Final Technical Report

Truck Parking Assessment

Prepared for:

Kentucky Transportation Cabinet
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Introduction

The Kentucky Statewide Truck Network Procedures Study was undertaken to examine current regulations affecting Kentucky's truck network and to recommend criteria and procedures that should be followed when considering including or excluding a route from the truck network. As a follow-up to that study, Stantec was asked to examine opportunities to provide commercial vehicle parking facilities at locations along the interstate system.

The focus for this preliminary parking assessment is to examine sites that formerly served as rest areas or weigh stations to determine how they may be repurposed as dedicated truck parking facilities. These locations, shown on **Figure 1**, are referred to as the "Tier 1" sites. They were selected for this initial study because the land remains under Commonwealth of Kentucky ownership. They have a variety of former uses (including both rest areas and weigh stations) and have conditions ranging from existing infrastructure in relatively good condition to a complete greenfield where none of the former infrastructure exists today.

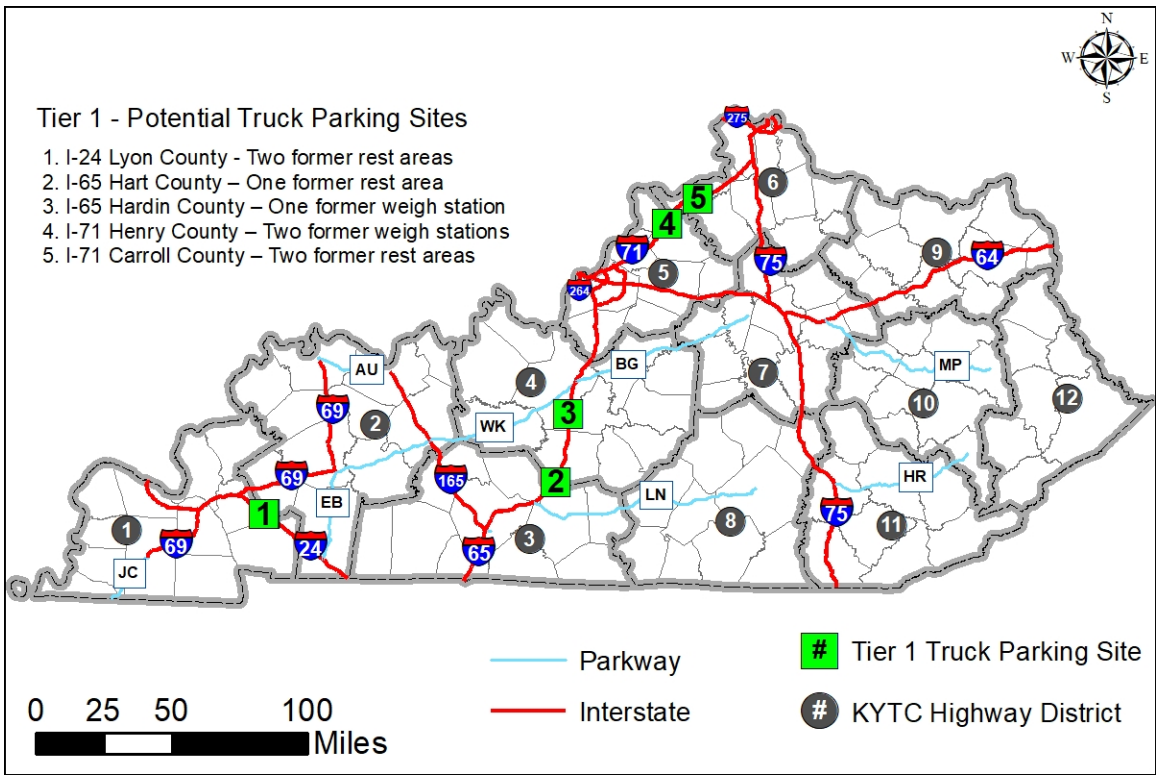

Figure 1: Tier 1 Truck Parking Sites

Truck parking includes both public- and privately-owned opportunities. In Kentucky, public truck parking sites currently include rest areas or welcome centers and, in limited cases, commercial

vehicle weigh stations or truck inspection sites (i.e. "rest havens"). Private opportunities are typically located at truck fueling stations (i.e. "truck stops").

The Case for More Truck Parking

Freight transportation impacts every person in the United States. The food we eat, the clothes we wear, and the products used to generate this technical report all traveled as freight—whether by air, rail, barge, truck, or a combination of these modes. Today, trucks represent the most critical step in the supply chain since 70 percent of consumer products at some point travel by semi.

It is estimated that 76 percent of the goods shipped annually to and from Kentucky are carried by trucks. Additionally, another 13 percent are carried by courier services or multiple-mode deliveries, which include trucking.[1]

Freight Mode	2020 (Millions of Tons)	2045 (Millions of Tons)	Percent Increase
Truck	11,432	14,226	24%
Total	17,232	20,932	21%
Truck Share	66%	68%	

Table 1: Projected Weight of Shipments by Transportation Mode

Source: Bureau of Transportation Statistics

The Bureau of Transportation Statistics projects that from 2020 to 2045, domestic and export freight tonnage throughout the US will increase by about 1.5 percent per year from 11.4 billion tons to 14.2 billion tons annually. As shown in **Table 1**, the truck mode split is expected to increase by about 24 percent over that timeframe as overall tonnage only increases by 21 percent.

Federal Hours of Service (HOS) regulations, summarized in **Table 2**, limit the number of hours commercial vehicle operators can remain on duty. Drivers are required to take rest breaks (minimum of 30 minutes) during the first eight hours of their driving shift and can drive no more than 11 hours before a long-term rest (minimum of 10 hours) must be taken. These regulations affect long-haul drivers more than local drivers, particularly those that make trips spanning multiple days.

Hours of Service (HOS) Rules for Property-Carrying Drivers
11-Hour Driving Limit: May drive a maximum of 11 hours after 10 consecutive hours off duty.
14-Hour Limit: May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.
Rest Breaks: May drive only if 8 hours or less have passed since end of driver's last off-duty or sleeper berth period of at least 30 minutes.
60/70-Hour Limit: May not drive after 60/70 hours on duty in 7/8 consecutive days.
Sleeper Berth Provision: Drivers using the sleeper berth provision must take at least 8 consecutive hours in the sleeper berth, plus a separate 2 consecutive hours either in the sleeper berth, off duty, or any combination of the two.

Table 2: Summary of Hours of Service (HOS) Regulations

Source: Federal Motor Carrier Administration

[1] *Kentucky Transportation by the Numbers: Meeting the State's Need for Safe, Smooth and Efficient Mobility*. February 2017.

The Kentucky Transportation Research Center completed a study called *Commercial Truck Parking and Other Safety Issues* in 2015. The objective of this study was to identify information related to parking demand, locations with documented or potential safety issues, and potential countermeasures. Surveys were conducted to determine how frequently commercial vehicles used parking facilities on interstates in Kentucky, primarily focusing on the I-65 and I-75 corridors with data samples along I-24, I-64, and I-71. Of the 4,715 parking spaces surveyed during daytime observations, 2,143 were in use, or 45 percent. Of 7,844 parking spaces surveyed during nighttime observations, 6,803 were in use, or 87 percent.[2]

The need for parking has been accelerated by Electronic Logging Device (ELD) requirements. Use of these devices became mandatory in December 2017 and they enforce the HOS regulations as truck operators can no longer maintain their own manual paper driving logs. Now operators cannot continue to drive beyond their allowable shift to find a suitable parking location and may find themselves settling for a "last resort" to avoid fines. Truck operations are increasing at a time when regulations limit the hours an operator can remain behind the wheel. Thus, the need for additional truck parking exists today and will continue to grow.

According to the 2017 *Kentucky Freight Plan*, seven of Kentucky's 14 static weigh station facilities and all 15 rest areas provide some accommodation for truck parking.[3] Because of the limited number of publicly owned parking facilities and spaces, truck operators often park along interchange ramp shoulders, park illegally along roadsides, or choose to use privately-owned parking that may or may not be suitable (or legal) for truck parking. Therefore, the KYTC is proactively seeking opportunities to provide more publicly owned truck parking opportunities.

Study Goals

The goals for the Truck Parking Assessment can be summarized as follows:

1. *Develop a snapshot of the existing conditions at each Tier 1 site.*
2. *Develop a conceptual layout(s) to accommodate truck parking at each site.*
3. *Estimate the costs associated with the repurposing of each site.*
4. *Explore opportunities to maximize the number of truck parking spaces.*

Tier 1 Site Conditions

Site visits were conducted in the fall of 2019 to assess the existing conditions at each Tier 1 site, shown on **Figure 2**. The project team performed a visual inspection of the pavement condition (if pavement was present), investigated the need for enhancements to auxiliary lanes on the interstate, verified the availability of electrical power (for future lighting needs), and documented the site with photographs. A photolog of each site is included in **Appendix A**.

[2] https://uknowledge.uky.edu/ktc_researchreports/1492/

[3] https://transportation.ky.gov/MultimodalFreight/Documents/2017 Kentucky Freight Plan/

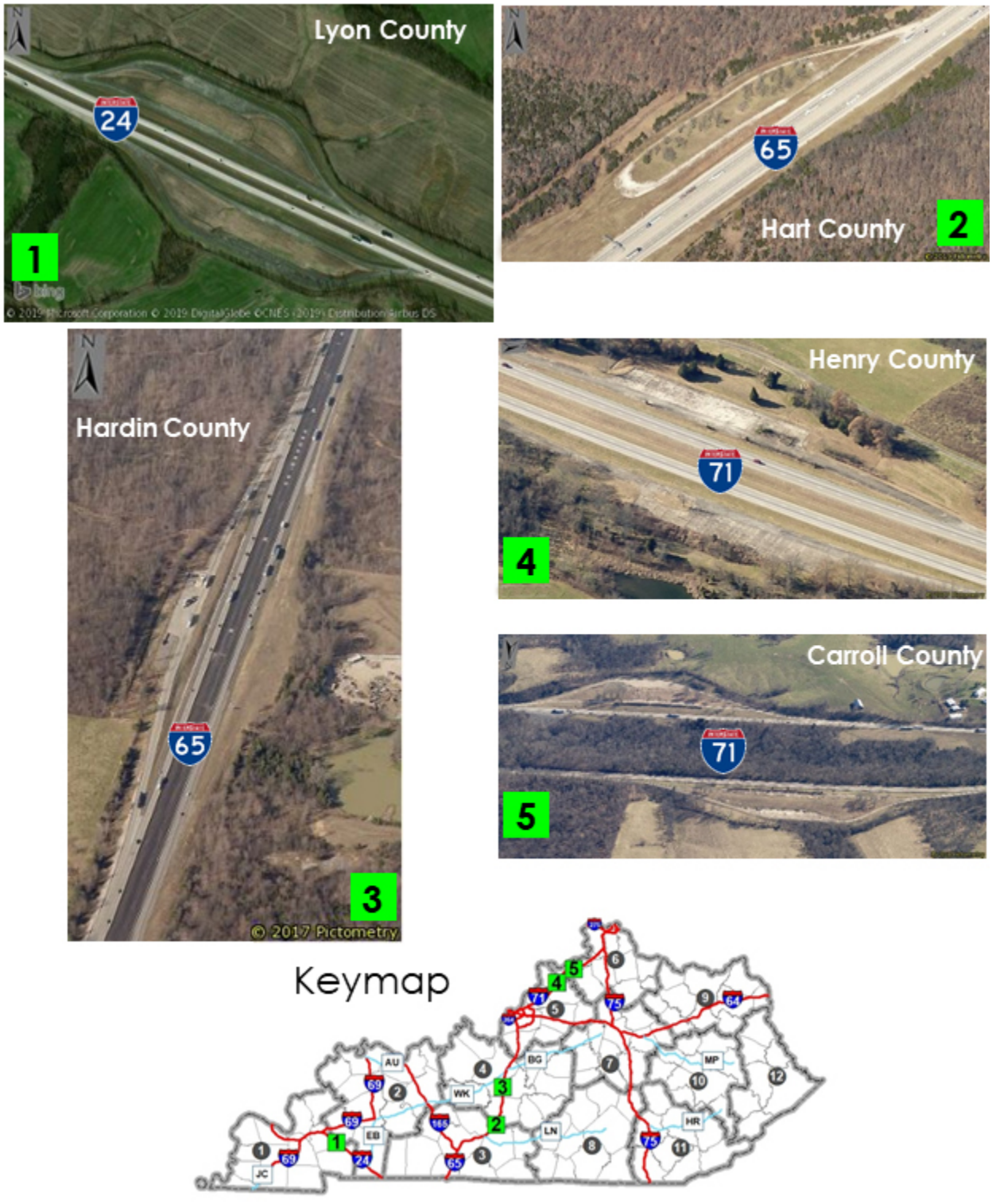

Figure 2: Aerial Imagery of the Tier 1 Sites

Site visits also allowed the project team the opportunity to collect GPS data for use in developing drawings to depict the existing site and layouts to accommodate truck parking. **Table 3** includes an overview of the general conditions at each site. No Tier 1 site has buildings that remain. In addition, none of the sites have operational lighting in place. The Henry County weigh stations have remnants of the former scales in place.

Tier 1 Site	County	Route & Milepoint (MP)	Direction	Former Use	Justification	Pavement Condition	Auxiliary Lanes	Electrical Service
1	Lyon	I-24, MP 54	EB & WB	Rest Areas	I-24 in Lyon County carries over 6,700 trucks per day. The existing pavement is in good condition making this a quick win.	Generally very good, requiring minimal rehabilitation.	Present and adequate	Electrical service was not identified during site visit
2	Hart	I-65, MP 55	SB only	Rest Area	I-65 in Hart County carries nearly 13,800 trucks per day.	No pavement remains.	Not present	Electrical service is available
3	Hardin	I-65, MP 89	NB only	Weigh Station	I-65 in Hardin County carries nearly 15,500 trucks per day. The proximity to Elizabethtown and Louisville increase parking demand.	No pavement remains.	Not present	Electrical service is available
4	Henry	I-71, MP 35	NB & SB	Weigh Stations	I-71 in Henry County carries over 12,300 trucks per day. There are few opportunities for truck parking between Louisville and I-75.	Concrete in parking areas will require moderate rehabilitation, but ingress and egress ramps require full depth replacement.	Present but re-entry lanes may require minor extension	Electrical service is available
5	Carroll	I-71, MP 51	NB & SB	Rest Areas	I-71 in Carroll County carries about 12,100 trucks per day. There are few opportunities for truck parking between Louisville and I-75.	Concrete in parking areas will require moderate rehabilitation, but ingress and egress ramps require full depth replacement.	Present but re-entry lanes may require minor extension	Electrical service is available

Table 3: Existing Conditions at Tier 1 Sites

At both the Henry and Carroll County sites, pavement remains in-place. However, all four facilities at these two sites will require moderate pavement rehabilitation to accommodate truck operations and parking. At minimum, it is assumed the ingress and egress ramps will require complete pavement replacement and the existing parking areas would require pavement milling and an overlay. The Lyon County former rest areas have not been closed for a significant amount of time, and the remaining pavement is in good condition. All pavement has been removed from both the Hart County and the Hardin County sites.

Potential Truck Parking Configurations and Costs

At each Tier 1 site, the project team examined parking configuration options to maximize the potential number of spaces. Where sites had pavement in place, a base option was developed that considered only the use of the existing paved areas. Other configurations were also

considered to include additional pavement to accommodate more truck spaces. In all cases, it is assumed that no new right-of-way will be acquired. These layouts are summarized in **Table 4** and shown in **Appendix B**. Overflow spaces are assumed where trucks can physically park within a non-striped area but not along ramps or in areas that would affect truck ingress or egress to the striped parking spaces.

Tier 1 Site	County	Route & Milepoint (MP)	Direction	Concept	Striped Spaces	Estimated Cost
1	Lyon	I-24, MP 54	EB & WB	Use Existing Paved Areas	21 Spaces (6 overflow) in each direction	EB: $970,000 WB: $850,000
				Full Buildout	42 Spaces (8 overflow) in each direction	EB: $2.76 Million WB: $2.56 Million
2	Hart	I-65, MP 55	SB only	Use Former Paved Area	17 Spaces (0 overflow)	$3.1 Million
				Expand Former Truck Parking Area	23 Spaces (6 overflow)	$5.1 Million
				Full Buildout	42 Spaces (8 overflow)	$5.4 Million
3	Hardin	I-65, MP 89	NB only	Use Former Paved Area	12 Spaces (6 overflow)	$1.94 Million
4	Henry	I-71, MP 35	NB & SB	Use Existing Paved Areas	9 Spaces (6 overflow) in each direction	NB: $1.78 Million SB: $1.59 Million
5	Carroll	I-71, MP 51	NB & SB	Use Existing Paved Areas	14 Spaces (3 overflow) in each direction	NB: $1.62 Million SB: $1.83 Million
				Expand Existing Paved Areas	NB: 51 Spaces (10 overflow) SB: 38 Spaces (5 overflow)	NB: $2.73 Million SB: $2.51 Million

Table 4: Tier 1 Site Parking Concept Summary

The Henry County and Hardin County sites have limited acreage available, and in these cases only one concept has been developed that uses the existing paved area (or the former paved area at the Hardin County site). The Carroll County and Hart County sites are larger and provide more opportunities for expansion. The option listed as "Expand Existing Paved Areas" is one concept to better use the layout at the Carroll County sites with only limited paving of additional areas. As another option, **Figure 3** shows an alternative layout for the northbound I-71 site in Carroll County that paves the entire area where the former rest area service buildings were located. This configuration includes longer parking spaces on the south side of the lot that could each accommodate two trucks (depending on the size of the truck). Options such as this should be considered to maximize the number of truck spaces.

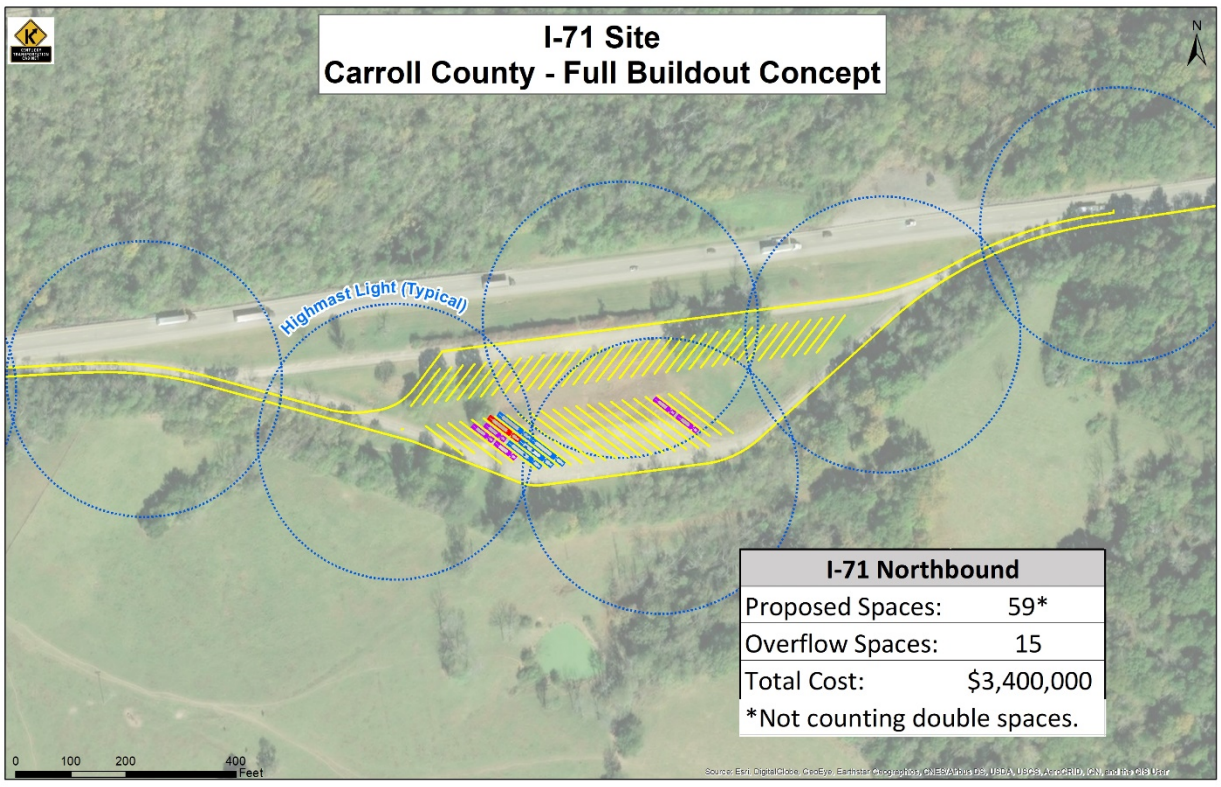

Figure 3: Conceptual Example Layout for Northbound I-71 in Carroll County (note double parking spaces on south side)

Costs for each layout were based on KYTC average unit bid prices from 2019. The basic cost estimates assume no new facilities (i.e. buildings or restrooms) are included at each site. The cost estimates are included in **Appendix B**. Conceptual typical paving sections assumed for estimating purposes are also included in **Appendix B**.

None of the Tier 1 sites include functional overhead lighting, and it was assumed that highmast lighting would be installed at each location. For the purposes of this study, it was assumed that lighting levels similar to an operational rest area would be necessary, which includes lighting all

interstate ramps / ramp tapers in addition to the proposed parking areas. At an assumed $100,000 per light tower, the cost for lighting the sites is a significant component of the cost to implement parking. Therefore, further consideration of minimum lighting requirements should be discussed with project stakeholders.

Conclusions and Next Steps

The current study provides a high-level overview of the potential to provide publicly owned, dedicated truck parking at five locations along Kentucky's interstate system. These "Tier 1" sites were prioritized because they are all located on corridors with high volumes of truck traffic and the sites represent land owned by the Commonwealth of Kentucky. Should any of these sites move forward for further consideration, additional analyses will be required to better assess the existing pavement conditions (including geotechnical sampling) as part of final design.

A more comprehensive study of statewide truck parking needs is also needed in Kentucky. This study should include an assessment of the statewide demand for truck parking to assist KYTC in determining the most critical areas for increasing such publicly-owned facilities. The goals of this study should include the following:

1. *Assess parking demand statewide*
2. *Examine other "former-use" sites that served as rest areas or weigh stations that may be converted for truck parking*
3. *Analyze expansion of current rest areas and weigh stations to provide truck parking on land currently owned by the Commonwealth of Kentucky*
4. *Consider the need to purchase additional land, either at existing rest areas or weigh stations or at new sites, to provide truck parking to meet demand*

Coordination with the Federal Highway Administration (FHWA) was initiated in 2019, but additional coordination will be required before parking is implemented. Such coordination is necessary to ensure federal funding can be used to assist in the development of the truck parking sites.

The KYTC has partnered with seven other states to launch a real-time parking availability information system for commercial vehicle operators. The Mid America Association of State Transportation Officials (MAASTO) regional Truck Parking Information Management System (TPIMS) displays information on dynamic roadside signs along high-volume roadways in Kentucky. These road signs, labeled "Available Truck Parking" as demonstrated on **Figure 4**, digitally display the number of truck spaces open at nearby parking locations monitored by the TPIMS system. In addition to six dynamic signs on I-65, I-71, and I-75, Kentucky utilizes a web-based data feed, providing drivers

Figure 4: Example Truck Parking Availability Sign
Source: https://ops.fhwa.dot.gov/

with the number of spaces open in the 14 designated lots and static images of parking areas.[4] As the development of any parking site is explored, connectivity to the TMIPS system should be considered a high priority.

[4] https://drive.ky.gov/motor-carriers/Pages/TPIMS.aspx