

# North Carolina Truck Parking Study

## *Phase II*



## Implementation Plan

*prepared for*

**North Carolina Department of Transportation**

*prepared by*

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*with*

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## List of Acronyms

ATCMTD	Advanced Transportation and Congestion Management Technologies Deployment
ATRI	American Transportation Research Institute
CCTV	closed-circuit television
DOT	Department of Transportation
DMS	dynamic message signs
DPMS	dynamic parking message signs
DPCS	dynamic parking capacity signs
ELD	electronic logging device
FASTLANE	Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GPS	global positioning systems
HOS	hours of service
ITD	Innovative Technology Deployment
ITS	intelligent transportation systems
MPO	Metropolitan Planning Organization
NATSO	National Association of Truck Stop Operators
NCDOT	North Carolina Department of Transportation
O&M	operations and maintenance
ROW	right-of-way
RPO	Regional Planning Organizations
SF	square feet
TPAS	truck parking availability system
TSE	truck stop electrification
UAG	User Advisory Group
VMS	variable message signs

## 1.0 Introduction

The Draft Concepts of Operations (ConOps) document previously submitted to North Carolina Department of Transportation and presented to the Truck Parking Advisory Committee, introduced several possible solutions to mitigate the State's truck parking issues. These include:

- Truck Parking Availability System (TPAS) along I-95.
- New or Expanded Truck Parking Capacity on I-26 and I-85.
- Emergency Parking Options along I-26 and I-40.
- Policy Options and Best Practices for developing additional truck parking.

The ConOps detailed the potential number and location of spaces that could be made available for truck parking, what is needed in terms of resources (rough order of magnitude cost estimates) and policy and regulatory issues that need to be resolved.

This document (Implementation Plans) provides a framework or steps for implementing the ConOps. It summarizes the solution and highlights the programmatic, policy, regulatory, and resource considerations that need to be addressed to put the solutions in place. Some of the information provided may seem repetitive. This is because the implementation plans are written, so they each be read and acted upon independently.

## 2.0 Truck Parking Availability System Implementation (I-95)

The North Carolina Truck Parking Availability System (TPAS) will provide real-time information to drivers about the number of parking spaces available within eight publicly owned truck parking locations on the I-95 corridor with approximately 122 total spaces. This information will allow drivers to better plan to comply with hours of service (HOS) requirements and save time and money by removing the need to search for an available space. It will also increase safety by providing more legal parking options and combined with increased enforcement, will reduce the number of trucks parked in unauthorized areas—especially those on highway shoulders and ramps. Information can be broadcast through the State’s existing 511 system and through new dynamic parking capacity signs (DPCS), and data will be available for use by third-party developers.

To implement this solution, Table 1 displays the necessary next steps, involved parties, approximate cost, and a timeline.

**Table 1. TPAS Next Steps**

Step	Involved Parties	Cost	Needs	Timeline
Identify desire for multistate collaboration for a TPAS	NCDOT, adjacent State DOTs	N/A	Interstate cooperation on TPAS projects increases the potential for obtaining Federal grants and will provide a more comprehensive set of data for drivers	1-3 months
Identify potential grant funding sources and available State and/or local matching funds	NCDOT, MPOs in the corridor	N/A	Identify potential Federal grant sources for building the TPAS as well as State matching funds. Apply for funding as grants become available and as matching funds are identified	3-12 months
Complete Detailed Systems Engineering ConOps	NCDOT/ vendor	\$250,000	Detailed ConOps to explore user needs, site selection details, confirm technology deployment, coordination with other NCDOT stakeholders (Right of way, maintenance, etc.), and develop information for TPAS Request for proposal (RFP)	12-20 months
Release RFP and select vendor	NCDOT	N/A	Select vendor to build TPAS	20-24 months
Build TPAS	NCDOT/ vendor	\$1,790,000 total *\$427,000 site technology *\$950,000 information dissemination *30% contingency	Construct, test, and deploy TPAS	24-36 months

This section highlights program, policy, and legal/regulatory changes that would be required to implement a TPAS on I-95 in North Carolina.

### **Program**

No programmatic changes are required to implement a TPAS in NC. The Truck Parking Committee engaged during the NC Truck Parking Study will be involved as part of the Detailed Systems Engineering ConOps stage and outreach to additional stakeholders including the private sector (drivers and any interested truck stop operators) will be conducted to inform the development of the more detailed ConOps. NCDOT can also leverage contacts through the I-95 Corridor Coalition to discuss best practices or lessons learned with other States in the corridor who have implemented TPAS such as Florida and Virginia.

### **Policy**

There are no policy changes required to implement a TPAS in NC. However, a Memorandum of Understanding (MOU) should be developed if multiple States wish to pursue Federal grants as part of a coordinated effort to deploy a TPAS in the I-95 corridor.

### **Legal/Regulatory**

If additional States wish to deploy a TPAS in conjunction with NCDOT in order to better position for Federal grant funding, an MOU should be developed.

If a private truck stop operator wishes to be involved in the TPAS, a review of Federal and State law will be required to confirm any restrictions. North Carolina has two primary statutes governing public private partnerships (P3s):

- Section 143-128.1C of the North Carolina General Statutes (General P3 Statute), which authorizes governmental entities to enter into P3s to acquire, construct, own, lease as a lessor or lessee, and operate or participate in the acquisition, construction, ownership, leasing, and operation of a public-private project or of specific facilities within a public-private project. The General P3 Statute is primarily a procurement statute; and
- Sections 136-18(39) and (39a) and 136-89.180 to 136-89.220 of the North Carolina General Statutes (DOT and TA P3 Statutes), which authorize the North Carolina Department of Transportation and the North Carolina Turnpike Authority to develop transportation infrastructure using P3s.<sup>1</sup>

Private-sector involvement in a statewide TPAS deployment has been accomplished in other States (Iowa).

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<sup>1</sup> <https://www.huntonak.com/images/content/3/5/v3/3563/Public-Private-Partnership-Legislation-North-Carolina.pdf>.



## Resources

There are several Federal formula fund programs which may be used to support the above truck parking projects:

- **Surface Transportation Block Grant Program (STBG)** provides funding for truck parking facilities eligible under Section 1401 (Jason’s Law) in MAP-21.
- **National Highway Freight Program (NHFP)** provides formula funds to States to improve the condition and performance of the National Highway Freight Network (NHFN) under 23 U.S.C. 167(i). Eligible activities include truck parking facilities and real-time traffic, roadway condition, and multimodal transportation information systems. The NHFP funds are eligible for use on the Primary Highway Freight System or NHFP, or for projects that improve safety, mobility, or efficiency on those systems. I-95 is part of the NFHN.
- **Highway Safety Improvement Program (HSIP)** provides funding for truck parking, provided the need for truck parking is consistent with the State Strategic Highway Safety Plan (SHSP) developed under 23 U.S.C. 148 and the project corrects or improves a roadway feature that constitutes a hazard to road users or addresses a highway safety problem.

If Federal grant funding is sought, State matching funds must be identified:

- **Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant:** 50 percent Federal/50 percent State.
- **Innovative Technology Deployment (ITD) Grant:** 85 percent Federal/15 percent State, project must be included in an approved Program Plan/Top-Level Design prior to seeking funding.
- **Better Utilizing Investments to Leverage Development (BUILD) Grant:** Up to 80 percent Federal/20 percent State if majority of spending is in urbanized areas with a minimum project cost of \$5 million. Up to 100 percent Federal/0 percent State if majority of spending is in rural areas with a minimum project cost of \$1 million.

Further discussion with private truck stop operators such as Petro—Kenley to determine if a public-private-partnership is feasible (part of the Detailed Systems Engineering ConOps) should be considered as well.

## Trends to Track/Performance Measures

The following performance measures should be monitored as part of this deployment:

- Number of spaces outfitted/covered by TPAS.
- Utilization rate at public truck parking facilities (should increase).
- Hours of service violations in corridor (should decrease after initial higher enforcement period).

- Percent of crashes involving a truck where fatigue or truck parked on highway are a contributing factor (should decrease).

### 3.0 New or Expanded Truck Parking Capacity (I-26 and I-85)

Two ConOps developed in this study examined the feasibility of expanding current rest area capacity along the I-26 and I-85 corridors as well as developing NCDOT property along/near the highways to provide parking spaces for commercial vehicles.

This effort evaluated using existing right of way (ROW) at rest areas, weigh stations, and other public facilities to construct additional truck parking spaces. This capacity increase would most likely include the expansion of the existing truck parking area but depending on location may explore a separate, new parking within the rest area ROW. This expansion could require grading along with construction of new pavement. Environmental clearance, drainage, and other modifications would also be needed to accommodate the larger parking area. The benefit of this strategy is that existing rest rooms, lighting, and other amenities are already in place to serve truck drivers.

Since existing parking areas at these facilities have asphalt or concrete pavement, it is assumed that similar pavement would be used for any expansion. Expansion of parking areas using a gravel driving surface is an option. The gravel would be less expensive but would require more ongoing maintenance effort for regrading and drivers generally prefer asphalt or concrete for cleanliness reasons.

Other potential locations include additional space on the outside edges of the highways for truck pull-outs, space within highway ramps or interchanges, abandoned construction staging areas or sand/salt pads, or open space near existing NCDOT facilities. Such locations should provide safe ingress and egress for trucks and minimal amenities such as a bathroom (port-o-potty or vault toilet), trash receptacles, lighting and possibly some level of fencing or other security measures such as patrol by enforcement officials (depending on the location).

It should be noted that discussions with NCDOT staff indicates a general preference to expansion of existing rest areas whenever possible compared to development of new locations. First, this limits the costs associated with maintenance. Second, since these areas are already used for truck parking, land use issues are less contentious.

To implement this solution, Table 2 and Table 3 display the necessary next steps, involved parties, approximate cost, and a timeline.



**Table 2. New or Expanded Truck Parking Capacity Potential Next Steps**

Step	Involved Parties	Cost	Needs	Timeline
Identify potential locations for expansion	NCDOT	N/A	Survey and high-level engineering feasibility study of candidate locations.	1-12 months <sup>1</sup>
Prioritize potential expansion/new parking projects	NCDOT	N/A	Prioritize projects based on need, engineering readiness, cost, availability of funding	6-12 months
Identify potential grant funding sources and available State and/or local matching funds	NCDOT	N/A	Identify potential State funding as match to Federal grant sources for expansion projects. Apply for funding as grants become available and as matching funds are identified	3-12 months
Complete Detailed Systems Engineering	NCDOT/ Vendor	~\$100,000 - \$125,000 per site	Detailed engineering plans, coordination with other NCDOT stakeholders (Right of way, utilities, maintenance, etc.), and develop information for Request for proposal (RFP)	TBD
Release RFP and select vendor	NCDOT	N/A	Select vendor to construct	TBD
Construction	NCDOT/ vendor	See Table 3	Procurement/Project Management/Closeout	TBD

<sup>1</sup> Preliminary engineering has been completed for several existing rest area sites.

**Table 3. Parking Area Costs**

Description	Unit	Cost
Concrete Pavement with Curbs	Per Space	\$75,000.00
Asphalt Pavement no Curbs	Per Space	\$48,000.00
Gravel Surface	Per Space	\$37,000.00
Vault Toilets	Per Site	\$60,000.00
Lighting	Per Space	\$1,400.00
Fencing (60" chain link fence)	Per Space	\$2,500.00

The following highlights program, policy, and legal/regulatory changes that would be required to expand truck parking on I-26 and I-85 in North Carolina.

## Program

Prior to the development of the Strategic Transportation Initiative (STI), NCDOT created a budget line item to construct new rest areas. Staff used a condition assessment survey to rate the quality, safety, cleanliness of vertical buildings and pavement needs. Historically, NCDOT has used the assessment data and expected budget financial support to plan for future facilities based on need. The NCDOT Roadside Environmental Unit also works with the 14 Division Engineers to determine which rest areas suffer from lack of utilization or age and recommend eroding facilities (such as pump stations and water/sewer lines) for closing or consolidation. NCDOT's cycle of proactive management and assessment has been successful in maintaining a high quality and standard of rest areas with limited resources.

STI legislation recognized that NCDOT needed a method to determine which projects in its delivery pipeline would be subject to the new data-driven approach. Future planned rest areas cannot compete for capital funds and be included in the Statewide Transportation Improvement Program (STIP) since the Department's prioritization process does not include criteria to score and compare them to other infrastructure needs, such as highway capacity projects. Therefore, the Roadside Environmental Unit is now provided an "off the top" amount of State maintenance funds of around \$3 million to address both routine maintenance items, such as fixtures, painting, and other needs, and to update older facilities, such as new electric wiring or replacement of HVAC systems. Division engineers have the budgetary discretion to determine at what investment level and by what funding source, such as Division resurfacing funds, to address these pavement needs. They must do this while also balancing investment in a growing backlog of priority pavement/bridge needs throughout their respective Divisions. Therefore, NCDOT's ability to plan for and construct new rest areas that address passenger demand and accommodate additional truck parking is extremely constrained.

To obtain sufficient funding to expand truck parking, the STIP prioritization process may need to be modified to weight criteria focused on the benefits of expanded truck parking such as fatigue-related truck crash avoidance, enhanced economic development impacts, or avoidance infrastructure damage associated with trucks parking on highway shoulders or on off ramps. Opportunities to include expansion of truck parking capacity in infrastructure or freight mobility-related projects/programs should be considered.

## Policy

Policy changes that could increase the number of truck parking spaces available without construction costs could include:

- Removing any restrictions preventing trucks from parking in weigh stations when not in use.
- Allowing trucks to park in car/RV sections of rest areas if utilization data indicates these spaces are not heavily used (and if the facility's configuration allows).

## Legal/Regulatory

If private entities are involved in build (expand)-operate, a review of Federal and State law will be required to confirm any restrictions.

Under Federal law, all interstate construction project agreements between a State Department of Transportation (DOT) and the U.S. DOT must provide that the State will not permit automotive service stations or other commercial establishments that serve motorists to be constructed or located on interstate rights-of-way. The law grandfathers in State-owned establishments that existed before 1960 and that are operated through concessionaries or otherwise, if entrances and exits from the establishments conform to applicable Federal standards (23 U.S.C.A. § 111 (a)). Such commercial restrictions also do not apply to highways that were exclusively State-funded (usually through tolls) and later incorporated into the Interstate System.<sup>2</sup>

North Carolina has two primary statutes governing public private partnerships (P3s):

1. Section 143-128.1C of the North Carolina General Statutes (General P3 Statute), which authorizes governmental entities to enter into P3s to acquire, construct, own, lease as a lessor or lessee, and operate or participate in the acquisition, construction, ownership, leasing, and operation of a public-private project or of specific facilities within a public-private project. The General P3 Statute is primarily a procurement statute.
2. Sections 136-18(39) and (39a) and 136-89.180 to 136-89.220 of the North Carolina General Statutes (DOT and TA P3 Statutes), which authorize the North Carolina Department of Transportation and the North Carolina Turnpike Authority to develop transportation infrastructure using P3s.<sup>3</sup>

## Resources

There are several Federal formula fund programs which may be used to support the above truck parking projects:

- **Surface Transportation Block Grant Program (STBG)** provides funding for truck parking facilities eligible under Section 1401 (Jason’s Law) in MAP-21.
- **National Highway Freight Program (NHFP)** provides formula funds to States to improve the condition and performance of the National Highway Freight Network (NHFN) under 23 U.S.C. 167(i). Eligible activities include truck parking facilities and real-time traffic, roadway condition, and multimodal transportation information systems. The NHFP funds are eligible for use on the Primary Highway Freight System or NHFP, or for projects that improve safety, mobility, or efficiency on those systems. Both I-26 and I-85 are part of the NHFN.
- **Highway Safety Improvement Program (HSIP)** provides funding for truck parking, provided the need for truck parking is consistent with the State Strategic Highway Safety Plan (SHSP) developed under 23 U.S.C. 148 and the project corrects or improves a roadway feature that constitutes a hazard to road users or addresses a highway safety problem.
- **National Highway Performance Program (NHPP)** funds may be obligated for a project on an eligible facility that supports progress toward the achievement of national performance goals for improving infrastructure condition, safety, congestion reduction, system reliability, or freight

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<sup>2</sup> <https://www.cga.ct.gov/2018/rpt/pdf/2018-R-0052.pdf>.

<sup>3</sup> <https://www.huntonak.com/images/content/3/5/v3/3563/Public-Private-Partnership-Legislation-North-Carolina.pdf>.

movement on the NHS. Eligible projects include highway safety improvements on the NHS, which may include truck parking per 23 U.S.C. 148.

It should be noted that for certain safety projects, including safety rest areas where the U.S. Department of Transportation has determined there to be a shortage of public and private rest areas, may have a Federal share of 100 percent, as provided in 23 U.S.C. 120(c)(1). The Federal Highway Administration (FHWA) Division Administrator would need to determine there is a shortage of public and private rest areas along a highway corridor. This provision is limited for all safety projects using the provision to 10 percent of the total funds apportioned to a State under 23 U.S.C. 104.

In addition to formula funding programs, two Federal grant programs could be utilized:

- **Better Utilizing Investments to Leverage Development (BUILD) Grant:** These grants are intended to support innovative projects that generate economic development and improve access to reliable, safe, and affordable transportation and are not specifically focused to freight needs. Up to 80 percent Federal/20 percent State if majority of spending is in urbanized areas with a minimum project cost of \$5 million. Up to 100 percent Federal/0 percent State if majority of spending is in rural areas with a minimum project cost of \$1 million.
- **Infrastructure for Rebuilding America (INFRA) Grant program:** Eligible projects include highway freight projects on the National Highway Freight Network, highway projects on the NHS and other specified intermodal freight projects. The INFRA Grant can cover up to 60 percent of the total project cost. Formerly known as the Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) Grant.

If Federal grant funding is sought, State matching funds must be identified.

### ***Trends to Track/Performance Measures***

The following performance measures should be monitored as part of this deployment:

- Number of spaces and utilization rates (should increase).
- Hours of service violations in corridor (should decrease after initial higher enforcement period).
- Percent of crashes involving a truck where fatigue or truck parked on highway are a contributing factor (should decrease).

## 4.0 Emergency Parking Options (I-26 and I-40)

This study examined the feasibility of providing additional truck parking options to respond to emergency needs on I-26 and two segments of I-40. Emergency parking is one of the most difficult truck parking issues to address. In some cases, such as rockslides, the timing, exact location, and duration of an event cannot be predicted. In other cases, such as hurricanes, planning time is available to help stage or reroute vehicles, although the duration of closures and wide-spread damage create separate issues. Creating a solution or set of solutions that can accommodate multiple types of concerns is therefore more challenging. However, the ConOps identified a couple of potential options that should be further explored.

To implement this solution, Table 4 displays the necessary next steps, involved parties, approximate cost, and a timeline.

**Table 4. Emergency Truck Parking Potential Next Steps**

Step	Involved Parties	Cost	Needs	Timeline
Monitor truck parking use at new I-26 rest area south of Asheville	NCDOT	N/A	Identify if added capacity is enough to meet demand during normal operations. Monitor during any adverse operational events.	3-12 months
Explore feasibility of using Western North Carolina Agricultural Center land for truck parking during emergencies	NCDOT, Dept. of Agriculture	N/A	Communicate, explore feasibility, and if feasible, develop an MOU to allow trucks to park at the Center during adverse conditions.	6-12 months
Enhance truck parking conditions at Western North Carolina Agricultural Center	NCDOT, Dept. of Agriculture	To be determined	Conditional on the above step, a more detailed site examination would be required to determine cost estimates to make the area able to host trucks during an emergency.	12-18 months
Explore feasibility of using Cape Fear Community College Truck Driver Training Facility land for truck parking during emergencies	NCDOT, State Board of Community Colleges	To be determined	Communicate, explore feasibility, and if feasible, develop an MOU to allow trucks to park at the Training Facility during adverse conditions.	3-12 months
Monitor TIP Project I-6054C (Scheduled for 2029) and integrate truck parking needs into corridor design	NCDOT, French Broad River MPO	N/A	TIP I-6054C is a project to expand I-40 west of Asheville between approximately SR 1200 and SR 1224. A weigh station exists in both directions in this section. If widening is pursued, truck parking for emergency situations should be a consideration during design, especially if the existing weigh station is moved or modified.	1-10 years

The following highlights program, policy, and legal/regulatory changes that would be required to develop emergency truck parking locations.

### **Program**

No programmatic changes are required to explore and expand emergency truck parking in North Carolina. The Truck Parking Committee engaged during the NC Truck Parking Study will be involved as part of the Detailed Systems Engineering ConOps stage and outreach to additional stakeholders including the private sector (drivers and any interested truck stop operators) will be conducted to inform the development of the more detailed ConOps. NCDOT can also leverage contacts through the I-95 Corridor Coalition to discuss best practices or lessons learned with other States in the corridor who have implemented TPAS such as Florida and Virginia.

### **Policy**

Following conversations with landowners, a Memorandum of Understanding (MOU) should be developed to govern investment, use, potential staffing during emergencies, and operations and maintenance of the location and any amenities (lighting, trash receptacles, toilets, etc.).

Since these lots are intended for use during emergencies only, a policy and process needs to be developed to define an “emergency” and notify trucks that parking in these facilities is allowed.

More broadly, North Carolina may want to consider allowing trucks to park in specific State facilities during emergencies, and work with municipalities and transit agencies to identify candidate locations at a statewide level. Though rare, large-scale events such as the December 2018 snowstorm or a large hurricane can sufficiently disrupt travel across large portions of the State. Having a set constrained set of locations identified that could be open to trucks during an emergency may help limit potential problems. Maryland DOT takes this approach during snow events, allowing trucks to park at specific park and ride lots when snowfall exceeds six inches.<sup>4</sup>

### **Legal/Regulatory**

Parcels recommended for emergency truck parking are publicly owned and already used for parking (Western North Carolina Agricultural Center) or truck driver training (Cape Fear Community College). A review of the potential hosting agency’s charters should be undertaken to ensure that use of the land would not cause any violation. In addition, the MOU would need to consider liability issues for when trucks are parked at the locations.

### **Resources**

Resources necessary for creating emergency parking may vary widely depending on the MOU developed between NCDOT and the landowning agency. For example, if the Western North Carolina Agricultural Center lot is in good shape, costs to add some lighting, a gate, and grade the area may be minimal and

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<sup>4</sup> <https://www.roads.maryland.gov/pages/emergencytruckparking.aspx?PagelD=856>.

could be scheduled into existing NCDOT District maintenance work. If more substantial work is required, Federal formula funds could be used

- **Surface Transportation Block Grant Program (STBG)** provides funding for truck parking facilities eligible under Section 1401 (Jason’s Law) in MAP-21.
- **National Highway Freight Program (NHFP)** provides formula funds to States to improve the condition and performance of the National Highway Freight Network (NHFN) under 23 U.S.C. 167(i). Eligible activities include truck parking facilities and real-time traffic, roadway condition, and multimodal transportation information systems. The NHFP funds are eligible for use on the Primary Highway Freight System or NHFP, or for projects that improve safety, mobility, or efficiency on those systems. Both I-26 and I-40 are part of the NHFN and these projects would help improve efficiency on those highways.
- **Highway Safety Improvement Program (HSIP)** provides funding for truck parking, provided the need for truck parking is consistent with the State Strategic Highway Safety Plan (SHSP) developed under 23 U.S.C. 148 and the project corrects or improves a roadway feature that constitutes a hazard to road users or addresses a highway safety problem such as trucks parking on highway shoulders or ramps.
- **National Highway Performance Program (NHPP)** funds may be obligated for a project on an eligible facility that supports progress toward the achievement of national performance goals for improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS. Eligible projects include highway safety improvements on the NHS, which may include truck parking per 23 U.S.C. 148.

### ***Trends to Track/Performance Measures***

The following performance measures should be monitored as part of this deployment:

- Number of new emergency truck parking spaces available.
- Utilization rate of spaces during declared emergencies.



## 5.0 Policy Options

The “Policy Recommendations” ConOps promoted approaches to providing truck parking and staging as part of land use and economic development activity. Among the suggestions provided by participating metropolitan and regional planning organizations (MPO/RPO) and echoed by private-sector business and motor carrier representatives, was to require truck parking be included in site design guidelines for new industrial or commercial developments.

Typically, commercial, industrial, and warehousing land uses build minimal onsite parking in order to maximize usable building footprints. The businesses are a key contributor to truck volumes and the demand for truck parking. Truck drivers often cite the need for more parking close to destinations to provide an area to rest while waiting for a delivery appointment and to avoid congestion and other issues when that appointment arrives. Onsite or near-site truck parking would be required specifically for vehicles that arrive early for an appointment and need someplace to park while staging. The amount of spaces for truck parking could be based on square footage of warehouses or the number of loading bays at the facility or group of facilities.

Local governments regulate development through zoning and subdivision regulations and in nearly all cases these ordinances include general development standards (like for landscaping or parking). Many zoning ordinances also contain use-specific development standards (like for manufacturing operations or car dealerships or drive-through windows). These standards could be amended by the jurisdiction to better accommodate truck parking. For example, the parking requirements could require 1 truck parking space per 20,000 square feet (sf) of Gross Floor Area and could require that it be accessible after hours, maybe just outside of the security gate. Alternatively, a shared staging lot could be an option in an area where there are multiple industrial/commercial/warehousing businesses being developed at the same time.

### ***Policy Recommendations—Next Steps and Role for NCDOT***

There are many potential obstacles to implementing truck parking policy solutions. Obstacles identified by the MPOs/RPOs include:

- Local jurisdictions may not recognize the scope of the truck parking problem. NCDOT could play a role by educating municipalities about the truck parking need in the State.
- Local jurisdictions may not have the expertise to address truck parking issues. NCDOT could play a role by developing model language or guidance on standards.
- The development community might be opposed to anything that increases development costs. This is especially the case if one jurisdiction creates a requirement for parking and neighboring jurisdictions do not. NCDOT could play a role by partnering with the economic/industrial development community, chambers of commerce, and regional bodies (MPO/RPO) to explain the need and advocate for broad adoption.
- Environmental Justice/Title VI—abandoned properties are often located in neighborhoods with Environmental Justice/Title VI protected population groups. NCDOT could play a role by ensuring that

the placement of potential truck parking lots on abandoned properties does not turn into a disproportionate adverse effect on these populations.<sup>5</sup>

### **Best Practices**

The study highlighted two success stories of cooperation between stakeholders to address truck traffic and parking issues. The first was a joint effort by the Town of Mount Olive, the Mount Olive Pickle Company and NCDOT to address truck traffic and staging issues within the town. The second was the New Belgium Brewing Company in Asheville, NC who provide onsite truck parking and amenities for the drivers servicing their facility.

A key role that NCDOT can play in advancing best practices would be to highlight success stories in outreach materials and hold workshops throughout the State to allow the stakeholders to relay their experiences and to further gather ideas and approaches to cooperative efforts among stakeholders.

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<sup>5</sup> <https://www.epa.gov/environmentaljustice/title-vi-and-environmental-justice>.