



Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking

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1.0 BACKGROUND

Safe, legal truck parking has historically been a major issue for motor carriers and commercial drivers, but the problem is now reaching a critical juncture. State budget woes have led to the elimination of many hundreds of public truck parking spaces. Evolving supply chains and truck operational changes have moved the truck parking “sweet spot” for many urban areas. Even planning issues such as zoning, property condemnation and “livable communities” have had a major impact on the quantity and location of critical truck parking. The American Transportation Research Institute’s (ATRI) annual industry survey, *Critical Issues in the Trucking Industry*, shows “truck parking” moving from a rank of 8th to 6th most important industry issue between 2012 and 2013.^{1,2} Among truck driver respondents, “truck parking” was the second highest ranked issue in 2014.³ Commercial driver Hours-of-Service (HOS) regulation changes implemented in 2013 exacerbated truck parking shortages by shifting truck travel to different times of the day and week.⁴

The lack of adequate truck parking has been a focus of industry research for the past two decades. In 1996, the Trucking Research Institute (TRI) issued a report that found disparate public rest area utilization by trucks and cars: truck parking was full or overflowing at 50 percent of locations during the day and 80 percent of locations at night, while car parking had excess capacity at 60 percent of locations during the day and 80 percent of locations at night.⁵ Additionally, the TRI report identified that obsolete parking space design and recreational vehicles occupying truck parking spots further reduced truck parking supply.⁶

Soon after that, in 1998, the Federal Highway Administration (FHWA) was tasked by Congress with assessing the adequacy of truck parking as part of the Transportation Equity Act for the 21st Century. The 1998 FHWA report found truck parking shortages in 35 states’ public rest areas and eight states’ private truck stops.⁷ More than 90 percent of the drivers surveyed for the 1998 FHWA report believed there was a truck parking shortage, particularly for long-term and overnight parking.

After the release of a second FHWA study in 2002, many individual states conducted follow-up studies on truck parking availability, the benefits associated with adequate

¹ American Transportation Research Institute. *Critical Issues in the Trucking Industry—2012*. Arlington, VA. October 2012

² American Transportation Research Institute. *Critical Issues in the Trucking Industry—2013*. Arlington, VA. October 2013

³ American Transportation Research Institute. *Critical Issues in the Trucking Industry—2014*. Arlington, VA. October 2014

⁴ American Transportation Research Institute. *Quantifying Impacts from the 34-Hour Restart Provisions*. Arlington, VA. April, 2015.

⁵ Trucking Research Institute, Apogee Research, Inc., & Wilbur Smith Associates (1996). *Commercial Driver Rest Area Requirements: Making Space For Safety*. *Federal Highway Administration, United States Department of Transportation*. Available Online:

<http://www.fhwa.dot.gov/publications/research/safety/commercial.pdf>

⁶ Many public rest areas were designed and built when trucks had smaller sizes and weights, making maneuvering trucks in these parking lots difficult and increasing the risk of property damage.

⁷ Fleger, S.A., Haas, R.P., Trombly, J.W., Cross III, R.H., Noltenius, J.E., Pécheux, K.K., & Chen, K.J. *Study of Adequacy of Commercial Truck Parking Facilities – Technical Report*. Federal Highway Administration. 2002.

truck parking, and potential solutions for truck parking shortages. A 2008 study in Minnesota found that 20 of the 34 public rest areas were over-capacity during peak demand periods at least 15 percent of the time.⁸ Of those 20 locations, five were over-capacity at least 50 percent of the time. In the Northeast, documented truck parking shortages are even more severe. The North Jersey Transportation Planning Authority (NJTPA) observed that 82 percent of the region's truck parking facilities were over-capacity in the summer of 2006.⁹ Additionally, the NJTPA estimated that the demand for additional truck parking was 1,300 parking spaces – nearly double the existing amount of truck parking at both public and private truck parking lots in the region. In Michigan, a cost-benefit analysis of public rest areas found that the average benefits of Michigan public rest areas were five times more than the average costs.¹⁰ Many of the benefits derived from public rest areas were generated from reductions in fatigue-related crashes.

The relationship between these crashes and parking availability was further highlighted by a California Department of Transportation spatial analysis of public rest stops and fatigue-related crashes.¹¹ The analysis concluded that within the 30 miles downstream of a rest area, the likelihood of fatigue-related collisions decreased; whereas at distances more than 30 miles downstream of rest areas, the likelihood increased significantly. Truck-involved crashes were less than five percent of all crashes examined for the study; however, the fatigue-related crash rate was higher for trucks than the rate for all vehicle types.¹²

Illegal parking on interstate shoulders or on/off ramps is often considered to be the result of insufficient local truck parking, or insufficient information to direct commercial vehicle drivers to available parking spaces.^{13,14} The Virginia Department of Transportation (DOT) and Washington DOT both analyzed the safety risks of illegal parking in two separate studies. Washington State found that 3,165 shoulder collisions occurred on interstates and highways during a seven-year period – resulting in 40

⁸ Wilbur Smith Associates & Iowa State University Center for Transportation Research and Education. *The Minnesota Interstate Parking Study*. Minnesota Department of Transportation. January 2008. Available Online:

http://www.dot.state.mn.us/ofrw/PDF/MN_TrkParkFnlRpt.pdf

⁹ North Jersey Transportation Planning Authority. *An Assessment of Potential Locations for Truck Rest Areas in Northern New Jersey and the Port District*. January 2008. Available Online:

<http://www.njtpa.org/Planning/Regional-Studies/Recently-Completed-Studies/The-NJTPA-North-Jersey-Truck-Stop-Study-Refinement/NJTPATruckRestStopStudy/NJTPAPhase1TruckRestStopReport.aspx>

¹⁰ Gates, T.J., Savolainen, P.T., Datta, T.K., Todd, R.G., & Boileau, S. *Evaluating the Appropriate Level of Service for Michigan Rest Areas and Welcome Centers Considering Safety and Economic Factors*. Michigan Department of Transportation. April 2012. Available Online:

https://www.michigan.gov/documents/mdot/MDOT_Research_Report_RC1570_387400_7.pdf

¹¹ Banerjee, I., Lee, J., Jang, K., Pande, S., & Ragland, D. (2009). *Rest Areas—Reducing Accidents Involving Driver Fatigue*. University of California Berkeley Traffic Safety Center and California Department of Transportation. Available Online: http://www.dot.ca.gov/newtech/researchreports/reports/2009/2009-05_design_and_construction.pdf

¹² Using a strict definition of fatigue, 1.9 percent of all truck crashes and 1.3 percent of all vehicle crashes were fatigue-related. Using the expanded fatigue definition (single vehicle crash, driver at fault but not intoxicated or speeding, no vehicle defects), 11.3 percent of truck crashes and 9.7 of all vehicle crashes were fatigue-related.

¹³ This is an assumption utilized in the 2002 FHWA Study of Adequacy of Commercial Vehicle Parking Facilities technical report and many of the subsequent State DOT truck parking reports.

¹⁴ United States Department of Transportation- Research and Special Programs Administration and Volpe National Transportation Systems Center. *Intelligent Transportation Systems and Truck Parking*. Federal Motor Carrier Safety Administration. February 2005. Available Online: <http://ntl.bts.gov/lib/50000/50500/50595/intelligent-transportation-truckparking.pdf>

deaths and 1,774 injuries.^{15,16} Virginia found that between 2008 and 2012, 25 percent of all truck-involved crashes on major Virginia corridors were on highway access ramps.¹⁷ Many enforcement agencies do not cite drivers for illegal parking to reduce fatigued driving.¹⁸ However, these statistics demonstrate that the safety risks of illegal parking are significant and that there is a pressing safety interest in providing alternative truck parking locations for the benefit of all motorists.

Recently, Congress focused on the lack of available safe truck parking with the Jason's Law study requirement in the Moving Ahead for Progress in the 21st Century Act (MAP-21). The Jason's Law Truck Parking Survey Results and Comparative Analysis was released in 2015 and confirms that truck parking continues to be a major issue in the United States.¹⁹ The FHWA surveyed over 8,000 truck drivers, of which over 75 percent indicated they regularly have trouble finding parking at night. Numerous state DOT representatives corroborated that truck parking is inadequate – 59 percent of states have truck parking shortages in public rest areas and 31 percent have truck parking shortages in private truck stops. An assessment of current truck parking supply and demand shows that major freight corridors and urban areas have the greatest number of truck parking spaces. However, the demand for truck parking in these locations exceeds the truck parking supply, making major freight corridors and urban areas the locations with the most acute truck parking shortages. The ongoing parking shortage was attributed to many causes, including land zoning, land prices, delivery schedules, lack of coordination between states, and disparate efforts to address parking shortages between states. Efforts to quantify truck parking adequacy are confounded by seasonal fluctuations in freight movement, severe weather events, and variations in demand due to time of day.

These studies all support the need for expanding truck parking capacity along major interstate corridors to prevent fatigue-related crashes and give commercial vehicle drivers the ability to comply with federal HOS regulations. However, adding the needed capacity is expensive and rarely politically acceptable, so alternative methods of managing parking resources are being explored. One alternative solution that has seen limited usage is “reservation-for-fee” systems, a somewhat controversial approach that charges carriers or drivers for a guaranteed parking space in advance.

In response to the growing criticality of truck parking, as well as the well documented shortage of public and private truck parking spaces, ATRI's Research Advisory

¹⁵Highway Safety Committee, International Association of Chiefs of Police. *The Highway Safety Deskbook*. September 2004. Available Online:

<http://www.nhtsa.gov/people/injury/enforce/deskbk.html#AVASC>

¹⁶ The Washington State figure includes all vehicles parked on interstate shoulders, not just trucks.

¹⁷ Kimley-Horn (2015). Virginia Truck Parking Study. *Virginia Department of Transportation*. Available Online:

http://www.virginiadot.org/projects/resources/VirginiaTruckParkingStudy_FinalReport_July2015.pdf

¹⁸ Ibid.

¹⁹ Federal Highway Administration and Department of Transportation. *Jason's Law Truck Parking Survey Results and Comparative Analysis*. August 2015. Available Online:

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

Committee (RAC)²⁰ ranked “Managing Critical Truck Parking” as the most important research topic for the year at its 2015 annual meeting.

2.0 MANAGING CRITICAL TRUCK PARKING RESEARCH APPROACH

ATRI’s 2015 RAC-directed truck parking research will be conducted through a series of discrete tasks, the results of each being documented in separate technical memoranda. This Technical Memorandum #1 details the findings of ATRI’s survey of commercial drivers on truck parking issues related to parking availability and truck parking reservation systems.

Given the scope and complexity of the truck parking issue, ATRI will commence research and analysis on the following truck parking issues; in many instances the research will be undertaken concurrently. Each “Tech Memo” will be publicly released on completion, with an overall “Managing Critical Truck Parking” synthesis being produced and released in mid-2016.

1) Understanding Truck Driver Perspectives on Parking Reservation Systems

This first Tech Memo collects and analyzes response data from driver surveys conducted in March 2015 at the Mid-America Trucking Show (MATS), and a follow-up online truck driver survey. Data provided by more than 1,400 truck driver respondents provides insight on a variety of driver issues, including the role that “reservation-for-fee” systems may play, related space valuation and who should ultimately be responsible for truck parking fees.

2) Integrating Jason’s Law Report with Other Data

ATRI will work with FHWA to synthesize the Jason’s Law data with other data sources, including Tech Memo #1 driver survey data and various state reports on truck parking. Among other objectives, Tech Memo #2 will help shape federal and state policy decisions on truck parking initiatives.

3) Utilizing Truck GPS Data to Assess Parking Supply and Demand

This Tech Memo will use ATRI’s massive truck GPS database to develop more granularity on truck supply and demand. The GPS data can identify truck parking levels and duration by time-of-day, day-of-week and month-of-year for any formal and/or informal location used for truck parking. Most importantly, the data analysis will provide important guidance on where truck parking investments are needed based on unofficial truck parking locations.

²⁰ ATRI’s RAC is comprised of industry stakeholders representing motor carriers, trucking industry suppliers, labor and driver groups, law enforcement, federal government and academia. The RAC is charged with annually recommending a research agenda for the Institute.

4) Cost/Benefit Analysis of Truck Parking Reservation Systems: Impacts on Productivity and Safety

Given the increased attention and interest in truck parking reservation systems, this analysis will investigate the scenarios, business models and technical requirements that might make reservation systems more palatable to carriers and drivers. Driver data generated in Tech Memo #1 will provide important inputs, but it is expected that more detailed driver and carrier response information will be generated through additional data collection mechanisms.

5) Lost Capacity: Impact of Other Vehicles on Truck Parking Capacity

There is considerable anecdotal data that truck parking availability is often negatively impacted by cars, recreational vehicles and other vehicle configurations.²¹ In some instances, this parking is illegal but unenforced; in other instances it is a gray area as to whether ‘commercial vehicles’ are the intended target market for “large truck” parking. Finally, in many instances, longer vehicles such as recreational vehicles do not have other parking options – yet fill spaces needed by federally regulated trucks. This Tech Memo will use a variety of sources including site visits and vehicle monitoring to assess the extent of this issue.

6) Case Study: Real-World Lessons from Truck Parking Diaries

Much of the data collected by truck parking research studies lacks the detailed, qualitative value needed to understand the scope and extent of truck parking issues. This final Tech Memo will utilize customized truck driver diaries to collect detailed issues and experiences from truck drivers as they ply thousands of truck driving miles. While the emphasis will be on over-the-road driving experiences, all types of truck parking experiences will be captured including rural versus urban, public versus private, and by vehicle/commodity type.

²¹ The 1996 TRI report estimated recreational vehicles and cars in truck parking areas reduced the number of available truck parking spaces by 10 percent in “Commercial Driver Rest & Parking Requirements”.

3.0 METHODOLOGY

ATRI administered a survey that focused on public versus private truck parking availability and driver opinions on a truck parking reservation system concept. The survey consisted of 13 multiple choice questions and an open response section (Appendix A). The survey was distributed at the 2015 Mid-America Trucking Show (MATS), held March 26-28, 2015 in Louisville, Kentucky. Additionally, the survey was available online through ATRI’s website from March 31 – May 1, 2015. In total, 1,417 drivers completed the survey; 812 at MATS and the remaining 605 surveys online. Since answering all the questions was not compulsory, response rates differ from question to question. Age and gender were not collected, so the analysis does not examine the relationship that age or gender may have with views on parking reservation systems, although this may be re-assessed in future research.

4.0 RESULTS

4.1 Respondent Demographics

Respondents were first asked to identify the industry segment in which they operate. As noted, in Table 1, 76.8 percent of respondents were from for-hire motor carriers and 23.2 percent were from private fleets.

Table 1: Industry Segment

Industry Segment	ATRI Survey Respondents
For-Hire	76.8%
Private	23.2%

Drivers operating in the for-hire segment were then asked to identify which sector they primarily represent (Table 2).

Table 2: Industry Sector

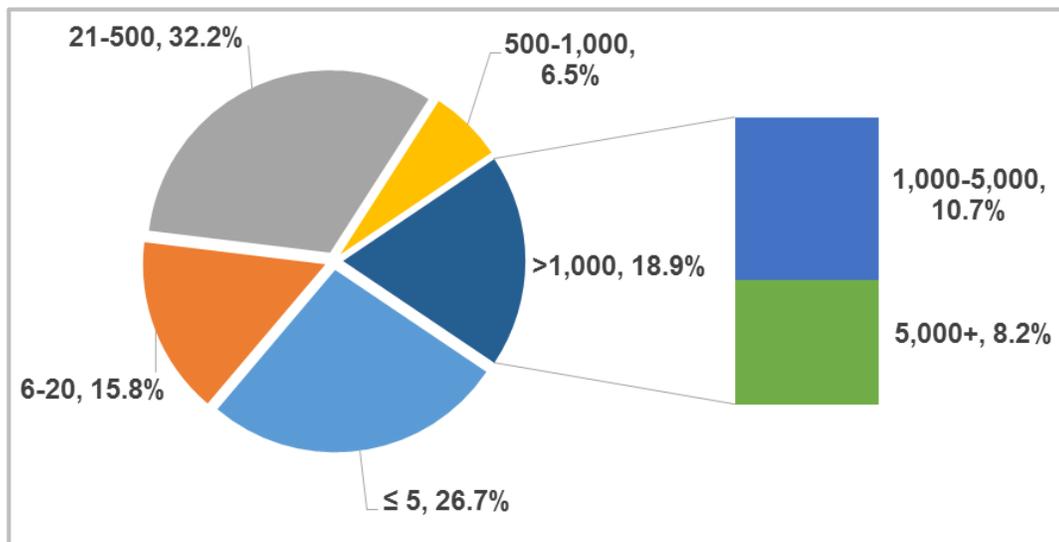
Industry Sector	Percent of Respondents
Truckload	66.8%
Flatbed	11.0%
Less-than-Truckload	5.9%
Tanker	4.1%
Express/Parcel Service	1.5%
Intermodal Drayage	1.0%
Other	9.7%

Drivers were next asked to identify their employment status. The sample consists of:

- 52.7 percent employee drivers
- 25.7 percent Independent Contractors (I-C) leased to a motor carrier
- 21.6 percent Owner-Operators (O-O) with their own authority

Figure 1 displays respondent fleet sizes. The United States Government Accountability Office (GAO) estimates that 29 percent of all power units (PU) operating under the Federal Motor Carrier Safety Administration’s jurisdiction belong to fleets of 1,000 or more PU.²² Relative to the rest of the industry, large fleets are underrepresented in our sample, which is comprised of 18.9 percent of respondents from fleets with more than 1,000 PU.

Figure 1: Fleet Size



Respondents were asked to provide their average length per haul. The number of respondents running regional, inter-regional, or long haul trips was almost equally split.

- Local (less than 100 miles per trip) – 9.6 percent
- Regional (100-499 miles per trip) – 28.4 percent
- Inter-regional (500-999 miles per trip) – 29.7 percent
- Long-haul (1,000 miles or more per trip) – 32.3 percent

The most commonly reported vehicle configuration in the sample (Table 3) is 5-axle dry van (42.5%) – more than double the next highest response. Longer combination

²² United States Government Accountability Office. *Federal Motor Carrier Safety: Modifying the Compliance, Safety, and Accountability Program Would Improve the Ability to Identify High Risk Carriers*. February, 2014. Available Online: <http://www.gao.gov/assets/670/660610.pdf>

vehicles (LCV) have the lowest representation, comprising only three percent of the sample.

Table 3: Primary Vehicle Configuration

Primary Vehicle Configuration	Percent
Dry Van	42.5%
Flatbed	18.2%
Refrigerated Trailer	14.3%
Tanker	5.6%
Straight Truck	4.9%
LCV	3.0%
Other	11.6%

The final demographic question covered compensation, with 45.2 percent of the sample reporting being paid by the mile. Per-load compensation is the second most represented section at 33.2 percent. Drivers paid per hour and drivers with compensation structures not listed compose 11.3 percent and 10.3 percent of the sample, respectively.

4.2 Comparing Public Rest Areas and Private Truck Stops

Participants were asked to indicate where it was most difficult to find parking: public rest areas, private truck stops, or both public and private rest stops. Response rates are distributed as follows:

- Public and private rest stops are equally difficult – 62.1 percent
- Private truck stops – 23.7 percent
- Public rest stops – 14.2 percent

Next, respondents were asked to estimate how many times out of every ten stops they stopped at a public rest area versus a private truck stop.

This question does not account for stops made at other locations such as parking lots or side streets. Since a third option asking or offering alternatives such as shipper facilities and parking lots was not included, this question only assesses the relative weighting between public and private truck parking. On average, private truck stops are used for parking 27.2 percent more often than public rest areas (56% versus 44%)²³.

²³ The 2002 FHWA study estimated demand for private truck stops and public rest areas at 77 percent and 23 percent, respectively.

4.3 Parking Reservation Systems

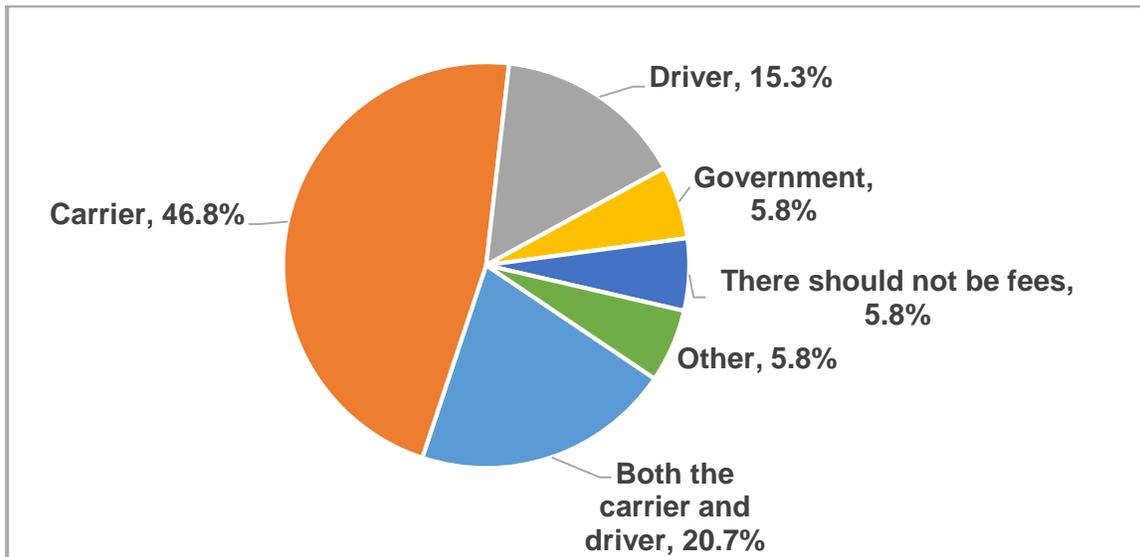
The next question considered a hypothetical reservation system and drivers' willingness to pay (WTP) to reserve a parking space (Table 4). Nearly half (48.2%) of respondents report that they would not be willing to pay any amount to reserve a parking space. Of respondents expressing a WTP to reserve a parking space, 20 percent of respondents would pay fees of \$5 or less, 19.8 percent for fees of \$6 to \$10, nine percent would pay fees of \$11 to \$15, and less than three percent would pay \$16 or more. The prevalence of "I would not be willing to pay any amount" responses may relate to driving on corridors with greater parking supply, or the initial rejection of an unfamiliar concept, although industry economics do favor cost-reductions wherever possible.

Table 4: Respondent Price Willing to Pay for Parking Space

Reservation Price	Percent
I would not be willing to pay any amount	48.2%
\$1-\$5	20.0%
\$6-\$10	19.8%
\$11-\$15	9.0%
\$16-\$20	2.1%
\$21+	0.9%

When asked who should pay for any associated reservation fees (Figure 3), 46.8 percent of truck driver respondents state that the motor carrier should be responsible. Another 20.7 percent believe that it is most appropriate to split the cost between the carrier and driver and only 15.3 percent of drivers feel it was solely the responsibility of the truck driver. Those who chose "other" and specified another party should be responsible primarily identified that the government should be responsible for fees, or protested a reservation-for-fee system as a whole.

Figure 2: Who should pay for the reservation fee?



Respondents were asked what should happen to the reservation fee if a driver misses a parking reservation. Response rates were distributed as follows:

- Refund the reservation fee – 50.4 percent
- Transfer reservation fee to a new date and time – 31.9 percent
- Forfeit the parking space and fee – 10.2 percent
- Other – 7.6 percent

Participants also indicated the type of location at which they would be most willing to use a reservation system (Table 5). Respondents show a strong preference for reserved parking near major metropolitan areas, which logically reflects tight capacity and high demand. Most respondents who specified a response of “other” indicated no willingness to participate in a parking reservation system. Almost half of all respondents indicated no WTP for parking reservations, but less than ten percent of respondents provided the response that indicates no willingness to reserve a parking space (“Other”). This discrepancy suggests there is a distinction between the WTP for parking and the willingness to reserve a parking space.

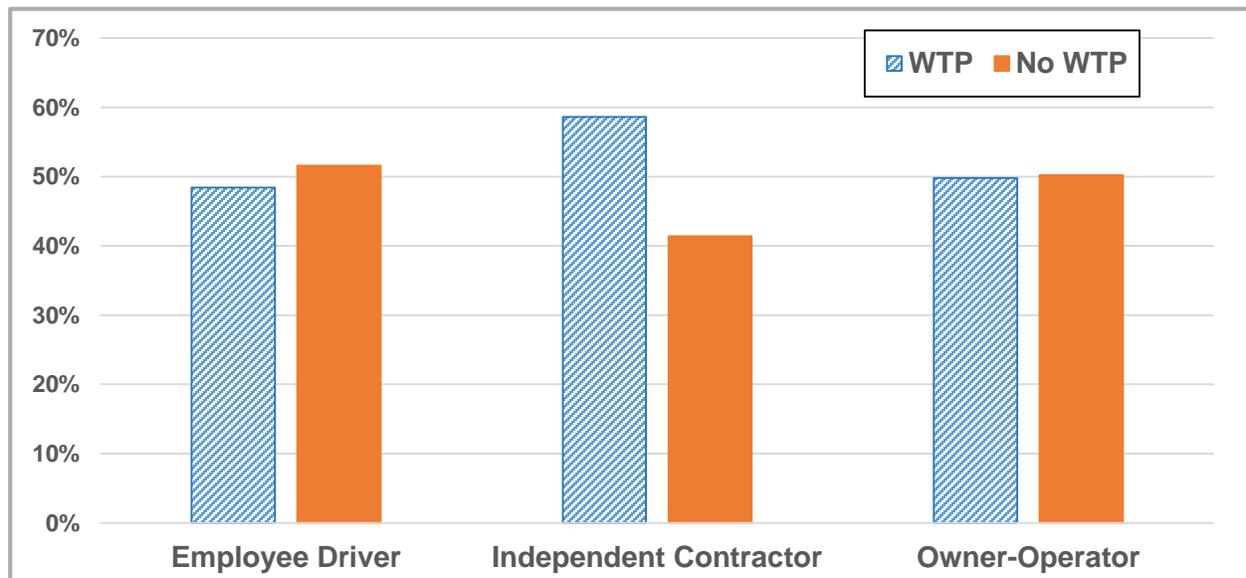
Table 5: Location Preference

Near what type of location would you be more likely to reserve a parking space?	Percent
Major metropolitan area	48.8%
I would be likely to reserve a space for all areas	27.3%
Rural area	7.6 %
Smaller metropolitan area	6.8%
Other	9.5%

4.4 Additional Analyses

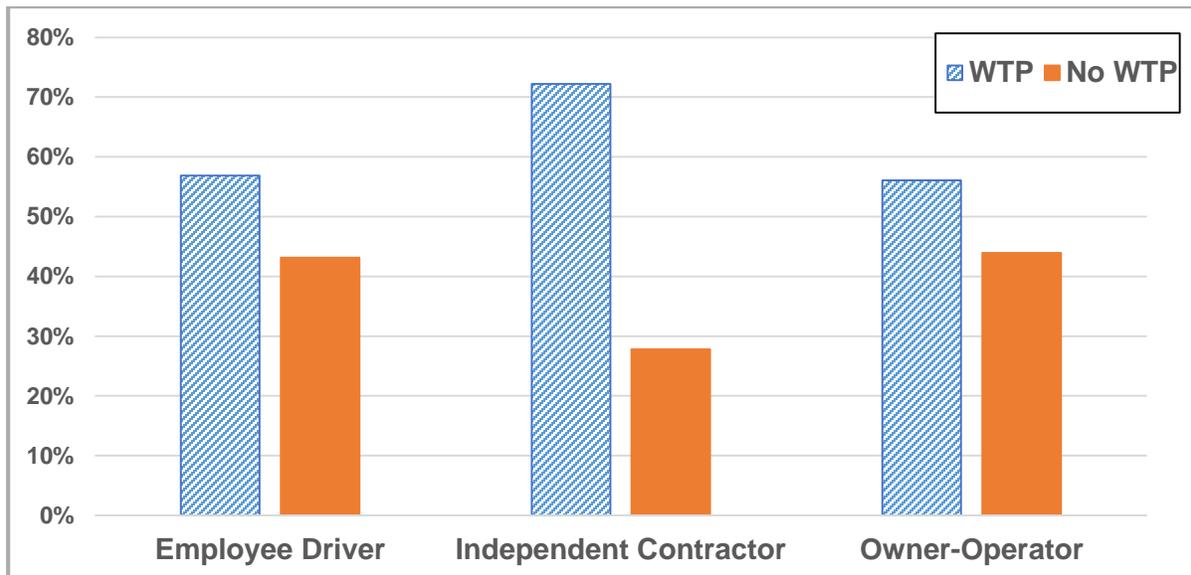
ATRI completed several cross tabulations to better understand the willingness to pay for reserved parking. Of all employment types, I-C display highest WTP, with 59 percent indicating a WTP, compared to 50 percent of O-O, and 48 percent of employee drivers. This may indicate a recognition that the O-O/I-C model typically covers all out-of-pocket expenses or that O-O/I-C drivers use over-the-road truck parking facilities as a surrogate for carrier terminals.

Figure 3: Willingness to Pay by Employment Type



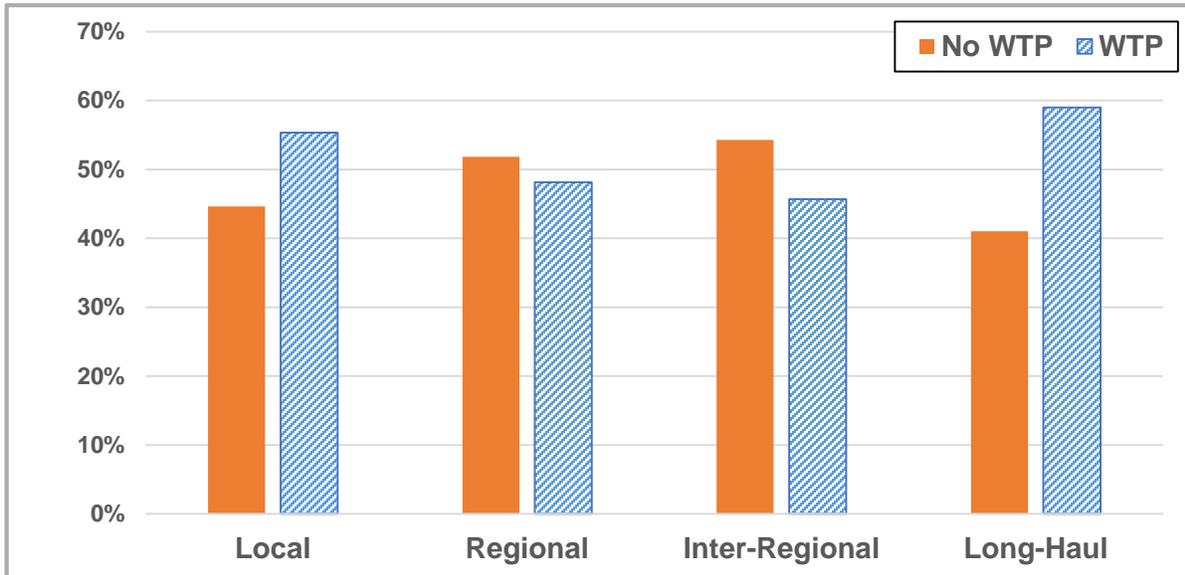
The majority of respondents who indicated that they would be most likely to use a reservation system near a large metropolitan area also demonstrated a higher WTP. I-Cs have the greatest proportion of respondents with WTP for major metropolitan area parking (72%), while employee and O-O respondents have nearly the same proportion of respondents WTP for major metropolitan area parking (57% and 56% respectively). It is unclear why I-Cs were considerably higher than the other groups, but the financial and compensation schema of I-Cs may make paid parking more worthwhile.

Figure 4: Willingness to Pay for Large Metropolitan Area Parking Reservation by Employment Type



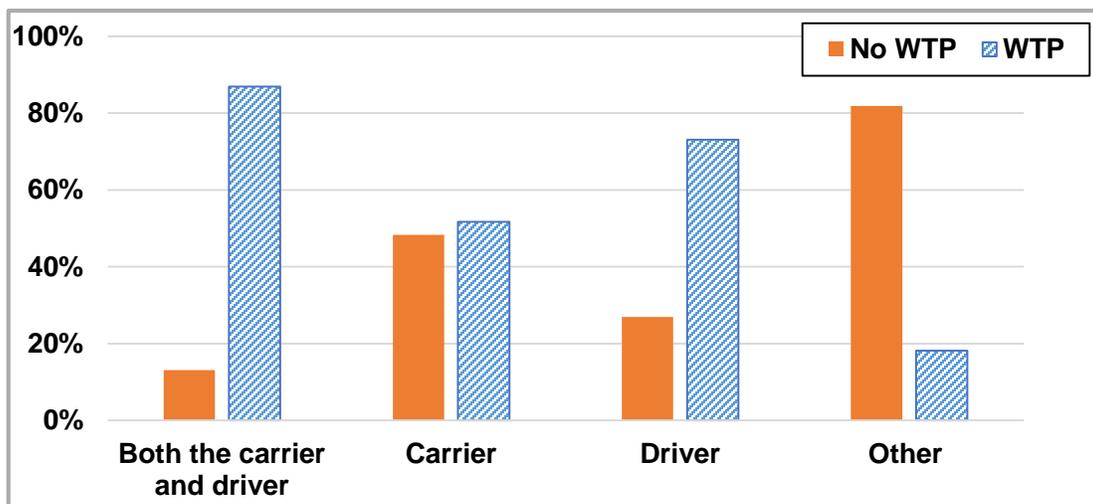
More than half of long-haul drivers (59%) indicated some level of WTP (e.g. \$1.00) for reserved parking spaces whereas less than half of regional (48%) and inter-regional drivers (45%) indicated they would be willing to pay for a reserved parking space. Of the local drivers, a small majority (55%) indicated a WTP for parking reservations, an unexpected response given that this group typically averages less than 100 miles per trip.

Figure 5: Willingness to Pay by Average Length of Haul



There appears to be a relationship between WTP for reserved parking and *who* the respondent believes should be responsible for reservation payments. Generally, respondents indicating any level of WTP for parking reservations are more likely to impose all or part of a parking reservation fee on drivers. Respondents who prefer carrier responsibility for parking reservation fees are split almost equally by WTP, but the trend and conclusion appears to be that WTP increases when the responsible party is someone other than the driver.

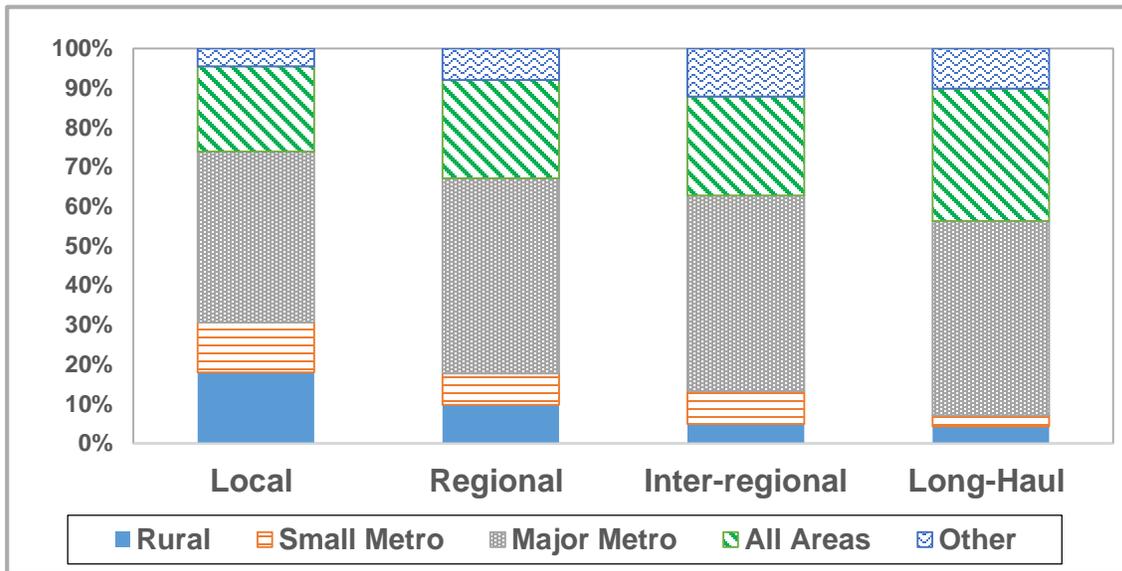
Figure 6: Willingness to Pay by Responsible Party



Near what type of location are you most likely to reserve a parking space?

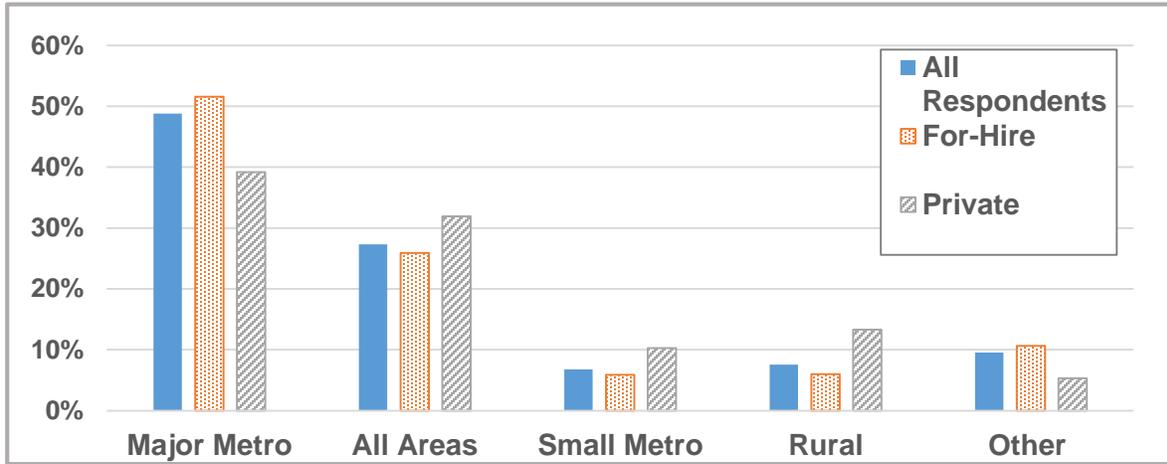
Reservation location preferences are generally uniform across average trip length bins with a few notable exceptions. Surprisingly, local drivers prefer rural and small metropolitan reservations at rates two to three times higher than regional, inter-regional and long-haul carriers. A third of long-haul drivers (those with average trip lengths over 1,000 miles) indicated that they are more likely to reserve parking in all types of locations compared to 25 percent of regional and inter-regional drivers and 22 percent of local drivers.

Figure 7: Location Most Likely to Reserve by Average Length of Haul



Regardless of who pays, the majority of for-hire drivers indicated a preference for reserving parking near major metropolitan areas (52%) or all areas (26%). Private fleet drivers also prefer major metropolitan areas (39%) and all areas (32%).

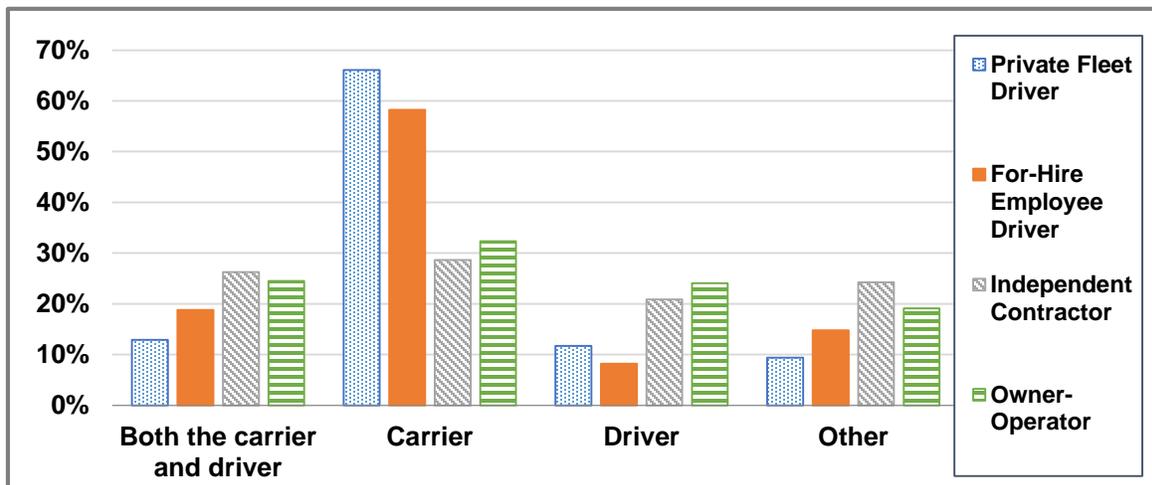
Figure 8: Location Most Likely to Reserve by Industry Segment



Who should be responsible for truck parking reservation fees?

O-O/I-C respondents and employee drivers are expected to have differing expectations of payment responsibility, as O-O/I-C drivers are generally responsible for all business expenses, while employee drivers’ carriers pay for most business related expenses. Both for-hire and private fleet employee drivers display a strong preference for carrier responsibility for parking reservation fees. Conversely, O-O/I-C respondents have a more even distribution across responses and significantly fewer O-O/I-C respondents prefer carrier responsibility than employee drivers. O-O/I-C respondents have proportionally more responses in the “other” category than employee drivers.²⁴

Figure 9: Responsible Party for Parking Reservation Fees by Industry Segment



²⁴ About 2/3rd of “other” responses about who the responsible party should be for parking reservation fees specified that the government or no one should be responsible for parking reservation fees.

5.0 CONCLUSIONS

Several important conclusions can be drawn from this survey analysis:

- Nearly half of the 1,400+ commercial vehicle drivers surveyed would refuse to pay for parking reservations;
- Employee drivers prefer the motor carrier to pay;
- Reservation parking systems near large metropolitan areas had the highest utility; and
- A disconnect exists in drivers' interest in reservation systems versus drivers' willingness to pay for a reserved parking space.

Opportunity cost was not considered in this survey so the analysis does not evaluate how much effort or time drivers are willing to spend finding a parking space as opposed to making a reservation. Additionally, respondents who do not utilize overnight truck parking were not excluded from all survey analyses. Differences between drivers who use overnight truck parking frequently and those who use it less frequently could influence the results of this survey analysis. The researchers intend to continue the data analysis and expand cross-factoring of different question responses.

In assessing perspectives on reservation-for-fee systems, this survey did not include hybrid options such as a subscription service, or refunded reservation deposits, which may potentially have a more positive reception.

One possible research task stemming from this survey could be a productivity assessment of drivers who use a reservation system compared to those who do not. Additionally, from a truck stop operator's perspective, it could be useful to assess the revenue, cost and capacity utilization trade-offs between reserved and un-reserved truck parking spaces.

The survey results demonstrate that the reservation system concept, independent of pricing and payment responsibility, appears to have utility, particularly in areas where parking capacity is in highest demand. Carrier-paid reservation fees would aid the acceptance of a reservation-for-fee system by the crucial stakeholders – commercial vehicle drivers – and certain driver populations are inherently more accepting of reservation-for-fee systems than others. A flexible reservation-for-fee system would further stakeholder acceptance. Flexibility in reservation systems would account for delays caused by traffic, weather, and time spent at shippers/receivers that may prevent commercial drivers from reaching the reserved parking spot in time.²⁵

A possible unintended outcome to an expanded implementation of a reservation-for-fee system may be increased illegal parking — particularly on interstate shoulders and on/off ramps. Parking in these locations leads to higher safety risks including being hit by other vehicles.

²⁵ 4.1 percent of all free responses stated that reservation systems would not work because unpredictable delays are common for commercial vehicle drivers.

Finally, in a future Tech Memo the research team expects to synthesize the Jason's Law Report survey data with these survey results to further expand the knowledge and understanding of critical truck parking needs and expectations by truck drivers.

APPENDIX A

Truck Driver Perspectives on Truck Parking Reservation System Survey

The American Transportation Research Institute (ATRI), the trucking industry's not-for-profit research institute, is interested in truck driver perspectives on truck parking reservation systems. A substantial concern for the trucking industry is the availability of safe and legal parking options for truck drivers. One potential solution is to implement a parking reservation system at public and/or private rest stops where a driver could reserve a parking space in advance of their arrival. The purpose of this survey is to identify potential factors that would influence a driver to participate or not participate in a truck parking reservation system. The findings from this survey will be used to further develop solutions for the truck parking shortage.

All responses on this survey will be kept strictly confidential and will only be reported in aggregate form. Due to the sensitivity of this research, under **NO** circumstances will we release any of your personal or organizational information.

Demographics

1. In what segment of the trucking industry do you primarily operate? (check one)
 - For-hire
 - Private
 - Don't Know
2. If for-hire, which sector best describes your operation? (check one)
 - Truckload
 - Less-than-truckload
 - Specialized, flatbed
 - Specialized, tanker
 - Express / Parcel Service
 - Intermodal Drayage
 - Other (please specify): _____
 - Don't Know
3. Which of the following best describes your employment: (check one)
 - Employee driver
 - Owner-operator (O-O) with own authority
 - O-O/Independent Contractor leased to a motor carrier
 - Don't Know
4. What is your average length of haul? (check one)
 - Local (less than 100 miles per trip)
 - Regional (100-499 miles per trip)
 - Inter-regional (500-999 miles per trip)
 - Long-Haul (1,000+ miles per trip)
 - Don't Know
5. If you are an employee or leased driver, how many total tractors does your fleet operate? (check one)
 - ≤ 5
 - 6-20
 - 21-50
 - 51-500
 - 501-1,000
 - 1,001-5,000
 - 5,001+
 - Don't Know
6. What is the primary vehicle configuration that you typically operate? (check one)
 - 5-axle Dry Van
 - 5-axle Refrigerated Trailer
 - 5-axle Flatbed
 - 5-axle Tanker
 - Straight Truck
 - Longer Combination Vehicles (Doubles, Triples, etc.)
 - Other (please specify): _____
 - Don't Know
7. How are you primarily paid? (check one)
 - Per hour
 - Per load
 - Per mile
 - Other (please specify): _____
 - Don't Know

Public/Private Rest Stops

8. Where is it more difficult to find available parking? (check one)

- Public rest stops
- Private truck stops
- Public and private rest stops equally difficult
- Don't Know

9. For every 10 stops you make, how many are public rest stops and how many are private truck stops? (Sum total must equal 10)

Rest Stop Type	Number of Stops
Public	
Private	
TOTAL	10

Truck Parking Reservation System

10. How much would you be willing to pay to reserve a guaranteed parking space at a public and/or private rest stop? (check one)

- \$1-\$5
- \$6-\$10
- \$11-\$15
- \$16-\$20
- \$21+
- I would not be willing to pay any amount
- Don't Know

11. Who should be responsible for paying any fees related to the truck parking reservation system? (check one)

- Driver
- Carrier
- Both the carrier and driver
- Other (please specify): _____
- Don't Know

12. What should be the course of action if you paid for a reserved parking space, but were unable to reach the rest stop according to the reservation date and time? (check one)

- Parking space fee should be refunded
- Parking space reservation and fee should be transferred to new date/time
- Forfeit the reserved parking space and fee
- Other (please specify): _____
- Don't Know

13. Near what type of location would you be more likely to reserve a parking space? (check one)

- Major metropolitan area (Population \geq 50,000)
- Smaller metropolitan area (Population 10,000-49,999)
- Rural area (Population < 10,000)
- I would be likely to reserve a space for all areas
- Other(please specify): _____
- Don't Know

14. Do you have any additional thoughts on the impact that a truck parking reservation system would have on a driver's ability to find safe and legal parking?