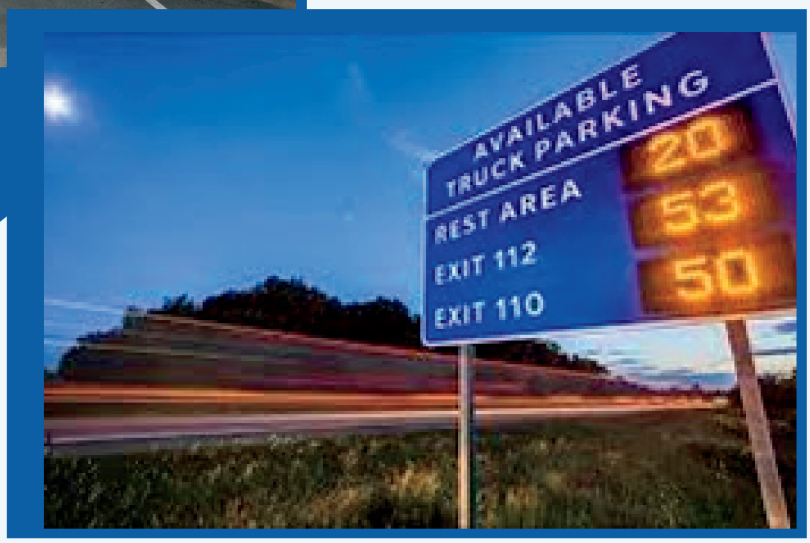
March 2023
Final



TRUCK PARKING AMENITIES STUDY

KENT COUNTY DE
KEP
KENT ECONOMIC PARTNERSHIP

DOVER/KENT COUNTY MPO
METROPOLITAN PLANNING ORGANIZATION

The report reflects the views of the authors, who are responsible for the facts and accuracy of the research. The contents do not necessarily reflect the official view of FHWA, FTA, or DelDOT.

The preparation of this document was financed in part with funds provided by the Federal Government, including the Federal Transit Administration, through the Joint Funding Simplification Program, and the Federal Highway Administration of the United States Department of Transportation.

The Dover/Kent County MPO is committed to Title VI compliance. Title VI states "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

The MPO has produced a Title VI Plan to guide the assessment of projects for racial and related discrimination. The study will include a written assessment on whether the area of the project is considered an area covered by the Title VI Plan and whether the project will have a negative impact, a positive impact, or no impact.

Preface

Dover Kent MPO is pleased to provide this publication, *Truck Parking Amenities Study*. This study is designed to offer guidance for the implementation of additional amenities at truck parking facilities in the State of Delaware. The information provided will include a description of the existing conditions and a list of amenities that would be most beneficial to truck drivers. The study is not intended to recommend specific sites for a truck parking facility, but rather, to raise awareness of various amenities that may be included in a new facility, as well as some general thoughts on a suitable location. The information is most applicable to Kent County, Delaware, but can also be used in similar endeavors across the Delmarva Peninsula.

Dover Kent MPO is responsible to ensure existing and future transportation projects are continuing, cooperative, and comprehensive and as such, appreciates continued support from FHWA, FTA, DelDOT, and our local MPO partners in order to ensure transportation policy information is shared. We are pleased to acknowledge the following collaborators on this project:

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Contents

Figures

Glossary

Amenity: a feature included at a truck parking facility that will benefit drivers and trucking companies; examples include restaurants, showers, and safety features.

Auxiliary power unit (APU): technology that can be used by commercial trucks to change the temperature of a cabin or trailer without running the vehicle's engine; it is one method of saving fuel and reducing emissions.

Cashless payment system: a method utilized by trucking companies to transfer funds to drivers, who can then use the funds to purchase goods and services needed along their route.

Final mile: the last mile on a truck's journey before reaching its destination; often used to move between the destination and a major highway.

First mile: the initial mile of a truck's journey when it is carrying freight; often used to move between the starting point and a major highway.

Good neighbor strategies: techniques for maintaining compatible land use between parcels of land; in the case of truck parking, this could refer to strategies that reduce impacts on neighbors, such as strategically placed lighting and noise abatement.

Jason's Law: also known as Section 1401 of MAP-21; a federal law passed in 2012 which requires the studying of truck parking availability across the country; it also supports the implementation of new parking facilities and additional amenities, so that access by truck drivers and overall safety may be improved.

Quick-service restaurant (QSR): a chain restaurant, also known as a "fast food" restaurant; QSRs are often included at travel plazas and provide easy access to food.

Rest area: a type of parking facility; will sometimes include restrooms or vending machines, but amenities are not always present at a rest area.

Staging: the process of transferring goods to and from a truck.

Travel plaza: a type of parking facility that typically includes restaurants, retail, and other amenities; supports not only the commercial trucking industry, but also tourism and other everyday uses.

Truck parking facility: a general term for an area intended for truck parking, such as a travel plaza or rest area; may not include any amenities other than available parking.

Truck parking information system (TPIS): smart technology that communicates parking availability to truck drivers, such as through a mobile device or signage outside of a travel plaza.

Undesignated parking: a location used for truck parking that is not meant for this purpose; examples include roadsides, on/off ramps, retail parking lots, and vacant lots.

Weight scale: a large scale used to measure the weight of trucks, so that the vehicles do not exceed the weight limit of surrounding roads.

Introduction

Kent Economic Partnership is interested in learning about the current state of truck parking amenities in Kent County, Delaware. To address this question, the Dover Kent MPO conducted a study that examines the existing conditions of truck parking amenities and offers recommendations for improving amenities for drivers. Data was gathered from state and federal literature relevant to the topic, and outreach was conducted by MPO staff. The result is a summary of the issue as it currently stands and a list of potential solutions, which may be used by municipalities and other stakeholders when exploring the possibility of new truck parking facilities. The study does not intend to provide specific sites for truck parking facilities; instead, it will list important amenities and other strategies to overcome common challenges.

The trucking industry is a vital component of infrastructure in the United States, especially during the recent rise of e-commerce. Adequate truck parking has a central role in this industry, and with it, additional amenities such as fuel, food, restrooms, and supplies. Amenities offer truck drivers a place to rest, refuel, and acquire anything they need for their journey, which means they will be more alert on the road. They can also improve safety for the drivers, as a proper facility reduces the likelihood of crime taking place. Another benefit of truck parking amenities is their positive impact on the local and regional economy. However, despite these benefits, Delaware is faced with a severe shortage in truck parking and corresponding amenities. This is especially true in Kent County, where there are no travel plazas or other formal public rest areas.

This study begins by describing the existing conditions based on available literature. This includes the currently available truck parking amenities in Delaware, some of the patterns of truck parking, and some of the challenges to creating a new parking facility. The study will also summarize the literature used in the research process and the outreach steps taken by the MPO. Finally, it will list the results of the research, which includes various amenities that should be included in a travel plaza, strategies and tools for implementing these amenities, and some “good neighbor” strategies to promote compatible use between truck drivers and the community.

Existing Conditions

Importance of Truck Parking Amenities

The nationwide shortage of available truck parking has received increased attention in recent years, due in part to the passing of Section 1401 of MAP-21 or "Jason's Law". However, one area that has been given less attention is the lack of amenities at truck parking facilities. Amenities are an integral part of the freight networks in the United States, ensuring truck drivers can carry out their journey in a safe and timely manner. They also benefit the local and regional economy, drawing in business from both truck drivers and other motorists. Despite their importance, many truck parking facilities still lack the amenities necessary to accommodate their typical volume of traffic.

This shortage of amenities can result in a number of negative consequences for truck drivers. For example, a lack of adequate lighting compromises drivers' safety, as theft and other crimes are more likely to take place in poorly lit areas. As another example, a lack of amenities such as food and showers can lead to drivers being less alert on the road, which puts themselves and other motorists at risk. Amenities are not only beneficial to the trucking companies and the surrounding economy, but they also improve the conditions truck drivers work under. Therefore, their value cannot be overlooked when planning a truck parking facility.

State of Truck Parking in Delaware

Delaware has a significant need for additional truck parking; in fact, it is among the states with the greatest need of all. According to the results of the Jason's Law survey from 2015, Delaware ranked the third lowest in number of both public and private truck parking facilities, and it ranked the fifth lowest in terms of parking spaces per 100,000 vehicle miles of travel (VMT). In addition, Delaware was also listed among the states where trucks have been observed parking along freeway shoulders, at freeway interchanges and weigh stations, and on highway roadsides and local streets. These findings exemplify the need for adequate truck parking in the state.

According to the 2021 *Delaware Statewide Truck Parking Study*, there are only two public rest areas in the state: the Smyrna Rest Area off SR-1, and the Biden Welcome Center along I-95 in Newark, both of which are located in New Castle County. The Smyrna Rest Area contains restrooms and a picnic area, and the Biden Welcome Center contains dining options, restrooms, and fueling stations. However, other than this, the two facilities have few additional amenities. The lack of public rest areas in Delaware, combined with the lack of amenities at the existing rest areas, ensures finding an adequate place to rest is an ongoing challenge for drivers.

Figure 1 (l): A satellite view of trucks parked at the Smyrna Rest Area. Source: Google Maps.

Figure 2 (r): Trucks parked at the Biden Welcome Center in Newark. Source: Google Street View.

There are also ten private truck stops in the state. According to data from the *Delaware Statewide Truck Parking Study*, these private facilities made up 77.4% of total parking (not including undesignated parking clusters). An issue with privately owned facilities is that they are not always accessible to drivers. For example, private truck stops might not allow parking overnight, which is when a safe place to park is most needed. Five of the ten private facilities in Delaware allow for overnight truck parking; however, a fee is required to park overnight at many of the central and southern Delaware locations. This is another deterrent to drivers, as the fee is often not covered by trucking companies.[1]

A third type of truck parking is the "undesignated" area, which means it is not a public rest area or a private facility. Undesignated parking consists of informal parking locations. These include roadsides, retail parking lots, vacant lots, and similar spaces. Such locations are frequently used in Delaware, as when adequate parking is not available, truck drivers are more likely to park their vehicles along roadsides or in other undesignated parking areas. In Kent County, undesignated parking clusters are found along major roadways such as US-13 and US-113, as well as in the parking lots of retail facilities such as the Dover Mall and various convenience stores. Trucks are also found by the on-ramps of SR-1, which provide easy access to the highway. As they lack the amenities and safety features typically offered at formal truck stops, undesignated parking spaces are considerably less safe for drivers and the community as a whole.

[1] *Delaware Statewide Truck Parking Study*. CPCS, 2021. http://www.wilmapco.org/freight/DE_Truck_Parking_Final.pdf.

Figure 3 (l): A truck parked in the parking lot of the Walmart Supercenter in Milford. Source: Google Street View.

Figure 4 (r): A satellite view of trucks parked at a vacant lot along US-13 in Dover. Source: Google Maps.

Overnight parking is one of the patterns associated with truck parking. This is often necessary for long-haul drivers, who will need to rest for longer periods of time, and as a result, need a safe place to park their vehicles. It has been found that truck parking in Delaware receives its highest usage between 2 and 3 AM. This is when availability is at its lowest, which means it is during these hours that drivers are likely to utilize undesignated parking areas. It should also be noted that the availability of amenities is equally as important as the total number of parking spaces: if the necessary amenities are not readily available, truck drivers may continue along their route rather than stopping, which increases the danger for themselves and other motorists.[2]

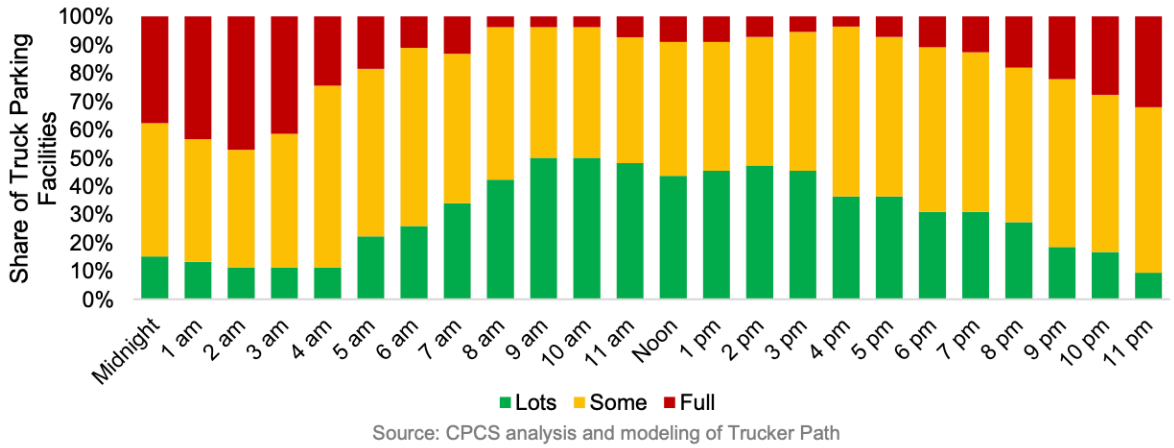


Figure 5: A bar chart depicting usage of truck parking in Delaware by time of day. Source: Delaware Statewide Truck Parking Study (2021); image created by CPCS.

[2] *Delaware Statewide Truck Parking Study*. CPCS, 2021. http://www.wilmapco.org/freight/DE_Truck_Parking_Final.pdf.

According to the 2022 *Truck Parking Development Handbook*, truck drivers seek out parking for a variety of reasons. They might be long-haul drivers that need access to amenities, or they might need to take a 30-minute break (which, according to federal law, is required every eight hours). Some drivers might use parking facilities for staging, or picking up and dropping off the goods that are being transported. It might be necessary to leave a vehicle in a safe place during a driver's time off, when the vehicle is not in use. It is also important that parking facilities are available in the event of an emergency, such as inclement weather or an accident along the planned route. A driver passing through Delaware will have different needs than a driver beginning or ending within the state; however, all drivers would benefit greatly from a new travel plaza or other parking facility with adequate amenities.

Challenges to Truck Parking

A travel plaza with full amenities in a location close to SR-1 would solve many of the truck parking issues in Delaware. However, there are several obstacles that make the implementation of truck parking more difficult. One of these challenges is the lack of available land in urban areas, as well as the high cost. According to the *Delaware Statewide Truck Parking Study*, because land in urban areas is in high demand, it is both more valuable and less available, which limits the number of sites that may be used for a new facility. In Kent County, growth and development are concentrated primarily along the major roadways such as SR-1. This limits the availability of sites within the growth zone, though having a facility with desired amenities and close to major roadways would be most beneficial to truck drivers. Conversely, while there would be land available outside of the growth zone, the increased distance from major roadways would not be practical to truck drivers.

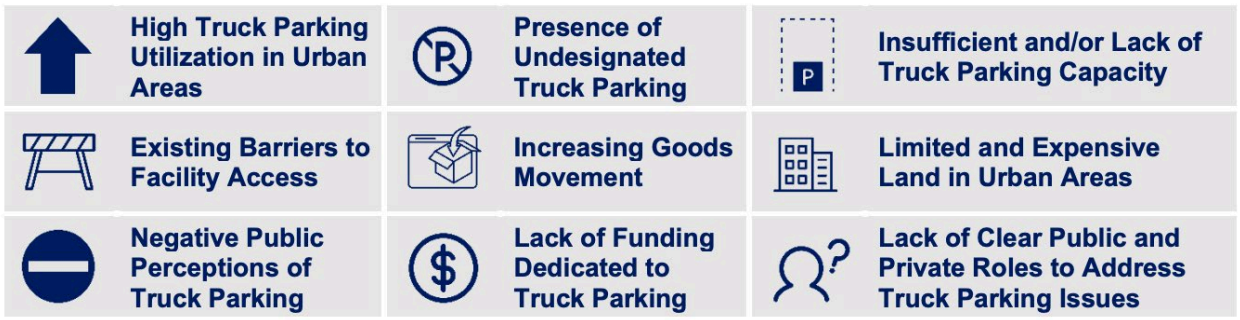


Figure 6: Issues and challenges associated with truck parking. Source: Delaware Statewide Truck Parking Study (2021).

Another challenge is the lack of funding by the state and federal government, particularly when it comes to publicly owned facilities. This is a problem because new truck parking requires a great deal of funds for construction as well as maintenance. In recent years more opportunities have become available, such as through the Infrastructure Investment and Jobs Act, as well as resources such as the FHWA's new *Truck Parking Development Handbook*; however, funding

remains a concern in many cases. A related challenge is the confusion around the roles that public and private entities must take on when creating truck parking. Given these challenges, it may be necessary to seek private developers to build a truck parking facility with adequate amenities, if funding for a publicly owned facility is not available.

A final challenge is the generally negative public perception of truck parking. These sites are often thought to contribute to traffic, congestion, air and noise pollution, and a decrease in safety, while the strong economic benefits and other positive impacts are not as widely known. As a result, communities may be opposed to creating truck parking or may have reservations about doing so. If the creation of a new facility is to be successful, this negative perception will need to be addressed through stakeholder involvement and other measures.

Figure 7 (l): The Smyrna Rest Area in Smyrna, Delaware. Source: Visit Delaware (link).

Figure 8 (r): The I-95 Rest/Service Area, also called the Biden Welcome Center, in Newark, Delaware. Source: Delaware Department of Transportation (DelDOT) (link).

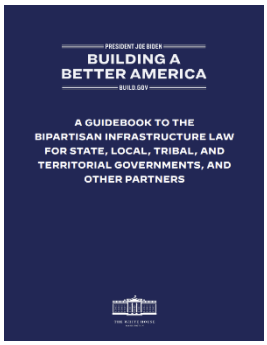
Relevant Legislation

Section 1401 of MAP-21 ("Jason's Law")

According to the FHWA, Jason's Law (passed in 2012) was designed to improve access to commercial motor vehicle parking along US highways, which will ultimately improve driver safety. The law was named in honor of Jason Rivenburg, a truck driver who was killed and robbed at an abandoned gas station in 2009. In the wake of this incident, efforts were made to raise awareness of the lack of adequate parking and shortage of amenities; the goal of addressing this issue was eventually added to MAP-21 (or Moving Ahead for Progress in the 21st Century Act) under the name Section 1401.

Subsequent efforts, including the 2015 survey and the 2022 handbook, have stemmed from this movement. Most importantly, the legislation shows the federal government's recognition of the problem and its commitment to seeking solutions. It has allowed discussions to take place between the various private, local, state, and federal stakeholders, and it has provided an alternate perspective on truck parking (which is often viewed with negative connotation).[3]

Infrastructure Investment and Jobs Act ("Bipartisan Infrastructure Law")



This recent legislation is intended to provide funding to improve roads, bridges, rails, and other infrastructure in the United States. Truck parking is one of the many topics that fall into this scope, as well as other freight-related topics. This new funding opportunity is a potential source for states seeking to improve upon existing truck parking facilities. At the same time, the Department of Transportation has been working with state and private stakeholders to increase national discussion around the issue. For further information on the Bipartisan Infrastructure Law, please refer to the 2022 guidebook on funding opportunities.[4]

[3] "Jason's Law Commercial Motor Vehicle Parking Survey and Comparative Assessment." FHWA, 2019. https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/workinggroups/2020/mtg/jasons_law_results.pdf.
[4] *Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and Other Partners*. The White House, 2022. https://whitehouse.gov/wp-content/uploads/2022/05/BUILDING-A-BETTER-AMERICA-V2.pdf.

The following language is derived from a December 2022 memorandum from the FHWA:

> **9. Truck Parking:** Truck parking shortages are a national concern affecting the efficiency of US supply chains and safety for truck drivers and other roadway users. Jason's Law, which was passed in 2012, established a national priority on addressing the shortage of long-term parking for commercial motor vehicles on the National Highway System (NHS).
>
> Many Federal-aid highway funding programs, including the NHFP, have eligibility for truck parking projects (*See* Eligibility of Title 23 and Title 49 Federal Funds for Commercial Motor Vehicle Parking for additional information). NHFP funds may be obligated for truck parking facilities eligible under section 1401 of MAP-21 (23 U.S.C. 137 note) and real-time truck parking information systems (*See* 23 U.S.C. 167(h)(5)(C)(xi)-(xii)).
>
> The BIL amended 49 U.S.C. 70202 to require States to include an assessment of the adequacy of commercial motor vehicle parking in their State Freight Plans (*See* 49 U.S.C. 70202(f)). States should consider working with private sector truck stop operators and the trucking community in the siting and development of specific truck parking projects. States also are encouraged to offer opportunities for input from commercial motor vehicle drivers and truck stop operators through their State freight advisory committees established under 49 U.S.C. 70201. Additional resources on truck parking are available on FHWA's Truck Parking website.

The memorandum highlights the current federal-level commitment to addressing the issue of truck parking. Please refer to this document for further information on transportation-related priorities of the Bipartisan Infrastructure Law.[5]

[5] "Memorandum: INFORMATION: Implementation Guidance for the National Highway Freight Program as Revised by the Bipartisan Infrastructure Law." Federal Highway Association, 2022. https://ops.fhwa.dot.gov/freight/documents/NHFP_Implementation_Guidance.pdf.

Research Methods

Review of Available Data

Conducting a thorough literature review was one of the primary means of research for this study. The data specific to Delaware (such as the availability of parking, descriptions of amenities, and peak hours of usage) was derived from the 2015 Jason's Law survey and the 2021 *Delaware Statewide Truck Parking Study*. Several of the figures explaining safety features and sources of conflict were originally included in the 2022 *Truck Parking Development Handbook*. Finally, information on IIJA funding was derived from the 2022 Delaware State Freight Plan and various web resources provided by the federal government.

Note that choosing potential sites for a new travel plaza was not the main objective of this study. As a result, creating new maps was not a part of the research process. For further information on the spatial distribution of existing parking facilities in Delaware as well as several concepts for new parking facilities, please refer to the *Delaware Statewide Truck Parking Study*.

Outreach Activities

The MPO met with representatives from Dot Foods, Inc. at the company's facility in Bear, Delaware. This visit included a tour of the facility and the amenities available to truck drivers, as well as discussions with staff about the needs of drivers while on the road. Staff provided information on vehicle parking, safety and security at travel plazas, resources for repairing and cleaning vehicles, preferred QSR brands, the role of travel plaza networks, and other relevant topics. Photographs from the Dot Foods facility are included in the study as examples of which amenities could be included in a Delaware travel plaza.

Additional outreach was conducted through conversations with Slade Smith of Eagle's Landing, LLC, a travel plaza company with locations in six different states. These conversations provided the MPO with a thorough understanding of which amenities a truck parking facility should maintain, based on the facility's size (see Table 1). This is important to consider, as a small facility would not receive the same volume of traffic as a full-sized travel plaza, and as a result their needs would be different.

A few of the major takeaways from the MPO's outreach were the importance of safety to truck drivers, the benefits of adequate lighting, the need for more quick-service restaurants (or QSRs) at travel plazas, and cleanliness within the facilities. These findings will be discussed in detail in the Results section of this study.

Results

The primary objective of this section is to list the amenities that should be included in a new travel plaza or similar truck parking facility. The section will also feature strategies for siting a travel plaza, as well as some strategies for reducing conflict with neighbors. These findings are based on the existing literature and MPO outreach efforts.

Table 1: A list of necessary amenities based on the size of a travel plaza. Information courtesy of Slade Smith.

	Small	**Medium**	**Large**
Site Acreage	3-7 acres	7-15 acres	15+ acres
Building Size	8,000 sq ft	10,000-12,000 sq ft	15,000 sq ft
Convenience Store Size	5,000 sq ft	7,000 sq ft	12,000 sq ft
Food Options	1 QSR	1 QSR, plus at least 1 additional option	1+ QSR, plus multiple additional options
Showers	2	6-10	10+
Laundry Facilities	Optional	Yes	Yes (at least 3 w/d)
Driver Lounge	No	Optional	Yes
Truck Parking Spots	15-30	50-70	75-100
Car Parking Spots	10	20	30
Diesel Fuel Pumps	4	6	8
Gas Fuel Pumps	4-8	6-10	8-12
EV Charging Stations	1-2	3-4	4-8
Wi-Fi Access Site-wide	Yes	Yes	Yes

Truck Parking Amenities

Through discussions with stakeholders, it was determined that truck drivers are most concerned about cleanliness, speed of service, safety, adequate lighting, and food-centered amenities at the travel plazas and other rest areas they visit. It is also important to drivers that a travel plaza complies with Jason's Law requirements and additional federal legislation surrounding the issue. The following is a series of ideas for truck parking amenities that would benefit truck drivers as well as other motorists, based on MPO outreach and available literature. Their presence at a travel plaza will largely depend on resources available; in other words, a lack of funds will mean fewer amenities can be added to a facility.

Parking Spaces

The availability of parking is the primary issue of any travel plaza or similar facility: if parking is insufficient, drivers will not stop at the location, which means the other amenities will not be used to their full potential. Each of the stakeholders who met with the MPO emphasized the importance of adequate parking, reiterating the point that many facilities in the region do not meet this need.

Before creating a new parking area, the truck volume along adjacent roadways (especially at peak hours) will need to be studied. This will give engineers a better understanding of what the likely demand for truck parking will be. If it is found that a facility does not accommodate the demand, the parking area could be expanded so that additional parking spaces could become available. However, this would require land acquisition and, in some cases, changes to the zoning of the land. It is also possible to communicate parking availability to drivers before they arrive at a location, thus reducing the need to seek out undesignated parking; this will be discussed later in the study.

There are other factors in addition to the number of spaces. The wide turning radius of large vehicles should be considered so that trucks can easily navigate the parking area. The type of parking is also important to determine; two common types are the straight back-in (SBI) slot, which achieves a higher vehicle density but requires drivers to back into the space, and the herringbone drive-through (HDT) slot, which achieves a lower density but is easier for drivers to navigate.

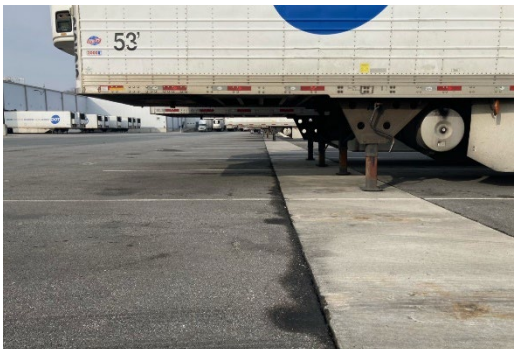
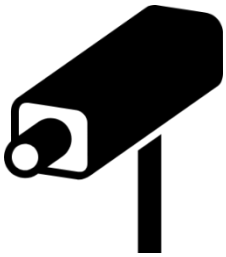


Figure 9: A concrete strip used in the truck parking area at Dot Foods in Bear, Delaware. Concrete gives the trailer's landing gear a structurally sound place to rest, whereas asphalt would be damaged under the heavy weight in hot weather.

Finally, given the weight of commercial trucks and their cargo, it might be necessary to implement additional engineering features so that the parking area can support heavy vehicles. One example of this is

using concrete instead of asphalt in strategic locations, which can reduce damage from trucks. Truck weight scales could also be used to weigh vehicles that arrive at the location, so that drivers know whether they can be accommodated by the area's roads. For further information on these topics, please refer to the *Truck Parking Development Handbook*.

Safety Features



Safety is one of the most pressing concerns for truck drivers, and it is the primary issue that Jason's Law is intended to address. Drivers who do not feel safe at a given facility are less likely to stop there and will not stay for long. Crime (including harm to drivers and theft or damaging of cargo) is far more likely to take place in a parking area that is poorly lit and lacks security features. Furthermore, an unsecure facility will have less of an economic impact, whereas secure facilities will attract the most drivers. This is why the issue must be taken seriously if a new travel plaza is created.

There are many things that can be done to improve safety and security at travel plazas. The building should be constructed with limited "blind spots" on the premises, and any existing blind spots can be mitigated using convex mirrors. The distance between the parking area and the main building should be short and frequently traveled. Emergency call boxes can also be placed along this route. Security cameras should be present to provide live video surveillance; some cameras can even be used to monitor the license plates of all vehicles that enter the parking area. Perhaps most importantly, all facilities should be well lit so that there are few dark areas. Finally, local law enforcement is a key stakeholder in this issue and should be included in ongoing discussions of safety and security.

Additional security features could include gates and fencing, on-site security personnel, and a key fob system that only admits those who have permission to enter. These, however, are more common at private facilities rather than publicly accessible facilities. A guarded gate would not make sense at a typical travel plaza along a highway, which is designed to attract drivers regardless of their employer. This is the difference between "soft" control of a facility (such as through site monitoring and vehicle limitations), and "hard" control (such as through a gated entrance and restricted access). The security of a parking facility will ultimately depend on the facility's ownership, needs, and intended purpose, as well as any existing local ordinances, laws, and regulations.

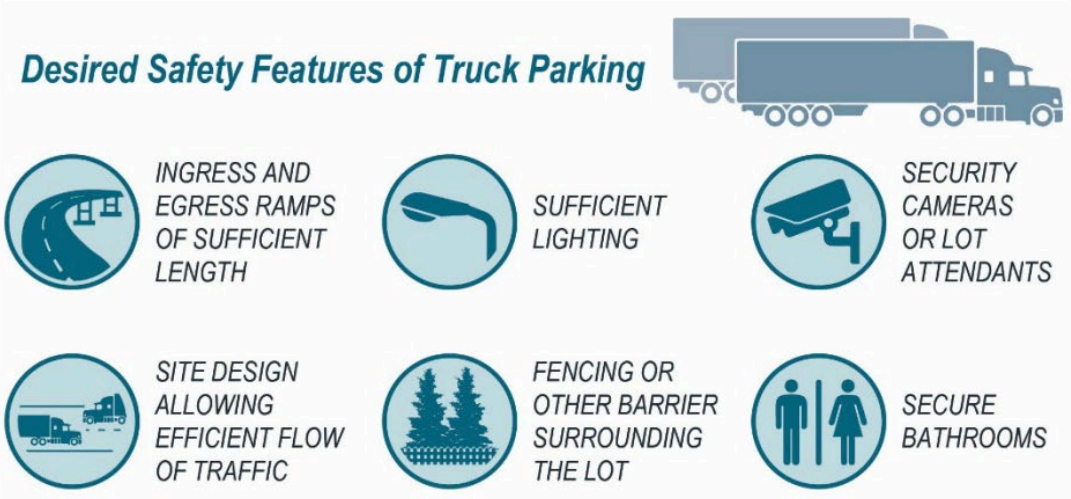


Figure 10: Some of the major safety features that should be included in truck parking facilities. Source: Truck Parking Development Handbook (2022); derived from FHWA.

Fueling and Maintenance Stations

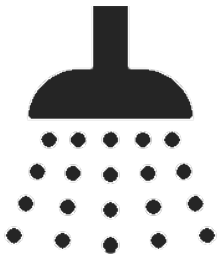
As most commercial trucks are powered by diesel fuel, it is necessary to have appropriate fueling stations at facilities used by these vehicles. However, even if these are provided, access may be challenging at times, especially during peak hours. The 2015 Jason's Law survey found that in order to meet their 30-minute break requirement, some drivers were deliberately taking their time refueling their vehicles, which created a backup of trucks and slowed the progress of other drivers. According to stakeholders, a shortage of available fueling stations has been a common problem at the travel plazas in Pennsylvania and New Jersey. To avoid this problem, an adequate number of fueling stations should be provided, with plenty of room for the vehicles to navigate. This will reduce wait times and make the visit easier for drivers. Creating new facilities close to existing fueling stations and improving connection between the sites will also help with access; the *Delaware Statewide Truck Parking Study* lists several ways this could be achieved.

EV charging stations for trucks, while not prevalent at this time, are likely to see increasing use in the coming years as the technology becomes more affordable. Because of this, EV charging stations should be considered for implementation, as some trucking companies will be adding electric vehicles to their fleets. The same is true for other alternatives to diesel, including liquid propane and natural gas, which could become the preferred fuel type by certain trucking companies in the future.

There are other, similar amenities that can be beneficial to truck drivers. For example, travel plazas could provide a station for vehicle maintenance, which is needed when a truck is damaged

and must undergo repairs. This point was emphasized to the MPO by stakeholders, and it is apparent that truck drivers are encouraged to visit travel plazas that have proper maintenance stations. Being able to clean the vehicle at a truck washing station is another amenity in this category. As an example, the Flying J Travel Center in Elkton, Maryland offers both repair and washing services. Access to these amenities would allow drivers to be productive when they are not driving, and it would ensure their vehicles are running properly.

Restrooms, Showers, and Laundry



When adding restrooms to a travel plaza, several things must be considered. The number of bathroom stalls should depend on the number of truck parking spaces available; the *Truck Parking Development Handbook* uses guidelines by the Occupational Safety and Health Administration (OSHA) to determine this value. Facilities should also be compliant with the Americans with Disabilities Act (ADA) Standards for Accessible Design whenever possible. For safety features, it is important that restrooms are in a fixed location, their doors are able to be locked, and they are adequately lit and equipped with backup lighting. Some restrooms at travel plazas also have emergency buttons that may be discreetly pushed by anyone in need of help.

Similar to restrooms, a travel plaza should have an adequate number of shower facilities available to drivers. According to the results of the Jason's Law survey from 2015, 56% of truck stops had no showers available. The shortage remains an issue to this day, though awareness of the issue seems to be increasing. Showers ensure drivers are well rested and are an essential amenity on the road, which is why they must be included in any new travel plaza in Delaware.

Laundry facilities are another amenity that is often overlooked in travel plazas. It is only mentioned as a bullet point in the *Truck Parking Development Handbook*, and it is not mentioned at all in the 2015 Jason's Law survey, which means there is limited data on the availability of laundry facilities at rest areas. Nonetheless, it is important that drivers have access to washers and dryers, so that they do not need to venture far from their route to find a laundry service.

Food and Supplies

Food access (particularly access to full meals) is an essential feature at a travel plaza along a highway, as it ensures drivers do not have to stray from their route or access local roads. Quick-service restaurants (abbreviated as QSR) make up the majority of food options at travel plazas; most locations contain at least one QSR. Alternatively, a travel plaza could be constructed near existing restaurants, as long as these businesses were easily accessible (either by walking or rideshare service). Food trucks are another possible method of filling this need, though their hours are less likely to coincide with the late-night

arrival of trucks. Drivers who have access to food are more likely to be better rested when they return to the road; this will improve roadway safety and reduce the chances of a crash.

Conversations with stakeholders indicated that there are three broad types of food options: "fast food" (such as McDonald's or Subway), "comfort food" (such as Denny's or Cracker Barrel), and "quality food" (such as Outback Steakhouse or Olive Garden). The quality food locations are considerably less common than other types of QSRs, as travel plazas are not intended for drivers and other visitors to stay for a long meal. For nearby examples of QSRs, the Biden Welcome Center in Newark, Delaware features brands such as Burger King, Popeyes, Panda Express, and Starbucks. These establishments are operated by Blackstone Infrastructure Partners, having been purchased from HMSHost in 2021. Another example is the Flying J Travel Center in Elkton, Maryland, which contains a Golden Corral restaurant. A large travel plaza should contain at least one reliable QSR, as well as several other food options.

Supplies are a related commodity that should be made available at travel plazas. These common "convenience store" items may include articles of clothing, health products such as over-the-counter medicine, and personal care products such as soap and toothpaste. Other items important to truck drivers are emergency supplies such as flashlights and batteries, and vehicle tools such as pliers and jumper cables. Finally, snacks and bottled water are sold at most travel plazas; these are things that must be available for purchase, either through vending machines or a business within the facility.

Figure 11 (l): The front entrance of Richard Stockton Service Area in Hamilton Township, New Jersey. This facility is an example of a large travel plaza along a major interstate in the Mid-Atlantic region.

Figure 12 (r): The truck parking at Richard Stockton Service Area in Hamilton Township, New Jersey. The facility attracts both cars and commercial trucks, and it has designated parking for each mode of transportation.

Because publicly accessible rest areas typically do not require a fee for parking, their revenue depends on the sale of fuel, food, and supplies. This means for a travel plaza to retain any QSR brands or other businesses, the facility must attract enough drivers to ensure these businesses are profitable. Implementing other amenities that appeal to truck drivers (or to all motorists, if the

facility is built for both cars and trucks) will draw in more visitors, which will incentivize businesses to stay at the facility.

Cellular and Wi-Fi Access

Wireless communication is an important tool for truck drivers, as it is used for navigation, learning about obstacles or hazards on their route, and maintaining communication with trucking companies. One of the key means of wireless communication is through cellular service. According to the FHWA *Truck Parking Development Handbook*, parking facilities should be close enough to cellular towers so that they receive at least -85 dBA, or roughly "three bars" of signal strength. This is more of an issue in large, rural states in the western United States; it would be less challenging to achieve in Delaware due to the state's comparably small geographic size.

Access to Wi-Fi is also a necessity, especially in rural areas where cellular service may be less reliable. Internet access is one of the reasons truck drivers will visit a travel plaza, which is why it should be capable of meeting the demand based on volume of traffic. The *Truck Parking Development Handbook* explains that Wi-Fi systems must also be secure, so that transportation supply chains are not susceptible to cyber-attacks. Finally, Wi-Fi should be available throughout the facility for easier access by drivers.

Auxiliary Power Units (APU)

There are many circumstances in which drivers need to regulate the temperature of their truck or trailer. This is especially important for refrigerated trailers, which are designed to transport cargo at a specific temperature and prevent it from perishing. Another example is for driver comfort: a driver might need warm or cool air depending on the outside temperature, though they may not want to keep their vehicle idling on account of the fuel cost or local emissions enforcement. Due to these concerns, it might not be possible for a driver to heat or cool their cabin as needed.

Figure 13: Refrigerated truck trailers at Dot Foods in Bear, Delaware.

One solution to these needs is an auxiliary power unit (or APU), which is designed to provide temperature control without the use of a truck's engine. This reduces the toll on the vehicle and the total fuel costs, and it cuts back on the air pollution in the vehicle's surroundings. Finally, it ensures a driver will be comfortable while in

their cabin, regardless of the conditions outside. A travel plaza could make use of APU technology to maintain the temperature of refrigerated trailers, or the technology could be used for the benefit of resting drivers.

Truck Parking Information Systems (TPIS)

Utilizing the newest technology can be helpful in improving access to truck parking. An example of this is a truck parking information system (or TPIS), which uses cameras or other measures to determine how many parking spaces are available at a given location. This allows drivers to plan their stops more effectively, and also avoid travel plazas that have reached capacity. DelDOT is currently testing TPIS technology in collaboration with the Volpe Center, using the Smyrna Rest Area as a pilot.

Figure 14: An example of a roadside sign that communicates truck parking availability. Source: National Rural ITS Conference.

While the information from TPIS can be provided to drivers via a dashboard (possibly on their mobile devices), it can also be done using signage outside of a travel plaza. The sign would display the number of available parking spaces, communicating the most recent numbers to drivers as they approach the facility. This particular amenity could be beneficial to a new travel plaza in Kent County, as doing so would improve the experience of drivers and reduce the stress around finding adequate parking.

Other Amenities

A travel plaza, especially a large facility, could have additional amenities that benefit truck drivers and other members of the industry. These could include lounge space or a break room for drivers, space for exercise, a game room, and conference rooms for truck- and freight-related meetings. If these amenities cannot be provided, positioning the travel plaza close to comparable services is a potential alternative. Non-essential amenities will depend on the interest from stakeholders, available resources, and the local zoning and building regulations.

Figure 15: The driver break room at Dot Foods in Bear, Delaware. Some of the features in this room could be incorporated into the lounge space of a travel plaza.

Additional Considerations

The following are a series of concerns raised by stakeholders within the truck-driving industry during discussion with the MPO. While not true amenities, they should still be considered when developing a new travel plaza.

Cashless payment systems such as Comchek and T-Chek are commonly used by fleets. These systems allow the company to transfer funds to a driver, who can then use the funds as needed (such as to refuel, repair their vehicle, purchase food, or stay at a hotel). However, as stakeholders have indicated, there are times when the systems are not accepted. This can make it considerably more challenging for drivers to pay for goods and services. Drivers are more likely to revisit travel plazas that do not give any difficulties in completing these transactions.

Another point worth noting is the role of networks in deciding where to stop. Many trucking companies maintain relations with travel plaza brands (Pilot Flying J, Love's, etc.), and they encourage their drivers to visit these locations. This means drivers are less likely to stop at independent establishments, especially if there is an "in-network" travel plaza within reach. Furthermore, large travel plaza brands are more capable of retaining well-known QSRs, providing desirable amenities, and offering fuel discounts, which give additional incentives for drivers to stop at these locations. With all of this in mind, it is apparent that independent establishments would have a more challenging time attracting truck drivers, due to the lack of an established network or affiliation.

The design of a travel plaza should consider other forms of traffic in addition to freight trucks. For example, tour buses might stop at such a facility, as it provides safety and various QSR brands for the passengers, along with adequate parking space for the vehicles. Multiple potential uses should be kept in mind when creating a new travel plaza, so that traffic is not limited to one type of vehicle.

The choice of a parking area is ultimately the driver's decision, even with the trucking company's input. A driver may be incentivized to visit a location due to familiar QSRs or a loyalty program that accumulates credit. Conversely, a driver might choose not to stop somewhere if it is unsafe or lacks amenities. These are the reasons amenities are necessary at a travel plaza: they help meet the needs of drivers, and they also generate continued revenue.

Siting a Travel Plaza

Choosing a site for a new travel plaza is a challenging task, due to the many obstacles that can emerge. These include the limited availability of land, the cost of purchasing the land and building the structures, the maintenance and staffing costs, the forecasting of economic impacts, and the safety and security implications. There will be many tradeoffs to consider: for example, while emissions might be reduced in the surrounding community, the air pollution would then be concentrated around the truck parking area and would require additional mitigation. Similarly, a new facility would reduce the need for parking along roadways or in other undesignated places, but it would also add new safety concerns around the facility. It may not be possible to prevent all the negative impacts, but these can be reduced in severity, so that the surrounding community can exist compatibly with the travel plaza or other facility.

The *Truck Parking Development Handbook* lists some of the factors to think about when choosing a site. First, the use of roads by truck drivers must be considered, both in terms of which roads are most frequently used and how they are accessed. Existing land use is one of the most important factors: for example, a community could build a travel plaza within close proximity to industrial parcels used by trucks. An industrial site could also be used as a staging area for unloading and sorting a truck's cargo. Conversely, certain land uses (such as residential areas or schools) may not be compatible with an increase in truck traffic, or there may not be enough room for a new facility. Future land use should also be considered during the process. Finally, the facility should be placed in an area that is not too close to existing parking, but also is not too far so that it is inconvenient. The regional freight network, including any facilities in neighboring counties and states, must be considered.

Distance from the main highway and ease of access to the highway both play an important role in the convenience of a travel plaza. If a location is too far from the off-ramp or the roads do not accommodate large vehicles, the facility will not be used. In order to attract enough drivers to earn revenue and make full use of its amenities, a travel plaza must be in a convenient location that allows easy movement to and from highways (which, in the case of central Delaware, would be US-13 and SR-1).

Based on conversations with the trucking community, it was found that locating the travel plaza close to nearby attractions would be beneficial to drivers. An example of this would be a restaurant that is popular with drivers, especially well-known QSR brands; another example is lodging such as a hotel. If these nearby locations cannot be reached on foot, then the travel plaza should be easily accessible by rideshare services such as Uber and Lyft. This will give drivers another means of accessing the attractions in the surrounding community.

Community support is something that cannot be overlooked in this process. Travel plazas and other truck parking facilities often have a negative connotation, and even the most conscientious efforts may have negative downstream effects. By contrast, the positive economic impacts of such a facility are regularly ignored or not widely known. Strategies to make a facility a "good

neighbor" will be discussed in this study; however, if community support is not achievable, a new facility location should be considered.

Economy	Environmental	Fiscal	Safety
Benefits • Employment size • Payroll volume, sale volume • Economy multiplier effect	**Benefits** • Reduction of greenhouse gas emissions	**Benefits** • Sales tax • Payroll tax • Property tax	**Benefits** • Reduced parking on roadway shoulders • Reduced fatigued driving
Costs None identified	**Costs** • Increased noise pollution • Increased emission concentrations in and around truck stops	**Costs** • Land cost • Investment opportunity cost	**Costs** • Increased safety or security concerns in surrounding area

Figure 16: The benefits and costs that may come from a new truck parking facility. Source: Truck Parking Development Handbook (2022); derived from CAIT.

Good Neighbor Strategies

Once a travel plaza is established, various types of land use conflicts are likely to occur. The following is a list of "good neighbor" strategies that can help in reducing the impacts of truck parking on neighboring land, which will prevent conflicts from occurring and improve public perception.

Truck Access

Providing adequate access to a travel plaza ensures that residential or downtown neighborhoods are not frequented by large trucks. The facility should be a short distance from major roadways, especially those used by the trucking industry. Access points need to be in convenient locations, and the route should not include sharp turns. If these steps are taken, the community will experience less noise and air pollution, as well as reduced accidents and property damage.

Motorist and Pedestrian Safety

The role of security at a travel plaza has previously been discussed in this study. A different aspect of safety is the role of site design in preventing accidents between motorists and pedestrians. There are many tools available for addressing this issue. Fencing can prevent people

from walking in areas of frequent truck traffic, while crosswalks, medians, and similar roadway features can calm vehicle traffic and make conditions safer for pedestrians. Walkways separate pedestrians from vehicle traffic and improve access to the site's amenities. Drivers should clearly be able to see pedestrians and the areas on either side of a crosswalk. Signage, while easy to implement, is only effective when placed in certain locations and when not used to excess. A final consideration is the fact that large vehicles rely on these facilities, which means added safety features should make conditions safer while also considering the needs of trucks (e.g., the turn radius of the vehicle).

Noise and Light Pollution

Loud noises that come from vehicles or on-site equipment are common at travel plazas. Siting the parking facility an adequate distance from "sensitive" areas is the primary means of reducing noise pollution. A facility should not be added in a place where noise will have negative impacts on these sensitive communities, including residential neighborhoods, schools, hospitals, and libraries. At the site itself, buffers can be used to reduce the level of noise pollution that reaches adjacent land. This could include natural barriers such as trees or other foliage, and manmade barriers such as walls and earthen berms. It is important that the broader impacts of a project on noise pollution are understood prior to the creation of a facility, such as the impact on property values and quality of life. This can be estimated based on real-world case studies that led to similar conditions. For more information, please refer to the *Truck Parking Development Handbook*.

It is essential that a truck parking area receives adequate lighting; however, light pollution can be a concern if it is not mitigated properly. It can be a nuisance to nearby residents, and at times it can be a hazard to passing motorists. The intensity, color, and timing of lights all have an impact on how much light pollution there will be, which is why these factors should be considered. Directional lighting is very useful for providing light to travel plazas and similar facilities, while also reducing unwanted light on neighboring land. Municipalities can also issue ordinances that reduce the negative impacts of lighting. The *Truck Parking Development Handbook* recommends using resources by the International Dark-Sky Association (IDA) as a guide when implementing outdoor lighting at a travel plaza.[6]

Air and Water Pollution

Air pollution is a common concern with travel plazas, as the vehicles emit exhaust into the surrounding area, especially when left idling for long periods of time. This can affect the health of people in the area; those with respiratory issues are at the highest risk. Pollutants emitted from diesel trucks include carbon monoxide (CO), particulate matter ($PM_{2.5}$ and PM_{10}), and nitrogen

[6] "Lighting." International Dark-Sky Association. https://www.darksky.org/our-work/lighting/.

dioxide (NO_2), as well as others. These are classified as "criteria pollutants" by the EPA, which means they are hazardous to human health for various reasons and are regulated at a federal level.[7] To reduce the impacts of air pollution from trucks, it is recommended that truck parking facilities be placed a safe distance from sensitive communities. Regulations can prevent idling from taking place for too long, and berms and other barriers can prevent some of the emissions from entering neighboring land. Monitoring of freight contributions to local air pollution should be carried out regularly.

Water pollution is a second area of concern. There are many types of pollutants that can originate from parking areas, including gasoline, diesel, oil, grease, coolants, tar, road salts, and trash. These pollutants can enter local waterways, harming wildlife and the ecosystem as a whole. Numerous things can be done to prevent water pollution in parking areas. Natural drainage reduces the pollutants that enter the surrounding area; it also slows the flow of stormwater, which reduces flooding impacts. This can be achieved using bioswales or rain gardens, and it can include native trees and shrubs. Permeable pavement, which comes in several varieties, can also cut back on pollutants and regulate the flow of runoff.[8] These are a few of the tools available to achieve a more sustainable parking facility. *Sustainable Green Parking Lots*, a guide from Montgomery County, Pennsylvania, is a useful resource for learning about sustainable parking strategies and landscaping plants that are native to the Mid-Atlantic region.

Figure 17: A diagram that depicts several methods of reducing conflict between truck parking facilities and adjacent land. Source: Truck Parking Development Handbook (2022); derived from FHWA.

[7] "About Diesel Fuels." Environmental Protection Agency. https://www.epa.gov/diesel-fuel-standards/about-diesel-fuels.
[8] *Sustainable Green Parking Lots*. Montgomery County Planning Commission, 2015. https://www.montcopa.org/DocumentCenter/View/9735/Green-Sustainable-Parking-Guide-2_10_2016-Web?bidId=.

Community Character

A new travel plaza can change the character of a community, but there are several techniques for mitigating this impact. The location of the facility is possibly the most important factor; for example, a travel plaza will have more negative effects on a residential area if the two are close to one another. The facility could utilize buffers, which, in addition to reducing noise and light pollution, also provide physical separation from the facility. There should also be an effective waste system in place, so that littering is not a common issue. Other features such as outdoor seating and trees for shade can make the facility more appealing to visitors. Finally, it is important that the facility coordinates with community stakeholders so that they are aware of any changes taking place. Measures such as these can help in preserving the community character and reducing conflict with the facility.

Figure 18 (l): A truck headed east on W Glenwood Ave in Smyrna, approaching US 13. Source: Kent County East-West Truck Freight Route Feasibility Analysis Phase I (link).

Figure 19 (r): US Cold Storage entrance on SR 14 west of US 113 in Milford. Source: Kent County East-West Truck Freight Route Feasibility Analysis Phase I (link).

Conclusion

The issue of truck parking availability is closely tied to that of parking amenities, and one cannot be addressed without considering the other. In Delaware in particular, truck parking is severely limited, and within the available locations, there are few existing amenities. One means of alleviating this strain on drivers would be to establish a travel plaza along a major highway. If this were built in a convenient location in Kent County such as along SR-1, drivers would be able to rest properly while passing through central and southern Delaware.

Based on research and outreach efforts, it was found that drivers would benefit significantly from having access to fueling stations, food services, restrooms, showers, Wi-Fi, and other, less obvious amenities such as laundry services and vehicle maintenance. Safety and security must be included when designing a travel plaza; this can include adequate lighting, security cameras, fencing, and additional measures. The siting of a travel plaza is the first thing to determine, but if the site itself lacks the necessary amenities, it will not have a positive impact on regional freight and it will fail to improve the conditions for drivers.

A travel plaza could take the form of a privately owned facility (e.g., through one of the well-known travel plaza brands), or a public-private partnership. These two options would give the facility more leverage in drawing truck drivers than a small, independent establishment, as travel plaza companies already have existing freight networks in place. It would also mean the travel plaza could retain QSR brands that are known to drivers. Regardless of the ownership type, it is clear that the need for a travel plaza is increasing, in part because the continually increasing prevalence of e-commerce is expected to put further strain on Delaware's major roadways and parking facilities. As such, the State of Delaware will need to seek out a solution to the problem of truck parking sooner than later, as the need will only continue to grow.

An alternative to constructing a new travel plaza would be to improve the Smyrna Rest Area so that it can accommodate a larger amount of truck traffic. However, access to the location from SR-1 would need to be improved in addition to the facility itself, as it currently cannot be reached without exiting onto US-13.

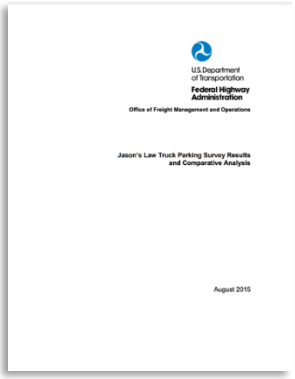
There is always a risk of incompatible use, which could be due to excessive lighting or noise, air and water pollution, or unsafe conditions for pedestrians. However, there are available tools for mitigating these impacts, as previously discussed. Referring to local zoning and land use is important for determining where a travel plaza should be built and what impacts will take place.

This study is primarily an inventory of truck parking amenities that should be included at a new travel plaza or similar truck parking facility in Delaware. It does not include specific site recommendations; several alternatives for this were analyzed separately in the 2021 *Delaware Statewide Truck Parking Study*. Additional research would be required to find the most suitable site within Kent County. Then, once a site is chosen, this study and the attached resources could be used to implement the most beneficial amenities, which would contribute to a positive outcome for truck drivers, the trucking companies, and the surrounding community.

Appendix A - Relevant Resources

Jason's Law Truck Parking Survey Results and Comparative Analysis (2015)

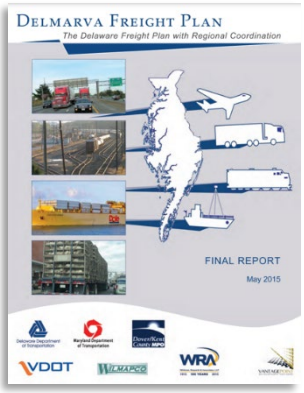
https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/jasons_law.pdf



This 2015 survey by the Federal Highway Administration (FHWA), completed in response to Section 1401 of MAP-21 (or "Jason's Law"), examined many truck-related factors from across the United States, such as number of truck parking facilities and the typical number of parking spaces. It then ranked the states based on these criteria. The survey provides a general understanding of the state of truck parking in the United States and the need for more facilities with added amenities (especially safety features). It also gives data from both state governments and truck drivers, and maps of each state's existing conditions are provided in the appendix. Although the information is somewhat outdated and is not specific to the State of Delaware, the topics discussed are still highly relevant to the *Truck Parking Amenities Study*, which is why the findings must be considered. (2019 updates to the survey, provided by FHWA, have indicated that truck parking remains a concern across most states; the Mid-Atlantic region is still listed among the areas with the most severe truck parking shortages.)

Delmarva Freight Plan (2015)

https://deldot.gov/Publications/reports/freight_plan/pdfs/2015/Delmarva_Freight_Plan_Final_Report.pdf

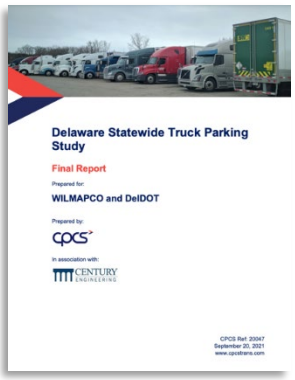


This plan was a collaboration between the Delaware Department of Transportation (DelDOT), the MPOs of Delaware and neighboring states, and other regional partners. Unlike the state-specific freight plans, this plan encompasses the whole of the Delmarva Peninsula. It analyzes existing conditions for each mode of freight and describes ongoing freight needs in detail. It also includes maps depicting freight routes for roads, rail, marine and air, and other modes. Finally, the plan looks at future scenarios for regional freight and offers opportunities for growth and improvement for some of the key freight routes, including those in the Dover region. This plan is relevant to the *Truck Parking Amenities Study* because it discusses the need for safe and adequate truck parking on the Delmarva Peninsula. (Kent County is cited as a place where trucks are frequently left on roadsides overnight, due to the absence of parking facilities.) It also

describes some of the relevant federal funding opportunities that may be used to improve truck parking. However, since the plan's publication, many new funding opportunities have become available, which means the list is not all-encompassing.

Delaware Statewide Truck Parking Study (2021)

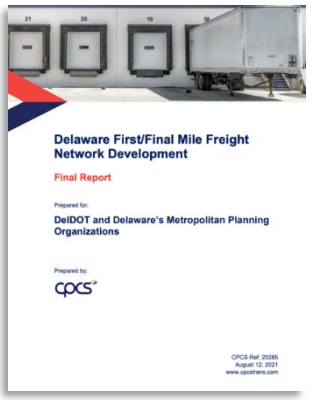
http://www.wilmapco.org/freight/DE_Truck_Parking_Final.pdf



This study, completed in 2021, was prepared by CPCS in association with Century Engineering. It provides DelDOT and local MPOs with a detailed inventory of Delaware's existing truck parking locations, most of which consists of "undesignated truck parking clusters" such as unmarked roadside locations. The clusters are categorized based on type (rest area, last-mile, near truck stop, on/off ramp, corridor shoulder, and urban). The study also describes several ongoing problems related to truck parking in Delaware, such as the lack of available amenities, and it offers potential remediations for these problems. This information is highly relevant to the *Truck Parking Amenities Study* because it highlights the serious need for adequate truck parking in Delaware and the role of amenities in attracting drivers to a location. The common problems and solutions are also important to consider, as they can provide guidance when choosing a travel plaza location and adding the necessary amenities.

Delaware First/Final Mile Freight Network Development (2021)

http://www.wilmapco.org/freight/First_Final_Mile_Final_Report.pdf



This study, completed in 2021, was prepared by CPCS. It provides DelDOT and local MPOs with the existing conditions of the first and final mile connections in Delaware (such as shoulder widths and crash data), as well as the needs and issues associated with these routes (such as residential and industrial development, environmental conflicts, tourism-related traffic, and other issues). In addition, the study gives recommended solutions that would alleviate the most prominent issues surrounding first and final mile connections. This information is relevant to the *Truck Parking Amenities Study* because it can be used to determine the most effective location for a travel plaza, based on the existing roadway connections. Because of the close relationship between truck parking and driving routes, the impact of first and final mile connections cannot be overlooked.

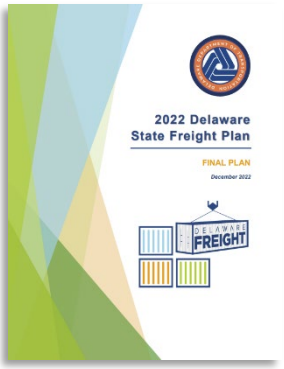
Kent County East-West Truck Freight Route Feasibility Analysis Phase I (2022)

https://doverkentmpo.delaware.gov/files/2023/02/E-W-Truck-Study-final-11-2022.pdf

Completed in 2022 by the Dover/Kent County MPO, this study explored each of the major east-west truck freight routes in Kent County. The routes' existing conditions were compiled, including their speed limits, hard stops, traffic measurements, crash data, and the towns which they pass through. The study also offered alternatives that could alleviate some of the challenges associated with these routes. The primary alternative listed is the Camden bypass, which has already been developed and is scheduled for construction. Other possible alternatives included physical changes such as reroutes, speed bumps, and roundabouts. Outreach carried out by the MPO and partners is useful to the *Truck Parking Amenities Study* because it gives a voice to truck drivers and municipalities, both of whom are relevant stakeholders in the creation of a new truck parking facility. The concerns held by these stakeholder groups are important to consider when researching ways to improve conditions for truck drivers in Kent County.

Delaware State Freight Plan Update (2022)

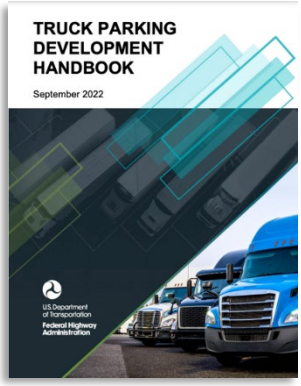
https://deldot.gov/Business/freight/pdfs/2022/2022%20Delaware%20State%20Freight%20Plan%20Full.pdf?cache=1678199085910



The 2022 Delaware State Freight Plan was recently completed by the Delaware Department of Transportation (DelDOT) in collaboration with the Dover/Kent County MPO and other partners. Its purpose is to list the existing freight conditions within the State of Delaware, which includes truck freight. It also lists potential areas for improvement and expansion; truck parking enhancements are listed under its "safety and security" goal. This plan is relevant to the *Truck Parking Amenities Study* because it references the lack of adequate parking in Delaware and describes the challenges associated with it. Truck parking enhancements are part of the freight planning strategies included in the document, and truck parking facilities are listed under short-term tasks (within the next four years). Finally, the plan lists various freight project candidates (which include truck parking opportunities), and it explains how truck parking fits into the current IIJA freight emphasis areas. The plan was completed in 2022 and approved by the Federal Highway Administration in January 2023.

Truck Parking Development Handbook (2022)

https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/docs/Truck_Parking_Development_Handbook.pdf



This document, published in 2022 by the FHWA, is a resource for DOTs and MPOs looking to improve access to truck parking. It thoroughly describes the reasons truck parking is necessary, and it lists various resources for communities to utilize. In addition, it gives case studies from across the country as examples, including policy examples from Maryland. The document's findings are highly relevant to the *Truck Parking Amenities Study*; in particular, the in-depth information on security features (such as adequate lighting, security cameras, and secure restrooms) are worth noting. In addition, the handbook lists some of the "good neighbor" strategies (such as buffers and ease of access) that can improve compatibility with neighboring land. The background on Jason's Law, the national data, and the diagrams are also useful for the purposes of this study.

Additional Resources

Several other publications and web resources were used when gathering information for this study. Information on the Infrastructure Investment and Jobs Act stemmed from the *Building a Better America* guidebook. Strategies for light pollution mitigation were derived from the International Dark-Sky Association. Pollutants from trucks and truck parking facilities were derived from webpages from the Environmental Protection Agency. The *Sustainable Green Parking Lots* publication, from the Montgomery County Planning Commission, was used to learn about strategies for reducing pollution impacts from parking facilities. Finally, in addition to the 2015 Jason's Law survey, information on the national truck parking shortage was also derived from the 2019 survey update. See footnotes for access to these resources.

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