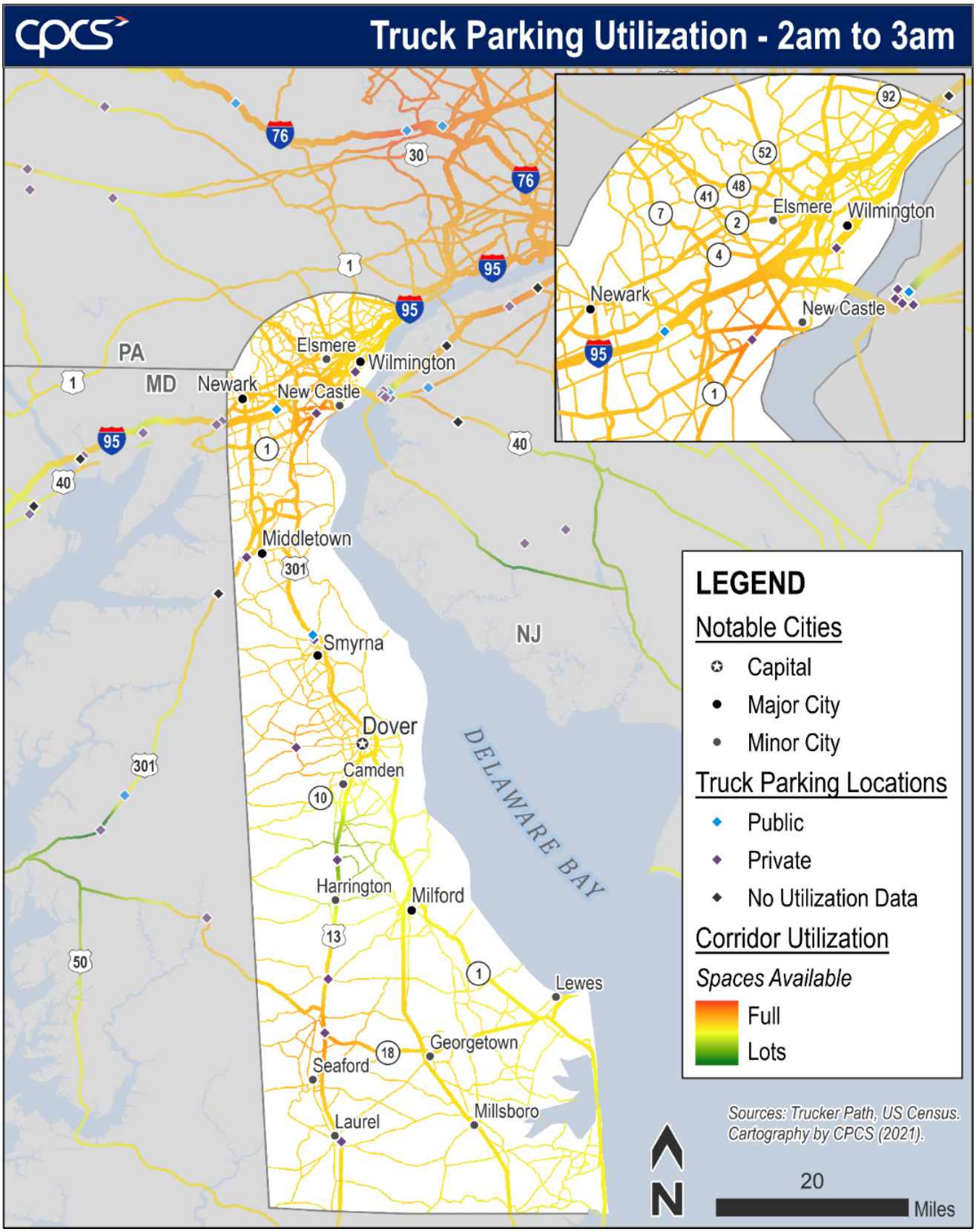
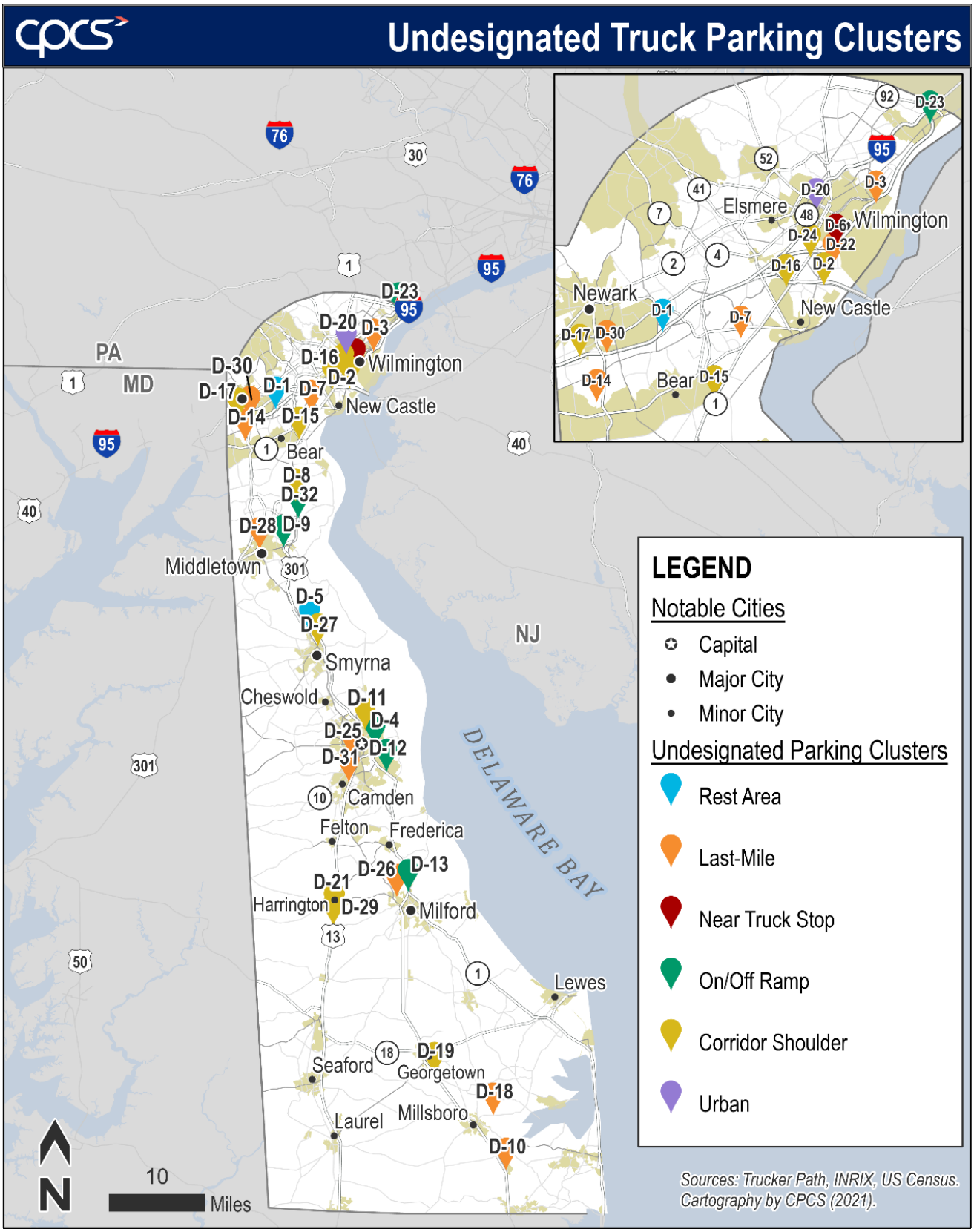
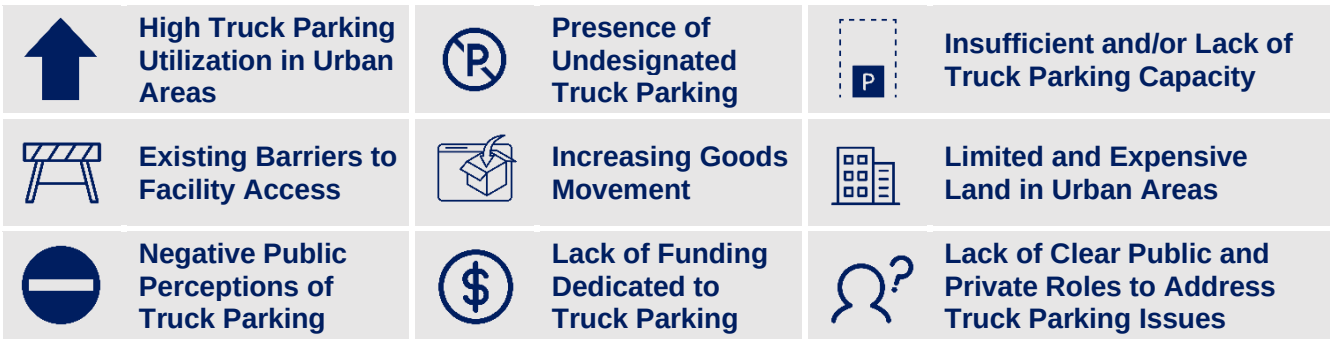


Figure ES 4: Undesignated Truck Parking Clusters (Map)



Understanding the imbalance between truck parking supply and demand in Delaware informs the types and locations of truck parking issues and challenges in the state, as identified in Figure ES 5. This further guides the development of opportunities and recommendations to effectively target the state's most pressing truck parking needs.

Figure ES 5: Truck Parking Issues and Challenges



Truck Parking Opportunities for Delaware

While there is no silver bullet solution for truck parking, there are a range of solutions available to advance truck parking in Delaware. Solutions include statewide policies and programs, as well as location-specific projects.

Policies and Programs focus on institutional changes that promote the inclusion of truck parking into governance and investment decisions. While policies and programs may not directly target a specific location, they are instead part of an overarching strategy that can set the foundation for DelDOT and local partners to advance truck parking on a systematic basis and in decision-making. Figure ES 6 details the policy and program opportunities for truck parking in Delaware, which focus on institutional changes to promote the inclusion of truck parking into governance, planning, and investment decisions.

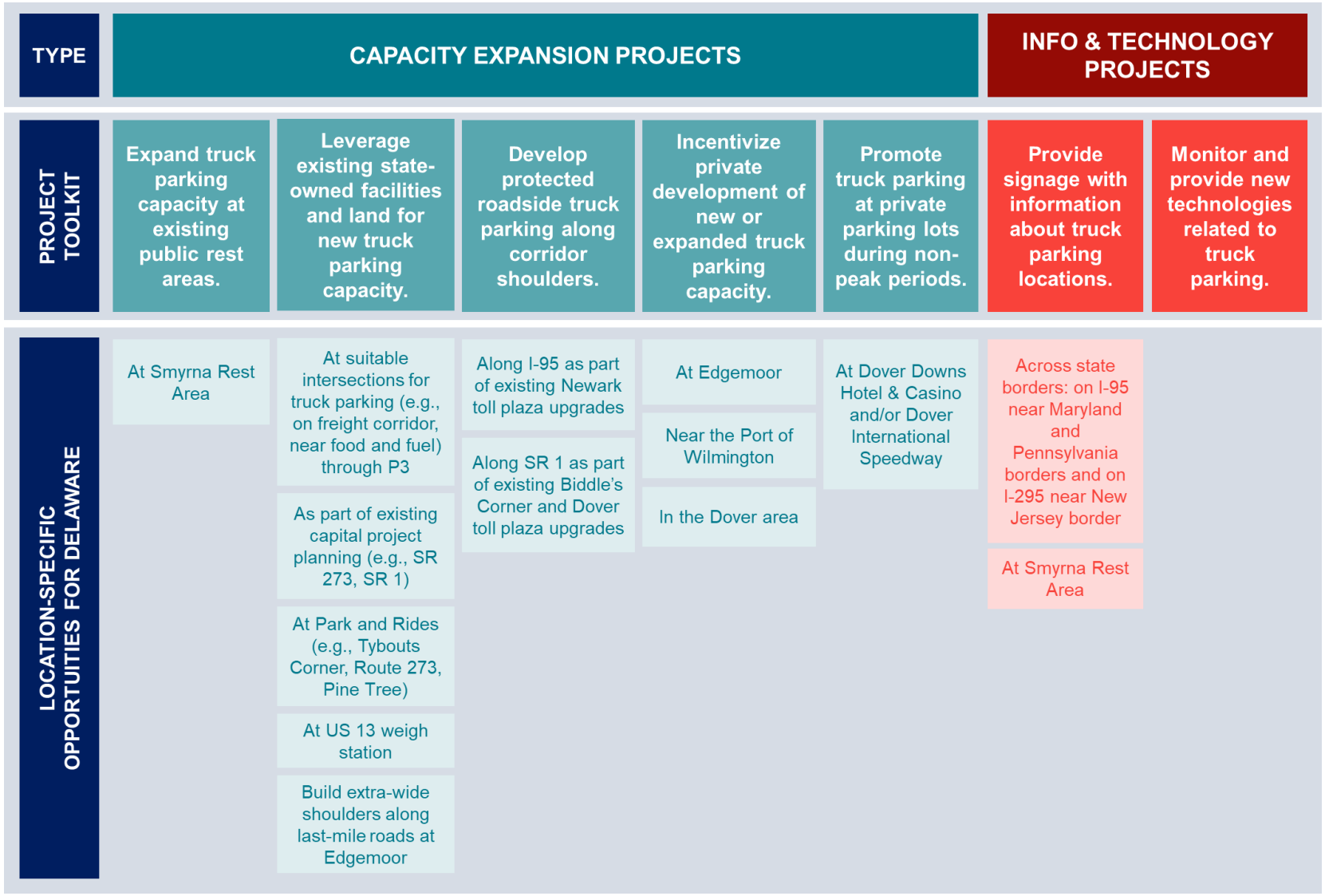
Figure ES 6: Delaware Truck Parking Policies and Programs – Statewide Opportunities

Projects refer to location-specific solutions that target specific truck parking needs or issues. Projects can be classified into the following groups:

- *Capacity expansion projects* are investments that increase the number of truck parking spaces at a given location.
- *Information and technology projects* are investments to increase access to information and technology, in order to use existing truck parking more effectively.

Figure ES 7 below displays the Truck Parking Project Toolkit, which provides a range of available solutions to target location-specific truck parking needs or issues. The figure also identifies specific opportunities to apply these projects to truck parking issue areas in Delaware.

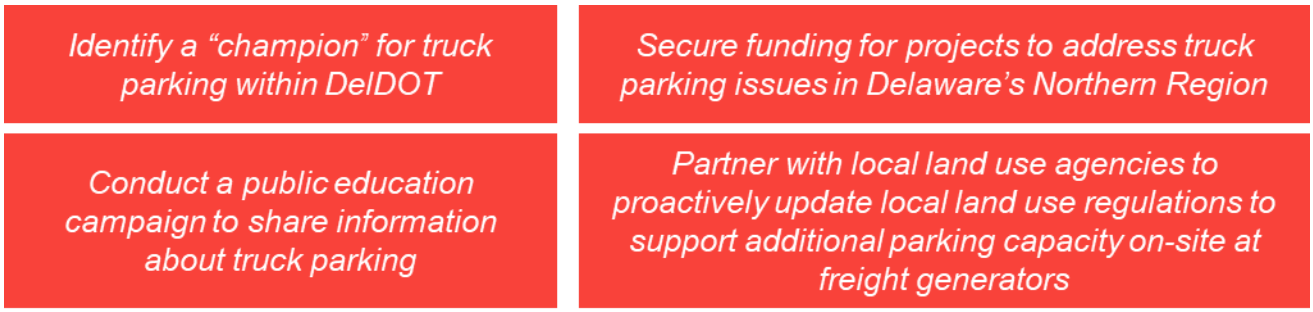
Figure ES 7: Delaware Truck Parking Projects – Toolkit and Location-specific Opportunities



Short-Term Recommendations to Advance Truck Parking in Delaware

Among the various opportunities identified to address truck parking issues in Delaware, there are a set of recommended low-cost next steps that DelDOT should implement in the short term to set a foundation for advancing truck parking. These recommendations (Figure ES 8) were selected because they address institutional challenges for truck parking – such as the lack of ownership over truck parking issues, limited funding, and negative public perceptions – that enable DelDOT to pursue and advance other identified truck parking solutions in the future. Additionally, these recommendations provide a unique opportunity for Delaware to utilize the information, data, and outreach developed during the Delaware Truck Parking Study, in order to highlight the importance of and move forward with advancing truck parking in the state.

Figure ES 8: Short-Term Recommendations for Truck Parking



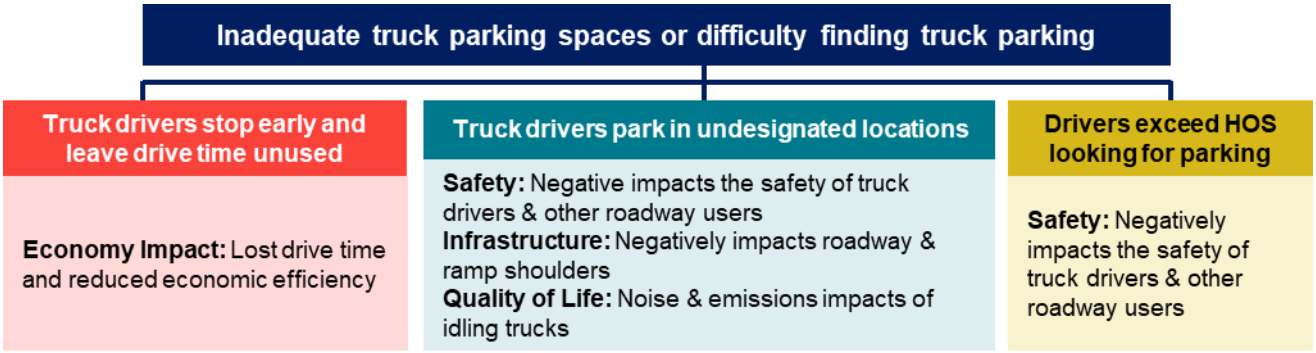
1 About Truck Parking

1.1 Project Need

Truck parking is essential for the efficient movement of goods throughout the nation. Truck parking provides truck drivers with a safe location to take federally required hours of service (HOS) breaks, wait for shipper or receiver appointments (known as staging), and use amenities such as restrooms or refueling stations. Truck parking near freight clusters (e.g., warehousing, distribution centers, intermodal connectors, manufacturing facilities, ports, etc.) is especially important, as drivers often find inadequate or prohibited truck parking near these facilities.

However, truck drivers nationwide and in Delaware face a shortage of adequate truck parking. When truck drivers are unable to find designated truck parking at public or private truck parking locations, there are harmful implications for safety, infrastructure, quality of life, and economic competitiveness (Figure 1). A 2020 survey of trucking industry stakeholders by the American Transportation Research Institute (ATRI) ranked truck parking as the third most important issue in the trucking industry, behind truck driver shortages and driver compensation.[2] Truck parking has remained a top issue in the trucking industry for the past nine years, reflecting its importance to the industry.

Figure 1: Impacts of Inadequate Truck Parking



Over the past decade, there has been increased national attention on truck parking issues. In 2012, the Moving Ahead for Progress in the 21st Century (MAP-21) Act enacted Jason's Law (Section 1401) to address the truck parking shortage on U.S. highways. MAP-21 establishes truck parking projects as eligible for federal funding and identifies addressing the shortage of long-term truck parking as a national priority.[3] In 2015, the U.S. Federal Highway Administration (FHWA) surveyed public and private stakeholders to evaluate truck parking in each state. Survey results confirmed that most states, including Delaware, experience truck parking shortages.

[2] ATRI, Critical Issues in the Trucking Industry, October 2020, https://truckingresearch.org/wp-content/uploads/2020/10/ATRI-Top-Industry-Issues-2020.pdf
[3] USDOT, FHWA, Jason's Law Truck Parking Survey Results and Comparative Analysis, August 2015, https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/jasons_law.pdf

Jason's Story

In 2009, father, husband, and truck driver Jason Rivenburg parked overnight at an abandoned gas station, as he was not allowed to arrive at his delivery destination ahead of his scheduled time. As Jason slept in his cab, an armed man entered the vehicle. He shot and killed Jason for $7.00 in cash. Jason left behind his wife, pregnant with twins at the time, and a 2-year-old son. In the wake of his death, Jason's wife fought to make truck parking safer under Jason's Law. Ultimately, Jason's Law was incorporated into and enacted under the MAP-21 in 2012.

1.2 Project Objective

Public agencies in Delaware and the surrounding region have increasingly focused on finding solutions to improve goods movement, increase driver safety, and resolve the conflicts that arise when truck drivers park in undesignated locations. Truck parking studies involving Delaware and the surrounding region have been conducted for the Port of Wilmington, the Delaware-Maryland-Virginia tristate region, the I-95 corridor from Connecticut to North Carolina, and the Philadelphia-Camden-Trenton Region. In order to build off these efforts and advance truck parking in Delaware, DelDOT and the Wilmington Area Planning Council (WILMAPCO) undertook the Delaware Truck Parking Study to:

Provide DelDOT, WILMAPCO, and other state and regional truck parking stakeholders with an analytical foundation to inform infrastructure investments and strategies to address the state's most pressing truck parking issues.

As part of the Delaware Truck Parking Study, a Planning and Environmental Linkages (PEL) Study has been conducted. The PEL study is a collaborative and integrated approach to transportation decision-making that considers environmental, community, and economic issues early in the planning process; and uses information, analyses, and products developed during planning to inform the National Environmental Policy Act (NEPA) review process. PEL Studies are an FHWA initiative used to help make better informed project-level decisions and to shorten project delivery time, and they follow provisions set forth in 23 U.S.C. 168(b) (1) (A) and associated regulations under 23 CFR 450.212(d) and 450.313(e). A PEL Checklist is included in Appendix B.

This one-year Study incorporated agency coordination, a complete public participation program, defined purpose and need, requirements for future agency coordination, and development of recommendations and cost estimates. This will set the foundation for future coordination and planning for truck parking projects in Delaware.

1.3 National and Regional Trends Impacting Truck Parking

Key trends, such as HOS regulations, emerging freight technologies, increasing goods movement and evolving supply chains, and seasonal trends, impact truck parking in Delaware and nationwide. These trends provide important context to understanding current and future truck parking needs, challenges, and solutions within Delaware.

Updated Hours of Service Regulations: The Federal Motor Carrier Safety Administration's (FMCSA) HOS regulations place specific limits on the number of hours truck drivers are allowed to be on duty and drive. These limits aim to improve safety for truck drivers and other road users. If truck a driver violates HOS regulations, they are subject to a range of penalties, including written warnings, fines, and putting a driver out

of service. HOS regulations impact when and where trucks require truck parking, and recent revisions to HOS provisions, which took effect on September 29, 2020,[4] have the potential to affect truck parking demand. Figure 2 summarizes current HOS regulations for truck drivers and details which regulations were recently revised. Truck drivers must follow the 11-hour, 14-hour, and 60/70-hour rules at all times, with the option to split the minimum 10-hours off-duty time.

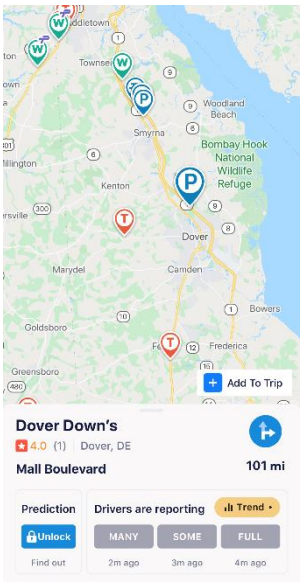
Figure 2: HOS Regulations for Truck Drivers

Regulation	Description (Current)	Revised Provision
11-Hour Driving Rule	Allows a maximum of 11 hours driving after 10 consecutive hours off-duty	N/A
14-Hour Rule	Allows a maximum of 14 hours working after 10 consecutive hours off-duty. Extending the off-duty time does not extend the 14 hours.	N/A
30-Minute Break Rule	Allows a maximum of 8 hours driving without break. Requires drivers to take a 30-minute break when they have driven for 8 cumulative hours, without at least a 30-minute break. Break hours may be satisfied by any non-driving period (e.g., off-duty, on-duty not driving, sleeper berth, or any combination taken consecutively).	Requires drivers to take a 30-minute break after 8 cumulative hours of driving time (instead of on-duty time). Allows the on-duty/not-driving period to qualify as the required break.
60/70-Hour Rule	Prohibits driving after 60 hours on duty in 7 consecutive days or 70 hours on duty in 8 consecutive days. The drivers are allowed to restart driving after at least 34 consecutive off-duty hours.	N/A
Sleeper Berth Rule	Allows drivers to use the sleeper berth to get the equivalent of at least 10 consecutive hours off-duty at one time or in several periods, as long as one off-duty period is at least 2 hours long, and the other includes at least 7 consecutive hours spent in the sleeper berth. All sleeper berth pairings *must* add up to at least 10 hours. When used together, neither period counts against the maximum 14-hour on-duty window.	Modifies the sleeper berth exception from at least 8 consecutive hours in the sleeper berth to at least 7 hours in the sleeper berth
Adverse Driving Conditions	Allows drivers to extend their 11-hour maximum driving window by up to 2 hours only during adverse driving conditions	Adds a provision to expand driving window up to an additional two hours during adverse driving conditions.
Short-Haul Exception	If the driver operates within a 150 air-mile radius of the normal work reporting location and does not exceed a maximum duty period of 14 hours, then they are exempt from the previous regulations.	Expands short-haul exception distance to 150 air-miles (from 100 air-miles) and allows 14-hour work shift (from 12-hour) to take place under the exemption.

Source: Federal Motor Carrier Safety Administration, Summary of Hours of Service Regulations, 2020.

[4] FMCSA, Hours of Service, Accessed 2020, https://www.fmcsa.dot.gov/regulations/hours-of-service

Emerging Freight Technologies: New and emerging freight technology deployments have the potential to both provide solutions to truck parking issues and impact truck parking needs and patterns. These technologies include:



Source: Trucker Path App

Truck Parking Technologies: Truck drivers are increasingly using smart devices to locate available truck parking. Major private truck stop companies provide information about facility location, truck parking availability, and reservation systems through their truck parking applications. Truck drivers also provide and access crowdsourced truck parking information through third-party applications such as Trucker Path, Truck Map, and Park My Truck. Public agencies are also installing truck parking technologies and developing truck parking information systems to provide real-time truck parking information to drivers through 511 systems, dynamic message signs (DMS), interactive voice response (IVR), and in-cab technologies.

Connected and Autonomous Trucks: Several companies are working to re-imagine the trucking industry through the development of connected and autonomous trucks.[5] The timing of widespread adoption and the exact impact of connected and autonomous technologies on the trucking industry are unclear. While many enabling technologies have matured, fully autonomous vehicles are not likely to reach widespread implementation in the short term. However, as the widespread level of automation increases, so does the potential impact on truck parking (Figure 3).

Figure 3: Autonomous Driving Levels and Potential Impacts on Truck Parking

Level of Automation	Description	Potential Impacts on Truck Parking
Level 0 No Automation	Driver performs all driving tasks.	N/A
Level 1 Driver Assistance	Driver controls all driving tasks while the vehicle assists with steering *or* acceleration/deceleration.	N/A
Level 2 Partial Automation	Driver may disengage from both steering *and* acceleration/deceleration but must remain engaged with driving and be ready to take control of the vehicle.	N/A
Level 3 Conditional Automation	Vehicle controls all aspects of driving, but the driver provides critical attention when requested. Driver remains a necessity.	In the future, regulations could allow a truck driver to find available parking and reserve spaces, using smart or other in-cab devices while the vehicle is moving.
Level 4 High Automation	Vehicle controls the operation of all aspects of driving, in safe conditions.	In the future, HOS regulations could change to allow truck drivers to rest or save drive time for use when the autonomous system is not in control. Truck stops will still be needed for staging and other HOS requirements, but there

[5] James Ayre for CleanTechnica, (December, 16, 2020) Electric Semi Trucks & Heavy-Duty Trucks — Available Models & Planned Models, Retrieved from https://cleantechnica.com/2017/12/16/electric-semi-trucks-heavy-duty-trucks-available-models-planned-models/#:~:text=Planned%20Plug-In%20Electric%20Heavy-Duty%20%26%20Semi%20Truck%20Models,a%20300%20kWh%20battery%20pack.%20More%20items...%20

		may be an increased emphasis on amenities. However, the demand for truck parking spaces may decline if supply chains are restructured to maximize automation miles.
Level 5 Full Automation	Vehicle controls and performs all aspects of driving, under all conditions.	In the future, HOS regulations could be eliminated, which would leave truck parking open for other trucks. Without drivers, stops may be limited to delivery, pick up, fuel, and maintenance.

Source: NHTSA, Automated Vehicles for Safety, Accessed 2020

Source: Daimler, 2020.

Truck Electrification: Commercial and public interest in using battery-powered electric trucks has grown, in an effort to meet fuel economy standards, mitigate harmful health and environmental impacts, and reduce costs. While the electrification of heavy-duty long/line-haul trucking still faces several barriers, the electrification of trucks may shape the future role of truck parking. Truck parking locations can offer charging stations, fulfilling a need for charging infrastructure. The widespread implementation of battery-powered electric trucks will require a nationwide investment in charging stations, with rest areas and truck stops that offer single-system or dual-system electrified spots.[6] Truck stop electrification also offers the potential to improve community perception of truck parking by addressing current truck parking development concerns of emissions and idling.

Increasing Goods Movement and Changing Supply Chains and Land Use: The steady growth of e-commerce and expectations of next day delivery, combined with lean inventory management, have impacted freight and logistics movements to meet the increasing need for on-demand and short-distance transportation. Manufacturing facilities, warehouses, and distribution centers are increasingly moving into urban and surrounding areas, to expand their population reach, while also optimizing delivery distance, time, and costs. These land use and development trends influence freight transportation patterns, as new first/last-mile logistics facilities generate a large influx of truck traffic, in turn affecting truck parking needs and locations. Additionally, increased traffic and resulting congestion near major origins and destinations exacerbate truck parking issues. High levels of congestion and low travel time reliability force truck drivers to stage as close to their drop-off/pick-up location as possible, to not miss appointment windows. However, expanding truck parking in urban and urban periphery areas often face high costs of land, land-use conflicts, and opposition from local communities that see truck parking as a nuisance that will bring increased truck traffic, congestion, and air and noise emissions.

[6] In a single-system electrified truck stop, off-board equipment provides internet access, heating, ventilation, and air conditioning, whereas, in a dual-system electrified stop, trucks equipped with energy inverter and other electrical systems can plug in to outlets at the truck stop. For more information see: https://afdc.energy.gov/conserve/idle_reduction_electrification.html

Seasonal Trends: Seasonal trends, such as those driven by tourism and weather events, impact truck traffic moving through Delaware. As a result, these trends also influence truck parking needs in the region. Delaware-specific planning and research materials, including the Delmarva Freight Plan (2015) and Delaware State Freight Plan (2017) identify areas of concern related to seasonal traffic.

Tourism: Tourism is a key industry in Delaware, bringing an additional 9 million visitors to the state annually with particular concentrations during the summer months in the state's beach and coastal communities.[7] The influx of visitors during tourist seasons brings not only additional passenger traffic but also additional truck traffic supporting increasing consumption and freight demand in tourist centers. DelDOT estimates traffic can more than double on some major routes during the tourist season.[8]

Extreme Weather, Flooding, and Sea Level Rise: Continued sea-level rise, as well as significant weather and tidal events, may lead to coastal flooding, which can affect and even block low-level roads in the state.[9] These weather events can trap truck traffic, forcing trucks to park until travel is safe again. Blocked roads due to weather events may also force truck traffic to find alternate routes, where available, to continue to their destination.

1.4 Conclusion

In Delaware and across the nation, truck parking is essential for the efficient movement of goods. However, truck parking needs are shaped by certain national and regional trends, which affect current and future truck parking supply and demand, available opportunities to address truck parking issues and challenges, and best course actions for implementation. The national and regional truck parking trends discussed in this section provide important context for the remainder of this Study, which examines Delaware's existing truck parking conditions, provides insight into the state's current and future issues and challenges, and identifies effective solutions to advance truck parking in the state.

[7] Delaware Tourism Office. 2020. Report: Delaware tourism sets new records.
[8] DelDOT, Delmarva Freight Plan (2015)
[9] Strategic Implementation Plan for Climate Change, Sustainability & Resilience for Transportation. Delaware DOT. 2017.

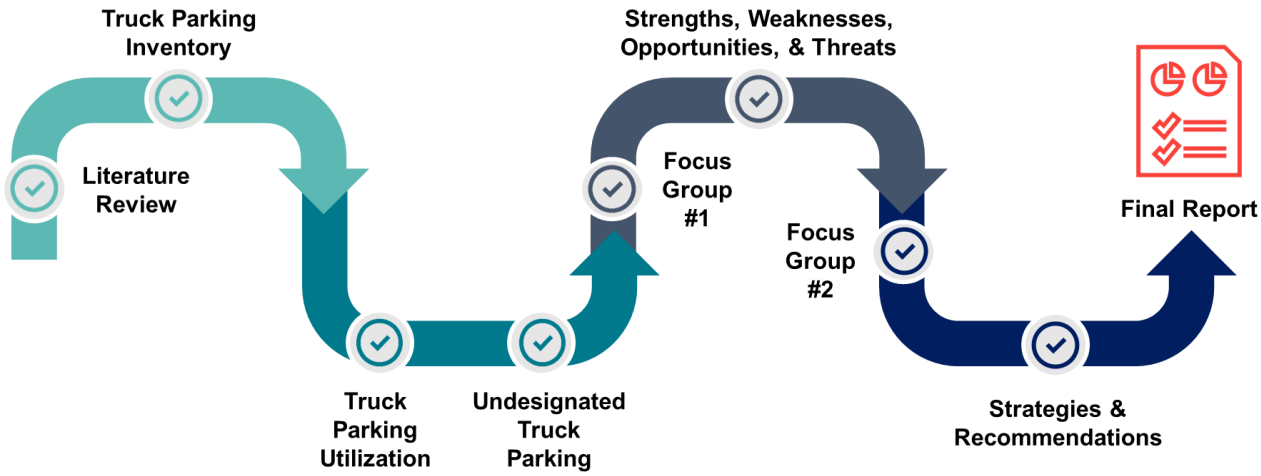
2 Project Description

2.1 Study Approach

The Delaware Statewide Truck Parking Study (the Study) seeks to address the shortage of truck parking and the associated safety, infrastructure, quality of life, and economic impacts through the identification of priority solutions to improve truck parking throughout the state of Delaware. The Study will provide the Delaware Department of Transportation (DelDOT), the Wilmington Area Planning Council (WILMAPCO), and other state and regional truck parking stakeholders with an analytical foundation to provide information related to infrastructure investments and strategies to address the State's most pressing truck parking issues.

The following section provides an overview of the Study approach, which is illustrated in Figure 4. The study was completed in approximately twelve months.

Figure 4: Study Approach



The Study began with a review of existing truck parking efforts completed nationally, regionally, and statewide. Materials reviewed included the following:

- **National:** Jason's Law Survey (2015), ATRI Critical Issues in the Trucking Industry (2020)
- **Regional:** Eastern Corridor Coalition (formerly the I-95 Corridor Coalition) truck parking activities and publications, Delmarva Freight Plan (2015), Delaware Valley Regional Planning Commission Regional Truck Parking Study (2011), Maryland Statewide Truck Parking Study (2020), Truck Parking in Pennsylvania (2007), Virginia Truck Parking Study (2015)
- **State and Local:** Delaware Freight and Goods Movement Plan (2004), Port of Wilmington Truck Parking Study (2013), Recommendations from Special Committee to Study and Make Recommendations Regarding Truck Traffic & Freight Movements Along SR 41, SR 48 & SR 7 (2018)

Building off these previous truck parking efforts, the Study provides the existing conditions of truck parking in Delaware through an updated inventory of truck parking, an analysis of utilization at truck parking facilities statewide, and the identification of areas of undesignated truck parking in Delaware.

- **Truck Parking Inventory:** presents the supply of truck parking facilities and spaces in Delaware. The inventory was developed by synthesizing publicly available data from FHWA's 2015 Jason's Law Report and data purchased from Trucker Path, validated with satellite imagery and online research. See Section 3.1 for further details on the development of the truck parking inventory.

- **Truck Parking Utilization Analysis:** provides the number of trucks parked at a truck parking location relative to the number of spaces at that location at a given time. The statewide utilization analysis was informed by a year of Trucker Path data (2020), which provides truck driver observations of truck parking location availability, classified as "lots," "some," or "full." See Section 3.2 for further details on the truck parking utilization analysis.

- **Undesignated Truck Parking Identification:** provides the locations of trucks parked in unmarked locations. The identification of undesignated truck parking was supported by analysis, validation, and classification of INRIX data, which provides data on truck movements, through GPS waypoints.[10] Data across four three-week periods were evaluated for the purposes of this Study. See Section 3.3 for further details on undesignated truck parking analysis and identification.

Based on this analysis of existing truck parking conditions, the Study identifies issues, challenges, and opportunities for truck parking in Delaware. Finally, the Study presents statewide policies and programs, as well as location-specific projects, for DelDOT's consideration. Among these opportunities, several short-term recommendations were identified for immediate implementation by DelDOT. These short-term recommendations integrate truck parking into the state's governance, planning, and investment decisions to enable future truck parking projects. Additionally, three location-specific capacity expansion opportunities were selected for conceptualization and costing to inform DelDOT considerations for future advancement of new truck parking locations.

2.2 Stakeholder Outreach

Stakeholder participation was critical to the development of the Study. Throughout the course of the Study, stakeholder feedback was obtained through working group meetings, two focus group sessions, and online feedback tools, in order to inform and validate Study results. See Appendix A for additional materials related to stakeholder outreach efforts.

- **Working Group:** A working group was established comprised of WILMAPCO, DelDOT, Dover/Kent MPO, Salisbury/Wicomico Metropolitan Planning Organization (MPO), and the Delaware Motor Truck Association. Working group members were invited to a virtual Project Kick-Off Meeting (September 22, 2020) and additional updates were presented during two virtual Working Group meetings (November 18, 2020 and December 16, 2020).

[10] Waypoint data are, in essence, markers that trucks leave when traveling from their origin to their destination. Waypoints allow data users to calculate distance traveled, speed, route, location, and duration of time stopped, among other insights.

- **Focus Group:** The project approach also included stakeholder input through a focus group comprised of participants listed in Figure 5. Two virtual Focus Group meetings were held during the course of the Study (March 11, 2021 and May 20, 2021).

Figure 5: Focus Group Attendees

Focus Group Attendees	
• Brian Soper, Salisbury/Wicomico MPO (S/WMPO) • Cooper Bowers, DelDOT Planning • Chuck Harris, Walmart DC-7834 • Dave Hugg, City of Dover • Dan Blevins, WILMAPCO • Jeff Bainbridge, Royal Farms • Jim Galvin, Dover Kent MPO • Jody Sweeny, Commissioner, Kent County Levy Court • Josh Thomas, DelDOT • Ken Grant, AAA • Kristen Scudder, DE Valley Regional Planning Commission (DVRPC) • Linda Parkowski, Kent Economic Partnership • Marc Cote, DelDOT • Mark Luszcz, DelDOT	• Michael DuRoss, DelDOT • Michael Ruane, DE Valley Regional Planning Commission (DVRPC) • Nicole Katsikides, Maryland DOT State Highway Administration (SHA) • Phil Strohm, FMCSA • Sam Sherman, DelDOT • Sgt. Dan Parks, DE State Police • Sharon Duca, City of Dover • Stephanie Johnson, DelDOT • Stewart Pryor, DE Motor Truck Association (DMTA) and Commercial Driver • Tigist Zegeye, Executive Director, WILMAPCO • Troy Mix, University of Delaware Institute for Public Administration (UD IPA)

- **Wikimap:** From March 11 to April 1, 2021, state, local, and industry stakeholders had the opportunity to provide feedback on truck parking issues in Delaware through an online mapping tool (Wikimap). This interactive map allowed stakeholders to “drop a pin” on the map in order to identify locations of undesignated parking in the state. The Wikimap received eight total responses during this time. Appendix A provides an image of the Wikimap and a list of the responses.

3 Existing Truck Parking Conditions

This section provides an overview of the supply, demand, and impacts of truck parking in Delaware. There are 12 truck parking locations – 2 public rest areas and 10 private truck stops – in the state. These truck parking locations, particularly in urban areas, are busiest during the overnight and early morning hours, as truck drivers stop for their overnight rest breaks. Meanwhile, truck parking issues are signaled by the presence of undesignated parking, with 32 clusters of high undesignated truck parking concentrations in Delaware. Undesignated parking is concentrated in select locations – along key freight routes, near existing public rest areas, near freight generating facilities, and in urban areas. This analysis provides a picture of the imbalance between truck parking supply and demand in Delaware, which informs the types and locations of truck parking issues and challenges in the state.

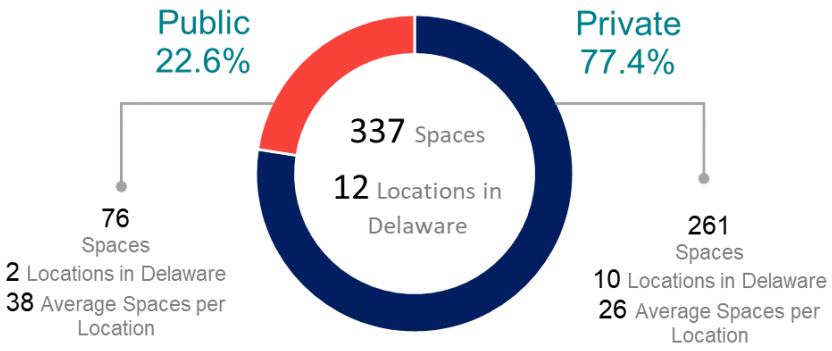
3.1 Truck Parking Inventory

In Delaware most trucks park at public rest areas, private truck stop facilities, or informal locations—including restaurant or retail parking lots (e.g., McDonald's, shopping malls) or vacant lots (e.g., gravel lots). Less formal truck parking locations are subject to change, given truck parking is not core to private restaurant and retail businesses. For this Study, the Project Team focused on identifying formal rest areas and truck stops. The Project Team developed the inventory by synthesizing publicly available data from the 2015 Jason's Law Report and data purchased from Trucker Path, and validating this data with satellite imagery.

Trucker Path is a smartphone application that relies on crowdsourced data from almost one million drivers to visually identify and communicate truck parking availability to other drivers. Trucker Path collects and provides information including truck parking location, parking space availability, amenities, and directions, among other information.

Delaware has 12 truck parking locations that offer a total of 337 truck parking spaces.

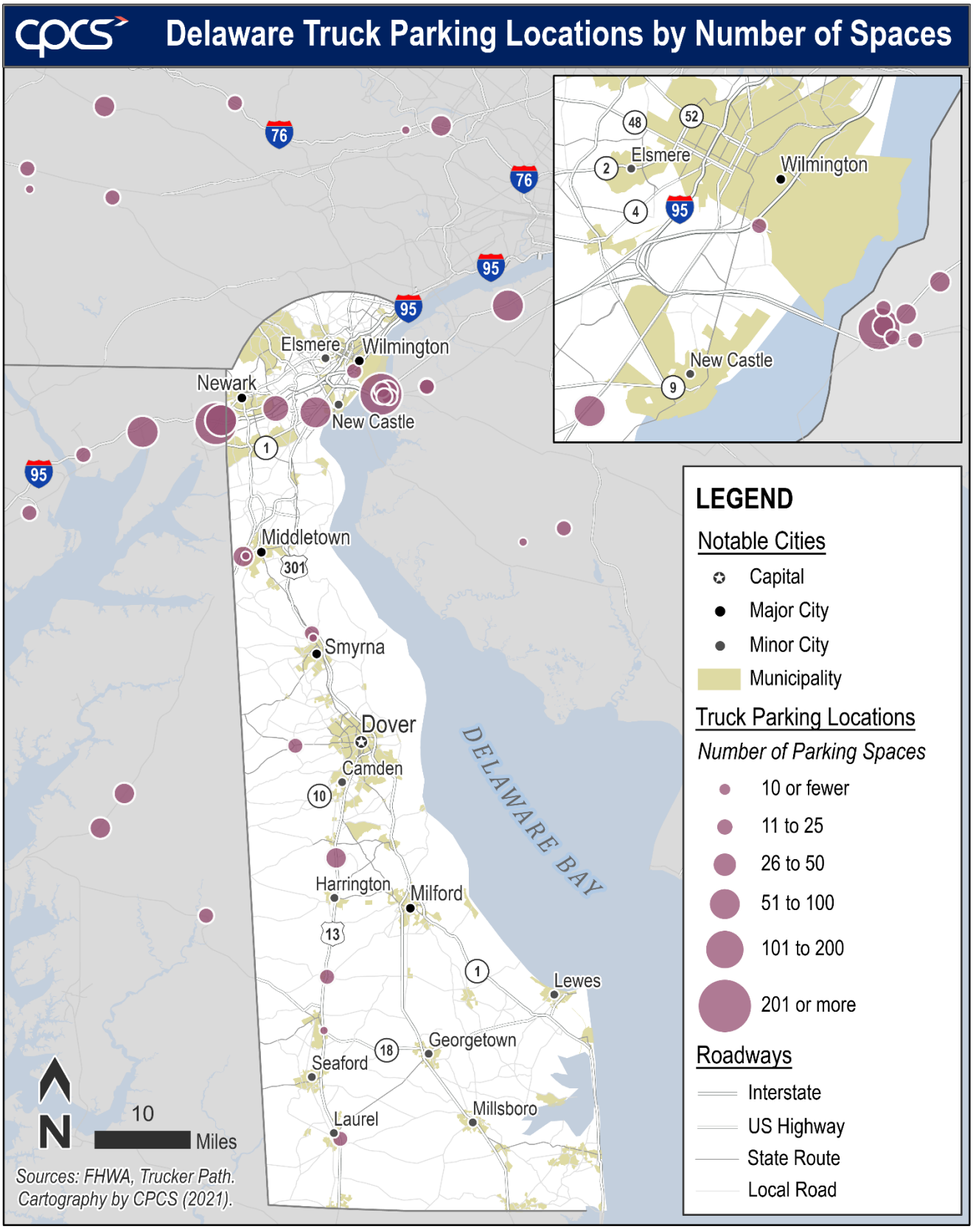
Figure 6: Total, Public, and Private Truck Parking Locations in Delaware



Delaware has 10 private locations and 2 public locations, representing 77.4 percent and 22.6 percent of truck parking spaces, respectively (Figure 6). Classified among the public locations are the Smyrna Rest Area and the Biden Welcome Center, the latter of which is a publicly owned, but privately operated facility. Figure 7 shows the location of truck parking facilities in and surrounding (within 20 miles of) Delaware, by number of truck parking spaces. Among the truck parking locations in Delaware, seven locations allow for overnight truck parking and five private truck parking locations do not authorize overnight truck parking.[11]

[11] Whether overnight parking is authorized for locations within Delaware was determined through phone calls and/or email with each location, or a consultation with a designated location representative.

Figure 7: Truck Parking Facilities in and Surrounding Delaware by Number of Spaces



3.2 Truck Parking Utilization

Truck parking utilization refers to the number of trucks parked at a truck parking location relative to the number of spaces at that location at a given time. The supply of and demand for spaces at a truck parking location impacts truck parking utilization. Truck parking utilization provides a snapshot of where truck parking is easy or difficult to find, and when combined with data on where undesignated parking is occurring, helps define the opportunities for addressing truck parking needs.

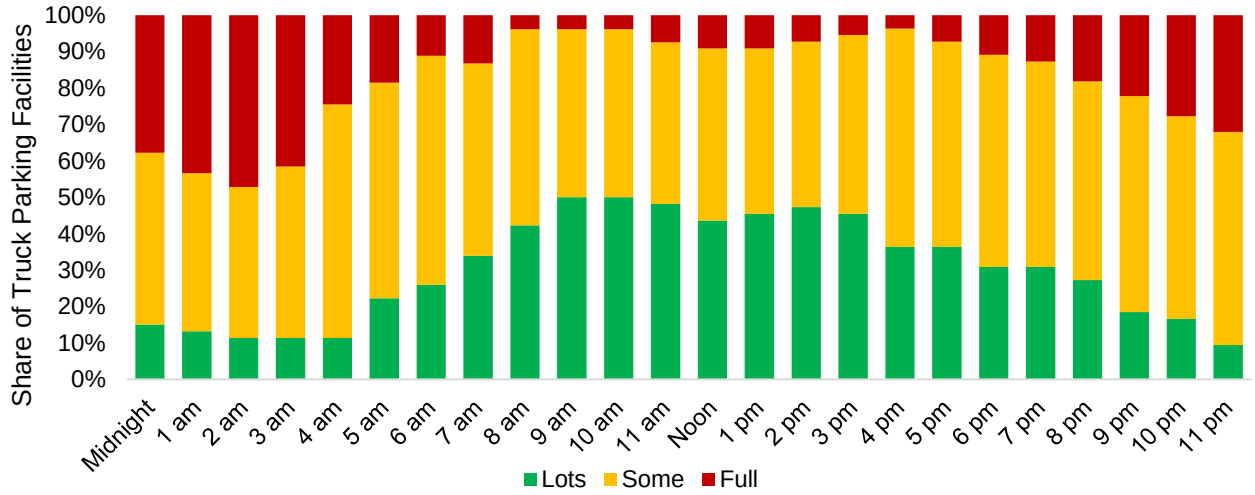
How Drivers Decide Where to Park

Several factors influence when and where drivers choose to park. A 2016 study by ATRI surveyed truck drivers on the top factors that influence the location of where they take their ten-hour HOS break. The top three factors selected were proximity to route and destination, access to restrooms and showers, and expected available parking.[12] Ease of access to a truck parking facility, width of parking spaces, company policies, and other amenities (e.g., security, internet, laundry) also impact where truck drivers stop.

The statewide utilization analysis produced hourly truck parking utilization for public and private truck parking facilities, based on a year of Trucker Path data (2019[13]). The Trucker Path app uses the location of the phone to identify when a driver is located within one and a half miles of a truck parking facility and then prompts the user to categorize the location's availability as "lots," "some," or "full."

Figure 8 shows the distribution of truck parking utilization among private and public truck parking facilities in Delaware by time of day. As illustrated, the utilization of truck parking facilities in Delaware is lowest from late morning to early evening. As the evening progresses, utilization increases as truck drivers stop for their overnight rest breaks, filling up truck parking facilities. By the early morning hours, truck parking availability is at its most constrained. Peak utilization for truck parking occurs during this time, with the highest share of full facilities from 2 am to 3 am.

Figure 8: Statewide Truck Parking Utilization



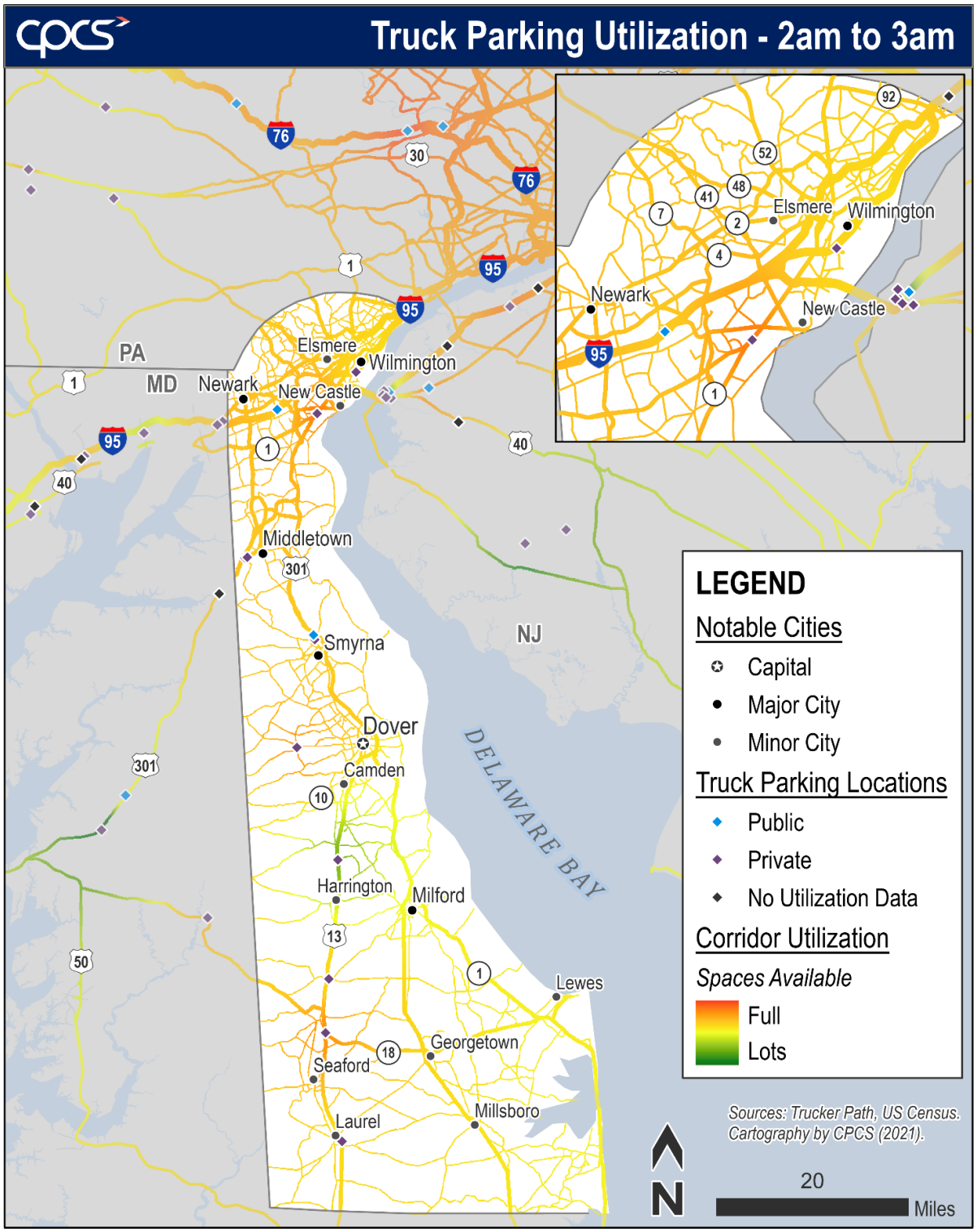
Source: CPCS analysis and modeling of Trucker Path

[12] ATRI, Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries, December 2016

[13] 2019 data were selected to remove the potential for temporary shifts in the origin, destination, and/or volume of freight traveling in Delaware due to the COVID-19 pandemic. FMCSA also issued a series of HOS exemptions during COVID-19 to enable the movement of key commodities. These HOS exemptions during 2020 could present results that are not representative of typical truck parking utilization.

In Delaware, utilization is highest in the urban areas of Wilmington, New Castle, Smyrna, Dover, and Seaford. However, truck parking utilization is not at its full capacity at all facilities in Delaware, even during the peak early morning hours (Figure 9). Meanwhile, utilization remains low in many areas of the state during the non-peak hours of the late morning and afternoon.

Figure 9: Truck Parking Utilization (2 am to 3 am)



3.3 Undesignated Truck Parking

While truck parking utilization provides insight into where truck parking is available and where truck parking is difficult to find, understanding undesignated truck parking provides additional insight into the magnitude of unmet truck parking demand. Truck drivers may choose to park in undesignated locations if they have difficulty finding truck parking and they are nearing the end of their HOS. Undesignated truck parking serves as the most noticeable indication of a truck parking issue and has negative impacts on the economy, safety, infrastructure, and quality of life.

In total, the Project Team parsed through and analyzed over 17 million truck GPS waypoints[14] during the 12 weeks of INRIX data analyzed (February 3-23, May 5-25, August 4-24, October 6-26). The process to identify undesignated truck parking began with using INRIX truck GPS data to identify when trucks stopped for more than 30 minutes. Approximately 119,700 stops were identified as truck stop counts during the 12 weeks of truck GPS data. Using the inventory of truck parking locations, approximately 8,200 stops were parked in designated truck parking areas and 300 stops were parked in undesignated areas at Delaware's two public rest. The remaining stops required additional classification (e.g., trucks parked along roadways, at shippers/receivers, at truck terminals, etc.). Of these, 3,100 stops were identified as stops on the road network and investigated by the Project Team as locations of undesignated parking.

The Project Team identified, validated, and classified 32 clusters of undesignated truck parking occurring in Delaware at all hours of the day. Undesignated truck parking clusters are categorized based on type, detailed below:

- **Rest Area:** occurs in areas outside of defined parking spaces at public rest areas, such as unmarked areas, on/off ramps, and areas designated for passenger vehicles.
- **On/off Ramp Shoulders:** occurs on highway on/off ramp shoulders. This creates safety hazards for both truck drivers and other roadway users. Trucks parked along on/off ramp shoulders pose safety risks as large fixed objects susceptible to collision, as visual obstacles to sight distance, and when re-entering the traffic stream with a short distance to reach roadway speeds.
- **Corridor shoulders:** occurs on interstate and other highway corridor shoulders. This creates safety hazards, for both truck drivers and other roadway users, similar to undesignated truck parking at on/off ramp shoulders. However, trucks re-entering the traffic stream from corridor shoulders face a higher speed differential, particularly on interstate and other highway shoulders.
- **Near truck stop:** occurs near private truck stops, but not on-site, likely due to a lack of capacity at the given truck stop. The safety concerns of parking near truck stops are similar to undesignated truck parking on last-mile corridors, due to lower speeds and traffic volumes.
- **Last-mile:** occurs on local roadways in both industrial and non-industrial areas – particularly on last-mile connectors leading to freight generators. While less of a safety hazard, compared to other types, due to slower speeds and lower traffic volumes, undesignated parking on local roadways still poses safety and quality life issues by impeding traffic, blocking roadways, and spilling onto busier roads.

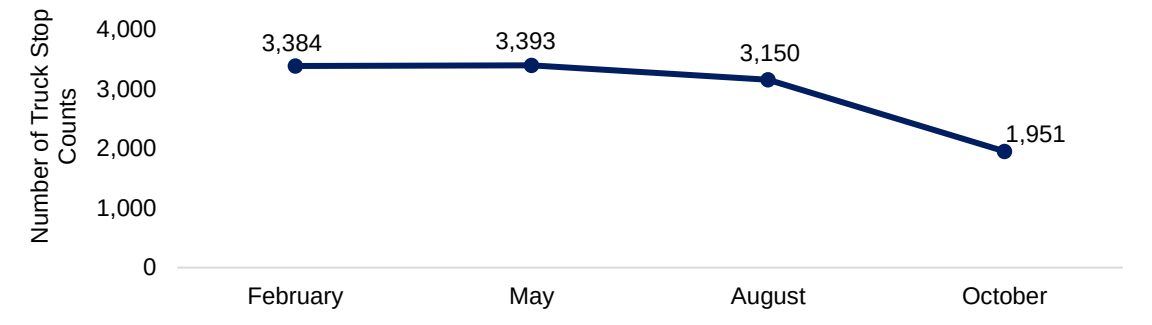
[14] Waypoint data are, in essence, markers that trucks leave when traveling from their origin to their destination. Waypoints allow data users to calculate distance traveled, speed, route, location, and duration of time stopped, among other insights.

- **Urban:** occurs in urban areas. This is often sporadic and difficult to differentiate from deliveries due to limited space for trucks to park in concentrated numbers in urban areas. This difficulty demonstrates the need for collaboration with local jurisdictions to address truck parking needs and issues in urban areas.

Seasonality Impacts on Truck Parking Demand in Delaware

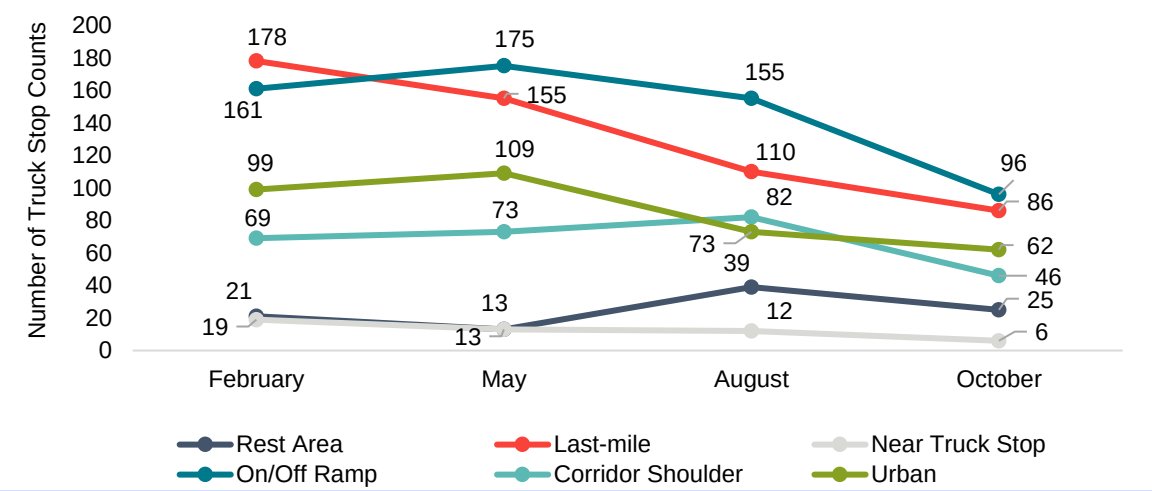
Seasonal trends, driven by tourism, agriculture, and weather events, impact truck traffic moving through Delaware. As a result, these trends also influence truck parking demand in the region. The following figures illustrate seasonal differences in truck parking in Delaware at both designated truck parking locations and undesignated truck parking clusters. This analysis is based on variation in INRIX truck stops data collected across four months in 2019 – February, May, August, and October. Figure 10 displays the number of truck parking counts at designated truck parking locations, and Figure 11 displays the number of undesignated truck parking counts at identified undesignated clusters. A truck stop count refers to a truck stopped for more than 30 minutes at a given location. At both designated parking locations and undesignated clusters statewide, the number of truck stops in October is typically lower than in February, May, and August.

Figure 10: Designated Parking Truck Stop Counts by Month



Source: CPCS analysis of FHWA, Trucker Path.

Figure 11: Undesignated Parking Truck Stop Counts by Type and Month

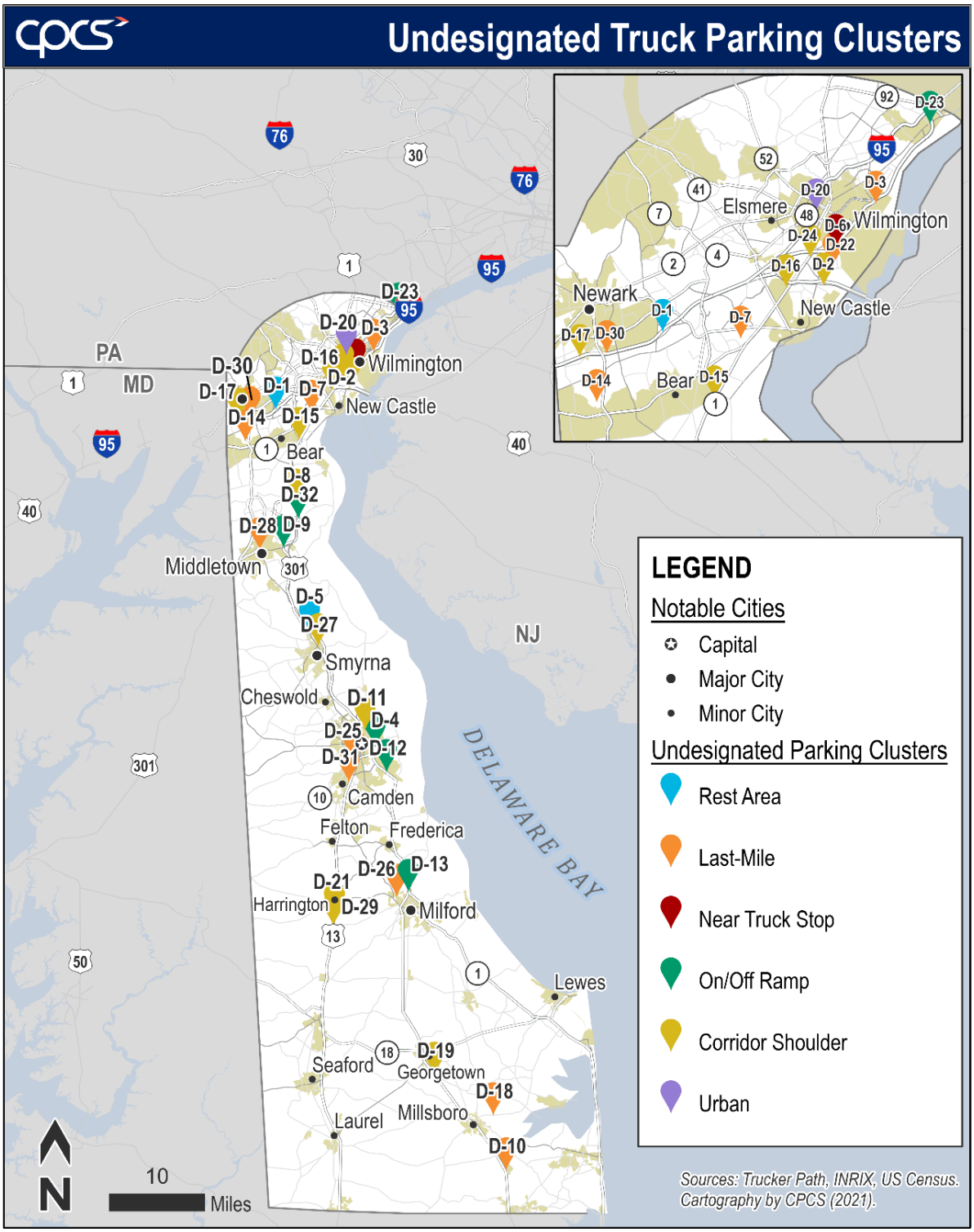


Source: CPCS analysis of INRIX, Trucker Path.

Figure 12 displays the 32 undesignated truck parking clusters in Delaware, classified by type. While undesignated parking on corridor shoulders and for last-mile are the most common type of cluster, the largest single cluster of undesignated parking occurred at the Biden Welcome Center rest area. In 75 percent of Delaware's undesignated truck parking clusters, truck GPS data identified fewer than 50

counts of undesignated truck parking across 12 weeks. Though this GPS data represents a sample of total truck stops, the low total counts in the majority of the identified clusters indicate that Delaware's undesignated parking issues are concentrated in a few select locations. Appendix C provides additional details for each cluster of undesignated parking.

Figure 12: Undesignated Truck Parking Clusters



3.4 Issues and Challenges for Truck Parking in Delaware

Understanding Delaware's existing inventory, utilization, and locations of undesignated parking provides insight into the types of truck parking issues and challenges in the state. In addition to analysis of truck parking data, the Project Team engaged in stakeholder outreach, through a focus group and interactive mapping platform, to validate and obtain additional feedback regarding truck parking issues and challenges in Delaware (see Appendix A for more details about the Study's stakeholder engagement efforts). The identification of these truck parking issues and challenges for Delaware will guide the development of opportunities and recommendations to effectively target the state's most pressing truck parking needs.

3.4.1 Issues

High Truck Parking Utilization in Urban Areas

Although truck parking utilization is not at its full capacity statewide, even during the peak early morning hours, truck parking utilization in Delaware is high in urban areas, particularly in Wilmington, New Castle, Smyrna, Dover, and Seaford. Although utilization is yet to reach full capacity in Delaware, truck parking capacity in these areas are the most strained in the state, nearing full utilization in the peak early morning hours of 2 to 3 am (see Figure 9). Among urban areas, New Castle County experiences the highest density of strained capacity, with almost full utilization occurring along I-95.

Undesignated Truck Parking

The Project Team identified 32 clusters of high undesignated truck parking density in Delaware (see Figure 12). An analysis of these clusters indicates undesignated truck parking occurs in Delaware when truck drivers are unable to find truck parking for HOS break requirements and for staging. Truck drivers are more likely to park in undesignated areas near public rest areas for longer, overnight HOS breaks, while they are more likely to park in undesignated areas near freight generators, on last-mile corridors, and in urban areas, for staging. At some locations, truck drivers also park overnight in undesignated locations on last-mile corridors. Undesignated parking at different times of the day and for varied durations occurred on corridor and on/off ramp shoulders as well, with several clusters located along I-95, I-295, I-495, US 13, US 113, and SR 1.

Stakeholders also noted that parking for HOS break requirements is often needed near I-95, a key freight corridor for long-haul trips. Meanwhile, parking for staging is needed along first/final-mile connections statewide.

Insufficient and/or Lack of Truck Parking Capacity

Insufficient and/or a lack of truck parking capacity was a top issue cited by stakeholders during outreach efforts. High truck parking utilization at Delaware's two public rest areas – the Smyrna Rest Area on US 13 and the Biden Welcome Center on I-95 – coupled with a high density of nearby undesignated parking, further indicates insufficient truck parking along Delaware's key freight corridors. Additionally, undesignated truck parking at the Port of Wilmington and Edgemoor signals insufficient space for staging in these freight-intensive areas.

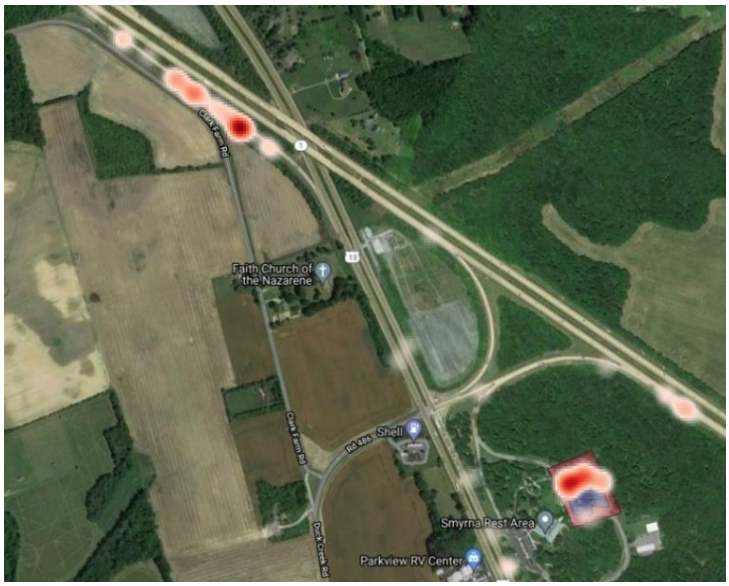
Truck parking is particularly limited in central and southern Delaware, with five private truck parking facilities located along US 13 within the two counties. In Kent and Sussex counties, several of these identified truck parking locations do not permit overnight parking. Further, there are no truck parking locations on SR 1 south of Smyrna. The private locations in central and southern Delaware that do allow overnight parking require fees for parking at these locations. As truck parking fees are often not

covered by motor carriers, truck drivers typically will avoid paying out of pocket for overnight truck parking.[15]

Existing Barriers to Facility Access

Barriers to facility access may include physical barriers, such as difficulty accessing a facility, or information barriers, such as lack of knowledge about a facility and its truck parking availability. At the Smyrna Rest Area, stakeholders noted trucks often park on the undesignated shoulders of the southbound SR 1 on-ramp to US 13, which is only a few minutes' drive from the Smyrna Rest Area. Truck GPS data further demonstrates a density of undesignated truck parking at this specific location (Figure). Physical factors – Smyrna Rest Area's location off of SR 1 – as well as information factors – lack of knowledge about truck parking availability at the rest area – may both contribute to undesignated parking at that location.

Figure 13: Undesignated Truck Parking at Smyrna Rest Area



Source: CPCS Analysis of INRIX data; Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021, with CPCS polygons overlaid based on analysis of Trucker Path Data

Stakeholders also noted that although trip planning tools, such as Trucker Path, may provide information about truck parking locations and availability, not all truck drivers may be familiar with using these applications and technologies for trip planning.

Increasing Goods Movement

The growth of freight is outpacing the addition of truck parking capacity in Delaware. Expected future increases of goods movement in Delaware are driven by an overall increase in demand for freight, as well as growth in the state's freight-reliant industries and the proposed Edgemoor Port in Wilmington.

The proposed port expansion is located in Wilmington, where truck parking utilization is the highest in the state. This increased volume and demand will also increase the need for staging locations in an area where truck paring capacity is already strained, as demonstrated by undesignated parking in the area. Without additional truck parking capacity, the Wilmington area is likely to experience an increase in truck drivers parking in undesignated locations and idling without sufficient parking. Additionally, stakeholders note increasing manufacturing and warehousing development statewide will increase truck traffic in central and southern Delaware, areas with already limited options for truck parking.

[15] Trucker Path, Truck Parking Report, July 2018, http://files.truckerpath.com/web/trucker-path-parking-white-paper-2018.pdf; ATRI, "Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking," September 2015, https://truckingresearch.org/wp-content/uploads/2015/09/Managing-Critical-Truck-Parking-Tech-Memo-1-FINAL-09-2015.pdf.

3.4.2 Challenges

Land in Urban Areas is Limited and Expensive

The need for additional truck parking capacity is typically highest in urban areas. This is also true for Delaware, where high utilization at existing truck parking facilities and several clusters of undesignated truck parking occur in Wilmington and New Castle, as well as near Smyrna and Dover. However, land in urban areas is limited, expensive, and in high demand, when available.

Negative Public Perceptions of Truck Parking

Public opposition to truck parking, also known as “Not In My Backyard” (NIMBY), is a challenge to existing, expanding, and new truck parking capacity nationwide. This is due to a negative public perception of truck parking as a nuisance that will bring increased truck traffic and congestion, rather than viewing safe and adequate truck parking as a critical component of supply chains and local economies. Opposition from local communities may also include concern about air pollution and noise associated with truck traffic and truck parking, as well as real and/or perceived safety impacts.

Lack of Funding Dedicated to Truck Parking

Currently, there are no national or state funds dedicated to truck parking. While the cost of truck parking solutions varies, capacity expansion and information and technology projects require significant capital investments, as well as long-term maintenance and upgrade funding. However, these truck parking projects must compete against other transportation projects for already limited public funds.

Lack of Clear Public and Private Roles to Address Truck Parking Issues

Truck parking is an issue that concerns both the public and private sectors, and each group has a stake and role in the provision of adequate and safe parking for truck drivers. However, this results in unclear roles and responsibilities for truck parking issues, and results in a lack of coordination or uncertainty on how to best address the truck parking needs of a particular area.

3.5 Conclusion

The state’s existing truck parking conditions can be understood through truck parking inventory, utilization, and undesignated parking, which together provide insight into the locations and scale of the imbalance between truck parking supply and demand in the state. The data analysis provided in this section, combined with stakeholder input, formed the basis for the identification of truck parking issues and challenges in Delaware, which then informs the development of effective solutions, as presented in the following section, to advance truck parking.

4 Opportunities

There are a variety of opportunities available for DelDOT to advance truck parking in Delaware. Opportunities include statewide policies and programs, as well as location-specific projects. To set a foundation for Delaware to integrate truck parking into planning and practices statewide, DelDOT should consider policies and programs for implementation on a statewide level. Meanwhile, when examining how to target a particular truck parking issue within Delaware, DelDOT, in partnership with appropriate local agencies, should consider a portfolio of available truck parking projects that focus on either capacity expansion or information and technology solutions. These projects must be tailored to the specific issue and regional context at a specific location, in order to be effective. For instance, different project types target the unique truck parking issues found within Delaware's northern, north-central, and southern regions. These opportunities are at different stages of readiness for implementation and will likely require additional review, planning, and programming. DelDOT and local agencies can evaluate select opportunities for near-term implementation, while also continuing to utilize the full range of opportunities as a resource to address future truck parking needs in Delaware.

4.1 Policies and Programs

Statewide policy and program opportunities focus on institutional changes that promote the inclusion of truck parking into governance, planning, and investment decisions.

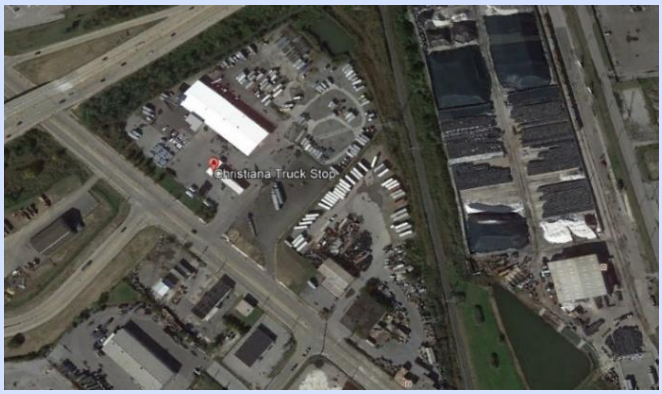
Identify a point of contact, or "champion," for truck parking within DelDOT.

As an initial and low-cost institutional solution, DelDOT should consider designating a DelDOT truck parking "champion." The truck parking champion serves as a point of contact that coordinates and provides information to public and private stakeholders about truck parking issues and efforts in Delaware. This individual, in coordination with others at DelDOT, would further champion the implementation of truck parking policies and projects in Delaware, including those identified in this Study.

In addition to implementation, Delaware's truck parking champion would continue to monitor truck parking conditions and issues, through the establishment of truck parking performance measures. ongoing communication with the trucking industry, or surveys of enforcement officials. A champion would also identify and implement opportunities for DelDOT to support and enable private sector involvement in truck parking projects. Additionally, DelDOT should consider adding a truck parking section to their website and feature the contact information for the truck parking champion, as well as provide links to the final truck parking report and other truck parking resources.

Truck Parking Champion Case Study: Christiana Truck Stop

In 2013, the WILMAPCO published the Port of Wilmington Truck Parking Study, which identified F & H Transport, at Terminal Avenue and I-495, as a potential location to develop a staging area, where trucks can wait for port shipper or receiver appointments.[16] Since then, the location has been developed into Christiana Truck Stop, a private truck stop that sells fuel and food, and allows overnight truck parking. As part of the truck stop's development, DelDOT, through its subdivision permitting process, modified its entrance standards to allow an additional truck-only entrance, enabling a private truck stop at the location. Future truck stop developers could reach out to a Delaware Truck Parking Champion to similarly explore opportunities that better enable truck parking development.



Source, Left: WILMAPCO, Port of Wilmington Truck Parking Study, July 2013; Source, Right: Google Earth Pro, Imagery 10/16/2020.

Integrate truck parking into capital project planning and development.

DelDOT should integrate truck parking into statewide planning and decision-making for long-term capital investments. This may include developing and tracking truck parking performance measures, adding truck parking criteria to project decision-making processes, and considering how excess land could be used for truck parking. DelDOT should also integrate truck parking into its statewide and corridor plans and studies (e.g., Long Range Transportation Plan, State Freight Plan) so that truck parking needs, issues, and opportunities are continually monitored and DelDOT can capitalize on opportunities to address truck parking needs. Similarly, MPOs and counties can integrate truck parking into their local plans and studies. This further ensures truck parking is considered along with other high priority transportation projects in the state.

Secure funding for truck parking projects.

Funding is a key challenge for advancing truck parking projects, in part because truck parking competes against many other project types. Therefore, DelDOT, MPOs, and counties should pursue funding or more explicitly consider truck parking in DelDOT decision making. Approaches include placing greater emphasis on freight- or truck parking-related criteria in the project prioritization process and efforts to include truck parking-related projects into the DelDOT Capital Transportation Program (CTP) and the WILMAPCO Unified Planning Work Program (UPWP).

Additionally, existing federal funding programs (see Chapter 5.3) could be used for truck parking projects. For example, National Highway Freight Program (NHFP) funding is earmarked for freight-specific projects, providing an opportunity for truck parking projects to better compete for funding. DelDOT could also leverage the data and results of the Delaware Truck Parking Study to apply for

[16] WILMAPCO, Port of Wilmington Truck Parking Study, July 2013, http://www.wilmapco.org/freight/Port_Final_July14.pdf

competitive federal grant programs, such as the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant, to fund truck parking projects in Delaware.

Partner with local land use agencies to update local land use regulations to support additional parking capacity on-site at freight generators.

DelDOT, in partnership with local MPOs and counties, should work with and provide guidance to local land use agencies to develop local requirements for freight generators to provide capacity for truck staging. DelDOT is positioned to assist MPOs and counties advance the incorporation of truck parking into land use planning and ultimately assist agencies throughout the state examine opportunities to proactively incorporate truck parking into future development. DelDOT, MPOs, and counties can also identify model ordinances to support updates to local land use codes and use the information in this study to educate local decision makers on the value of proactively requiring truck parking at new freight-generating facilities, especially in areas where truck parking demand already exceeds supply.

Case Study: Lehigh Valley Truck Parking Ordinances

In response to truck parking issues resulting from the explosion of warehouse development, townships in Lehigh Valley, Pennsylvania, have updated their zoning codes to include requirements for truck parking.

- The Township of Upper Macungie adopted an ordinance[17] in 2017, amending its zoning code to require the following: warehouse and distribution facilities must provide a minimum of one off-street loading space per loading dock[18]; and newly developed or significantly changed industrial use establishments (including for warehousing and distribution) must provide a 10 ft. x 80 ft. truck staging parking space for each ½ of a required loading space (Upper Macungie requires one loading space per loading dock). Additionally, developments are required to provide amenities within the warehouse. Examples called out in the zoning code include: a truck driver lounge, restroom facilities, and food and beverages.

  The zoning code specifies that the lounge should be in proportion to the number of loading docks, be able to accommodate five seats, and be similar facilities provided for on-site employees.[19]

- The Township of Lower Macungie updated its zoning code to require new or enlarged industrial use buildings to provide off-street truck loading space, based on gross floor area, with one loading space for the first 10,000 ft^2 and one additional loading area for every 40,000 ft^2.[20] Additionally, warehouse and distribution use buildings must have amenities for truck drivers that include a suitable lounge with restroom facilities and parking for the amenity, as specified.[21]

Coordinate truck parking information and efforts with neighboring states.

DelDOT should work with its neighboring states – Maryland, New Jersey, and Pennsylvania – to share truck parking information and coordinate truck parking efforts. For example, states can provide information to one another about changes to existing truck parking locations and availability, as well as new truck parking developments, near state borders and along multi-state corridors. Specifically, Delaware should coordinate with Maryland and Pennsylvania on truck parking along I-95, and with New Jersey on truck parking along I-295. Through ongoing coordination with neighboring states,

[17] Township of Upper Macungie, Lehigh County, Pennsylvania, Ordinance No. 2017-04, Adopted June 1, 2017, http://www.uppermac.org/wp-content/uploads/2014/11/2017-04.pdf
[18] Township of Upper Macungie, PA, Municipal Code, Zoning, § 27-605, https://ecode360.com/14517474
[19] Township of Upper Macungie, PA, Municipal Code, Zoning, § 27-601, https://ecode360.com/14517380
[20] Township of Lower Macungie, PA, Municipal Code, Zoning, § 27-2304, https://ecode360.com/34785172
[21] Township of Lower Macungie, PA, Municipal Code, Zoning, § 27-2406, https://ecode360.com/34786035

Delaware may also explore opportunities to collaborate on corridor-specific truck parking projects near state borders and apply for federal grants to implement corridor-wide truck parking projects.

Prepare outreach materials to share information about truck parking with local agencies and communities.

The Delaware Truck Parking Study provides DelDOT, MPOs, and counties with an opportunity to develop outreach materials and engage in outreach efforts to inform the localities and communities about the importance of truck parking to Delaware and its local economies. DelDOT can provide localities with data and information from the Study, as well as work with localities to gather feedback about local issues, needs, and opportunities related to truck parking. DelDOT should further work with counties, MPOs cities, economic development agencies, and other local agencies to share information about truck parking with local communities, in order to address local truck parking concerns. As part of this, DelDOT and local agencies can develop materials to present and distribute, such as through Freight Working Group and other local agency or community meetings. As DelDOT and localities share information about truck parking, there is further opportunity to collaborate around the development of locally-oriented solutions to address local truck parking needs and issues, particularly in urban areas.

Work with trucking industry to exchange information about truck parking issues and solutions.

DelDOT should continue to work with the trucking industry to foster an ongoing relationship that helps identify and effectively address truck parking issues. DelDOT could provide information to the trucking industry about existing truck parking locations with availability, as well as new truck parking capacity in the state. Meanwhile, the trucking industry can inform DelDOT's understanding of the changes to truck parking conditions and issues in the state, while also providing feedback on suggested or implemented solutions. DelDOT should use the Freight Working Group as a starting point for continued information exchange and should consider working with the Freight Working Group to create a truck parking task force.

4.2 Projects

Effective truck parking solutions must be tailored to address a specific truck parking issue at a given location. The truck parking Project Toolkit provides a range of available solutions for Delaware to target location-specific truck parking needs or issues.

There are two main categories of projects to address truck parking needs: capacity expansion projects, and information and technology projects.

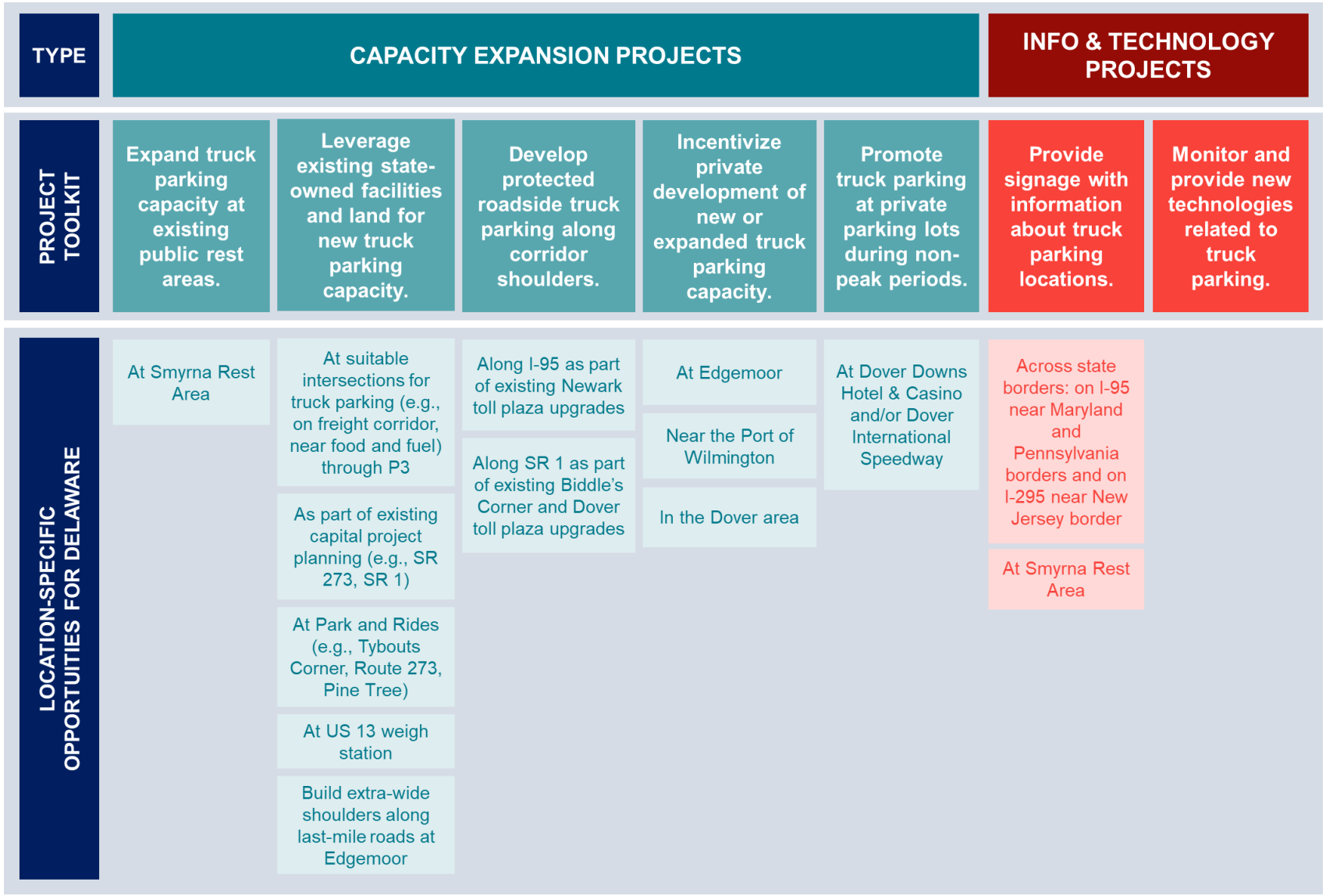
- **Capacity expansion projects** involve investments in projects to increase the number of truck parking spaces at a given location. DelDOT should explore capacity expansion projects where there is a demonstrated need for additional truck parking capacity. Additional capacity is required when the existing truck parking capacity cannot meet the current or expected future demand for truck parking. This need is signaled by the presence of undesignated truck parking near existing truck parking facilities that are typically full. This need may also be signaled by the presence of undesignated truck parking in locations with no nearby truck parking facilities. In many cases, truck parking development may be incorporated as part of other infrastructure or development projects. However, truck parking considerations must be brought up in the early stages of project planning and development.

- **Information and technology projects** involve investments in projects to increase access to information and technology, in order to advance truck parking.

  DelDOT should explore information and technology projects where there are opportunities to address truck parking issues by providing timely and accurate truck parking information. Specifically, information projects provide an opportunity to direct truck drivers to existing truck parking supply and help drivers make an informed decision about where to stop. An opportunity for an information and technology solution is signaled by the presence of undesignated truck parking near existing truck parking facilities that typically have available capacity. Meanwhile, technology projects may provide further opportunities to use new technologies to advance truck parking, such as by enhancing information access, reducing environmental impacts, and supporting the deployment of new vehicle technologies.

Figure 14 displays the Truck Parking Project Toolkit, which provides a range of available solutions to target location-specific truck parking needs or issues. The figure also identifies specific opportunities to apply these projects to truck parking issue areas in Delaware.

Figure 14: Delaware Truck Parking Projects – Toolkit and Location-specific Opportunities



There are multiple mechanisms through which these projects can be implemented, with varying levels of involvement from the public and private sectors. Additionally, understanding the unique conditions, challenges, and opportunities for truck parking in urban and rural areas provides important context for the application of truck parking projects.

4.2.1 Stakeholder Involvement

Truck parking impacts both public and private stakeholders. Effective truck parking solutions, including those included in the Project Toolkit, require various levels of partnership between the public and private sectors. When projects are led by state or local agencies, private sector support leads to more efficient and effective solutions. In some cases, the private sector may have a lead role in advancing truck parking solutions, with similar support from public agencies.

- **Public-Private Partnerships (P3s)** involve partnerships between the public and private sector that enable solutions that would otherwise be more difficult if advanced by a single party. Private sector partners may include, but are not limited to, private truck stops that provide overnight truck parking, fuel stations that don't have truck parking on-site, private maintenance companies, private landowners, and freight-generating business establishments. P3s must balance the public sector's interest in advancing truck parking with the private sector's interest in the partnership.

- **Delaware Public Agency Partnerships** involve partnerships between public agencies within Delaware, supporting consistent state practices (e.g., across state agencies) and enabling locally-oriented solutions (e.g., between state, county, MPO, and city level agencies).

- **Multi-State Public Agency Partnerships** involve partnerships between public agencies – often Departments of Transportation (DOTs) – across states that enable multi-state solutions, such as those along national freight corridors that cross state borders.

Partnerships within the public sector, as well as between the public and private sectors, are critical for the successful implementation of effective truck parking policies and projects. Chapter 4 and Chapter 5 will highlight the different partnership opportunities to advance truck parking projects in Delaware.

4.2.2 Location Factors

As truck parking issues differ by location, so do solutions. Urban and rural areas pose unique truck parking issues and needs, and the implementation of solutions is led by different agencies that face varied implementation challenges.

Urban

Truck parking issues in urban locations are often due to last-mile goods movement, with trucks staging in and near urban areas prior to shipper or receiver appointments. As seen in northern Delaware, existing truck parking locations in urban areas often have high utilization, with limited parking availability throughout the day and peak demand during overnight hours. Urban areas experience more concentrated volumes of undesignated truck parking, with spillover of undesignated truck parking into nearby residential roadways and communities. While additional truck parking capacity, especially for staging, is often needed in urban areas, urban-area solutions face challenges that include a high cost of land and opposition from nearby communities.

Local agencies, such as towns and cities, are often best suited to advance truck parking solutions in urban areas, with support from DelDOT. In collaboration with local economic development agencies, businesses, and communities, local agencies can identify the most critical truck parking needs, unique barriers affecting implementation, and ultimately identify feasible solutions to improve truck parking.

Rural

Truck parking issues in rural locations are often due to lack of truck parking facilities or spaces, with trucks parking on corridor shoulders and on/off ramps. As seen in southeast Delaware, there may be large areas and/or long corridor stretches in rural locations with no truck parking facilities. Rural areas experience less concentrated volumes of undesignated parking, but patterns of undesignated parking may be found on longer stretches of key freight corridors where truck parking is limited and/or unavailable. Further, undesignated truck parking on corridor shoulders and on/off ramps poses a higher safety risk, as large fixed objects that are susceptible to collision, in addition to the high-speed differential between trucks re-entering the traffic stream after parking and other roadway users. Meanwhile, land is more readily available, lower cost, and less likely to encounter land use conflicts in rural areas, with potential truck parking locations often separated from communities.

State DOTs are often best suited to advance truck parking solutions in rural areas. Given Delaware's small area, compared to other states, DelDOT and counties can advance truck parking solutions in the state's rural areas. DelDOT, in collaboration with New Castle, Kent, and Sussex Counties, can collaborate to understand regional truck parking needs, as well as identify state and county resources that may be used to advance truck parking throughout the state.

4.3 Location-Specific Project Opportunities for Delaware

This section identifies location-specific opportunities to advance truck parking in Delaware. Opportunities were informed by the truck parking inventory and undesignated truck parking analysis, in addition to the identification of issues and challenges for truck parking in the state. The following location-specific opportunities are organized by region. Each opportunity applies a project from the Truck Parking Project Toolkit (Figure 14), with some opportunities focused on policy and program practices identified under the Statewide Policies and Programs (Chapter 4.1).

Select Capacity Expansion Projects at New Truck Parking Locations

Conceptual drawings and high-level cost estimates were developed for three *new* truck parking location opportunities. These concepts are provided to inform DelDOT's future considerations and project advancement related to new truck parking location development in Delaware. These three capacity expansion opportunities – one in each region – were selected because they each leverage existing state-owned land and are proximate to key freight routes and amenities. Appendix D provides full-page conceptual drawings and detailed cost estimates for these opportunities.

This section provides a range of truck parking projects for DelDOT, MPO, and county consideration. Upon development of the statewide CTP, DelDOT can evaluate the range of project opportunities available to determine which projects may be appropriate for inclusion in the CTP. Similarly, as MPOs develop regional UPWPs, they may identify truck parking projects for inclusion.

4.3.1 Northern Delaware

The Northern Delaware Region is focused on the northern third of New Castle County, which includes I-95 running east-west across northern Delaware, as well as I-495 and I-295 corridors. This region also includes the Wilmington and New Castle urbanized areas. The Northern Delaware Region experiences high densities of undesignated truck parking, compared to the rest of the state. Clusters of undesignated truck parking occur at the following locations in the Northern Delaware Region:

- At the Biden Welcome Center on I-95, as well as along the Interstate corridor's shoulders and on/off ramps.

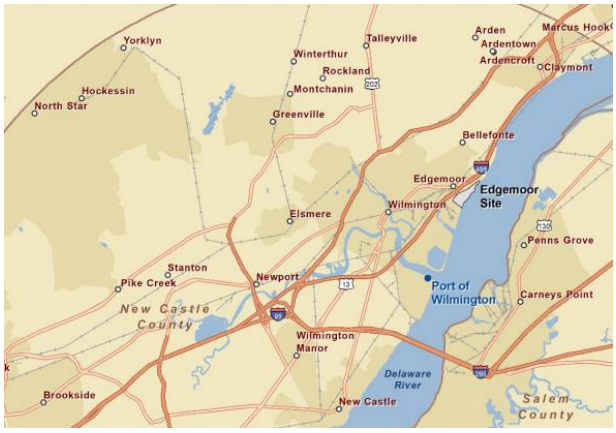
- Within the Wilmington Urban Area.
- At the Port of Wilmington and Edgemoor, where last-mile parking occurs.
- Along I-495 and I-295, where additional undesignated truck parking occurs along corridor shoulders and on/off ramps.

Based on the existing truck parking conditions in the Northern Delaware Region, DelDOT should explore the following opportunities to address truck parking issues in the region.

Integrate truck parking considerations into existing capital project planning and development at Edgemoor.

A Port Area Truck Parking Facility project in New Castle, with an estimated cost of $862,500, has been proposed in DelDOT's draft FY23-FY28 CTP (Figure 16).[22] The Port of Wilmington is currently in the planning stages to expand into Edgemoor, where a multi-use containerized cargo port will be developed (Figure 15). This expansion will bring more goods movement to the area, increasing truck volumes and increasing the demand for truck parking in the Edgemoor area. Edgemoor currently experiences undesignated parking (cluster D-3) as the fourth-highest undesignated truck parking cluster in the state. The planned port expansion can be expected to exacerbate this issue if additional truck parking capacity is not provided.

Figure 15: Edgemoor Site



Source: Delaware Department of Natural Resources and Environmental Control, Wilmington Harbor Edgemoor Expansion, Environmental Assessment Technical Document, 2020.

Figure 16: Port Area Truck Parking Facility

Source: DelDOT, Council of Transportation meeting, DelDOT CTP: Draft FY23 – FY28 Capital Transportation Program, August 18, 2021

In addition to developing a new truck parking facility to expand staging capacity at the port, DelDOT may consider the following future uses for excess land at the port area, especially if truck parking demand increases beyond existing and future truck parking supply in the area.

- **Incentivize private development of new staging areas on vacant land at Edgemoor.** DelDOT could explore opportunities for a P3 development of truck parking capacity, such as through financial assistance, infrastructure upgrades, or supporting local regulations.

- **Build extra-wide shoulders along last-mile roads at Edgemoor (Hay Rd. and Lighthouse Rd.), with the knowledge that trucks will stage here.** While this does not increase capacity for designated and protected truck parking, it serves as an option for trucks to stage when other

[22] DelDOT, Capital Transportation Program (CTP), https://deldot.gov/Publications/reports/CTP/index.shtml

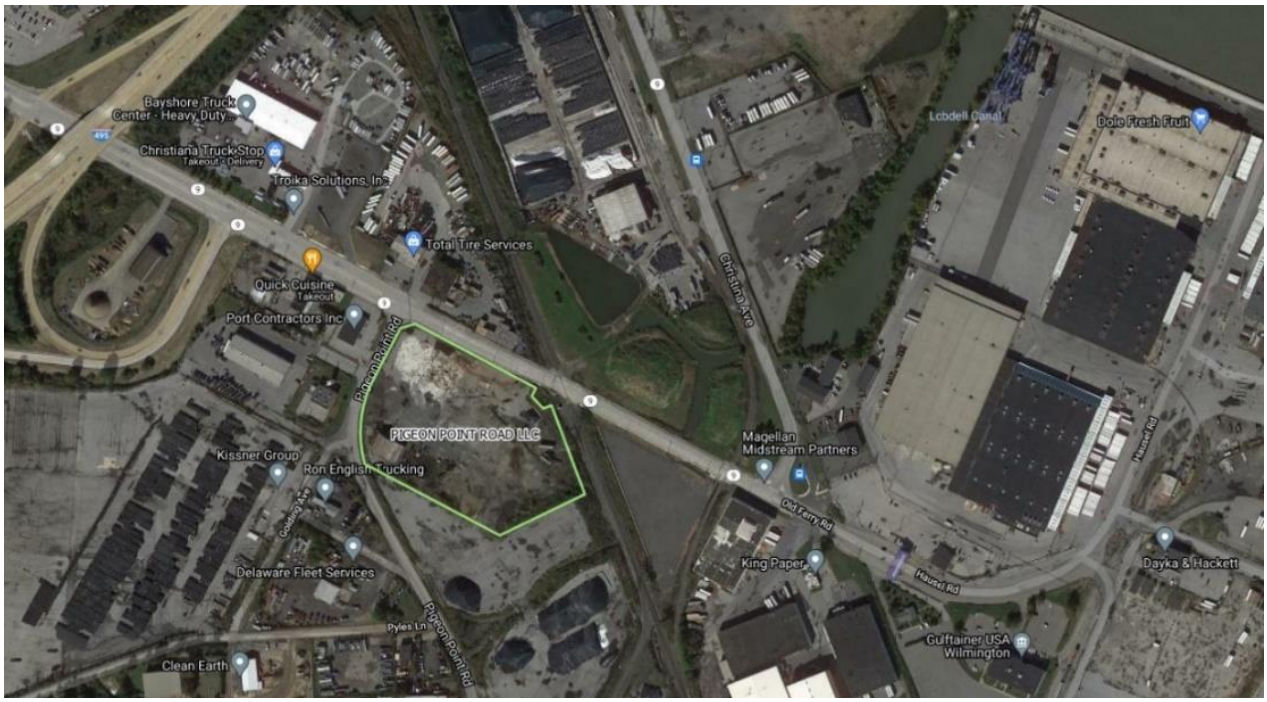
options are unavailable. Parking on sufficiently wide shoulders along last-mile roads provides a safer option than parking on high-traffic corridors, as traffic speeds are typically lower on last-mile roads. Additionally, allowing for parking on last-mile road shoulders gives drivers the option to stage near their origin/destination, rather than in nearby residential areas.

Incentivize private development of new or expanded truck parking capacity near the Port of Wilmington or other freight-generating facilities.

The Port of Wilmington is a large-freight generator in Northern Delaware. Currently, the Port of Wilmington experiences undesignated truck parking on nearby last-mile roads (clusters D-6 and D-22). While the nearby Christiana Truck Stop provides truck parking, utilization is typically high, with limited parking availability throughout the day and overnight. Undesignated truck parking on the road in front of the Christiana Truck Stop further demonstrates instances of full capacity at the location. Meanwhile, freight activities at the Port of Wilmington can be expected to increase in line with national freight and e-commerce trends, coupled with the Port's planned expansion into Edgemoor. Given the expected increase in truck activity, demand for truck parking near the Port can be expected to increase as well. Without additional capacity, existing undesignated truck parking issues at the Port of Wilmington will worsen.

DelDOT may explore opportunities to partner with the private sector to develop new truck parking capacity near the Port, where land is available for use. For instance, the Port of Wilmington Truck Parking Study identified the Pigeon Point LLC-owned lot as a potential staging area (Figure 17). This lot is currently vacant. DelDOT could work with Pigeon Point LLC to explore options for a P3 to develop truck parking capacity at this location, such as through financial assistance, infrastructure upgrades, or enabling local regulations. As this opportunity is proximate to the expanding Port in Edgemoor, DelDOT may also consider this location for the Port Area Truck Parking Facility included in DelDOT's draft FY23-FY28 CTP.

Figure 17: Potential Staging Location Near Port of Wilmington



Source: Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021; New Castle County Parcel Data.

In addition to exploring P3 opportunities for new truck parking capacity, DelDOT and WILMAPCO should also partner with local governments with land use authority in northern Delaware, such as New Castle County, the City of Wilmington, and the City of Newark, to update local land use regulations to support additional truck parking capacity on-site at newly developed or expanded freight-generating facilities.

Develop protected roadside truck parking along I-95. Integrate this project into existing toll plaza upgrades at Newark.

As part of its existing planned projects, DelDOT will upgrade Delaware's toll plazas to be fully automated. This includes upgrades at the Newark Toll Plaza on I-95, where undesignated truck parking occurs at times (cluster D-17) due to wide shoulders at the toll plaza and high freight volumes along the I-95 corridor. Further, the Newark Toll Plaza is located about four miles west of the Biden Welcome Center, which has low space availability, especially during overnight hours. As the Newark Toll Plaza is upgraded and the toll barriers are removed, DelDOT has an opportunity to utilize existing pavement space at the toll plaza and/or expand pavement out onto the right-of-way to provide additional truck parking capacity. Development of truck parking at this location would require protected on/off ramps to allow for safe truck entry and exit, as well as basic amenities, such as restrooms and lighting, for drivers. If new truck parking were provided at this location, DelDOT should also provide signage on I-95 to inform drivers of new truck parking capacity at these locations, potentially alleviating demand at the Biden Welcome Center.

Leverage existing state-owned facilities and land for new truck parking capacity at the intersection of US 13 and Bear Rd./Hamburg Rd. in New Castle.

At locations where undesignated truck parking currently occurs and is likely to worsen due to expected increases in freight demand and truck traffic, DelDOT could explore opportunities to leverage existing state-owned facilities and land for new truck parking development. One location with such opportunities is at the intersection of US 13 and Bear Rd./Hamburg Rd. in New Castle, near Bear. Although undesignated truck parking is currently low at this specific location (cluster D-15), compared to other clusters in Delaware, this location is proximate to other areas of high undesignated parking. The intersection is less than ten miles south along US-13 from the Wilmington urban area, Port of Wilmington, and I-95, where undesignated truck parking is concentrated in the state. Undesignated truck parking also takes place along US 13 and SR 1 south of this intersection. There are two state-owned parcels and available excess right-of-way at this intersection that DelDOT may consider for new truck parking (Figure 18). The first is detailed below, and the second is detailed on the following page.

Figure 18: State-owned Facilities and Land at the Intersection of US 13 and Bear Rd./Hamburg Rd.

Source: Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021; New Castle County Parcel Data.

- **Leverage existing state-owned Tybouts Corner Park and Ride for new overnight truck parking capacity.** An existing Park and Ride is located on Hamburg Road, just east of US 13. DelDOT, in partnership with the Delaware Transit Corporation (DTC), may consider allowing truck parking during off-hours, overnight at this park and ride location. The addition of signage to clearly indicate hours of allowed truck parking, as well as infrastructure upgrades to accommodate the turning radius and weight of trucks, are required for the upgrade of a Park and Ride to a truck parking location. Implementation of this solution would also require DelDOT to coordinate with other state agencies, such as the Delaware State Police, to communicate that overnight truck parking is allowed at the Park and Ride. Further, DelDOT should undertake efforts to share information with drivers about new overnight parking capacity, through outreach with the trucking industry and installation of signage on nearby corridors with undesignated truck parking.

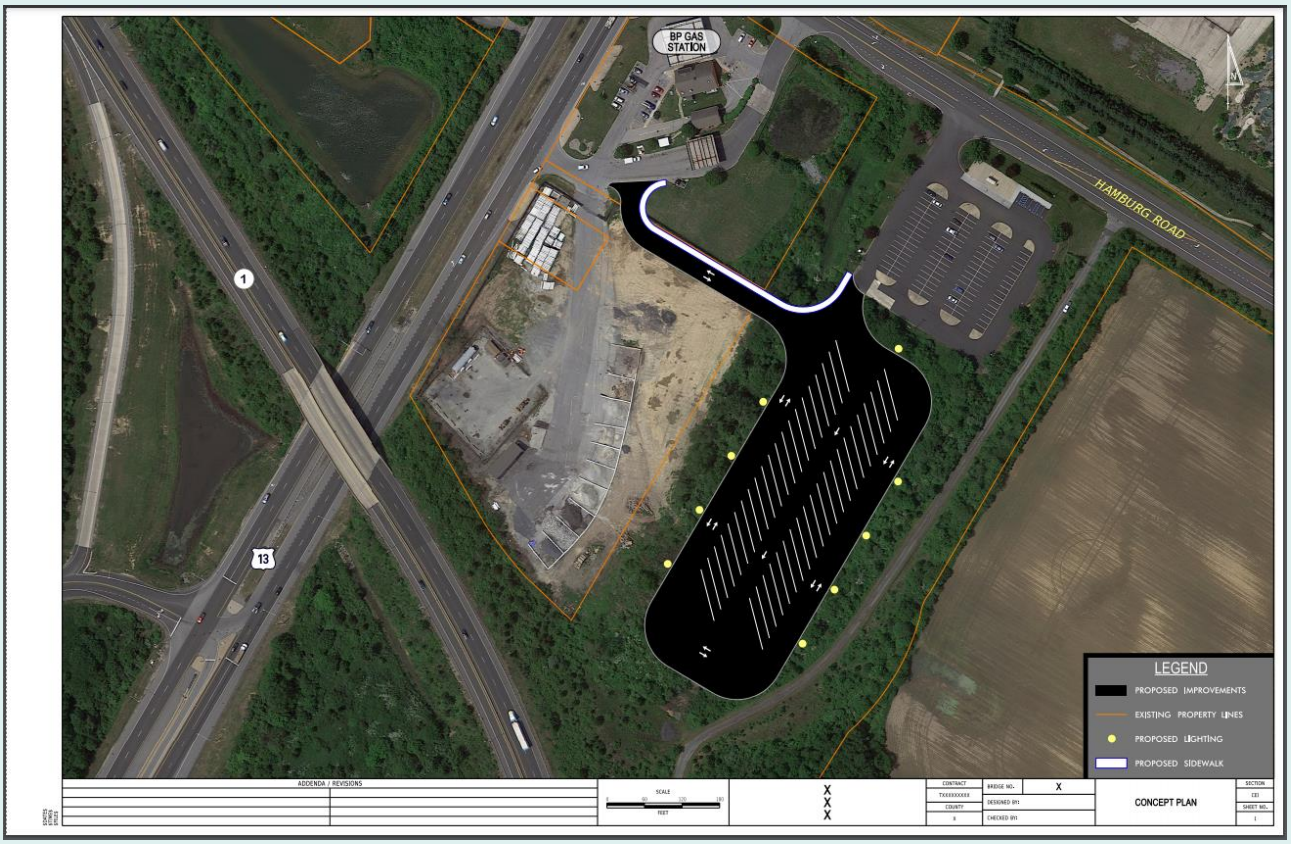
  One challenge for this opportunity is the combined use of the parking lot for trucks during overnight hours and for passenger vehicles during daytime hours, with the potential for trucks to remain at the facility past allowed hours during the Park and Ride's open daytime hours. This project may also face opposition from nearby communities. Given these risks and challenges, DelDOT should first test this opportunity through a pilot program before widespread implementation.

Leverage existing state-owned land to develop new truck parking capacity, at the intersection of US 13 and Bear Rd./Hamburg Rd. in New Castle, through a public-private partnership.

The State of Delaware owns land on US 13, with two state-owned parcels in addition to adjacent right-of way. This location is on key freight corridors, with visibility from US 13 and SR 1. It is also located near two existing fuel stations. DelDOT could explore developing this land for truck parking through a P3. For instance, DelDOT could partner with the adjacent fuel station, with DelDOT upgrading the existing state-owned land for truck parking, and the adjacent fuel station providing 24-hour restroom access and trash pickup for the expanded capacity lot. This provides benefits to both parties, with the private fuel station saving on costs for additional parking, which provides them with a larger fuel and food customer base, and DelDOT shifting amenity provision and maintenance services to the private sector.

Figure 19 displays a concept graphic for this opportunity. This facility would provide an additional 40 truck parking spaces, and is in the public right of way. Anticipated conceptual costs for this location are $1,958,924.44.

Figure 19: Concept Graphic for Truck Parking Capacity Expansion Opportunity at Intersection of US 13 and Bear Rd./Hamburg Rd.



Source: Century Engineering. Concept plan developed using Pennsylvania standard (PennDOT publication 13M), as Delaware does not have a truck parking manual.

Leverage existing state-owned Route 273 Park and Ride for new overnight truck parking capacity in Christiana.

Similar to the opportunity at the Tybouts Corner Park and Ride, DelDOT could, in partnership with DTC, allow for truck parking during off-hours, overnight at the Route 273 Park and Ride in Christiana. Given the risks and challenges associated with providing truck parking at state-owned Park and Rides, DelDOT should first test this opportunity through a pilot program before widespread implementation. The Christiana Park and Ride serves as a good pilot location, given its proximity to two of the state's top undesignated truck parking clusters – at the Biden Welcome Center on I-95 (cluster D-1) and for last-mile parking where US 13 and US 40 meet by New Castle (cluster D-7).

Provide signage with information about truck parking locations across state borders. Coordinate these efforts with neighboring states, particularly along the multi-state corridors of I-95 and I-295.

DelDOT should work with its neighboring states to provide signage about truck parking locations across state borders. Specifically, Delaware should coordinate with Maryland and Pennsylvania to identify opportunities to use signage to direct truck drivers on I-95 to available truck parking spaces across state borders, and with New Jersey for signage on I-295. Such a multi-state partnership for truck parking information would provide truck parking visibility along the entire corridor between states.

For example, the Maryland Truck Parking Study identified overnight available truck parking at the Perryville Truck Weight and Inspection stations (TWIS), which are located on I-95 about 16 miles east of the Delaware border (Figure 20). At the time of the Maryland Truck Parking Study, an average of 13 utilized spaces out of 59 total spaces at the northbound location, and an average of 3 utilized spaces out of 52 total spaces at the southbound location.[23] DelDOT should work with the Maryland DOT to provide static signage or develop new dynamic signage on I-95 southbound in Delaware, near the Maryland border, to direct truck drivers to available truck parking at the Perryville TWIS.

Figure 20: Perryville Weigh Station in Maryland

Source: Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021

If location-specific signage along multi-state corridors proves effective, DelDOT and neighboring states DOTs may also explore opportunities to develop a regional and/or corridor-wide truck parking information management system that provides truck parking and information availability across state borders along key freight corridors, such as I-95.

[23] Maryland DOT, Maryland Statewide Truck Parking Study 2020, https://www.mdot.maryland.gov/OPCP/MDOTTruckParkingStudyWeb.pdf

4.3.2 North-Central Delaware

The North-Central Delaware Region encompasses the southern two-thirds of New Castle County and most of Kent County through Dover. This region is focused on undesignated truck parking occurring on the state's north-south corridors of US 13 and SR 1. Clusters of undesignated truck parking occur at the following locations in the North-Central Delaware Region:

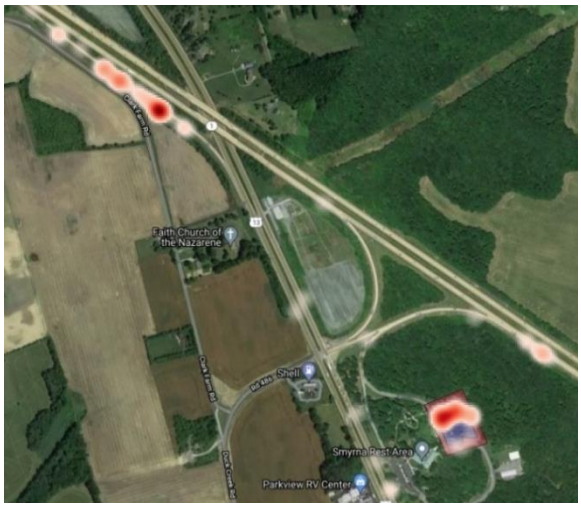
- On SR 1, along corridor and on/off ramp shoulders at locations from Bear down through Dover.
- On US 13, last-mile undesignated truck parking occurs near the New Castle and Dover areas.
- At the Smyrna Rest Area, undesignated truck parking occurs in and around the rest area, particularly along the SR 1 off-ramp to US 13 that leads to the rest area itself.

Based on the existing truck parking conditions in the North-Central Delaware Region, DelDOT should explore the following opportunities to address truck parking issues in the region.

Expand truck parking capacity and provide signage with information about truck parking at Smyrna Rest Area.

The Smyrna Rest Area is one of two publicly owned truck parking locations in Delaware and providing 24 truck parking spaces. Within the North-Central Region, the highest concentration of undesignated truck parking occurs at and near the Smyrna Rest area (cluster D-5). The Smyrna Rest Area has limited truck parking availability during peak overnight hours. Although more parking is available during the day, truck parking is typically in lower demand during daytime hours compared to overnight hours. In addition to trucks parked in undesignated areas at the rest area itself, trucks park along the SR 1 off-ramp to US 13 that leads to the rest area, without seeing if there is any truck parking availability at the rest area (Figure 21).

Figure 21: Undesignated Truck Parking at Smyrna Rest Area



Source: CPCS Analysis of INRIX data; Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021, with CPCS polygons overlaid based on analysis of Trucker Path Data

Freight activity in Delaware is expected to increase, especially in New Castle and Kent Counties, with goods moving along the state's key north-south corridors of US 13 and SR 1. Without additional truck parking capacity to handle the growing demand for truck parking, undesignated truck parking issues at the Smyrna Rest Area and along the connecting US 13 and SR 1 corridors can be expected to get worse.

Given the existing and projected conditions, DelDOT should explore the following opportunities to balance truck parking supply with demand at the Smyrna Rest Area. For both opportunities, DelDOT should also work with the trucking industry to provide information to drivers about existing and/or new truck parking availability at the rest area.

- **Provide signage on SR-1 with information about the Smyrna Rest Area.** Undesignated truck parking along the SR 1 off-ramp shows that truck drivers park in this undesignated location without entering the Smyrna Rest Area. Further, some of these undesignated stops occur during late morning and daytime hours, times during which truck parking is typically available at the rest area. In order to reduce undesignated parking while also directing drivers to available spaces, DelDOT

can install signage ahead of or at the SR-1 off-ramp that reads “No Truck Parking on Shoulders” and “Truck Parking 1-Mile Ahead At Smyrna Rest Area.” In the future, DelDOT may also consider dynamic signage that provides real-time information about the number of spaces available at the Smyrna Rest Area. If drivers know a truck parking space is available, they are more likely to continue on to the rest area, instead of parking on the off-ramp.

- **Expand truck parking capacity at the Smyrna Rest Area.** While providing signage to direct trucks parked along the SR 1 off-ramp toward the rest area is a priority at the Smyrna Rest Area, DelDOT may also consider monitoring truck parking needs and expanding truck parking capacity at this location in the future. As traffic activity increases in the North-Central region, so will the demand for truck parking. Available truck parking is currently limited at the Smyrna Rest Area during peak overnight hours, and this will likely increase as trucks parked on the SR 1 off-ramp are directed to the rest area. If DelDOT continues to observe undesignated truck parking at this location, DelDOT can consider increasing truck parking capacity at Smyrna Rest Area using the surrounding land that is owned by the DelDOT Central District. Undesignated truck parking along the SR 1 on-ramp coming from the Smyrna Rest Area is one indicator of instances where the rest area is at full capacity.

Develop protected roadside truck parking along SR 1. Integrate this project into existing toll plaza upgrades at Dover and Biddle’s Corner.

As part of its planned projects, DelDOT will upgrade Delaware’s toll plazas to be fully automated. This includes upgrades at the Biddle’s Corner Toll Plaza (cluster D-8) and Dover Toll Plaza (cluster D-11) on SR 1, where undesignated truck parking occurs at times due to wide shoulders at the toll plazas and relatively high truck volumes along SR 1. As these toll plazas are upgraded and toll barriers are removed, DelDOT has an opportunity to utilize existing pavement space at the toll plaza and/or expand pavement out onto the right-of-way or DelDOT-owned land to provide additional truck parking capacity. Development of truck parking at these locations would require protected on/off ramps to allow for trucks to safely enter and exit the traffic stream. If new truck parking were provided at these locations, DelDOT should also provide signage on SR 1 to inform drivers of new truck parking capacity at these locations, potentially reducing occurrences of undesignated truck parking along SR 1 in Delaware.

Integrate truck parking considerations into existing capital project planning and development along SR 1.

DelDOT is currently investing in various infrastructure upgrades to reduce congestion and travel times, and improve connectivity and safety along SR 1. Undesignated truck parking occurs along several stretches of SR 1 in the North-Central Region (including clusters D-8, D-32, D-9, D-5, D-11, D-4, and D-12). As goods movement in Delaware increases, there will be additional demand for truck parking along the state’s freight corridors – including SR 1. In order to keep pace with growing truck parking demand, DelDOT should pursue opportunities to integrate truck parking improvements into existing project planning and investment, such as by leveraging existing right-of-way to develop truck parking at or around planned interchanges or providing extra-wide shoulders for staging on last-mile local roads. DelDOT may consider integrating truck parking considerations into planned projects on SR 1:

- **New Castle County:** Planned project to widen the corridor and make interchange improvements from SR 273 to the Roth Bridge in New Castle County.[24]

[24] DelDOT, Projects Portal, Project: SR 1 Widening, SR273 to the Roth Bridge, https://deldot.gov/projects/index.shtml?dc=details&projectNumber=T200511001.

- **Dover:** Dover/Kent Count MPO is currently studying opportunities to develop a frontage road that serves as a freight corridor to connect existing and planned industrial parks along SR-1.[25]

Leverage existing state-owned weigh station for new overnight truck parking capacity on US 13 NB.

DelDOT and Delaware State Police (DSP) could allow overnight truck parking when the weigh station on US-13 northbound (Figure 22) is closed. This weigh station is located about four miles north of Smyrna Rest Area on US-13, which often sees high utilization during peak overnight hours (cluster D-5). Allowing for overnight truck parking at the weigh station may alleviate truck parking demand that occurs at Smyrna Rest Area when capacity is full.

Delaware has previously explored this opportunity. However, it was not pursued due to concerns of trucks parking at the facility during the Weigh Station's daytime hours, when inspections take place. Further, weigh station facilities, including restrooms, are closed overnight.

Figure 22: Delaware State Police US-13 NB Weigh Station

Source: Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021

DelDOT and DSP could revisit this opportunity with strategies to address existing concerns. Strategies include installing signage to clearly indicate when truck parking is allowed on site. DelDOT could also provide basic amenities, such as bathroom facilities and lighting, for truck drivers parked at the weigh station overnight. Facility operation could be provided through a hired private company, or Delaware could provide temporary toilets at the weigh station. Given the risks and challenges, if DelDOT and DSP consider this opportunity for implementation, it should first be tested through a short-term pilot program that would inform more substantial investment in amenities.

Weekend Truck Parking at Pine Tree Corner Park and Ride

During the course of the Delaware Truck Parking Study, Delaware agencies and stakeholders identified truck parking occurring at the Pine Tree Corner Park and Ride off US-13 in Townsend. Stakeholders shared observations of trucks parked at this location during weekend hours, suggesting trucks are being stored while not in operation, in contrast to using parking for HOS compliance or staging. While this type of truck parking differs from truck parking for HOS requirements and staging analyzed as part of this Study, DelDOT and local agencies may explore opportunities at this Park and Ride to support local driver needs. For instance, DelDOT can allow for truck parking during lot off-hours – both overnight and on weekends – at the Pine Tree Corner Park and Ride. The addition of signage to clearly indicate hours for allowed truck parking and striping to mark truck spaces, as well as infrastructure upgrades to accommodate truck weights, may be required to upgrade this Park and Ride to accommodate truck parking.

[25] Dover/Kent County MPO, Projects, Studies, https://doverkentmpo.delaware.gov/projects/

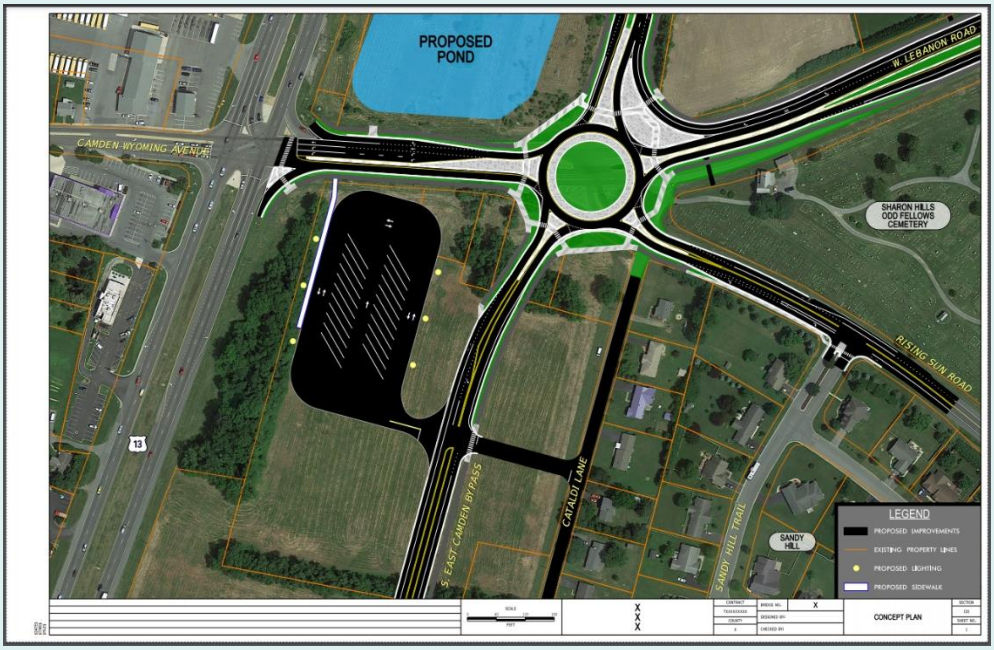
Leverage existing state-owned land for new truck parking capacity at the intersection of US 13 and West Lebanon Rd./SR 10 in Camden.

DelDOT is currently in the design and construction phase of the East Camden Bypass project – an investment to provide a new connection from US 13 to Lebanon Road (SR 10) and Rising Sun Road.[26] The preferred alternative for the bypass runs right by state-owned land, at the intersection of US 13 and West Lebanon Road/SR 10, where additional truck parking capacity could be developed. This intersection is located south of Dover, between two undesignated truck parking clusters (cluster D-25 to the north and cluster D-31 to the south). This location is suitable for truck parking given its location on a key freight corridor and its proximity to several restaurants. DelDOT may consider this opportunity to develop additional truck parking capacity to meet the growing truck parking demand that will come with increased freight development in Dover nearby, as well as increasing truck volumes expected statewide.

While this project cannot be included as part of the East Camden Bypass project, the new bypass will provide several improvements to the location as a candidate for a new truck parking facility. The bypass will create separation between the conceptual truck parking facility and the nearby residential community, potentially addressing or mitigating local public opposition to a truck parking location near a residential area. Additionally, as part of improvements currently under construction for the East Camden Bypass, this intersection will have a full crosswalk crossing improvement on each leg. This will enable truck drivers to access restaurants and convenience stores across US 13.

Figure 23 displays a concept graphic for this opportunity. This facility would provide up to 20 additional truck parking spaces. A 10-foot-wide multi-use path from the truck parking lot will direct drivers to the intersection at US 13 and Camden Wyoming Avenue. This location is in the public right of way. Anticipated conceptual costs for this opportunity are $1,382,337.35.

Figure 23: Concept Graphic for Truck Parking Capacity Expansion Opportunity at Intersection of US 13 and West Lebanon Rd./SR 10 in Camden



Source: Century Engineering. Concept plan developed using Pennsylvania standard (PennDOT publication 13M), as Delaware does not have a truck parking manual.

Incentivize and/or require private development of new truck parking capacity at new freight-generating facilities in Dover.

At locations where undesignated truck parking currently occurs and is likely to worsen due to the expected increase in freight demand and truck traffic, DelDOT could explore opportunities to advance truck parking. In the Dover area, there are several locations along SR 1 that are either currently planned for industrial development, or being considered for industrial or logistics use. The Dover area currently experiences some undesignated truck parking, with several small clusters (clusters D-11, D-4, D-25, D-31, and D-12) scattered around the city. The development of new industrial and logistics facilities indicates truck parking demand will also increase in the area. Without additional capacity, truck parking issues in the Dover area will grow as volumes of truck traffic increase. In addition to planning for the increase of truck volumes by integrating truck parking considerations into capital planning and investments, DelDOT may consider the following opportunities for private truck parking development.

- **Incentivize private development:** In partnership with localities, DelDOT could work with industrial developers to incentivize the inclusion of truck parking capacity at expanding or new facilities. This includes opportunities for a P3, where DelDOT incentivizes private truck parking development through financial assistance, infrastructure upgrades, or enabling local regulations.

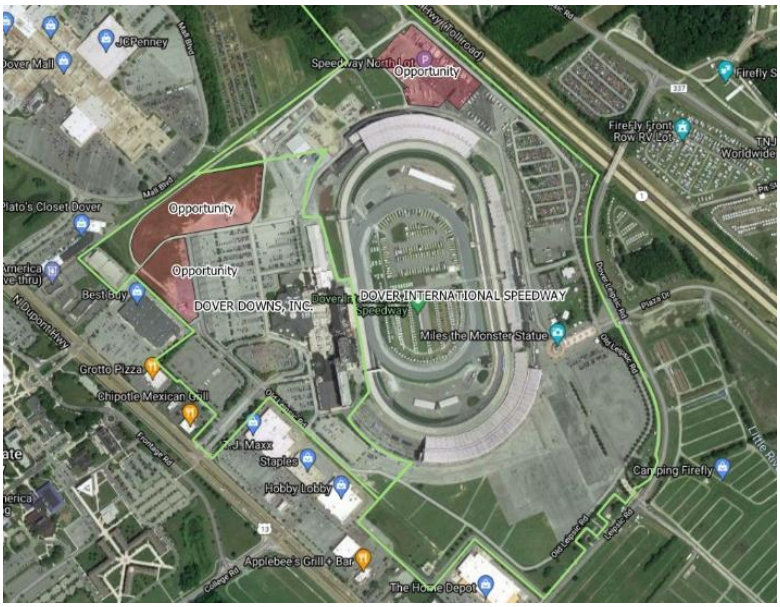
- **Partner with local agencies to update local land use regulations:** DelDOT should provide guidance for local land use agencies to update local land use regulations to require a minimum truck parking capacity on-site at newly developed or expanded freight-generating facilities. DelDOT and localities have a window of opportunity to implement these regulations prior to the development of new freight-generating facilities.

Promote truck parking at Dover Downs and/or Dover International Speedway during non-peak periods.

DelDOT, MPOs, and counties should explore opportunities to partner with private businesses to promote truck parking during the business's off-peak periods. Specifically, Dover Downs Hotel and Casino and Dover Downs International Speedway are potential partners for this opportunity. There are locations within both properties that could provide overnight truck parking capacity (Figure 24).

At the Dover Downs Hotel and Casino, providing truck parking could attract drivers to purchase food and services provided by the hotel and casino. For this location, DelDOT can work with MPOs and counties to incentivize additional truck parking capacity through infrastructure upgrades or support for zoning changes, as needed, for truck parking development.

Figure 24: Opportunities at Dover Downs and Dover International Speedway



Source: Google Maps, Imagery © 2021 Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data © 2021; Kent County Parcel Data; with CPCS polygons overlaid.

Meanwhile, the Dover International Speedway location would likely be a paid lot, with truck drivers paying for a reserved space in the lot. For this location, DelDOT can provide data and context about the need for truck parking in the region, including information from this Study, to support zoning changes and address local public opposition, as needed, for truck parking development.

4.3.3 Southern Delaware

The Southern Delaware region includes some of Kent County and all of Sussex County. Compared to the rest of the state, this region experiences less undesignated truck parking. However, there is limited truck parking capacity in this region, with four smaller truck parking locations offering 5 to 28 spaces located along US 13. Meanwhile, there are no truck parking locations on SR 1 south of Dover or US 113 south of Milford. Clusters of undesignated truck parking occur at the following locations in the Southern Delaware Region:

- On US 113, along corridor shoulders, as well as on last-mile roads near freight-generating facilities that connect to the Interstate.
- On US 13 south of Harrington; however, undesignated truck stop counts are relatively low.

Based on the existing truck parking conditions in the Southern Delaware Region, DelDOT should explore the following opportunities to address truck parking issues in the region.

Integrate truck parking considerations into existing capital project planning and development along SR 1 and US 113.

DelDOT is currently investing in various infrastructure upgrades to reduce congestion and travel times, and improve connectivity and safety along SR 1 and US 113. While undesignated truck parking is limited in the Southern Region compared to other regions in Delaware, there are a few clusters near Milford (clusters D-13 and D-26) and along US 113 (clusters D-19, D-18, and D-10). Demand for truck parking will further grow with increasing goods movement through the state, including along key freight corridors of SR 1 and US 113. To meet growing truck parking demand, DelDOT should strategically pursue opportunities to integrate truck parking improvements into existing project planning and investment in Sussex County. This may include leveraging existing right-of-way to develop truck parking at or around planned interchanges, or providing extra-wide shoulders for staging on last-mile local roads.

Continue to monitor existing truck parking conditions, identify potential truck parking issues, and consider opportunities to advance truck parking.

Given the limited truck parking issues in the Southern Region, compared to the rest of the state, the majority of existing truck parking opportunities in Delaware are focused on the Northern and Central regions of the state. However, DelDOT should continue to monitor truck parking conditions in Southern Delaware, so that if new issues arise or undesignated truck parking increases, DelDOT is prepared to use the Project Toolkit to identify location-specific opportunities and advance truck parking in the region.

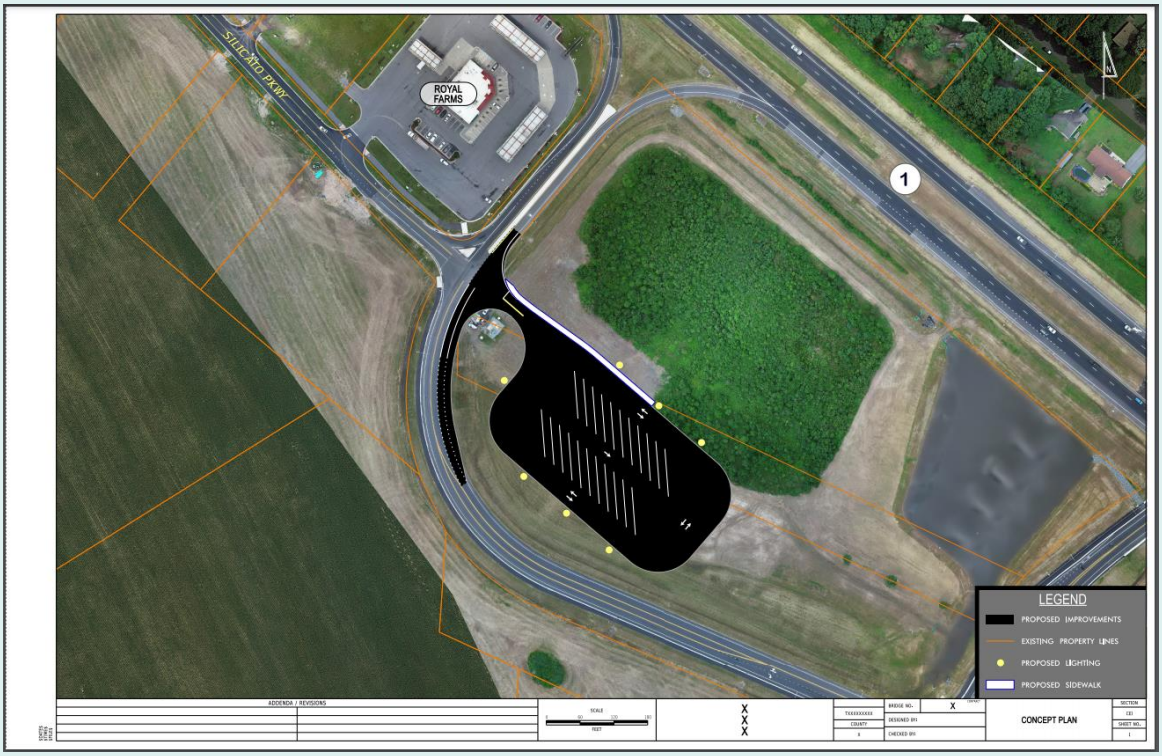
Leverage existing state-owned land to develop new truck parking capacity, at the intersection of SR 1/Bay Rd./Milford Bypass and NE Front St in Milford, through a public-private partnership.

This location provides an opportunity for DelDOT to leverage existing state-owned land for new truck parking development. This location is suitable for truck parking given its location on a key freight corridor just a mile south of an undesignated truck parking cluster (cluster D-15). The location is easily accessible by trucks traveling both northbound and southbound on SR 1. Additionally, it is adjacent to an existing fuel station. Currently, there are no truck parking locations in southeast Delaware. While undesignated truck parking levels are low in the Southern Region compared to the rest of the state, DelDOT may explore this opportunity to provide truck parking capacity given its suitable location and the region's limited truck parking.

DelDOT could explore developing this land through a P3. For instance, DelDOT could partner with the adjacent fuel station, with DelDOT upgrading the existing state-owned land for truck parking, and the adjacent fuel station providing 24-hour restroom access and trash pickup for the expanded capacity lot. This benefits both parties. The private fuel station saves on costs for additional parking, which provides them with a larger fuel and food customer base. Meanwhile, DelDOT shifts amenity provision and maintenance services to the private sector.

Figure 25 displays a concept graphic for this opportunity. This facility would provide 20 additional truck parking spaces. Sidewalk and pedestrian crossings would be an additional improvement to increase the safety of drivers crossing the road for facilities. This location is in the public right of way. Anticipated conceptual costs for this opportunity are $1,450,142.55.

Figure 25: Concept Graphic for Truck Parking Capacity Expansion Opportunity at Intersection of SR 1/Bay Rd./Milford Bypass and NE Front St.



Source: Century Engineering. Concept plan developed using Pennsylvania standard (PennDOT publication 13M), as Delaware does not have a truck parking manual.

4.4 Conclusion

While there is no silver bullet solution for truck parking, there are a range of available solutions, including statewide policies and programs, as well as location-specific projects, to advance truck parking in Delaware. While the policy and program opportunities can be implemented statewide to promote the inclusion of truck parking into agency governance, planning, and investment decisions, project solutions must be tailored with specific issues and local context in mind. The following section further details next steps for DelDOT to implement these identified solutions.

5 Implementation Plan

This Chapter provides recommended next steps to address truck parking issues and challenges in Delaware. Among the range of opportunities provided, this Study identifies four short-term and low-cost recommendations for DelDOT that target institutional challenges for truck parking to enable DelDOT and local agencies to better advance other identified policies, programs, and projects in the future. This Chapter also summarizes the range of statewide policy and program opportunities, as well as location-specific opportunities, that have been presented for DelDOT, MPO, and county consideration. The four recommendations and the opportunities together provide near-term actions and serve as a resource for addressing future truck parking needs in Delaware. Factors for consideration, including stakeholders, location, and challenges, are also provided for all opportunities to support DelDOT and local agencies during the implementation process.

5.1 Short-Term Recommendations

The Delaware Truck Parking Study identifies a variety of policies and programs to address truck parking issues in Delaware. Among these, there are a set of recommended low-cost next steps that DelDOT should advance in the short term. These recommendations target institutional challenges for truck parking – such as the lack of ownership over truck parking issues, limited funding, and negative public perceptions. By implementing these policy and program recommendations, DelDOT will enable itself to better pursue and advance other identified policies, programs, and projects to advance truck parking in the future. Further, these short-term recommendations provide a unique opportunity for Delaware to utilize the information, data, and outreach developed during the Delaware Truck Parking Study, in order to highlight the importance of addressing truck parking needs in the state.

Recommendation: Identify "champion" for truck parking within DelDOT.

A truck parking champion would serve as the point of contact for truck parking topics, provide information about truck parking issues, promote and seek funding for truck parking opportunities identified in this Study, and coordinate between public and private sector stakeholders. This would establish a foundation that will enable DelDOT to more easily implement other truck parking policies, programs, and projects to address issues and overcome challenges for advancing truck parking.

Project Monitoring Committee

Inspired by other WILMAPCO plans, the formation of a committee – led by the DelDOT Truck Parking Champion – is recommended for this Study in an effort to conduct periodic monitoring of key metrics and trends such as truck volumes, violations, parking clusters, infrastructure, zoning, and regional factors impacting the area. The benefit of a project monitoring and performance measuring committee is that it provides regular communications between decision-makers, community stakeholders, and the traveling public on progress in plan implementation. The committee provides key information to help the statewide agencies understand the consequences and benefits of investment decisions across transportation assets or modes. The committee can also help prioritize projects allowing for implementation to be revised as conditions evolve. Through ongoing regional interagency coordination, small transportation problems are addressed as they arise and the community, agencies, and project partners are in communication to assist in moving the goals of the study forward into the future.

Recommendation: Secure funding for projects to address truck parking issues in Delaware's Northern Region.

Funding is a key challenge for advancing truck parking projects, in part because truck parking competes against many other project types. DelDOT should utilize the data and information provided in this Study to support requests or applications for federal grants (see Appendix E) and integrate truck parking into state project and funding decisions (e.g., CTP, WILMAPCO UPWP, NHFP dollars), in order to secure the funding necessary to advance identified truck parking projects. DelDOT should first seek funding for projects identified in the Northern Region of the state, given existing truck parking issues are most concentrated and pressing in that region.

Recommendation: Prepare outreach materials to share information about truck parking with local agencies and communities.

A negative public perception of truck parking is another challenge for advancing truck parking solutions in many locations. Additionally, cities throughout the U.S. have enacted bans on truck parking within cities in response to undesignated truck parking. These bans address the symptom of undesignated truck parking but do not address the mismatch between truck parking supply and demand. Therefore, DelDOT, in partnership with MPOs and counties, should prepare outreach materials and engage in outreach efforts upon the publication of the Study to provide more information about the importance of truck parking to everyday supply chains, as well as to state and local economies. The Study provides an opportunity for DelDOT and local agencies to build off the outreach conducted with the public and private sector, to continue to highlight the importance of truck parking and the growing imbalance between truck parking supply and demand. Outreach activities may include, but are not limited to, online and printed materials, as well as presentations to and participation in local agency, industry group, and other local community meetings.

Recommendation: Partner with local land use agencies to proactively update local land use regulations to support additional parking capacity on-site at freight generators.

As a state that is attracting and expanding freight generators, DelDOT has the opportunity to implement solutions that proactively address the truck parking needs associated with freight generators. As freight-generating facilities are built and expand in Delaware, the demand for truck parking will increase. If the state's truck parking supply does not keep up with the growing truck parking demand, Delaware will see undesignated truck parking occur in larger numbers and in more locations. As a result, DelDOT should require and/or incentivize the private development of adequate truck parking supply, to meet the anticipated demand increase driven by freight industry growth. A primary opportunity to proactively address anticipated truck parking demand is working with local land use agencies to develop local requirements for new or expanding freight generators to provide sufficient capacity for truck staging.

Figure 26 below summarizes the four short-term recommendations identified in this study, as well as the partners and challenges for DelDOT and MPOs to consider upon implementation.

Figure 26: Short-Term Recommendations

Opportunity	Location	Lead	Partners	Challenges
Identify a point of contact, or "champion," for truck parking within DelDOT.	Statewide	DelDOT, MPOs	-	• Competing with other priorities (staff time)

Secure funding for truck parking projects.	Statewide	DelDOT, MPOs,	Other local agencies, federal agencies, multi-state coalitions, neighboring DOTs, private sector	• Competing with other priorities (capital and operational funding)
Prepare outreach materials to share information about truck parking with local agencies and communities.	Statewide	DelDOT, MPOs	Other local agencies	• Addresses perspectives related to truck parking but not the cause of truck parking issues
Partner with local land use agencies to update local land use regulations to support additional parking capacity on-site at freight generators.	Statewide	DelDOT, MPOs, Local land use agencies	Other local agencies	• Must occur prior to development • Could impact the competitiveness of Delaware

5.2 Summary of Opportunities

The figures on the following pages similarly summarize the identified policy and program opportunities (Figure 27), as well as location-specific project opportunities (Figure 28). The tables also provide factors (location, stakeholders, and challenges) for DelDOT, MPOs, and counties to consider upon project implementation, when ready. Appendix E further provides federal funding opportunities that could be used to advance truck parking efforts in Delaware.

Next Steps for Select Capacity Expansion Projects at New Truck Parking Locations

Conceptual drawings and high-level cost estimates were developed for three *new* truck parking location opportunities to inform DelDOT's future considerations and project advancement related to new truck parking location development in Delaware. These three opportunities are highlighted in green in Figure 28.

For these three projects, next steps include preparing NEPA Documentation for each of these specific locations as each location enters the final design and NEPA Documentation phase. It is anticipated that a Categorical Exclusion Evaluation will be prepared for each site. A desktop review of the three locations did not yield any concerning resources that would be impacted by the improvements.

Figure 27: Policy & Program Opportunities

Opportunity	Location	Stakeholders	Challenges
Integrate truck parking into capital project planning and development.	Statewide	DelDOT, Local agencies	• Competing with other priorities (capital and operational funding)
Coordinate truck parking information and efforts with neighboring states.	Statewide	DelDOT, Maryland DOT, Pennsylvania DOT, New Jersey DOT	• Competing with other priorities (staff time) • Coordination between states
Work with trucking industry to exchange information about truck parking issues and solutions.	Statewide	DelDOT, Delaware Motor Transport Association, truck parking stakeholders	• Addresses information sharing related to truck parking but not the cause of truck parking issues • Difficult to assess the impact

Figure 28: Project Opportunities

Opportunity	Location	Stakeholders	Challenges
Expand truck parking capacity at existing public rest areas.	• Smyrna Rest Area	DelDOT	• Competing with other priorities (capital and operational funding)
Leverage existing state-owned land to develop new truck parking capacity through a P3.	• Intersection of US 13 and Bear Rd./Hamburg Rd. in New Castle • Intersection of SR 1/Bay Rd./Milford Bypass and NE Front St. in Milford	P3 (DelDOT, private sector), Local agencies	• Requires P3 coordination • Local public opposition
Leverage existing state-owned land to develop new truck parking capacity at suitable intersections for truck parking.	• Intersection of US 13 and West Lebanon Rd/SR 10 in Camden, as part of East Camden Bypass project	DelDOT, Local agencies	• Competing with other priorities (capital and operational funding) • Local public opposition
Integrate truck parking considerations into existing capital project planning and development.	• Project to widen road from SR 273 to Roth Bridge in New Castle County • Project to develop a frontage road for freight traffic to connect industrial parks near Dover • Near freight generators and along key freight corridors	DelDOT, Local agencies	• Competing with other priorities (capital and operational funding)
Leverage existing state-owned Park and Rides for new overnight truck parking capacity.	• Tybouts Corner Park and Ride • 273 Park and Ride • Pine Tree Park and Ride	DelDOT, DTC, Other state agencies	• Combined use for passenger vehicles during the day and trucks overnight • Local public opposition • Upgrades may be required for truck parking (e.g., pavement upgrades, signage, basic amenities)

Leverage existing state-owned Weigh Station for new overnight truck parking capacity.	• Weigh station on US 13 NB	DelDOT, DSP, Other state agencies	• Combined use for truck inspection during the day and truck parking overnight • Need overnight access to amenities
Build extra-wide shoulders along last-mile roads, with the knowledge trucks will stage here.	• Edgemoor	DelDOT, Local agencies, private sector	• Provides safer space for truck parking but is not separated from the roadway • Addresses certain types of undesignated truck parking but not the cause of truck parking issues
Develop protected roadside truck parking along corridors, and integrate this project into existing toll plaza upgrades.	• Newark Toll Plaza (I-95) • Biddle's Corner Toll Plaza (SR 1) • Dover Toll Plaza (SR 1)	DelDOT	• Competing with other priorities (capital and operational funding) • Upgrades may be required for truck parking (e.g., protected barriers, pavement upgrades, signage, basic amenities)
Incentivize private development of new staging areas on vacant land.	• Edgemoor	P3 (DelDOT, private sector)	• Requires P3 coordination • Limited land availability
Incentivize private development of new or expanded truck parking capacity at freight-generating facilities, through a P3.	• Port of Wilmington • New freight-generating facilities	P3 (DelDOT, private sector)	• Requires P3 coordination • Limited land availability
Require private development of new truck parking capacity at freight-generating facilities.	• Dover area • New freight-generating facilities	DelDOT, local land use agencies, Private sector	• Must occur prior to development • Could impact the competitiveness of Delaware
Promote truck parking at private parking lots during non-peak periods.	• Dover Downs Hotel & Casino • Dover International Speedway	DelDOT, P3 (DelDOT, private sector), Local agencies	• May require a P3 • Local public opposition • Need overnight access to amenities • Upgrades may be required for truck parking (e.g., pavement upgrades, signage, basic amenities)

Provide dynamic signage with information about truck parking at a public rest area.	• Smyrna Rest Area	DelDOT	• Competing with other priorities (capital and operational funding)
Provide signage with information about truck parking locations across state borders.	• On I-95 near Maryland border • On I-95 near Pennsylvania border • On I-295 near New Jersey border	DelDOT, Maryland DOT, Pennsylvania DOT, New Jersey DOT	• Competing with other priorities (capital and operational funding) • Coordination with other states

Note: Opportunities highlighted in green reflect location-specific capacity expansion project opportunities with conceptual drawings and cost estimates

Appendix A Stakeholder Outreach

This Appendix details the stakeholder outreach efforts conducted as part of the Delaware Truck Parking Study.

Focus Group Meetings

Focus Group Meeting 1

On March 11, 2021, DelDOT and WILMAPCO, in coordination with the Project Team, hosted the first Delaware Truck Parking Focus Group Meeting. This meeting served as the first of two opportunities to gather stakeholder feedback on the activities of the Delaware Statewide Truck Parking Study. After an introduction from WILMAPCO, the Consultant Team provided an overview of truck parking and its importance. This was followed by a presentation of initial truck parking findings in Delaware, including truck parking inventory, truck parking utilization, undesignated truck parking, truck parking violations, and truck/trailer crashes. The second half of the meeting utilized an interactive polling website (Mentimeter) to gather thoughts, questions, and feedback from public and private stakeholders. Polling questions prompted facilitated discussions among the group about Delaware's truck parking issues, needs, and potential opportunities.

The following pages provide a summary of discussion and Mentimeter polling results from the meeting.

Delaware Truck Parking Focus Group
Meeting Minutes
Meeting 1

March 11, 2021 • 2 PM–4 PM • Via Zoom
https://zoom.us/j/8468062077
Meeting ID: 846 806 2077
+1 301 715 8592 US (Washington DC) 888 788 0099 (US Toll-free)

Attendees

- Dan Blevins, WILMAPCO
- Tigist Zegeye, Executive Director, WILMAPCO
- Rachel Aland, CPCS
- Alex Marach, CPCS
- Donald Ludlow, CPCS
- Julia Thompson, CPCS
- Drew Boyce, Century Engineering
- Sonia Marichic, Century Engineering
- Brian Soper, Salisbury/ Wicomico MPO (S/WMPO)
- Cooper Bowers, DelDOT Planning
- Jim Galvin, Dover Kent MPO
- Jeff Bainbridge, Royal Farms
- Jody Sweeny, Commissioner, Kent County Levy Court
- Josh Thomas, DelDOT
- Kristen Scudder, DE Valley Regional Planning Commission (DVRPC)
- Linda Parkowski, Kent Economic Partnership
- Marc Cote, DelDOT
- Mark Luszcz, DelDOT
- Michael Ruane, DE Valley Regional Planning Commission (DVRPC)
- Nicole Katsikides, Maryland DOT State Highway Administration (SHA)
- Phil Strohm, FMCSA
- Sam Sherman, DelDOT
- Sgt. Dan Parks, DE State Police
- Stephanie Johnson, DelDOT
- Stewart Pryor, DE Motor Truck Association (DMTA) and Commercial Driver
- Troy Mix, University of Delaware Institute for Public Administration (UD IPA)

Agenda and Discussion

01 Welcome From WILMAPCO and DelDOT (2-2:10)

Dan Blevins - Principal Transportation Planner, WILMAPCO

02 Focus Group Member Roll Call (2:10-2:20)

Members - Introductions

- Jody Sweeny: Represents the fifth district, has a small business in Rodney Village. Anecdote – trucks used to park along the outer part of lot and block the view of the stores in the village – had to find some place to go. Rodney Village set up places behind the shopping center, but trucks were broken into because of no visibility.

Agenda and Discussion

- Mark Luszcz: Deputy Director in Division of Transportation Solutions (DelDOT), most major highway/ bridge/interchange/signal projects under their group. Works with Sgt. Dan Parks on truck restrictions, parking type restrictions that often involve trucks.
- Troy Mix: University of Delaware Institute for Public Administration. Coordinates the Delmarva freight working group – monthly planners engaged in freight planning, and two yearly events to engage the industry.
- Jeff Bainbridge: Director of Real Estate with Royal Farms – They don't want truck parking on lots aside from short term visits.
- Stephanie Johnson: Division of Planning, DelDOT, Assistant Director, administers CMV weight enforcement program with DE State police and FMCSA. As part of program, have innovative tech deployment grant, as well as CMV grant – put out research projects and truck parking innovative ideas.
- Marc Cote: DelDOT Director of Planning. Truck weight enforcement, freight planning under purview.
- Linda Parkowski: Economic Development Director for Kent County. A few years ago an economic analysis study was done, one of the targeted industries was logistics and distribution. Since then, asked Kent county MPO to perform some studies, including an east-west freight route out of Kent County. Also involved with the Dover Freight Study. Sees truck parked along the side of road everywhere she drives.
- Sgt. Dan Parks: DE State police CMV enforcement unit under DE State police traffic section. Also lead agency contact for CMV safety plan and is a representative for CMV Safety Alliance.
- Jim Galvin: Principal Planner with Dover Kent County MPO – what Dan does, down-state.
- Brian Soper: With Salisbury MPO, same as Jim/Dan. Covers Delmar, Seaford. Not a lot of experience with truck parking.
- Josh Thomas: Planning supervisor in DelDOT regional systems planning group. Long range freight planning is core responsibility. Want to get a handle on truck parking to plan for future.
- Michael Ruane: Manager of Freight and Aviation Planning at DVRPC, involved in truck parking studies/regional roundtables. Truck parking is multi-region/state issue, interested to see what's happening in DE
- Sam Sherman: Planner with DelDOT, freight & aeronautic coordination. Provides support for state MPOs – mostly focused on New Castle County in Kent. Member of Troy's Delmarva working group.
- Phil Strohm: Division Administrator for DE for FMCSA. FMCSA focus to reduce large truck and bus crashes in state, provide support through grant funding to DelDOT, including enforcement units.
- Kristen Scudder: Senior Freight and Transport planner at DVRPC, freight office looking at similar truck parking issues and solutions in the region – intertwined.
- Cooper Bowers: DelDOT Transport planner under Josh T. New Castle County coordinator. Works on freight issues and general planning
- Nicole Katsikides: Maryland DOT State Highway Administration – helps with freight and truck parking efforts.

Agenda and Discussion

- Tigist Zegeye: Executive Director, WILMAPCO
- Stewart Pryor: DE Motor Truck Association and commercial driver, runs locally in the northeast and Atlantic region

03 Top Trucking Issues and Q&A (2:20-2:40)

Alex Marach – Technical Lead, CPCS Transcom Inc.

04 About Truck Parking in Delaware (Supply, Demand and Utilization) and Q&A (2:40-3:00)

Rachel Aland – Project Coordinator, CPCS Transcom Inc.

Questions

- Troy Mix (UD IPA): Has the data on truck/trailer crashes and violations been normalized against overall freight traffic?
    - Rachel Aland (CPCS): No, but Project Team can look into this.
- Linda Parkowski (Kent Economic Partnership): Do we have freight generators listed on the maps.
    - Rachel Aland (CPCS): They are currently not highlighted, but are taken into consideration for the analysis and solutions.
    - Linda Parkowski (Kent Economic Partnership): Saw violations on the map at a certain location, and figured it might be related to freight generators. Including freight generators would be helpful.
- Jim Galvin (Dover Kent MPO): Regarding the Royal Farms at Pearson's Corner that is listed designated – would like to hear from Mr. Bainbridge on that.
    - Jeff Bainbridge (Royal Farms): Not aware of that. (Note: CPCS will follow up with Mr. Bainbridge to clarify this point)
- Sgt. Dan Parks (DE State Police): What is the crash data source?
    - Dan Blevins (WILMAPCO): Got from Matt Cox. All "Class 5" vehicles – truck/trailer.
    - Sgt. Dan Parks (DE State Police): They are not necessarily commercial vehicles?
    - Dan Blevins (WILMAPCO): They are commercial vehicles.

05 Facilitated Discussions and Survey (3:00-3:40)

Rachel Aland – Project Coordinator, CPCS Transcom Inc.

What best describes your industry?

Agenda and Discussion

- Phil Strohm (FMCSA) - federal agency; Troy Mix (UD IPA) - higher education

Rank the following truck parking issues: Capacity and availability, Safety, Perception of Capacity, Funding

- Stewart Pryor (DMTA, Commercial Driver): Chose perception of capacity first, as a driver. He uses apps. If close on HOS time, will go into an app that informs his decision for the night on northeast runs. Going up to NYC, it's either NJ or up into Milford, CT to get a stop. Or else you have to go past the city or turn back. A lot of people inbound to the New Castle area have to decide to either park at the DE truck center, or go to Elkton, MD. Or do they stop further down highway to make delivery?
    - Jody Sweeny (Kent County Levy Court): Is the app accurate when you get to a location?
    - Stewart Pryor (DMTA, Commercial Driver): Mainly uses TruckerPath. When you pull into a truck stop, it shows availability and recency. For the truck stop near him in Laurel – keeps an eye on it to see if it's accurate. A lot of people will add information when they drive by even if they don't park there. Driver options for information are: lots, some, full. He bases it off of how recent the update was to the location.
    - Jody Sweeny (Kent County Levy Court): Is the app based on truckers?
    - Stewart Pryor (DMTA, Commercial Driver): Yes, it is social networking-esque. He always updates it when he parks.
- Jody Sweeny (Kent County Levy Court): Picked capacity 1st, and perception 2nd. His trucker friends are not aware of the app. He made a determination on these issues even prior to seeing the inventory with lack of central DE trucking.
    - Stewart Pryor (DMTA, Commercial Driver): Regarding Trucker Path, this may be age gap. He is 36, but drivers are on average in their 50s – there may be discrepancy of use of technology between age groups. A lot of drivers are getting more tech savvy, on the awareness of what is out there and finding a reliable app. Trucker path is closest one for this.
- Linda Parkowski (Kent Economic Partnership): Is the data from the Trucker Path app used in the study?
    - Rachel Aland (CPCS): Yes, a year's worth of data from the app used for the utilization analysis.

What is most needed to address truck parking challenges?

- Linda Parkowski (Kent Economic Partnership): Thought funding should have been an option. That goes along with parking projects.
- Linda Parkowski (Kent Economic Partnership): Interested in what additional analysis is needed.
    - Dan Blevins (WILMAPCO): Truck parking is so dynamic, it evolves and fluctuates a lot. It drives parking policies, funding, and projects.
- Stewart Pryor (DMTA, Commercial Driver): With truck stops, no one wants them in their backyard. When you tell someone you're opening up truck parking area, a lot of

Agenda and Discussion

public kickback. Understands people's view on truck stops/services with parking areas – it takes up a lot of space and infrastructure for it to happen. Understands the research end of this.

- Drew Boyce (Century): Also selected data – for example, data relative to the expansion of the port and those implications. There is potential for proactive planning for staging and opportunities for trucks in designated areas as operations increase.
- Phil Strohm (FMCSA): Why are the trucks parking? For staging or HOS? If it's a staging parking issue, maybe need to look at where distribution centers are related to parking spaces. More data analysis and insights can help provide insight to *why* they're parking where they are.
- Jim Galvin (Dover Kent MPO): What's holding back places from providing parking themselves? Why isn't the port providing truck parking? Is there a policy or something related to liability of providing truck parking that limits them from doing it? What's prohibiting this?
- Mark Luszcz (DelDOT): Along the same lines as Jim and related to earlier statement that drivers don't want to pay for parking, why won't drivers pay for parking if they're wasting $5-6k a year? With the demand for truck parking, truck drivers should be able to pay some amount. Projects imply public parking, which costs taxpayer dollars to build, own, and operate. Why is that needed? Why do public agencies need insight?
    - Stewart Pryor (DMTA, Commercial Driver): Regarding pay for parking, in some areas, a lot of people choose to pay because it guarantees/reserves a spot. For trip planning, if they have a morning time delivery and know they will be there, drivers will pay. The issue with pay for parking is that some fleets do not reimburse drivers, and drivers don't include it in their negotiation for payment. Top-tier drivers have no issue with paying because they have planned it into their customer service and delivery. For other drivers, whose fleets won't way, they just have to find parking. It is a component of industry culture and who a driver is operating for.
- Michael Ruane (DVRPC): In some of the DVRPC PA/NJ work, data analysis is important to better understand whether the parking is overnight/staging (at port or larger industrial generator). On the public sector side, they're trying to do more to develop educational materials for municipalities to encourage land development to incorporate truck parking into industrial development sites. A good example is the Unilever Safe Haven parking program – it allows drivers through gate to park on-site, instead of queueing on-site or coming in the night before delivery and parking elsewhere. Focuses are education and encouraging development to incur some of the costs they're causing. They're still working on solutions, and trying to get more information to local areas, which are on the front line of handling developments
- Mark Luszcz (DelDOT): See trucks parked all the time on the ramp from Route 1 to Route 13 going into Smyrna. This is 3 minutes from one of the two public truck parking stops in DE. Why are trucks stopping there? Is it because they can? Because it is not marked as "no parking"? Because of a lack of enforcement? If we can't get drivers to get 3 minutes to a public spot, what good is any parking?
    - Stewart Pryor (DMTA, Commercial Driver): Not to be hard on anyone, but within trucking, there are top-tier and not-top-tier drivers, the latter being drivers who don't plan, and run to the very last minute on their HOS, which

Agenda and Discussion

is tracked by the ELD. With their HOS done, the options are either to make it to Smyrna but get a write up, or in the easier case park on side of the road. These are hypothetical cases, but agrees that it is foolish to be so close and not take it. He would rather drive to Smyrna for safe parking.
    - Alex Marach (CPCS): It could also be an assumption those facilities are full.
- Stewart Pryor (DMTA, Commercial Driver): Some other states doing truck parking indicators on rest area signs, where the sign lists the rest area ahead with the number of truck spaces available. Newer technology like this is coming out.
    - Alex Marach (CPCS): This is being used more and more in the US. The drawback is it typically only includes public rest areas. Since parking is heavily skewed private in DE, this would miss a large portion of space availability. Would have to be strategic about where they're located.
    - Alex Marach (CPCS): Are dynamic signs helpful?
    - Stewart Pryor (DMTA, Commercial Driver): If he is in the area and it's there and convenient, he will pop-in. It's nice to know parking availability going down a highway. If you're close to your destination, and as you drive by you see a lot of spots available, you could make the delivery, get back out on the road, and then stop at the facility on the return trip. So, yes, finds it helpful.
    - Mark Luszcz (DelDOT): Aware of that technology, but it hasn't been pursued in DE. If pursued, it would be for a non-truck purpose first, such as public parking in beach areas, state parks.

What do you see as the root causes of truck parking issues in Delaware?

- Stewart Pryor (DMTA, Commercial Driver): In Sussex, there is so much poultry production, but only one truck stop. With all production and people coming into pickup, the lack of truck stop on 113 doesn't make sense.
- Linda Parkowski (Kent Economic Partnership): Truck parking is an unintended consequence of increased in logistics and distribution, such as the poultry industry in Central Delaware, which only has the Smyrna rest stop. There is nothing down Route 113, 13, or Bay Road for truckers to stop at. There is a need for a facility of some sort. If profitable, could entertain discussions there. Hearing truckers don't want to pay is disheartening, didn't have this impression before.
    - Alex Marach (CPCS): If truck parking locations have paid parking, it is often only a small part of revenue. Most truck parking locations focus on revenue from fuel, food, and services.
- Jim Galvin (Dover Kent MPO): Areas like BP gas station just have enough truck parking for some trucks to buy stuff and get fuel.
- Stewart Pryor (DMTA, Commercial Driver): Know there is a Royal Farms on the VA Eastern Shore – the only places to get a truck in are Langford truck stop and Royal Farms. He will stop there for a 30 min break. Royal Farms locations have bigger lots and diesel units, and drivers will pop in to get food and fuel. Royal Farms is his first choice in that direction given availability and design of stops

Agenda and Discussion

Are truck parking issues in the state related to the HOS break or staging/last-mile?

- Stewart Pryor (DMTA, Commercial Driver): Would say on I-95 it leans heavier toward HOS, whereas further down the state in Kent County and Sussex, it is more first/final mile stops. Most people moving toward the northeast are running I-95 up. So, in southern DE staging, but the big stop on I-95 is HOS.

What level of priority should be given to resolving different types of undesignated parking?

- Jim Galvin (Dover MPO): All roadways have inherent problems.

06 Wikimap Overview (3:40-3:50)

Dan Blevins – Principal Transportation Planner, WILMAPCO

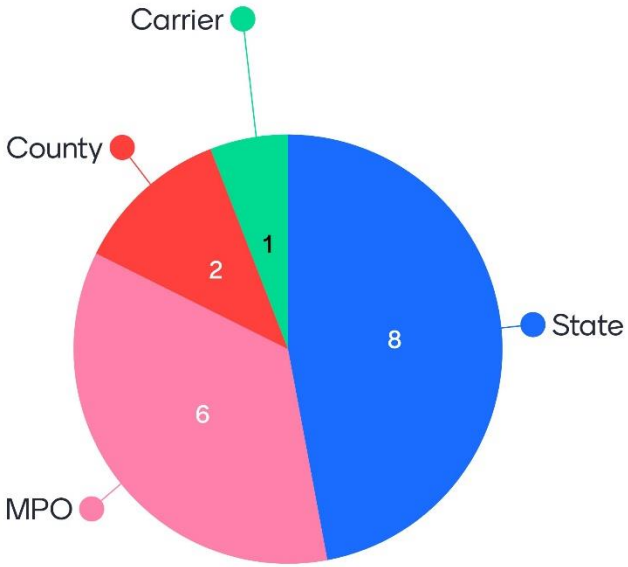
07 Closing and Next Steps (3:50-4:00)

Donald Ludlow – Project Manager, CPCS Transcom Inc.

Adjourn (4:00)

What best describes your industry?

Mentimeter



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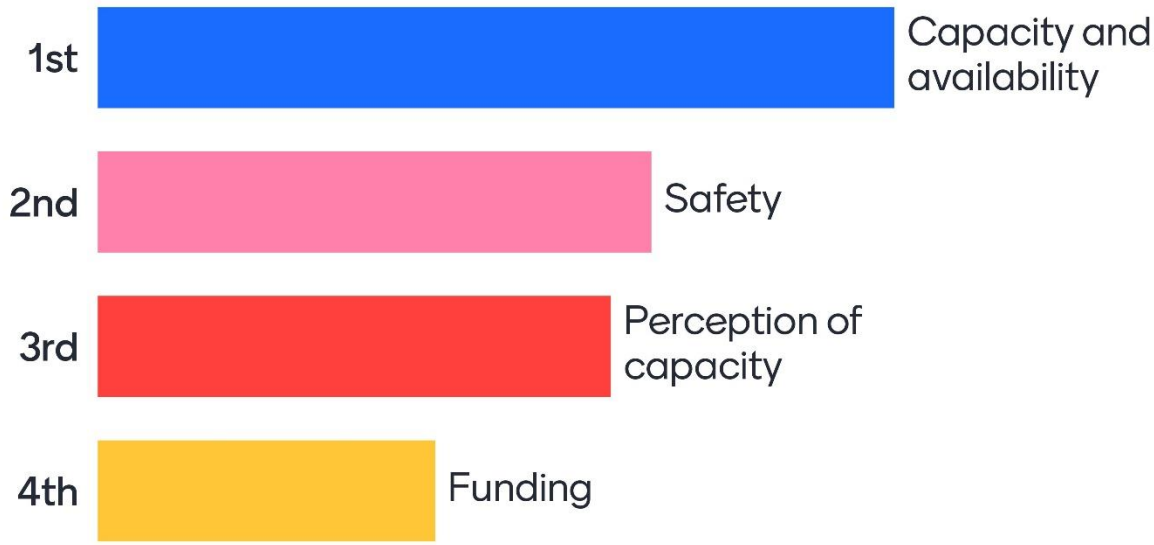
Rank the following truck parking issues:

Mentimeter



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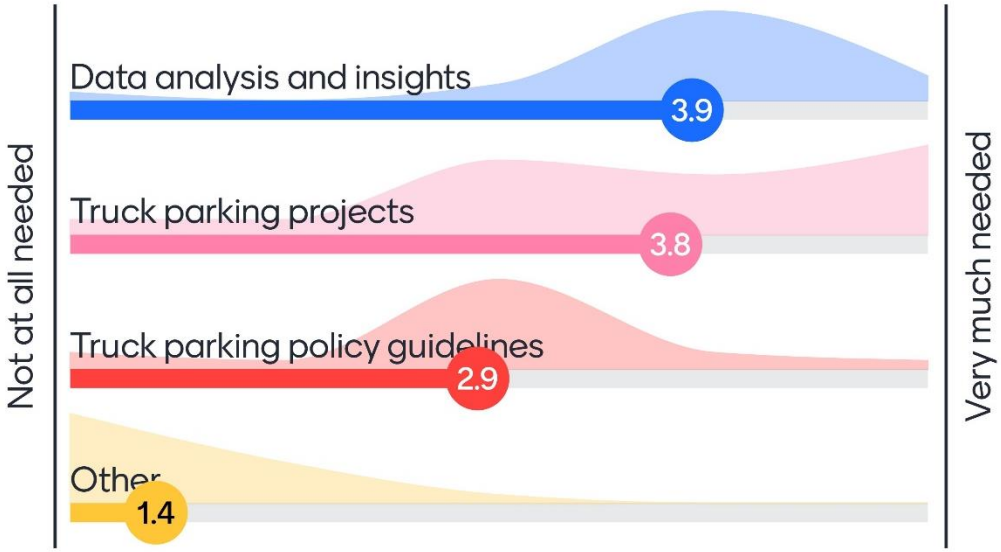
What is most needed to address truck parking challenges?

Mentimeter



What are Delaware's most pressing truck parking issues?

Mentimeter

Central Delaware needs a designated truck parking area

Who pays? public or private?

Lack of parking in Sussex County.

Lack of parking in general

Having adequate parking spaces and/or methods of letting truckers know where parking is so that they don't have to get caught at the end of their HoS.

Safety issues related to trucks parking on ramps and shoulders. In addition to the reasons you mentioned earlier, blocking bike lanes (shoulders) is another safety aspect of this issue.

Ability to communicate/identify available parking

COOPERATION BETWEEN PRIVATE PARKING SUPPLIERS AND DELDOT.

Adequate availability in Central Delaware, along Delaware's backbone Rt1. Kent County has attracted multiple manufacturing companies, with an increase in the trucking industry for more opportunity, leading to more local residents needing temp parkin

13

What are Delaware's most pressing truck parking issues?

Mentimeter

More availability in strategical locations

Finding a balance between governments, industry and public's wants and needs for a common sense, real world working solution

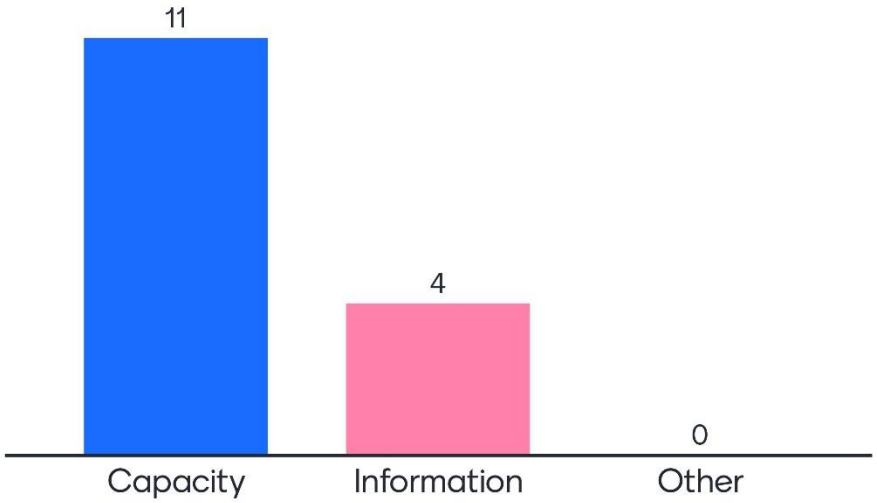
Local land use controls that support truck facilities

Information

13

In your opinion, are DE's truck parking issues due to a lack of truck parking spaces (capacity) or info about parking availability (information)?

Mentimeter



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What do you see as the root causes of truck parking issues in Delaware?

Mentimeter

Increase in Logistic and Distribution and lack of planning for the increase in the past

locally unwanted land use (LULU)

Land value in the north east corridor is not conducive to truck parking. Truck parking doesn't generate the revenue to ultimately justify its existence

Based on some of the discussion so far, lack of training/education on this topic for at least some drivers may be part of the issue.

Lack of commercial influence on public policy to create adequate parking. Public knowledge of landowners around Rt1 of potential for development

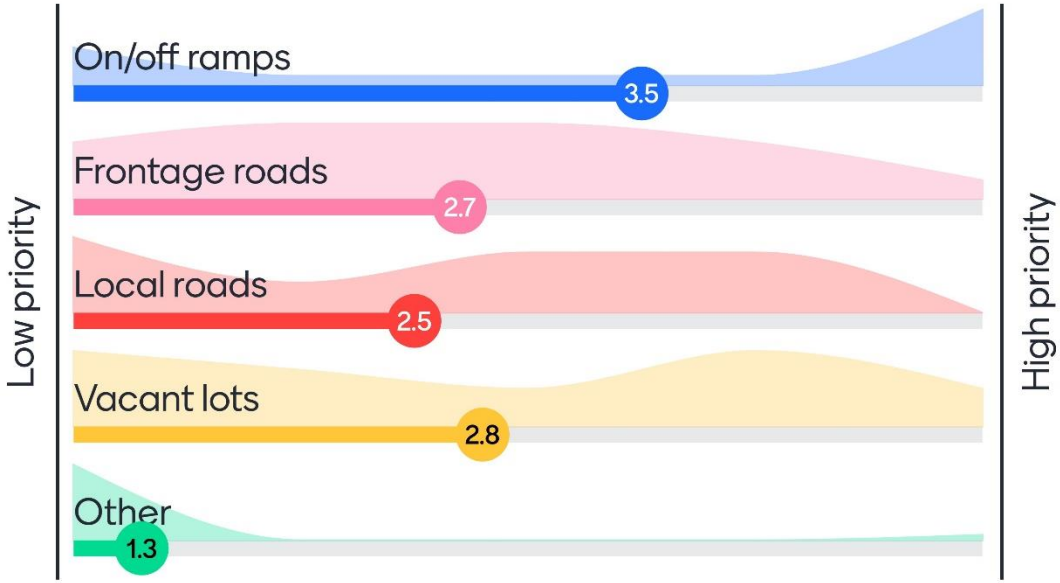
Distribution centers (Walmart, Amazon etc) outpacing additional parking availability. Electronic Hours of Service forcing drivers to rest when hours expire so looking for parking is not an option.

Public disconnect between the need for trucks on the road/parking for them and packages destined for their household/businesses

7

What level of priority should be given to different types of undesignated parking?

Mentimeter



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What are Delaware's most important truck parking opportunities?

Mentimeter

In attracting Distribution companies - having designated truck parking would be a selling point.

Keeping truck parking in step with changing industries

Coordinating with the private sector to share info and data as to where private facilities may be profitable.

Potential redevelopment of underutilized commercial spaces for truck parking/staging uses

STATE/PUBLIC WORK WITH POTENTIAL/ACTUAL PRIVATE TRUCK PARKING FACILITIES TO CREATE MORE, SAFE PARKING

Re purposing vacant lots for designated truck parking

Expansion of open space along undeveloped parcels in northern and southern part of Kent County. Possibly focusing on a single new parking facility in the Dover area along Rt 1

Identifying and dissemination of truck parking to drivers and carriers in the corridor

Considerations with capital projects

13

What are Delaware's most important truck parking opportunities?

Mentimeter

- Location along the eastern corridor would make Delaware positioned well for truck parking revenue.
- Coordination with industry
- The use of truck parking facilities for emergency use (debri holding)
- Reaching out to past providers to re-energize them in offering spaces

13


Are there any other considerations that we have not yet discussed today?
Mentimeter
Please make sure that collected information is shared with the panel.
CREATING RESPONSIBLE DRIVERS
Please develop a public information campaign to get the information to those truckers that may not be informed.
Excellent discussion and use of survey website
Can Delaware be more proactive in making sure data in Trucker Path (and other apps) is as comprehensive + accurate as possible?
Thank you this has been very informative
6

Focus Group Meeting 2

On May 20, 2021, DelDOT and WILMAPCO, in coordination with the Project Team, hosted a second Truck Parking Focus Group Meeting. This meeting was the second of two opportunities to gather stakeholder feedback on activities of the Delaware Statewide Truck Parking Study. After an introduction from WILMAPCO, the Consultant Team provided an update of undesignated truck parking in Delaware, followed by presentation of a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for truck parking in the state. The second half of the meeting focused on solutions and strategies to advance truck parking in Delaware. This included an overview of available solution types, followed by an examination of truck parking within Delaware through a regional lens. For each of the three regions identified, the Consultant Team provided a regional view of existing truck parking conditions, as well as regionally targeted solutions and strategies to address truck parking issues. Stakeholders had the opportunity to provide feedback and ask questions about these issues, solutions, and strategies through discussion, as well as through an interactive polling website (Mentimeter).

The following pages provide a summary of discussion and Mentimeter polling results from the meeting.

Delaware Truck Parking Focus Group
Meeting Minutes

Meeting 2

May 20, 2021 • 2 PM–4 PM Eastern • Via Zoom
https://zoom.us/j/98779815908?pwd=cXJUZU10dU56U1V2QkFsZ01raG0vQT09
Meeting ID: 987 7981 5908 | Passcode: 731985
+1 301 715 8592 US (Washington DC)

Attendees

- Dan Blevins, WILMAPCO
- Tigist Zegeye, Executive Director, WILMAPCO
- Alex Marach, CPCS
- Donald Ludlow, CPCS
- Julia Thompson, CPCS
- Drew Boyce, Century Engineering
- Sonia Marichic, Century Engineering
- Cooper Bowers, DelDOT Planning
- Chuck Harris, Walmart DC-7834
- Dave Hugg, City of Dover
- Jim Galvin, Dover Kent MPO
- Josh Thomas, DelDOT
- Ken Grant, AAA
- Kristen Scudder, DE Valley Regional Planning Commission (DVRPC)
- Linda Parkowski, Kent Economic Partnership
- Marc Cote, DelDOT
- Michael DuRoss, DelDOT
- Nicole Katsikides, Maryland DOT State Highway Administration (SHA)
- Phil Strohm, FMCSA
- Sam Sherman, DelDOT
- Sharon Duca, City of Dover
- Sgt. Dan Parks, DE State Police
- Stephanie Johnson, DelDOT
- Stewart Pryor, DE Motor Truck Association (DMTA) and Commercial Driver

Agenda and Discussion

01 Welcome From WILMAPCO and DelDOT (2-2:10 PM)

Dan Blevins - Principal Transportation Planner, WILMAPCO

02 Focus Group Member Roll Call (2:10-2:20 PM)

Members - Introductions

- Sharon Duca – City of Dover – Public Works Director, City of Dover
- Linda Parkowski – Kent Economic Partnership
- Josh Thomas – DelDOT
- Stewart Pyror – DMTA Truck Driver
- James Galvin
- Kristen Scudder – DVRPC
- Michael DuRoss

Agenda and Discussion

- Sam Sherman – DelDOT
- Marc Cote – Director of Planning, DelDOT
- Dan Parks - DSP CMV unit
- Nicole Katsikides – TTI representing Maryland DOT SHA
- Chuck Harris – GM Transportation Walmart
- Stephanie – Del DOT, divisional planning, data support
- Tigist Zegeye – WILMAPCO
- Phil Strohm – FMCSA
- Dave Hugg – City of Dover Planning Department
- Ken Grant – AAA
- Cooper Bowers
- Josh Thomas – DelDOT

03 Undesignated Truck Parking in Delaware (2:20-2:30 PM)

Alex Marach – Technical Lead, CPCS Transcom Inc.

03 Strengths, Weaknesses, Opportunities, and Threats (SWOT) and Q&A (2:30-2:50 PM)

Alex Marach – Technical Lead, CPCS Transcom Inc.

Questions

- Dan Blevins (WILMAPCO): Who pays in the end? Public vs private sector? If private sector generating it – is it on them to foot the bill? Or is it public entities? Or combination of both?
- Donald Ludlow (CPCS): Good consideration – how to structure cost-sharing?

5-Minute Break (2:50-2:55)

04 Draft Solutions & Strategies and Facilitated Discussion (2:55-3:50 PM)

CPCS Transcom Inc. Project Team (Donald Ludlow, Project Manager; Alex Marach, Technical Lead; Julia Thompson, Freight Analyst)

Questions

- James Galvin (Dover Kent MPO) – chat box: Can truck parking co-exist with park and ride facilities?
    - Alex Marach (CPCS): It can be – look at locations that restrict or have low use at night.
- Donald Ludlow (CPCS): Can WILMAPCO/DelDOT talk about the types of funding sources used in the past to address truck parking needs? Or where it's fallen short?

Agenda and Discussion

  - Dan Blevins (WILMAPCO): From the MPO perspective that we haven't necessarily looked into much until now, with FAST Act funding available – it's been the start of that conversation. I put one comment in Mentimeter about technology – it's funding related. Can we "tech" our way out of it? Need deeper thoughts there. Know the upper Midwest is in its second year – does that technology work here vs there? More metro areas here. A lot of space between metro areas in the Midwest. "Barrier" – get calls every day on people selling you tech/data. Don't want to oversell the technology solution. Want to find solutions that are practical for DE needs.
  - Donald Ludlow (CPCS): Hear from a lot of DOTs – that data & tech offerings difficult to sort through, it's hard to figure out what's applicable. "Shiny object" situation. Good q – is TPIMS type situation appropriate here?
- Marc Cote (DelDOT): Don't have a large history/historical view of truck parking initiatives. Know have tried to work at times with the private landowners in developing new areas that can be expanded around private centers or find partners. That has not come to fruition.
  - Alex Marach (CPCS): Barriers?
  - Marc Cote (DelDOT): More working with the private sector, associated with convenience stores. Learned it's not their business/they don't want to be in truck parking. Strong customers but truck parking is not their business.
- Marc Cote (DelDOT): The other question is – we have had several very large development projects related to logistics or other users (e.g. port coming) where there are hundreds of trucks associated with these projects. We look at traffic impact – turning movements, capacity, etc. But there's this other issue – how do you handle trucks, not when they're moving, but when they're waiting? We haven't looked at this yet, but with potential multiple large projects in the same area, there is clearly a question of where all the trucks are going to stage and park.
  - Alex Marach (CPCS): Land use changes with those situations of freight coming in, requiring truck parking. Example: Lehigh Valley.
  - Marc Cote (DelDOT): With a large facility like that generating trucks, that's an idea of some sort of measure – e.g. % of parking available outside facility, or on-site but outside gate, those things. Also have electric vehicle infrastructure questions coming online. That adds another wrinkle.
  - Donald Ludlow (CPCS): There is a role for localities to play, related to land use, incorporate truck parking requirements into zoning. Area starting to gain traction.
- Linda Parkowski (Kent Economic Partnership): Lehigh Valley is like the logistics capital of the Northeast – has anybody (or maybe we should) looked at their land use policies to see how they deal with truck parking as far as staging?
  - Alex Marach (CPCS): In response to that development, they added requirements for truck parking in the development of new facilities in their jurisdiction
- Stewart Pryor (DMTA, Driver): The other thing with Lehigh is that it's the final frontier to the Northeast. The warehouse there is multi-million sq. ft. warehouses – they do

Agenda and Discussion

huge facilities. When you get up into that area, it is nice to get into the facility, and plan your day knowing you are going to be able get in at that facility at the end of the day, instead of drive time. Thinking ahead for Southern DE – Amazon is picking up in Seaford – could be midpoint between Virginia Beach and Newark. A couple facilities in Newark. This planning and zoning aspect could be a winner if worked out before shovels are in the ground. If I know I can get into a facility, I can plan around that. Drivers can be stuck at locations if you don't know if you'll have parking there. Also, when people broker loads – if you are a shipper of choice, people know they won't be wasting their time. Shippers of choice guarantee parking and in/ out within 2 hours, so drivers are not waiting on the street for 6 hours. A lot of facilities do that – drivers want to haul those loads, can get pricing break.

  - Alex Marach (CPCS): How do you know about which are shippers of choice?
  - Stewart Pryor (DMTA, Driver): A lot of freight magazines put out shipper of choice – most fall on there.
  - Alex Marach (CPCS): Unilever is one – framed allowance of parking on-site in those terms.

- Chuck Harris (Walmart): Listening to ideas – I don't have a lot to share at this particular time. We deal with this every day, with my drivers trying to find parking spaces. They can park at some Walmart stores, but still a real issue for my drivers. At this point no details.
- Donald Ludlow (CPCS): The percent of PPP is small proportion. It's mainly public direct investment or private sector building additional capacity. On PPP's we've seen: in Illinois, large truck stop was enabled by local community investing in highway infrastructure; in Utah there is a UDOT and Flying J partnership where UDOT provides operating subsidies to Flying J to provide restroom facilities, hookups, parking, lighting; in some areas, there are also partnerships for reservation systems coming online.
- Alex Marach (CPCS): There is a need for a mechanism for the private sector to know that public sector is interested. Can signal through an RFI (e.g. PA Turnpike RFI), a truck parking champion approach, etc.
- Stewart Pryor (DMTA, Driver): If you've got money and you have something you can implement quickly and have an immediate impact – go with that solution. Dynamic signs (DMS) for Biden center and Smyrna are two places I'd think if you had DMS you'd have immediate impact
- Chuck Harris (Walmart): As you go further down on US-13, in the Seaford area, there are some smaller locations – not really truck stops but smaller stations with truck parking. Can we enlarge those areas to create more parking? These locations allow truck parking but not a lot - can get 6 or 7 trucks in there, that's about it. They may be willing to expand.

Northern Delaware: Questions and Comments

- Dan Blevins (WILMAPCO): Conducted a study around the port to shine a light on the port area undesignated parking. Want to leverage facilities and information – we've

Agenda and Discussion

pinpointed locations with issues. Vacated area for decades – took years to get over the hump. Solutions don't happen overnight.

- Dan Parks (DSP): A lot of this undesignated parking happens during the overnight period, so there are not a lot of complaints received for overnight parking, as compared to the daylight hours where this is more noticeable. Our units are also out during daylight hours, so we don't encounter as much undesignated truck parking. Where we run into the issues is when bad things, like accidents, occur.
- Dan Parks (DSP): (Re safety data) That would be a characteristic in the crash report, searchable. Could be data mined.
    - Donald Ludlow (CPCS): When crashes occur, they are severe – is that your impression?
    - Dan Parks: Accurate
- Donald Ludlow (CPCS): Stewart, what triggers the decision for a driver to park in undesignated locations?
    - Stewart Pryor (DMTA, Driver): Often it's drivers who show up out of time, and are full-up against the clock, so they pull off onto the side of the road for breaks. Often it's overnight (8-10 hours) and drivers are out of time, so they have to park or break HOS/violate logs. Due to poor trip planning – time's up so driver is here for the night.

North-Central Delaware: Questions and Comments

- Marc Cote (DelDOT): How often does Smyrna fill up?
    - Alex Marach (CPCS): Often at higher capacity, smaller lot so few spaces available.
    - Julia Thompson (CPCS): Utilization is relatively high during overnight periods – above 70% utilization from 11 pm to 6 am and exceeds 80% during the early morning peak (2-4 am) hours. There is also undesignated truck parking at undesignated locations within the rest area itself, suggesting that at times the lot is at capacity and trucks that do drive to the rest area don't have a designated space.
- Dan Parks (DSP): The Smyrna Rest Area location is right next to a scale house – we may put a driver out of service and put it at that location. We experience the location is rarely full to capacity, but there is still shoulder parking from our observations.
    - Alex Marach (CPCS): At what times does that occur?
    - Dan Parks: Around 5 am to 4 pm.
- Stewart Pryor (DMTA, Driver): Echo that, when I go down there around 11 am – 1 pm I never have an issue mid-day. During the day it is wide open, but at nights it's harder to get in.
- Dan Parks (DSP): (Re weigh station strategy) We explored a specific request for this, but ended up denying it because we don't have facilities. Only have 12 spaces – used for inspection. Would require trucks coming in and out during certain hours. Overnight, the location is not staffed – there's no bathrooms, so drivers use the

Agenda and Discussion

parking lot. During working hours, troopers are there. So have opted to say no to those requests.

- Alex Marach (CPCS): What issues do you see with implementing this when the weigh station is closed?
- Dan Parks (DSP): Sanitary/facilities issues.

- Dave Hugg (City of Dover): There is a tremendous amount of land at Dover Mall, not used for much - could include this with discussion in Dover Downs solution. Also, from a local planning perspective, new facilities have significant requirements to accommodate deliveries and storage. The real question – is there any information on if there's enough of a market for a private truck stop in Kent County? With fuel, service, parking, etc.?
  - Alex Marach (CPCS): Can consider how to leverage economic development folks.
  - Dave Hugg (City of Dover): Is there a model? If you need X acres or certain services? A prototype of set requirements to garner interest?
  - Alex Marach (CPCS): Some studies, but a little dated, on the economics of a truck stop. We can send to inform that discussion.

Southern Delaware: Questions and Comments

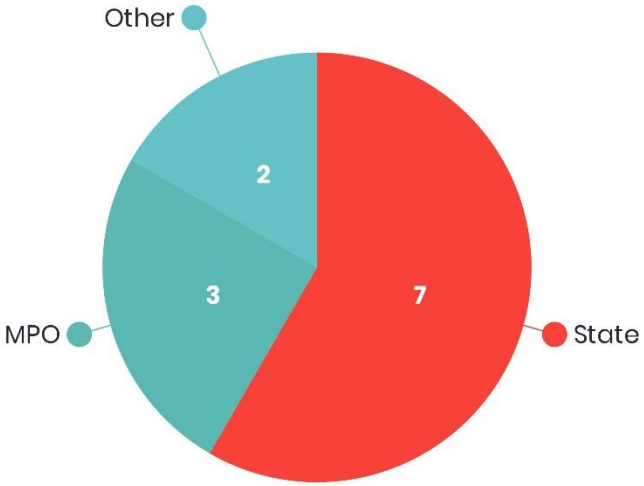
- Dan Blevins (WILMAPCO): With this area, is it more seasonal/with different times of the year? Do the dynamics change more in the southern part than the north?
  - Julia Thompson (CPCS): We looked at seasonality in our data by month – February, May, August, October. The statewide trend was that trucks and undesignated parking dropped off in October. Location-specific results are in Technical Memo 2.
- Jim Galvin (Dover Kent MPO): I think of one vacant property on US-13 in Dover where overnight parking takes place – guessing it's residents that need truck parking, but don't belong in vacant lots. Will the study discuss dissuasions for truck parking?
  - Donald Ludlow (CPCS): Study will look at the issue areas and recommend solutions to address undesignated parking. Aim to alleviate these issues. Enforcement may need to happen on a more local level/require coordination with correct agencies.
  - Alex Marach (CPCS): What is the specific location?
  - Jim Galvin (Dover Kent MPO): 13 near Dover, North Roosevelt Ave, across McDonald's.

05 Closing and Next Steps (3:50-4:00 PM)

Donald Ludlow – Project Manager, CPCS Transcom Inc.; Dan Blevins – Principal Transportation Planner, WILMAPCO

Adjourn (4:00 PM)

What best describes your industry?



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Do you have any additional comments we have not yet discussed specific to the SWOT? Please specify which part of the SWOT your comment refers to.

Did you n otice a geography to the parking types? Staging vs Time constraints? Different for various parts of the state?

Competition with other priorities

Not sure if the public sees this as an issue - we hear much more about trucks driving in or near residential areas (I.e. 41/48)

3

In your opinion, what are the key barriers to addressing Delaware's truck parking needs (e.g. institutional, funding, public perception, etc.)?

Funding

It is just difficult for state DOTs to engage in business development. How can you spur private development and use resources to make it lucrative? This is not typical state DOT expertise.

Competition with other priorities

Public Perception -- "I don't want it in my back yard"

Who goes first, public or private?

When it comes to technology, which one do you put the resources into?

very distributed truck destinations -- leads to widely dispersed truck parking needs not easily met with one or two additional sites.public perceptions are not great, and not quickly improved.

Acceptance of truck parking by private service providers: Convenience stores etc.Zoning restrictions

8

What are the best solutions and strategies to address these identified barriers to advance truck parking in Delaware?

Whats the national trend on public/private partnerships?

Should Delaware prioritize capacity before technology?

In your opinion, what should be the priority solution to address truck parking issues in this region (Northern Delaware)?

is the issue a minor capacity issue at many/multiple locations or large capacity shortfalls at relatively few locations ?the majority of current parking is at private land uses (not truck just at truck stops).

seems like public funds could support tech response if issue is minor capacity at many sites, and/or funding one or two new truck parking sites near these new generators (port, amazon, etc.)

2

In your opinion, what should be the priority solution to address truck parking issues in this region (North-Central Delaware)?

In your opinion, what should be the priority solution to address truck parking issues in this region (Southern Delaware)?

Are there any other considerations that we have not yet discussed today?

Working Group Meetings

November, 18, 2020

DE Truck Parking and First/Last Mile Working Group Meeting

Attendees:

- CPCS: Julia Thompson, Eric Oberhart, Alex Marach, Rachel Aland, Rahil Saeedi, Donald Ludlow
- WILMAPCO/DelDOT: Dan Blevins, Sam Sherman, Brain Soper, Lee Derrickson, Josh Thomas: James Galvin

Statewide Truck Parking Study

- Progress to date: review initial data submission, WP1 close to submission, began inventory of truck parking locations, new data approach to use a more robust data set, data purchases – INRIX, trucker path
- Data Updates
    - Truck AADT – missing to submit WP1. We have an AADT file but are specifically looking at combo trucks which isn't highlighted there. Proposes using HPMS
    - Truck accident data – need Class 7/8 data vs 4/5
    - Missing WIM counts
    - Jason's Law Enforcement – can supplement with our own records
- Qs: Anything else to highlight or any trends we missed? Any areas of interest in what we covered – DE specific or regional/national level?
    - Dan: nothing jumping out, in line with what they're looking for on the national/regional level. Will connect on data over email.
- Upcoming data analysis
    - Truck parking inventory development process
        - Compile list of potential truck parking locations in and around DE (DelDOT, Trucker Path, Private truck stop websites)
        - Validate the count of spaces using satellite images and define truck parking areas
        - Add attributes to truck parking locations
        - Public areas: Create polygons for designated and undesignated areas
        - Private locations: Create polygons for designated and unknown areas.
    - How to use inventory
        - WP – mapping public and private facilities
        - Classifying designated and undesignated truck parking
        - ID clusters of truck parking and gaps
        - Capture vacant lots near truck parking facilities to inform next steps
- Dan: Initial analysis will lead to other questions.

- James Galvin: 113/Dover - Vacant lots will have trucks if not monitored – not near any kind of formal facility. Notes there are plenty of other places that they can share anecdotal information on to document truck parking that may not be legal/warranted
- Josh: Designated vs undesignated is key and helpful product for them. Hadn't considered that even with facilities, trucks may be spilling out. Facilities may be over capacity. Potential implementation for new facilities is going to come from PPP. Doubts DelDOT will want to build five new industries – will have to lift up through partnerships.
-

Focus Group Meetings

What do we want to accomplish? Who do we want to engage? How do we want to engage them?

- Dan: Will have to be remote (COVID)
- Dan: out of necessity will have to go in direction suggested by Eric. Interact with people we know are engage-able. Get people with high utility in joining and have expertise. Getting a broader audience vs obtaining survey feedback/more high-level discussion. Can engage stakeholders through wider net of interest – DE MPO, etc. Need to balance types of stakeholders (e.g. public agencies vs shippers vs land owners). Anything done – need to make sure we get the right representation.
- Eric: separate mechanism for general public vs public agency (more detailed) vs private industry engagement.
- Dan: Easier to separate out feedback based on engagement group – limit "mixing" of stakeholder responses
- Lee: Thoughts on two-track approach – put private and public sector together to let them interact/see each others' viewpoints. But for trucking, faster and simpler engagement tool might work better
- Eric: think about having general open discussion meeting in addition to two track approach – those who are very engaged have opportunity to talk with each other
- Eric: Which tools for outreach – tools that allow people to easily browse and comment on complex data?
- Dan: no additional ones, no longer have subscription to MetroQuest, move toward mango map without complexity and cost of Metro Quest
- Eric: Will circle back with group post-Thanksgiving to refine engagement methods

December 16, 2020

12/16/20 Working Group Meeting

WP 1 Additional Comments?

- Dan Blevins: Unless other people have submitted comments, they may be OK with paper

Data requests

- Dan Blevins: has Matt responded? Can nudge. Will share email address with RA

Any other WP 1 comments?

- Nicole Katsikides (MDOT) - provided comments
    - Seasonality in MD and parking
    - Changes in ag, tourism seasons, resiliency (when rail can't go)

    - Worth referencing and looking into Delmarva region with different parking at different times of the year
- Brian Soper (MPO)
    - Notice the location west of Delmar - there is a parking location there now off the highway but there's a new Royal Farms potentially built adjacent to the location
- Jim Galvin - near them there are a lot of informal truck parking facilities. Staging and overnight.
    - Everything he has heard so far is formal
    - There are also places where there's no indication that people park there. Will they have opportunity to do something similar to the previous study with IDing on a web map where things happen
    - Dan - we *may* but the scope for this starts with national perspective, then we're getting into levels for existing local truck parking and seasonal information. Where we see clusters that aren't in inventory - those will show up data-wise.

Focus Group

- Thinking late Feb/early March
- Dan Blevins: will be overlap with first/last mile and truck parking stakeholders
- Also Royal Farms, Walmart, Smyrna that are parking specific

Phil Strohm - timely discussion on this topic

- Dec 7 had tractor trailer driver from MS to Philly - pulled over on I-95 to sleep - passenger vehicle crashed into tractor trailer. No impairment. Not sure if all lots were full
- But will all the availability is working on - purview of group to discourage undesignated parking?

Dan Blevins - do you have tired over hours truck drivers move or do you allow illegal truck parking?

Troy Mix - working group vs focus group

- Rachel Aland: Working group - Dan. Will provide technical review and oversight - MPOS, etc.
- Rachel Aland: Focus group - yet to be determined. Truck stop operators, fleet owners - provide on the ground understanding and understanding

Troy Mix - what's the response been

- Rachel Aland: Haven't started outreach - need to set a date.
- Dan Blevins: have some private sector folks, would envision other private sector folks will join through connection with Lee. If there are any other names send their info over.

Wikimap Interactive Mapping Tool

From March 11 to April 1, 2021, state, local, and industry stakeholders had the opportunity to provide feedback on truck parking issues in Delaware through an online mapping tool (Wikimap). This interactive map allowed stakeholders to "drop a pin" on the map in order to identify locations of undesignated parking in the state. The Wikimap received eight total responses during this time.

Figure 29: Wikimap Tool

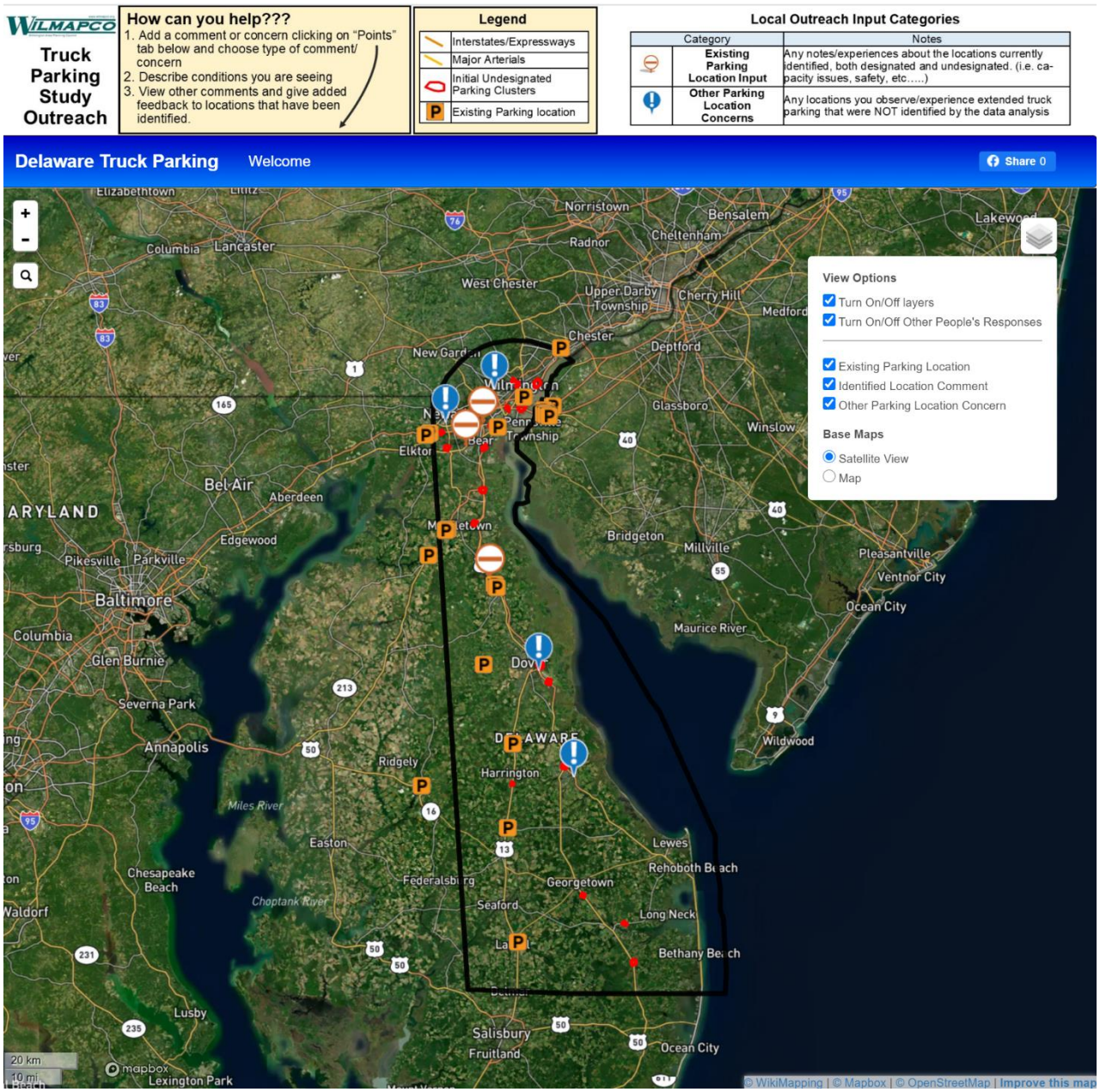

Figure 30: Wikimap Tool Stakeholder Comments and Responses

Location	Comment	Response
SR 141 interchange with SR 41/SR 2 (Kirkwood Hwy.)	N/A	No concern identified
Newark Station	Commercial service vehicles have been parked in train and DART lot overnight especially when the company has a long term project in the area and does not want employees taking the vehicles home	The Delaware Truck Parking Study is focused on addressing long-term truck parking needs for both overnight parking for truck drivers to rest, as well as more localized, shorter-term truck parking and staging needs. This comment is specific to storing commercial service vehicles related to short-term construction, maintenance, or other projects in the area.
SR 273 (Christiana Rd.) just east of SR 1 on/off ramps (Exit 162)	DelDOT has received complaints in the past regarding trucks parking overnight on the shoulder here, where it is posted Emergency Parking Only	Adjacent to undesignated parking cluster D-7.
Porter Rd. just south of US 40	DelDOT recently implemented NO PARKING signs in this area due to complaints about trucks parked here blocking the shoulder, particularly for use of bikes. Trucks have continued to be observed here and police enforcement has occurred.	Truck GPS data does not show a density of undesignated truck parking at this location. However, this location has been noted as an issue area and will be considered when developing recommendations for the Delaware Truck Parking Study.
SB SR 1 ramp to US 13	Trucks often park on the SB SR 1 ramp to SB US 13 at this location	Truck GPS data shows a density of undesignated truck parking at this location. Located within undesignated parking cluster D-5.
NB SR 1 just south of Exit 95	Truck parking occurs nightly on wide shoulder of SR 1	Adjacent to undesignated parking cluster on D-4.
NB SR 1 on-ramp from SR 36 (Cedar Beach Rd.)	Truck parking occurs nightly on this ramp	Adjacent to undesignated parking cluster D-13.
SB SR 1 on-ramp from SR 36 (Cedar Beach Rd.)	Truck parking occurs nightly on this ramp	Adjacent to undesignated parking cluster D-13.

Appendix B PEL Checklist

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
1.	Background:		
a.	Who is the sponsor of the PEL study? (state DOT, Local Agency, Other)	1.2 Project Objective	WILMAPCO and DelDOT
b.	What is the name of the PEL study document and other identifying project information (e.g. sub-account or STIP numbers, long-range plan, or transportation improvement program years)?	Cover Page	Delaware Truck Parking Study
c.	Who was included on the study team (Name and title of agency representatives, consultants, etc.)?	Cover Page Project Description	WILMAPCO, DelDOT, CPCS Transcom Inc., Century Engineering, State and Regional Truck Parking stakeholders
d.	Provide a description of the existing transportation facility within the corridor, including project limits, modes, functional classification, number of lanes, shoulder width, access control and type of surrounding environment (urban vs. rural, residential vs. commercial, etc.)	Location Map, Existing Truck Parking Conditions	The Study Area is throughout the state of Delaware. A truck Parking inventory was compiled and mapped showing private, public, and public/private existing truck parking locations statewide in addition to truck parking utilization.
e.	Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were completed.	Cover Page, 2.1 Study Approach	The Study duration was approximately 12 months, with completion in 2021. The workplan began with a literature review, then the development of existing conditions, which includes the truck parking inventory, truck parking utilization analysis and undesignated truck parking analysis. The results of this analysis were presented in Focus Group Number 1. A Strength, Weaknesses, Opportunities & Threats analysis was conducted and presented to the second focus group session. Finally, recommendations were identified and finalized into the Final Truck Parking Study Report.
f.	Are there recent, current, or near future planning studies or projects in the vicinity? What is the relationship of this project to those studies/projects?	1.2 Project Objective, 2.1 Study Approach	Jason's Law Survey (2015), ATRI Critical Issues in the Trucking Industry (2020), Eastern Corridor Coalition (formerly the I-95 Corridor Coalition) truck parking activities and publications, Delmarva Freight Plan (2015), Delaware Valley Regional Planning Commission Regional Truck Parking Study (2011), Maryland Statewide Truck Parking Study (2020), Truck Parking in

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
			Pennsylvania (2007), Virginia Truck Parking Study (2015), Delaware Freight and Goods Movement Plan (2004), Port of Wilmington Truck Parking Study (2013), Recommendations from Special Committee to Study and Make Recommendations Regarding Truck Traffic & Freight Movements Along SR 41, SR 48 & SR 7 (2018) These studies and projects provide national and regional context for truck parking applicable to Delaware, and background on past and existing efforts and recommendations related to truck parking in the region and state.
2.	Methodology used:		
a.	What was the scope of the PEL study and the reason for completing it?	1.1 Project Need, 1.2 Project Objective	The Delaware Statewide Truck Parking Study (the Study) seeks to address the shortage of truck parking and the associated safety, infrastructure, quality of life, and economic impacts through the identification of priority solutions to improve truck parking throughout the state of Delaware. The Study will provide the Delaware Department of Transportation (DelDOT), the Wilmington Area Planning Council (WILMAPCO), and other state and regional truck parking stakeholders with an analytical foundation to provide information related to infrastructure investments and strategies to address the State's most pressing truck parking issues.
b.	Did you use NEPA-like language? Why or why not?	4. Opportunities, 5. Implementation Plan	Yes, NEPA language was used to the extent that this study can provide Project Needs, Agency Coordination, Public Involvement, and documentation.
c.	What were the actual terms used and how did you define them? (Provide examples or list)	Entire Document	Purpose and Need, as well as, NEPA Documentation
d.	How do you see these terms being used in NEPA documents?	Purpose and Need	The Purpose and Need will be used in NEPA Documentation
e.	What were the key steps and coordination points in the PEL decision-making process? Who were the decision-makers and who else participated in those key steps? For example, for the corridor vision, the decision was made by state DOT and the local agency, with buy-in from FHWA, the USACE, and USFWS and other resource/regulatory agencies.	2. Project Description, Appendix A Stakeholder Outreach	Throughout the study, representatives from WILMAPCO and DelDOT were coordinated with and kept apprised of the analysis and results. During Working Group and Focus Group meetings, analysis was presented and feedback was obtained to validate and supplement Study results. Working and Focus Group representatives included from WILMAPCO, DelDOT, Dover Kent MPO, Royal Farms, Kent County Levy Court, Delaware Valley Regional Planning Commission (DVRPC), Kent Economic Partnership, City of Dover, Salisbury/Wicomico MPO (S/WMPO),

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
			Maryland DOT State Highway Administration (SHA), FMSCA, Delaware State Police (DSP), Delaware Motor Truck Association (DMTA) and University of Delaware Institute for Public administration (UD IPA).
f.	How should the PEL information be presented in NEPA?		The PEL Study may be attached
3.	Agency coordination:		
a.	Provide a synopsis of coordination with Federal, tribal, state and local environmental, regulatory and resource agencies. Describe their level of participation and how you coordinated with them.	1.2 Project Objective, 2. Project Description, Appendix A Stakeholder Outreach	Throughout the study, representatives from WILMAPCO and DelDOT were coordinated with and kept apprised of the analysis and results. During Working Group and Focus Group meetings, analysis was presented and feedback was obtained (through discussion, live online polling, and an interactive mapping tool) to validate and supplement Study results. Working and Focus Group representatives included from WILMAPCO, DelDOT, Dover Kent MPO, Royal Farms, Kent County Levy Court, Delaware Valley Regional Planning Commission (DVRPC), Kent Economic Partnership, City of Dover, Salisbury/Wicomico MPO (S/WMPO), Maryland DOT State Highway Administration (SHA), FMSCA, Delaware State Police (DSP), Delaware Motor Truck Association (DMTA) and University of Delaware Institute for Public administration (UD IPA).
b.	What transportation agencies (e.g. for adjacent jurisdictions) did you coordinate with or were involved during the PEL study?	1.2 Project Objective, 2 Project Description	DelDOT and WILMAPCO.
c.	What steps will need to be taken with each agency during NEPA scoping?	4. Opportunities, 5. Implementation Plan	Each recommendation that moves forward for design will continue with the NEPA process where this report leaves off. For recommended location-specific projects, each agency will be prepared to have a scoping meeting for the recommendation and begin the in-depth investigation into the permitting and coordination necessary for design.
4.	Public coordination:		
1.	Provide a synopsis of your coordination efforts with the public and stakeholders.	2.2 Stakeholder Outreach, Appendix A Stakeholder Outreach	Meeting Summaries have been prepared and included in the Appendices.

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
5.	Range of alternatives:		
a.	What types of alternatives were looked at?	4. Opportunities, 5. Implementation Plan	The study reviewed proposed locations across the state to answer the demand of existing truck volumes, plan for future truck volume growth, and increase truck parking supply.
b.	How did you select the screening criteria and screening process?	Project Need	Recommendations that were deemed “feasible” were included in the report and will move forward for further study. To be deemed feasible, the project recommendations must meet the project needs statement, while having the ability to be designed and constructed.
c.	For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s). (During the initial screenings, this generally will focus on fatal flaws.)	Project Need	All recommendations evaluated were deemed feasible.
d.	Which alternatives should be brought forward into NEPA and why?	4. Opportunities, 5. Implementation Plan	As funding allows and as recommended by further study.
e.	Did the public, stakeholders, and agencies have an opportunity to comment during this process?	2.2 Stakeholder Outreach, Appendix A Stakeholder Outreach	Yes, two Focus Groups were held to solicit feedback and input through discussion and live polling. An online interactive mapping tool was also made available for commenting.
f.	Were there unresolved issues with the public, stakeholders, and/or agencies?		No
7.	Planning assumptions and analytical methods:		
a.	What is the forecast year used in the PEL study?	N/A	N/A
b.	What method was used for forecasting traffic volumes?	N/A	N/A
c.	Are the planning assumptions and the corridor vision/purpose and need statement consistent with each other and with the long-range transportation plan? Are the assumptions still valid?	2.1 Project Need, 2.2 Project Objective, 4. Opportunities, 5. Implementation Plan	Yes

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
d.	What were the future year policy and/or data assumptions used in the transportation planning process related to land use, economic development, transportation costs, and network expansion?	2.1 Project Need, 4.3 Location Specific Project Opportunities	Costs were estimated using 2021-unit prices.
8.	Environmental resources (wetlands, cultural, etc.) reviewed.		
a.	In the PEL study, at what level of detail was the resource reviewed and what was the method of review?	4.3 Location Specific Project Opportunities	Desktop Review and field verification
b.	Is this resource present in the area and what is the existing environmental condition for this resource?	4.3 Location Specific Project Opportunities	It appears from our desktop review there are no evident environmental or cultural resources present in the recommended capacity expansion project study areas.
c.	What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?	4.3 Location Specific Project Opportunities	It appears from our desktop review there are no evident environmental or cultural resources present in the recommended capacity expansion project study areas.
d.	How will the planning data provided need to be supplemented during NEPA?	4.3 Location Specific Project Opportunities	Coordination with appropriate State and Federal resource agencies beginning with a field scoping meeting to determine level of NEPA preparation necessary. For recommended capacity expansion projects, it is anticipated that a Cat-EX will be required.
9.	List environmental resources you are aware of that were not reviewed in the PEL study and why. Indicate whether they will need to be reviewed in NEPA and explain why.	N/A	N/A
10.	Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where the analysis can be found.	N/A	N/A
11.	Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.	N/A	N/A
12.	What needs to be done during NEPA to make information from the PEL study available to the agencies and the public? Are there PEL study products which can be used or provided to agencies or the public during the NEPA scoping process?		The PEL Study will be available to agencies involved in the planning and design processes.

Federal Highway Administration - Planning and Environmental Linkages Questionnaire https://www.environment.fhwa.dot.gov/env_initiatives/pel/pel_quest.aspx			
	Topic	Section Reference	Comments
13.	Are there any other issues a future project team should be aware of?	N/A	N/A

Appendix C Undesignated Truck Parking Clusters

This Appendix provides additional details for each cluster of undesignated parking corresponding to the marker shown in Figure 31 below.

Figure 31: Undesignated Truck Parking Clusters (Map)

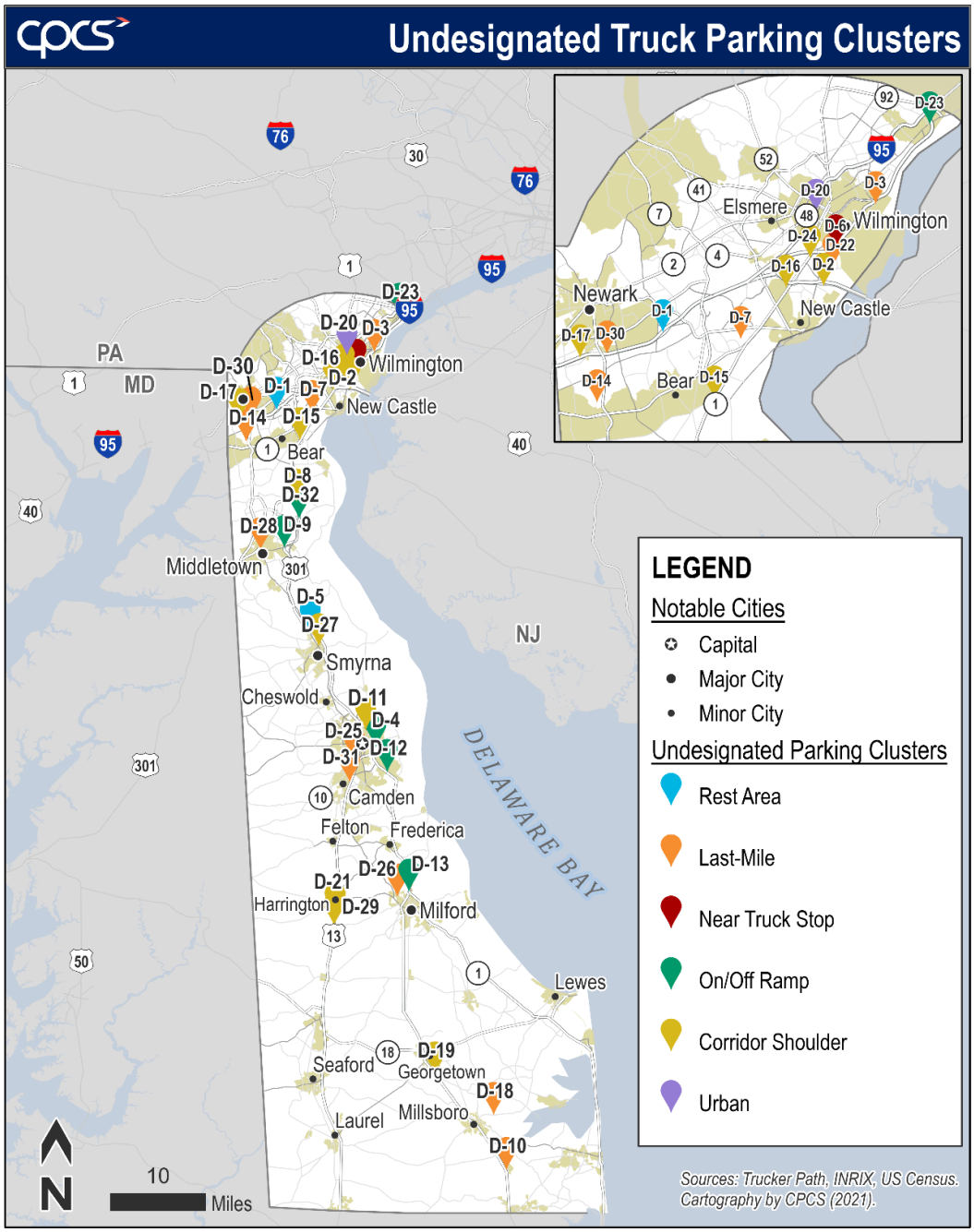

Figure 33 on the following page provides details for the undesignated parking clusters. The following information is provided for each cluster of undesignated parking.

- **County:** County in which the cluster is located
- **Location Description:** Description of where the cluster is located
- **Type:** Type of undesignated truck parking, determined based on where undesignated truck parking occurs.
- **Total Count of Undesignated Stops:** Number of undesignated trucks stopped within the cluster during the 12 weeks of INRIX truck GPS data.
- **Total Duration of Undesignated Stops (Hours):** The total number of hours trucks were parked in an undesignated location.
- **Median Stop Duration (Hours):** Median number of hours that a truck parked in an undesignated location.
- **Average Stop Duration (Hours):** Average number of hours that a truck parked in an undesignated location.
- **Percent of Stops < 3 Hours:** Percentage of undesignated trucks stopped within the cluster for less than three hours.
- **Percent of Stops 3-8 Hours:** Percentage of undesignated trucks stopped within the cluster for three to eight hours.
- **Percent of Stops > 8 Hours:** Percentage of undesignated trucks stopped within the cluster for more than eight hours.
- **Period of Day with Highest Number of Undesignated Stops:** The period of day when the highest number of stops occur within the cluster, based on the hour of the day with the highest average number of stops during the 12 weeks of INRIX truck GPS data. Figure 32 illustrates the times of day that correspond to each period. In cases where the highest average number of stops occurred over several consecutive hours of the day, several periods were noted. In cases where there were several, non-consecutive hours of the day with the highest average number of stops, undesignated parking was classified as “recurring” in the cluster.

Figure 32: Corresponding Period and Times of Day

Period of Day	Time of Day
Overnight	12 am (Midnight) – 6 am
Morning	6 am – 12 pm (Noon)
Afternoon	12 pm (Noon) – 6 pm
Evening	6 pm – 12 am (Midnight)

Figure 33: Undesignated Truck Parking Clusters (Table)

Map Marker	County	Location Description	Type	Total Count of Undesignated Stops	Total Duration of Undesignated Stops (Hours)	Median Stop Duration (Hours)	Average Stop Duration (Hours)	% of Stops < 3 Hours	% of Stops 3 to 8 Hours	% of Stops > 8 Hours	Period of Day with Highest Number of Undesignated Stops
D-1	New Castle	Biden Welcome Center in Newark on I-95/ Delaware Turnpike	Rest Area	388	1,662	1.1	4.3	61%	8%	31%	Overnight
D-2	New Castle	I-295 in New Castle off the Delaware Memorial Bridge	Corridor Shoulder	48	91	1.2	1.9	90%	6%	4%	Overnight
D-3	New Castle	First/last-mile roads (Lighthouse Rd, Hay Rd) at Edgemoor	Last-mile	122	457	1.2	3.7	70%	7%	24%	Morning
D-4	Kent	SR 1 interchange with Puncheon Run Connector in Dover	On/Off Ramp	43	56	1.0	1.3	98%	0%	2%	Overnight, Morning
D-5	New Castle	Smyrna Rest Area in Smyrna on US-13/Dupont Pkwy and nearby US-13/SR 1 interchange on/off-ramps	Rest Area	98	282	1.0	2.9	76%	9%	15%	Morning
D-6	New Castle	Christiana Truck Stop at the Port of Wilmington on SR 9/Terminal Ave near I-495 on/off-ramps for Exit 2	Near truck stop	50	112	0.8	2.2	78%	12%	10%	Overnight, Morning
D-7	New Castle	US-13/Dupont Pkwy/S Dupont Hwy and US-40/Pulaski Hwy intersection, and near Wilton Blvd and US-40/Pulaski Hwy intersection in New Castle	Last-mile	75	304	1.9	4.0	57%	25%	17%	Recurring
D-8	New Castle	SR 1/Korean War Veterans Memorial Hwy (Toll Road) at Biddle's Corner Toll Plaza near SR 1/US-301 interchange near Middletown	Corridor Shoulder	19	47	1.9	2.5	84%	5%	11%	Evening, Overnight, Morning

Map Marker	County	Location Description	Type	Total Count of Undesignated Stops	Total Duration of Undesignated Stops (Hours)	Median Stop Duration (Hours)	Average Stop Duration (Hours)	% of Stops < 3 Hours	% of Stops 3 to 8 Hours	% of Stops > 8 Hours	Period of Day with Highest Number of Undesignated Stops
D-9	New Castle	SR 1 on/off ramps at Exit 136 to/from SR 299/Main St /Middletown Odessa Rd in Middletown	On/Off Ramp	27	53	1.1	2.0	78%	19%	4%	Overnight
D-10	Sussex	Daisey St between Dupont Blvd and Rte 401/Clayton Ave in Frankford	Last-mile	132	124	0.7	0.9	98%	0%	2%	Morning
D-11	Kent	SR 1/Korean War Veterans Memorial Hwy (Toll Road) at Dover Toll Plaza	Corridor Shoulder	32	76	1.3	2.4	75%	19%	6%	Evening, Overnight
D-12	Kent	SR 1 /Bay Rd near off-ramp at Exit 92 in Dover	On/Off Ramp	17	62	3.4	3.6	47%	41%	12%	Evening, Overnight
D-13	Kent	US 113/Dupont Blvd connection to SR 1/Bay Rd in Milford	On/Off Ramp	42	58	0.6	1.4	90%	7%	2%	Overnight
D-14	New Castle	First/last-mile roads (Executive Dr) in Newark	Last-mile	28	228	6.0	8.1	46%	11%	43%	Morning
D-15	New Castle	US-13/SR 1/S Dupont Hwy near on/off ramps to/from SR 1/Korean War Veterans Memorial Hwy near Bear	Corridor Shoulder	24	42	0.9	1.8	88%	8%	4%	Evening, Overnight
D-16	New Castle	US 13/N Dupont Hwy/N Dupont Pkwy interchange with I-295/Delaware Turnpike near New Castle	Corridor Shoulder	29	97	0.6	3.4	66%	10%	24%	Afternoon
D-17	New Castle	I-95/Delaware Turnpike (toll road) at Newark Toll Plaza	Corridor Shoulder	11	12	1.0	1.1	100%	0%	0%	Overnight
D-18	Sussex	SR 24/John J Williams Hwy near Rd 304 intersection in Millsboro	Last-mile	22	87	1.4	4.0	64%	14%	23%	Overnight, Morning

Map Marker	County	Location Description	Type	Total Count of Undesignated Stops	Total Duration of Undesignated Stops (Hours)	Median Stop Duration (Hours)	Average Stop Duration (Hours)	% of Stops < 3 Hours	% of Stops 3 to 8 Hours	% of Stops > 8 Hours	Period of Day with Highest Number of Undesignated Stops
D-19	Sussex	US-113/Dupont Blvd near S Bedford St/Shortly Rd near Georgetown	Corridor Shoulder	19	23	0.6	1.2	89%	11%	0%	Recurring
D-20	New Castle	Wilmington urban area	Urban	343	1,020	1.1	3.0	79%	10%	11%	Morning
D-21	Kent	US-13/S Dupont Hwy between Tower Hill Rd and Raceway Blvd near Harrington	Corridor Shoulder	14	39	1.4	2.8	64%	29%	7%	Overnight
D-22	New Castle	First/last-mile roads near (southwest of) the Port of Wilmington	Last-mile	42	136	1.7	3.2	69%	19%	12%	Morning, Afternoon
D-23	New Castle	I-495 near and at US-13/Philadelphia Pike interchange in Claymont	On/Off Ramp	58	82	0.7	1.4	93%	3%	3%	Morning
D-24	New Castle	US-13/N Dupont Hwy interchange with I-495, south of Wilmington and north of New Castle	Corridor Shoulder	38	56	0.6	1.5	92%	3%	5%	Morning, Afternoon
D-25	Kent	US-13/S Dupont Hwy near Puncheon Run Connector and Webbs Ln in Dover	Last-mile	37	81	0.8	2.2	84%	5%	11%	Overnight, Morning
D-26	Kent	First/last-mile roads (Vickers Dr) in Milford	Last-mile	25	103	2.7	4.1	60%	24%	16%	Morning
D-27	Kent	US-13/SR 6/N Dupont Blvd in Smyrna	Corridor Shoulder	20	66	0.8	3.3	75%	15%	10%	Evening, Overnight
D-28	New Castle	First/last-mile roads (Industrial Dr, Tower Ln, off N Cass St) in Middletown	Last-mile	18	61	1.0	3.4	61%	22%	17%	Morning, Afternoon
D-29	Kent	US-13/S Dupont Hwy between Rd 435 and	Corridor Shoulder	16	12	0.6	0.8	100%	0%	0%	Morning, Afternoon

Map Marker	County	Location Description	Type	Total Count of Undesignated Stops	Total Duration of Undesignated Stops (Hours)	Median Stop Duration (Hours)	Average Stop Duration (Hours)	% of Stops < 3 Hours	% of Stops 3 to 8 Hours	% of Stops > 8 Hours	Period of Day with Highest Number of Undesignated Stops
		Hammondtown Rd/Williamsville Rd/Rd 116 near Harrington									
D-30	New Castle	I-95/Delaware Turnpike interchange with SR 896/S College Ave near Newark	Last-mile	14	43	1.7	3.1	64%	29%	7%	Recurring
D-31	Kent	US-13/S Dupont Hwy between Lochmeath Way and Voshells Mill Starr Hill Rd near Dover	Last-mile	14	49	1.4	3.5	71%	14%	14%	Recurring
D-32	New Castle	SR 1 interchange with Pole Bridge Rd at Exit 142 near Odessa	On/Off Ramp	12	28	0.7	2.3	83%	0%	17%	Recurring

Source: CPCS analysis of INRIX, Trucker Path.

Appendix D Conceptual Graphics and Cost Estimates

This Appendix provides full-page conceptual graphics and detailed cost estimates for three opportunities provided in the Study. This information has been developed to inform DelDOT's future considerations and discussions related to truck parking capacity expansion in Delaware. These three capacity expansion opportunities – one in each region – were selected for conceptualization as they each leverage existing state-owned land and have been identified as locations suitable for truck parking, given proximity to key freight routes and amenities.

Figure 34: Full-Page Concept Graphic for Truck Parking Capacity Expansion Opportunity at Intersection of US 13 and Bear Rd./Hamburg Rd.

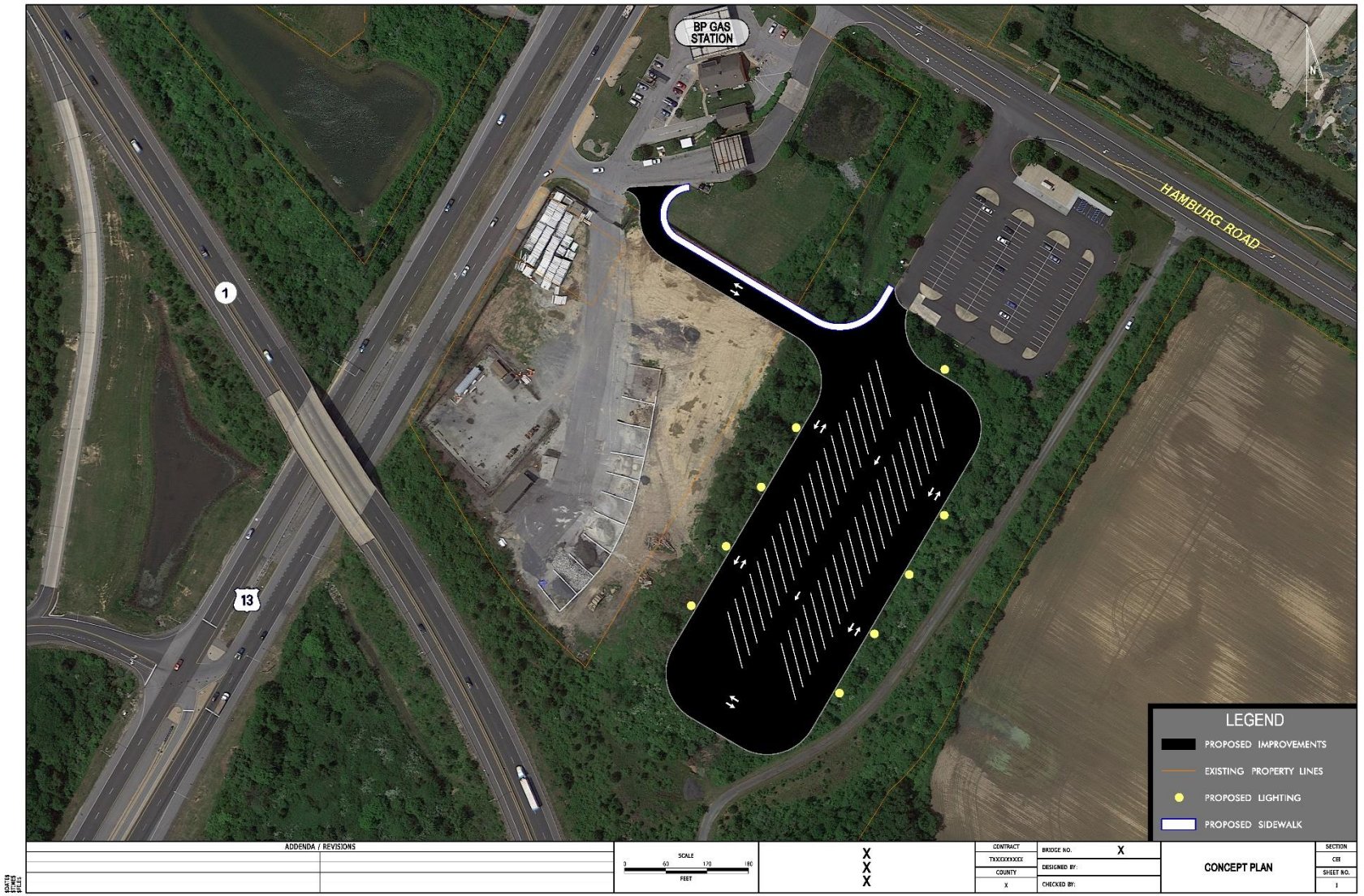

Figure 35: Conceptual Cost Estimate for Truck Parking for Capacity Expansion Opportunity at Intersection of US 13 and Bear Rd./Hamburg Rd.

Truck Parking Lot New Castle County (Tybouts)					
TBD					
Conceptual Cost Estimate 4/6/2021					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	$10,000.00	1.00	$10,000.00
202000	EXCAVATION AND EMBANKMENT	CY	$18.00	9400.00	$169,200.00
202003	UNDERCUT EXCAVATION	CY	$23.00	940.00	$21,620.00
204000	TEST HOLE	CY	$110.00	5.00	$550.00
209001	BORROW, TYPE A	CY	$20.00	1087.00	$21,740.00
301001	GABC	CY	$60.00	4190.00	$251,400.00
302002	DELAWARE NO. 3 STONE	TON	$68.00	27.00	$1,836.00
401007	SUPERPAVE TYPE C, PG 76-22 (CARBONATE STONE)	TON	$100.00	2200.00	$220,000.00
401016	SUPERPAVE TYPE B, PG 76-22	TON	$88.00	3300.00	$290,400.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	$80.00	3200.00	$256,000.00
705001	PCC SIDEWALK, 4"	SF	$10.00	2630.00	$26,300.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	$3.00	407.00	$1,221.00
763509	CPM SCHEDULE UPDATES AND/OR REVISED UPDATES	EAMO	$1,200.00	3.00	$3,600.00
801000	MAINTENANCE OF TRAFFIC	LS	$15,000.00	1.00	$15,000.00
810001	TEMPORARY WARNING SIGNS AND PLAQUES	EADY	$5.00	1134.00	$5,670.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	$3.00	175.00	$525.00
817013	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	LF	$1.50	4510.00	$6,765.00
819018	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	EACH	$85.00	3.00	$255.00
819019	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON MULTIPLE SIGN POSTS	SF	$15.00	3.00	$45.00
905001	SILT FENCE	LF	$3.50	9261.00	$32,413.50
908004	TOPSOIL, 6" DEPTH	SY	$3.00	2920.00	$8,760.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	$0.75	3066.00	$2,299.50
908017	TEMPORARY GRASS SEEDING	SY	$0.70	9198.00	$6,438.60
908020	EROSION CONTROL BLANKET MULCH	SY	$2.50	3000.00	$7,500.00
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	$25.00	438.00	$10,950.00
908026	EROSION CONTROL MULCH	SY	$9.00	2917.00	$26,253.00
	LIGHTING	L.S.	$29,000.00	1.00	$29,000.00
	Subtotal				**$1,425,741.60**
763000	Initial Expense (5%)	L.S.	$71,287.08	1	$71,287.08
763501	Construction Engineering (2.5%)	L.S.	$35,643.54	1	$35,643.54
	TOTAL BASE FOR PROJECT				**$1,532,672.22**
	CONSTRUCTION CONTINGENCY	10%	$153,267.22	1	$153,267.22
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	$0.00	1	$0.00
	UTILITY	L.S.	$0.00	1	$0.00
	PLANTING	L.S.	$5,000.00	1	$5,000.00
	QA/QC for HMA	L.S.	$3,045.00	1	$3,045.00
	Asphalt Cost Adj	L.S.	$38,940.00	1	$38,940.00
	TOTAL CONSTRUCTION COST				**$1,732,924.44**
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	$226,000.00	1	$226,000.00
	TOTAL BASE CONSTRUCTION COST				**$1,958,924.44**

Notes: 1. Assumes 180 Calendar Days.

Figure 36: Full-Page Concept Graphic for Truck Parking Capacity Expansion Opportunity at Intersection of US 13 and West Lebanon Rd./SR 10 in Camden

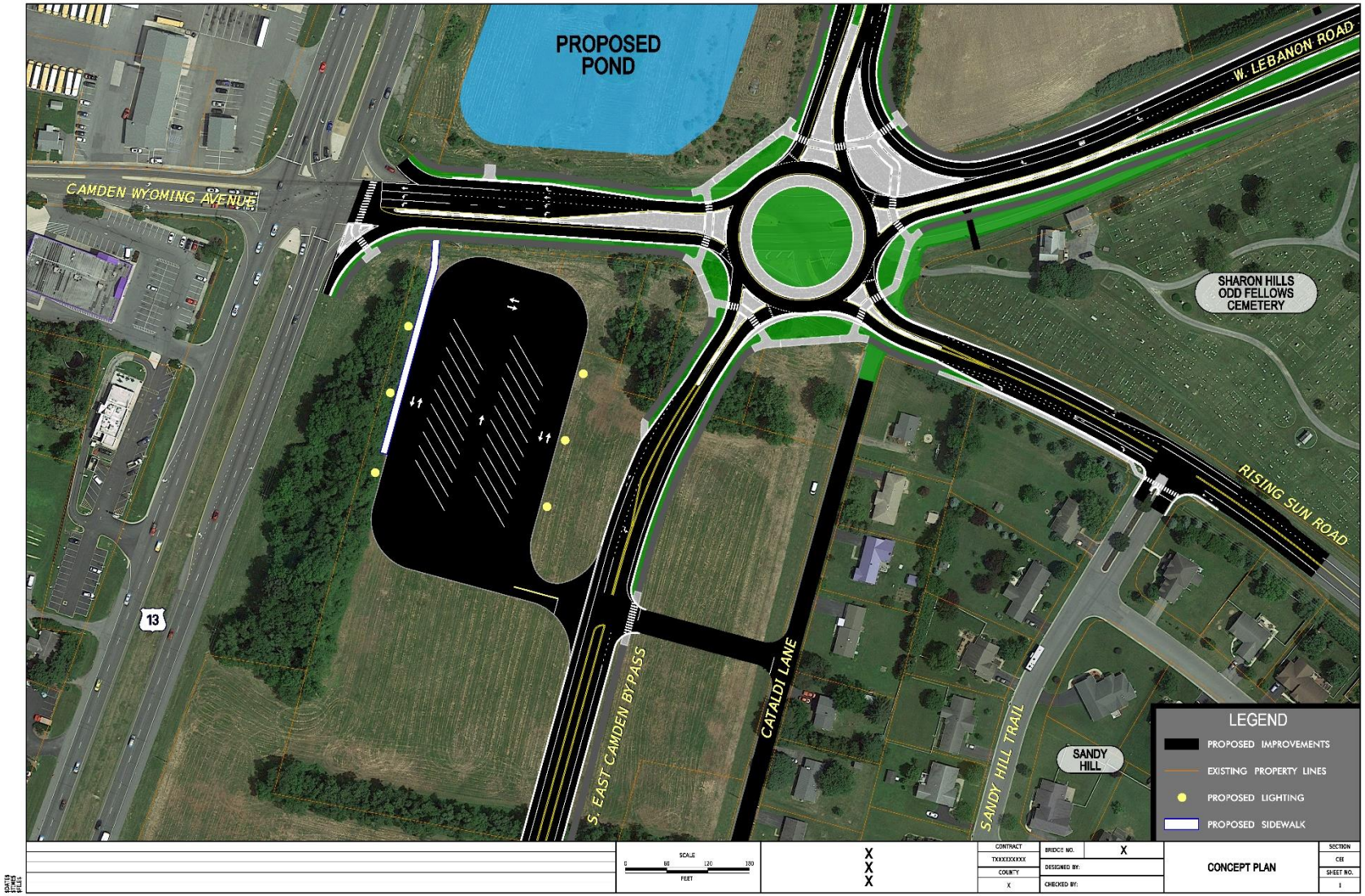

Figure 37: Conceptual Cost Estimate for Truck Parking Capacity Expansion Opportunity at Intersection of US 13 and West Lebanon Rd./SR 10 in Camden

Truck Parking Lot Kent County (Camden)

TBD

Conceptual Cost Estimate 4/6/2021

ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	$10,000.00	1.00	$10,000.00
202000	EXCAVATION AND EMBANKMENT	CY	$18.00	6200.00	$111,600.00
202003	UNDERCUT EXCAVATION	CY	$23.00	620.00	$14,260.00
204000	TEST HOLE	CY	$110.00	5.00	$550.00
209001	BORROW, TYPE A	CY	$20.00	713.00	$14,260.00
301001	GABC	CY	$60.00	2760.00	$165,600.00
302002	DELAWARE NO. 3 STONE	TON	$68.00	27.00	$1,836.00
401007	SUPERPAVE TYPE C, PG 76-22 (CARBONATE STONE)	TON	$100.00	1400.00	$140,000.00
401016	SUPERPAVE TYPE B, PG 76-22	TON	$88.00	2200.00	$193,600.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	$80.00	2100.00	$168,000.00
705001	PCC SIDEWALK, 4"	SF	$10.00	2630.00	$26,300.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	$3.00	407.00	$1,221.00
763509	CPM SCHEDULE UPDATES AND/OR REVISED UPDATES	EAMO	$1,200.00	3.00	$3,600.00
801000	MAINTENANCE OF TRAFFIC	LS	$15,000.00	1.00	$15,000.00
810001	TEMPORARY WARNING SIGNS AND PLAQUES	EADY	$5.00	1134.00	$5,670.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	$3.00	50.00	$150.00
817013	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	LF	$1.50	2470.00	$3,705.00
819018	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	EACH	$85.00	3.00	$255.00
819019	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON MULTIPLE SIGN POSTS	SF	$15.00	3.00	$45.00
905001	SILT FENCE	LF	$3.50	4977.00	$17,419.50
908004	TOPSOIL, 6" DEPTH	SY	$3.00	2920.00	$8,760.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	$0.75	3066.00	$2,299.50
908017	TEMPORARY GRASS SEEDING	SY	$0.70	9198.00	$6,438.60
908020	EROSION CONTROL BLANKET MULCH	SY	$2.50	3000.00	$7,500.00
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	$25.00	438.00	$10,950.00
908026	EROSION CONTROL MULCH	SY	$9.00	2917.00	$26,253.00
	LIGHTING	L.S.	$29,000.00	1.00	$29,000.00
	Subtotal				**$984,272.60**
763000	Initial Expense (5%)	L.S.	$49,213.63	1	$49,213.63
763501	Construction Engineering (2.5%)	L.S.	$24,606.82	1	$24,606.82
	TOTAL BASE FOR PROJECT				**$1,058,093.05**
	CONSTRUCTION CONTINGENCY	10%	$105,809.30	1	$105,809.30
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	$0.00	1	$0.00
	UTILITY	L.S.	$0.00	1	$0.00
	PLANTING	L.S.	$5,000.00	1	$5,000.00
	QA/QC for HMA	L.S.	$1,995.00	1	$1,995.00
	Asphalt Cost Adj	L.S.	$25,440.00	1	$25,440.00
	TOTAL CONSTRUCTION COST				**$1,196,337.35**
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	$186,000.00	1	$186,000.00
	TOTAL BASE CONSTRUCTION COST				**$1,382,337.35**

Notes: 1. Assumes 180 Calendar Days.

Figure 38: Full-Page Concept Graphic for Truck Parking Capacity Expansion Opportunity at Intersection of SR 1/Bay Rd./Milford Bypass and NE Front St.

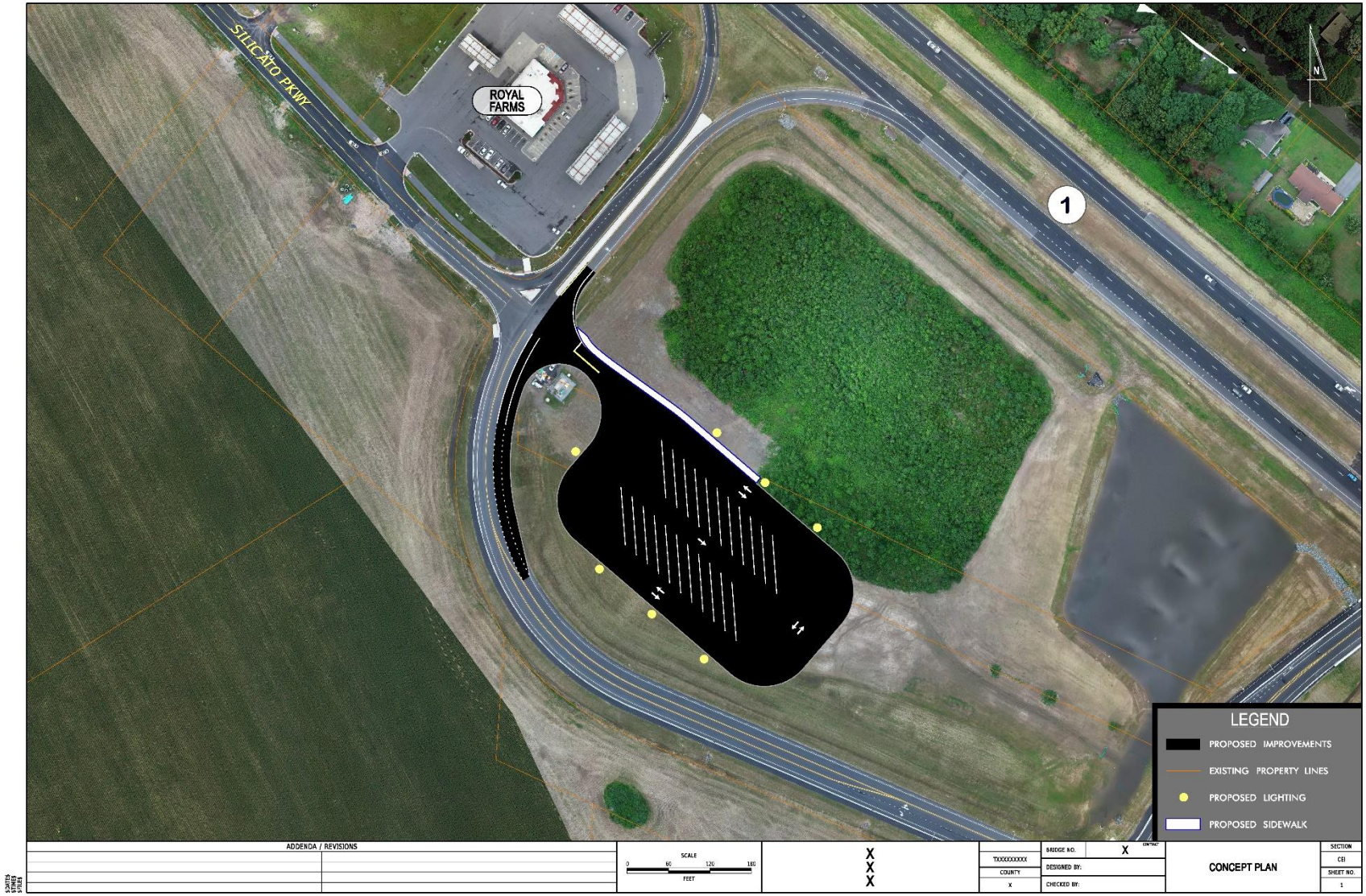

Figure 39: Conceptual Cost Estimate for Truck Parking Capacity Expansion Opportunity at Intersection of SR 1/Bay Rd./Milford Bypass and NE Front St.

Truck Parking Lot Sussex County (Milford)					
TBD					
Conceptual Cost Estimate 4/6/2021					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	$10,000.00	1.00	$10,000.00
202000	EXCAVATION AND EMBANKMENT	CY	$18.00	6500.00	$117,000.00
202003	UNDERCUT EXCAVATION	CY	$23.00	650.00	$14,950.00
204000	TEST HOLE	CY	$110.00	5.00	$550.00
209001	BORROW, TYPE A	CY	$20.00	747.00	$14,940.00
301001	GABC	CY	$60.00	2890.00	$173,400.00
302002	DELAWARE NO. 3 STONE	TON	$68.00	27.00	$1,836.00
401007	SUPERPAVE TYPE C, PG 76-22 (CARBONATE STONE)	TON	$100.00	1500.00	$150,000.00
401016	SUPERPAVE TYPE B, PG 76-22	TON	$88.00	2300.00	$202,400.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	$80.00	2200.00	$176,000.00
705001	PCC SIDEWALK, 4"	SF	$10.00	2630.00	$26,300.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	$3.00	407.00	$1,221.00
763509	CPM SCHEDULE UPDATES AND/OR REVISED UPDATES	EAMO	$1,200.00	3.00	$3,600.00
801000	MAINTENANCE OF TRAFFIC	LS	$25,000.00	1.00	$25,000.00
802003	ARROW PANELS TYPE C	EADY	$30.00	28.00	$840.00
803001	PROVIDE AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	EADY	$65.00	28.00	$1,820.00
805001	PLASTIC TRAFFIC CONTROL DRUMS	EADY	$1.00	1890.00	$1,890.00
810001	TEMPORARY WARNING SIGNS AND PLAQUES	EADY	$5.00	1134.00	$5,670.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	$3.00	88.00	$264.00
817013	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	LF	$1.50	2470.00	$3,705.00
819018	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON SINGLE SIGN POST	EACH	$85.00	3.00	$255.00
819019	INSTALLATION OR REMOVAL OF TRAFFIC SIGN(S) ON MULTIPLE SIGN POSTS	SF	$15.00	3.00	$45.00
905001	SILT FENCE	LF	$3.50	4977.00	$17,419.50
908004	TOPSOIL, 6" DEPTH	SY	$3.00	2920.00	$8,760.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	$0.75	3066.00	$2,299.50
908017	TEMPORARY GRASS SEEDING	SY	$0.70	9198.00	$6,438.60
908020	EROSION CONTROL BLANKET MULCH	SY	$2.50	3000.00	$7,500.00
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	$25.00	438.00	$10,950.00
908026	EROSION CONTROL MULCH	SY	$9.00	2917.00	$26,253.00
	LIGHTING	L.S.	$29,000.00	1.00	$29,000.00
	Subtotal				**$1,040,306.60**
763000	Initial Expense (5%)	L.S.	$52,015.33	1	$52,015.33
763501	Construction Engineering (2.5%)	L.S.	$26,007.67	1	$26,007.67
	TOTAL BASE FOR PROJECT				**$1,118,329.60**
	CONSTRUCTION CONTINGENCY	10%	$111,832.96	1	$111,832.96
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	$0.00	1	$0.00
	UTILITY	L.S.	$0.00	1	$0.00
	PLANTING	L.S.	$5,000.00	1	$5,000.00
	QA/QC for HMA	L.S.	$2,100.00	1	$2,100.00
	Asphalt Cost Adj	L.S.	$26,880.00	1	$26,880.00
	TOTAL CONSTRUCTION COST				**$1,264,142.55**
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	$186,000.00	1	$186,000.00
	TOTAL BASE CONSTRUCTION COST				**$1,450,142.55**

Notes: 1. Assumes 180 Calendar Days.

Appendix E Federal Funding Programs

There is a range of federal funding opportunities that could be used to fund truck parking efforts in Delaware. The Moving Ahead for Progress in the 21st Century (MAP-21) Act of 2012, enacted Jason's Law (Section 1401) to address the truck parking shortage on U.S. highways. As part of this legislation, truck parking was established as an eligible activity for select federal funding programs.[27] These, as well as other federal funding programs, may be used to advance truck parking projects. DelDOT should explore the federal funding sources listed in Figure 40 to fund truck parking opportunities in Delaware.

Figure 40: Federal Funding Programs

Funding Program	Description
National Highway Performance Program (NHPP)	The NHPP provides funding to support the condition, performance, and construction along the National Highway System (NHS), as well as investments to support progress toward achieving NHS asset management performance targets.[28] Funding is apportioned to states, with Delaware's total NHPP apportionment for fiscal year (FY) 2021 at $102,130,367.[29]
Highway Safety Improvement Program (HSIP)	The HSIP is currently funded under the FAST Act and provides funding to reduce traffic fatalities and serious injuries on public roads. Delaware's total HSIP apportionment for FY 2021 was $9,952,066.[30]
Surface Transportation Block Grant Program (STBG)	The STBG, formerly known as the Surface Transportation Program, is currently funded under the FAST Act, providing flexible funding for projects focused on preserving and improving road conditions and performance.[31] Delaware's total STBG apportionment for FY 2021 was $51,201,212.[32]
National Highway Freight Program (NHFP)	The NHFP was established under the FAST ACT and provides funding to states to support the efficient movement of freight on the National Highway Freight Network (NHFN). Funding is apportioned to states, contingent on state development of a U.S. Federal Highway Administration (FHWA) approved State Freight Plan.[33] Delaware's total NHFP apportionment for FY 2021 was $6,337,038.[34]

[27] FHWA, MAP-21 Truck Parking, https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/map21truckparking.htm
[28] FHWA, Fact Sheet, FAST Act, NHPP, Last modified February 26, 2016, https://www.fhwa.dot.gov/fastact/factsheets/nhppfs.cfm
[29] FHWA, Fiscal Year (FY) 2021 Computational Tables, Table 3: National Highway Performance Program (NHPP), https://www.fhwa.dot.gov/fastact/fy2021comp.pdf?revised
[30] FHWA, Fiscal Year (FY) 2021 Computational Tables, Table 5: Highway Safety Improvement Program (HSIP), https://www.fhwa.dot.gov/fastact/fy2021comp.pdf?revised
[31] FHWA, Special Federal-aid Funding, STBG, Updated September 21, 2017, https://www.fhwa.dot.gov/specialfunding/stp/; FHWA, FAST Act, Fact Sheet, Last modified February 8, 2017, https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm.
[32] FHWA, Fiscal Year (FY) 2021 Computational Tables, Table 4: Surface Transportation Block Grant Program (STBG), https://www.fhwa.dot.gov/fastact/fy2021comp.pdf?revised
[33] FHWA, Fact Sheet, FAST Act, NHFP, Last modified February 8, 2017, https://www.fhwa.dot.gov/fastact/factsheets/nhfpfs.cfm
[34] FHWA, Fiscal Year (FY) 2021 Computational Tables, Table 9: National Highway Freight Program (NHFP), https://www.fhwa.dot.gov/fastact/fy2021comp.pdf?revised

Funding Program	Description
Congestion Mitigation and Air Quality (CMAQ) Improvement Program	CMAQ is currently funded under the FAST Act, providing funding for transportation-related environmental projects to help states and localities meet requirements of the Clean Air Act and its amendments.[35] Delaware's CMAQ apportionment for FY 2021 was $12,427,468. [36]
Infrastructure for Rebuilding America (INFRA)	INFRA, formerly known as FASTLANE, is currently funded under the FAST Act. INFRA is a competitive grant program that provides grants to provide funding for up to 60 percent of nationally and regionally significant freight and highway projects.[37]
Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD)	ATCMTD was established under the FAST Act to provide funding, through competitive grants, for model development sites that support the large-scale installation and operation of advanced transportation technologies, to advance safety, efficiency, system performance, and infrastructure return on investment. ATCMTD funds are provided for up to 50 percent of project costs.[38]
Rebuilding American Infrastructure with Sustainability and Equity (RAISE),	RAISE, formerly known as the Better Utilizing Investments to Leverage Development (BUILD) and the Transportation Investment Generating Economic Recovery (TIGER), provides funding through competitive grants for road, rail, transit, and port projects that reach national objectives including safety, environmental safety, quality of life, economic competitiveness, state of good repair, innovation, and partnership.[39]
Diesel Emissions Reduction Act (DERA)	The DERA program provides funding through grants and rebates for projects that reduce harmful emissions from diesel engines, in order to protect human health and improve air quality. The U.S. Environmental Protection Agency administers DERA funding.[40]
Truck Parking Safety Improvement Act	This Act was introduced to the U.S. House of Representatives in 2020 to direct the U.S. DOT to set aside dedicated truck parking funds to be provided to states and localities through competitive grants.[41] The bill was reintroduced to the House in 2021 and if passed, would authorize $755 million over five years (FY 2022 to FY 2026) for truck parking.

[35] FHWA, Air Quality, CMAQ, Updated March 23, 2020, https://www.fhwa.dot.gov/environment/air_quality/cmaq/; FHWA, Fact Sheet, FAST Act, CMAQ, Last modified March 10, 2016, https://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm.
[36] FHWA, Fiscal Year (FY) 2021 Computational Tables, Table 7: Congestion Mitigation & Air Quality Improvement Program (CMAQ), https://www.fhwa.dot.gov/fastact/fy2021comp.pdf?revised
[37] FHWA, Fact Sheet, FAST Act, INFRA Grants, Modified August 24, 2017, https://www.fhwa.dot.gov/fastact/factsheets/infragrantsfs.cfm; U.S. DOT, INFRA Grants FAQ, Updated February 22, 2021, https://www.transportation.gov/buildamerica/financing/infra-grants/infra-grants-faqs
[38] ATCMTD, Fact Sheet, FAST Act, Last modified February 8, 2017, https://www.fhwa.dot.gov/fastact/factsheets/advtranscongmgmtfs.cfm
[39] U.S. DOT, RAISE Discretionary Grants, Updated April 13, 2021, https://www.transportation.gov/RAISEgrants; U.S. DOT, About RAISE Grants, Updated May 14, 2021 https://www.transportation.gov/RAISEgrants/about
[40] EPA, DERA Funding, https://www.epa.gov/dera
[41] 116th Congress (2019-2020), H.R.6104 – Truck Parking Safety Improvement Act, https://www.congress.gov/bill/116th-congress/house-bill/6104?s=1&r=1