



# Nevada Truck Parking Survey Analysis October 2018

Prepared by the

**American Transportation Research Institute**  
Arlington, VA



The American Transportation Research Institute (ATRI) and Cambridge Systematics were tasked by the Nevada Department of Transportation (NDOT) to survey truck drivers on Nevada-specific issues, preferred solutions and where truck parking improvements are most needed. The findings of this survey will supplement the truck parking literature review.

Truck parking is a critical issue in the trucking industry. Every year that ATRI has conducted a survey of industry stakeholders on top issues in the trucking industry, “truck parking” has ranked in the top ten issues with the exception of one year. Truck parking is of particular importance to truck drivers (Table 1), who must locate truck parking every workday to comply with federal Hours-of-Service (HOS) regulations, manage fatigue and stage for pickups and deliveries.

The prevalent compensation structure in the industry – being paid per mile – impacts driver wages when truck parking issues prevent a driver from maximizing revenue-earning miles driven. ATRI collected detailed travel diary data from drivers which showed that drivers lose an average of 56 minutes a day of revenue and compensation-earning drive time.<sup>1</sup> This lost productivity equates to \$4,600 in lost wages, over 10 percent of the average truck driver’s annual wages (Figure 1).<sup>2</sup>

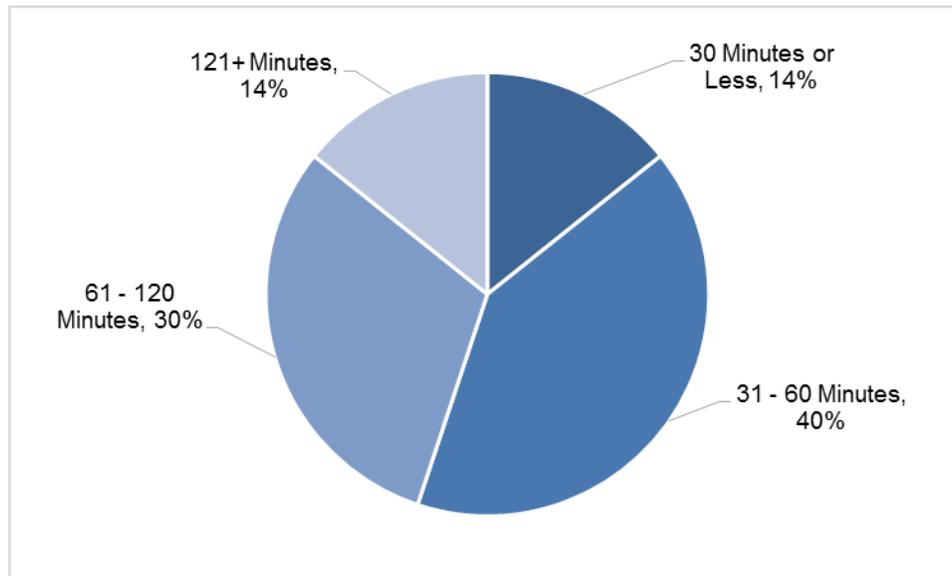
**Table 1: Top Industry Issues**

Rank	Commercial Drivers	Motor Carrier Executives
1	Electronic Logging Device (ELD) Mandate	Driver Shortage
2	<b>Truck Parking</b>	ELD Mandate
3	Hours-of-Service (HOS)	Driver Retention
4	Cumulative Economic Impact of Trucking Regulations	CSA
5	Driver Distraction	HOS
6	CSA	Cumulative Economic Impact of Trucking Regulations
7	Driver Health/Wellness	Transportation Infrastructure / Congestion / Funding
8	Driver Retention	Driver Distraction
9	Transportation Infrastructure / Congestion / Funding	<b>Truck Parking</b>
10	Autonomous Vehicles	Tort Reform

<sup>1</sup> Caroline R. Boris and Rebecca M. Brewster, “Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries” (Arlington, VA: American Transportation Research Institute, December 2016).

<sup>2</sup> *Occupational Employment Statistics*. Office of Employment and Unemployment Statistics. May 2017. Washington, D.C.

**Figure 1: Average Daily Productivity Loss per Driver, Nationwide**

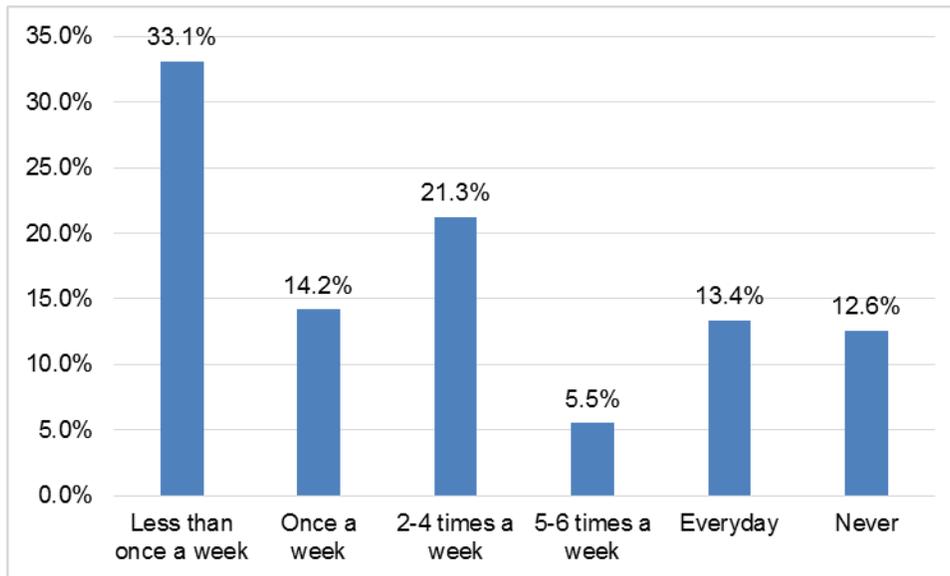


**METHODOLOGY**

ATRI and Cambridge Systematics developed an 18-question truck driver survey to gather Nevada-specific truck parking information. The survey was distributed through surrounding state trucking associations, the Owner-Operator Independent Drivers Association and the North American Punjabi Truck Association. Responses were collected from July 9, 2018 to July 31, 2018. A total of 128 responses were received.

Respondents were first asked about the frequency that they require truck parking in Nevada (Figure 2). 12.6 percent of respondents never require truck parking in Nevada. Respondents that never require truck parking in Nevada are not included in the following analysis.

**Figure 2: Frequency Respondents Need Truck Parking in Nevada**

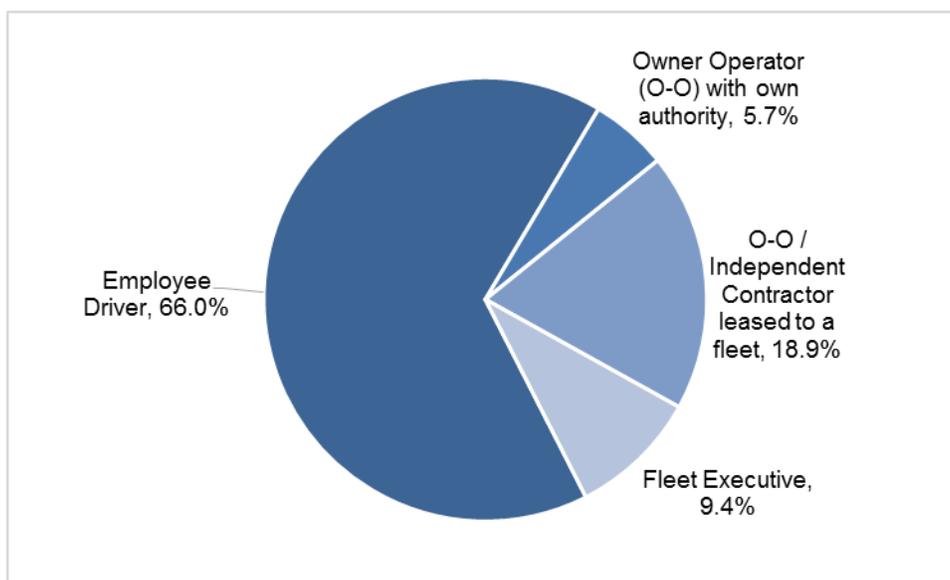


## DEMOGRAPHICS

Next, respondents were asked a series of questions to determine if the sample is representative of the industry as a whole, and to better understand how operational characteristics may impact parking needs.

Respondents were asked what their role in the trucking industry is (Figure 3). The majority of respondents are employed as truck drivers (90.6%).

**Figure 3: Respondent Employment Classification**



Next, truck driver respondents' gender and age were compared to the industry-at-large. Figure 4 shows driver gender. Female drivers were over-represented (12.5%) relative to the entire industry, where women comprise six to eight percent of all truck drivers.<sup>3</sup>

**Figure 4: Driver Gender**

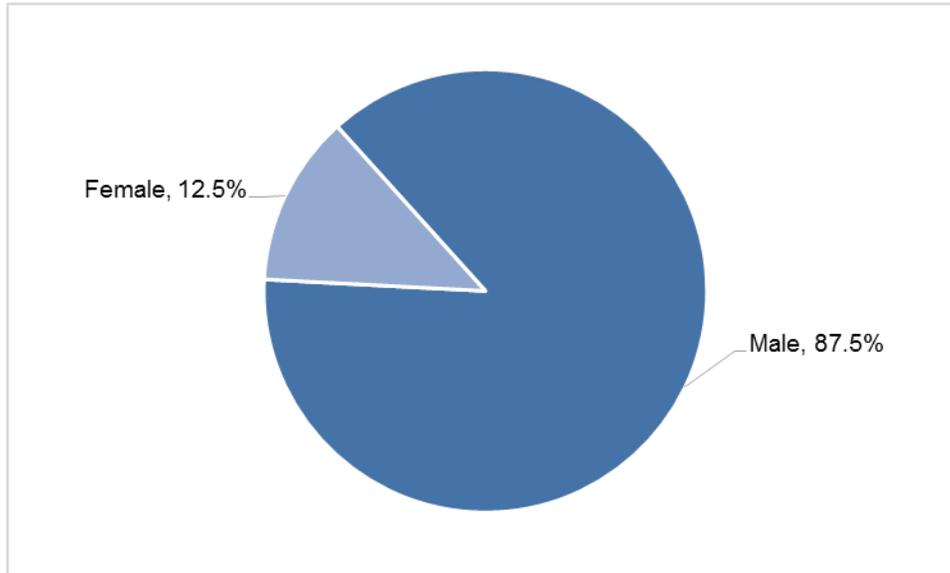


Table 2 displays the breakout of driver age in the sample. Relative to the industry-at-large, drivers less than 44 years of age are under-represented, and drivers over 44 years of age are over-represented.

**Table 2: Driver Age**

Age	Nevada Driver Respondents	Industry <sup>4</sup>
Less than 25 years	0.9%	4.4%
25-44 years	22.6%	38.8%
45-64 years	66.0%	50.6%
65 or more years	10.4%	6.3%

The survey solicited information on respondents' operational characteristics. Industry sector and segment are shown in Table 3. A majority of respondents operate in the for-hire segment (75.5%). Of for-hire respondents, the truckload sector was the most common (50.7%)

<sup>3</sup> *American Trucking Trends* (2017). American Trucking Associations. Arlington, VA.

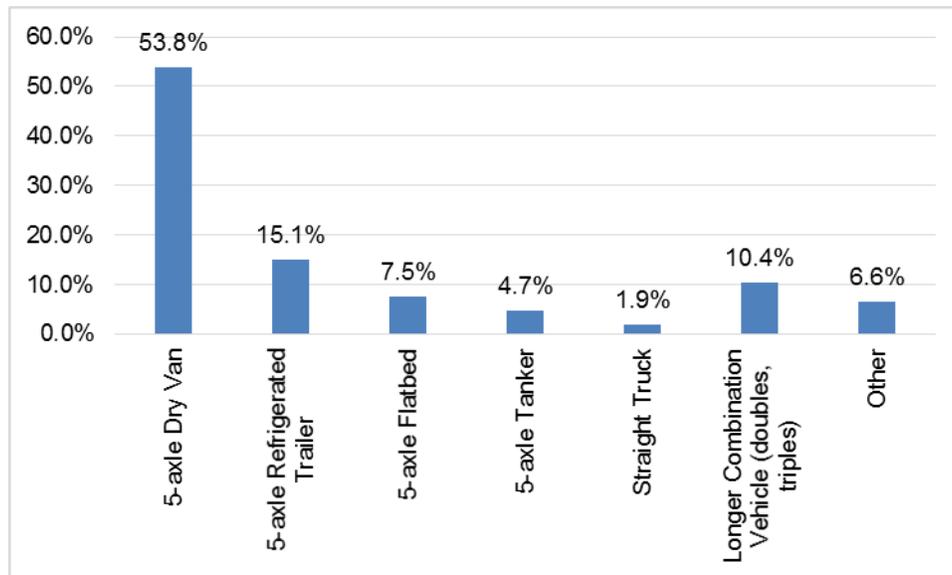
<sup>4</sup> Short, Jeffrey. 2017 Update to Analysis of Truck Driver Age Demographics Across Two Decades. American Transportation Research Institute. Arlington, VA.

**Table 3: Industry Sector and Segment**

Segment	Percent	
Private	19.8%	
For-Hire	75.5%	
Sector	Truckload	50.7%
	Less-than-Truckload	4.0%
	Flatbed	4.8%
	Tanker	1.6%
	Express / Parcel Service	6.4%
	Intermodal Drayage	1.6%
	Other	6.4%
	Don't Know	0.8%
Don't Know	4.7%	

Primary vehicle configurations responses are shown in Figure 5. 5-axle dry vans were the most common vehicle configuration (53.8%), followed by 5-axle refrigerated trailers (15.1%) and longer combination vehicles (10.4%). Responses of “other” primarily reflected the driver typically operates a truck that has more or less than 5-axes.

**Figure 5: Primary Vehicle Configuration**



Finally, respondents were asked to provide their average length of haul (Table 4). A majority of drivers (73.3%) in the sample drive distances in excess of 500 miles, indicating many drivers in the sample must utilize parking for the both required 10-hour and 30-minute HOS breaks.

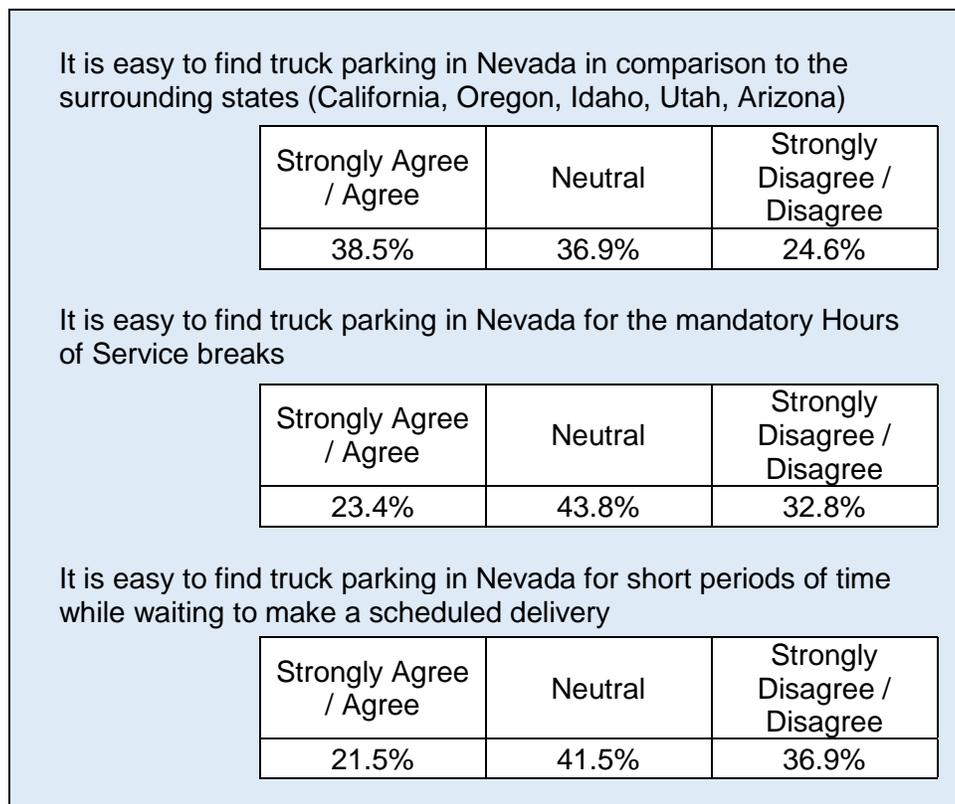
**Table 4: Average Length of Haul**

Average Length of Haul	Percent
Local (<100 miles)	6.7%
Regional (100 - 499 miles)	20.0%
Inter-regional (500 - 999 miles)	34.3%
Long-haul (1,000+ miles)	39.0%

## TRUCK PARKING ISSUES AND SOLUTIONS

Respondents were asked about the ease of finding truck parking in Nevada (Figure 6). More than 36 percent of respondents indicated that finding parking for staging purposes in Nevada is difficult. Over 38 percent of drivers indicated that finding parking in Nevada is easy compared to surrounding states. Over one third of drivers were neutral about the ease of finding parking in Nevada, relative to surrounding states (36.9%), for mandatory HOS breaks (43.8%) and for staging purposes (41.5%).

**Figure 6: Ease of Finding Truck Parking in Nevada**



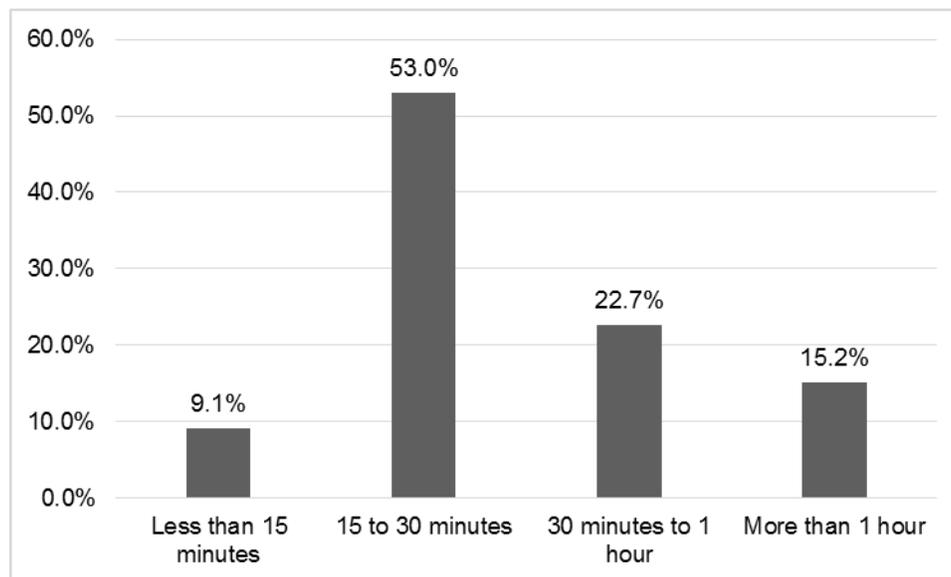
The survey requested information on planning tools used by drivers to locate available truck parking (Table 5). Smartphone apps were the most commonly used tools (33.0%) for locating available truck parking, followed by roadside signs (22.0%). Responses of “other” primarily indicated that the respondent relied on their knowledge of an area to find truck parking.

**Table 5: Driver Planning Tools**

Planning Tool	Percent
Smartphone app	33.0%
Roadside signs	22.0%
Parking directory	13.8%
Roadside changeable message signs	6.4%
Other	5.5%
Traveler information website	2.8%
GPS	2.8%
I do not use any planning tools	13.8%

Respondents were next asked to estimate the average amount of time they spend searching for parking in Nevada (Figure 7). Over half of drivers indicated they spend 15 to 30 minutes searching for truck parking in Nevada. Assuming a driver operates under the prevalent conditions in this sample – spending an average of 22.5 minutes searching for truck parking (the midpoint of the 15 to 30 minute search time reported by over half of respondents) and needing truck parking in Nevada once per week – over 13 hours per year per driver are spent searching for truck parking in Nevada. The opportunity cost of the prevalent conditions reported in the survey equates to \$852 per driver in lost revenue annually.<sup>56</sup>

**Figure 7: Average Time Spent Searching for Truck Parking in Nevada**



<sup>5</sup> This assumes a driver spends at least 15 minutes searching for short-term parking and at least 30 minutes searching for long term parking. Drivers are assumed to work 250 days per year and park in Nevada once a week or less.

<sup>6</sup> Hooper, A. and Murray, D. (2017). An Analysis of the Operational Costs of Trucking: 2017 Update. American Transportation Research Institute. Arlington, VA.

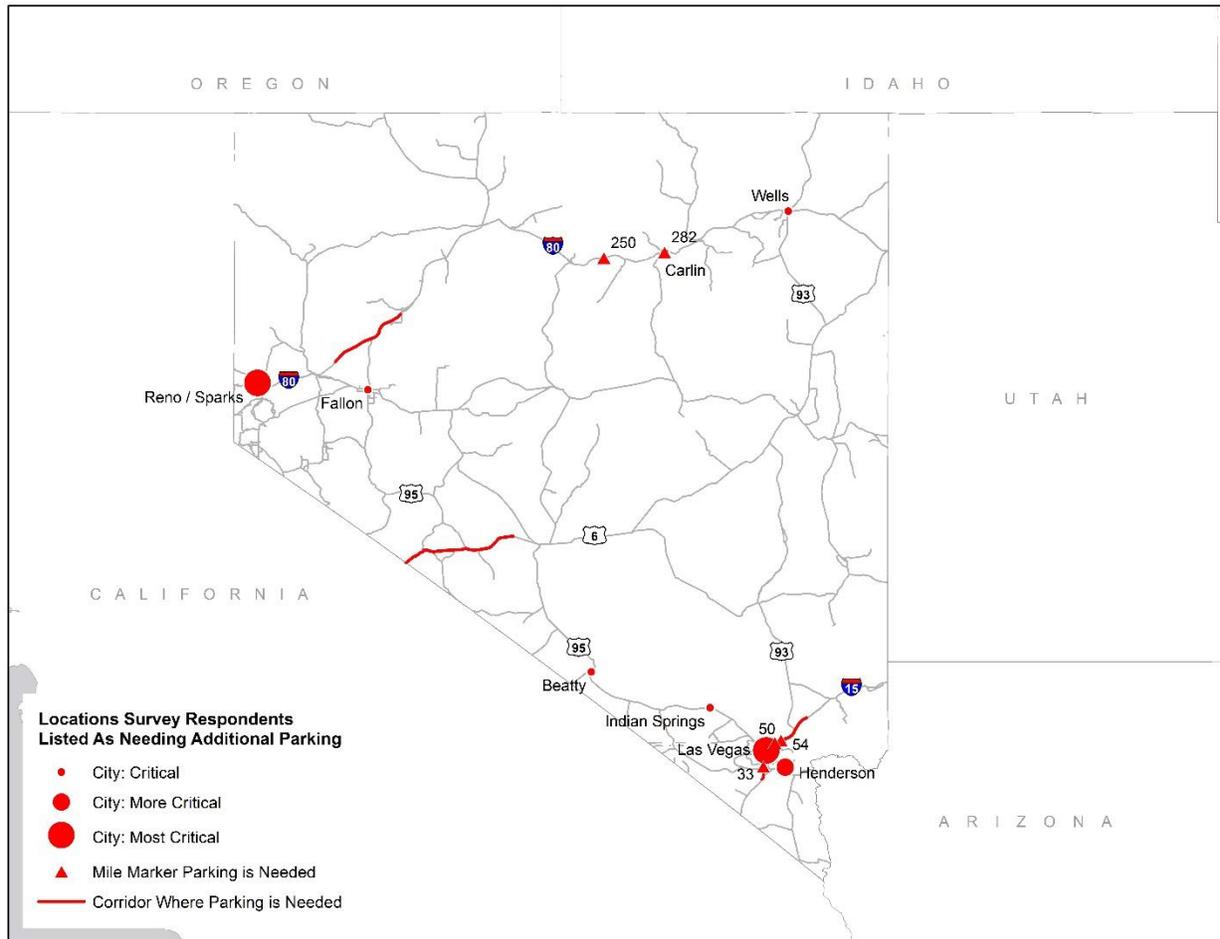
Next, respondents were asked to rank the most difficult corridors in Nevada for finding safe and legal parking, with “1” indicating the most difficult corridor for finding safe and legal parking (Table 6). I-15 was ranked as the most difficult corridor for locating available truck parking, followed by I-80. Drivers selecting “other” corridors as the most difficult in Nevada for locating safe/legal parking primarily specified US 395 as a difficult corridor to find truck parking.

**Table 6: Most Difficult Corridors to Find Safe/Legal Parking**

Corridor	Average Rank
I-15	2.8
I-80	3.8
US 95	4.1
US 93	4.6
US 6	4.7

Since many of the corridors span the length of the state of Nevada, drivers were asked to specify a location where additional parking is most needed (Figure 8). Responses were collected in a free form text, so responses included cities, mile markers and corridor segments. I-15 in Las Vegas and I-80 in Reno were the locations most frequently indicated to need additional truck parking capacity.

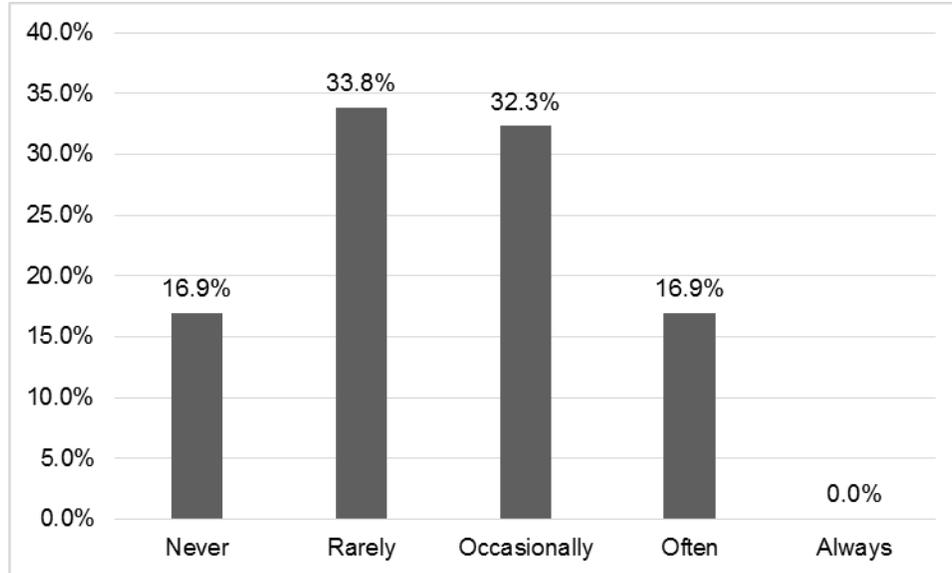
**Figure 8: Locations that Need Additional Parking Capacity**



Next, drivers were asked to indicate the frequency for which they park in unauthorized locations (e.g. ramps or shoulders) in Nevada. Unauthorized parking is often used as a proxy for insufficient truck parking supply. Understanding the frequency that drivers park in unauthorized locations, and why drivers park in unauthorized locations is critical to selecting the best solutions for truck parking issues in Nevada. Figure 9 displays the frequency that drivers report parking in unauthorized locations in Nevada. Nearly 17 percent of drivers report that they park in an unauthorized location often, and approximately 65 percent report rarely/occasionally parking in unauthorized locations. Nearly 17 percent of respondents report never parking in unauthorized locations. Unauthorized parking is problematic in that it is often illegal, and law enforcement officers may ask drivers to move from these parking locations. If a driver is asked to move and has no legal drive time left, they may be forced into a conflict between compliance with local parking regulations and federal HOS. Prior national and state-level parking surveys

have shown unauthorized parking peaks during evening and early morning hours,<sup>7</sup> the peak demand period for truck parking.<sup>8,9</sup>

**Figure 9: Frequency Drivers Park in Unauthorized Locations**



Drivers were asked to indicate why they park in unauthorized locations (Table 7). Determining why drivers park in unauthorized locations is necessary to fine tune truck parking solutions to prevent unauthorized parking. Based on multiple parking survey data throughout the United States, parking needs are primarily driven by the desire to comply with HOS rules.<sup>10,11,12,13</sup> In Nevada, survey respondents said this same motivation is the primary reason for parking in unauthorized locations (57.4%). These responses demonstrate that unauthorized parking occurs primarily due to HOS constraints and parking shortages.

<sup>7</sup> “Caroline R. Boris and Rebecca M. Brewster, “Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries” (Arlington, VA: American Transportation Research Institute, December 2016).

<sup>8</sup> “North Carolina Truck Parking Survey Analysis.” Arlington, VA: American Transportation Research Institute, November 2016.

<sup>9</sup> “Jason’s Law Truck Parking Survey Results and Comparative Analysis” (Federal Highway Administration, August 2015), [https://ops.fhwa.dot.gov/freight/infrastructure/truck\\_parking/jasons\\_law/truckparkingsurvey/ch1.htm](https://ops.fhwa.dot.gov/freight/infrastructure/truck_parking/jasons_law/truckparkingsurvey/ch1.htm).

<sup>10</sup> “I-95 Corridor Coalition Truck Parking Availability Notification System User Requirements/Preferences Survey.” Arlington, VA: American Transportation Research Institute, September 2010.

<sup>11</sup> “Kansas Statewide Freight Network Truck Parking Plan.” Kansas Turnpike Authority, February 2016.

<sup>12</sup> “North Carolina Truck Parking Survey Analysis.” Arlington, VA: American Transportation Research Institute, November 2016.

<sup>13</sup> Ted Morris, Vassilios Morellas, Nikolaos Pananikopolous, Doug Cook, Dan Murray, Katie Fender, and Amanda Weber. “A Comprehensive System for Assessing Truck Parking Availability.” University of Minnesota Department of Computer Science, American Transportation Research Institute, January 2017.

**Table 7: Reasons Drivers Park in Unauthorized Locations**

Reason	Percent
Out of available HOS	57.4%
No parking facilities nearby	51.5%
No parking (including paid reserved spaces) available at nearby facilities	44.1%
No free parking at nearby facilities	32.4%
Waiting to make a scheduled delivery	17.6%
Other	4.4%

Respondents also were asked to rank their preferred solutions for truck parking issues in Nevada (Table 8). Respondents overwhelmingly preferred parking capacity increases through new construction. Building new, large private truck stops spaced 50 to 100 miles apart was the top-ranked solution, followed by new, large public parking facilities spaced 50 to 100 miles apart. The least preferred solutions were better advance notice of available parking and expanding existing rest areas. The driver-preferred solutions for truck parking issues in Nevada reflect prior national and state-level driver surveys on truck parking facility and amenity preferences. Private truck stops, followed by public rest areas, are the most preferred facilities for short-term truck parking.<sup>14,15</sup> Private truck stops are also drivers’ most preferred and most utilized facilities for long-term truck parking.<sup>16,17,18,19,20,21</sup> For long-term stops specifically, ATRI’s driver diaries found that drivers select parking locations for their proximity to route/destination, restroom/shower access and expected parking availability.<sup>22</sup> Driver surveys have similarly found that restroom access and proximity to route/destination are the most critical parking facility features.<sup>23,24</sup>

<sup>14</sup> “Washington State Truck Parking Study” (Washington State Department of Transportation, December 2016).  
<sup>15</sup> *Colorado Truck Parking Survey Analysis*. Arlington, VA: American Transportation Research Institute, April 2018.  
<sup>16</sup> “Washington State Truck Parking Study” (Washington State Department of Transportation, December 2016).  
<sup>17</sup> Caroline R. Boris and Rebecca M. Brewster, “Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries” (Arlington, VA: American Transportation Research Institute, December 2016).  
<sup>18</sup> Pennsylvania State Transportation Advisory Committee. (2007). *Truck Parking in Pennsylvania*. Pennsylvania Department of Transportation.  
<sup>19</sup> Fieger, S.A., Haas, R.P., Trombly, J.W., Cross, R.H.III, Noltenius, J.E., Pécheux, K.K., Chen, K.J. (2002). *Study of the Adequacy of Commercial Truck Parking Facilities – Technical Report*. Science Applications International Corporation. Federal Highway Administration.  
<sup>20</sup> Kimley Horn. *Virginia Truck Parking Study*. Virginia Department of Transportation, July 2015.  
<sup>21</sup> *Colorado Truck Parking Survey Analysis*. Arlington, VA: American Transportation Research Institute, April 2018.  
<sup>22</sup> “Caroline R. Boris and Rebecca M. Brewster, “Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries” (Arlington, VA: American Transportation Research Institute, December 2016).  
<sup>23</sup> “Kansas Statewide Freight Network Truck Parking Plan.” Kansas Turnpike Authority, February 2016.  
<sup>24</sup> “I-95 Corridor Coalition Truck Parking Availability Notification System User Requirements/Preferences Survey.” Arlington, VA: American Transportation Research Institute, September 2010.

**Table 8: Preferred Solutions for Truck Parking Issues**

Rank	Solution
1	Additional large private parking facilities with amenities that are spaced 50 to 100 miles apart
2	Additional large public parking facilities with minimal amenities that are spaced 50 to 100 miles apart
3	Additional parking strategically placed for urban staging purposes
4	Adding more parking spaces to existing private truck parking facilities
5	Additional small public parking facilities with minimal amenities that are spaced 10 to 20 miles apart
6	Better advance notification of available parking
7	Adding more parking spaces to existing public rest area parking facilities

Next, respondents were asked to indicate their preferred distance from a parking facility to receive information on parking availability (Table 9). Greater distances from parking facilities were preferred by drivers – with 35.4 percent preferring to have more than 20 miles of advance notice, followed by 20 miles (26.2%) and 10 miles (21.5%).

**Table 9: Preferred Distance to Receive Parking Availability Information**

Distance from Parking Facility	Percent
Greater than 20 miles from parking location	35.4%
20 miles from parking location	26.2%
10 miles from parking location	21.5%
5 miles from parking location	12.3%
1 mile from parking location	4.6%

Finally, drivers were asked about the frequency they experience specific parking issues in Nevada (Figure 10). Shipper and receiver-related parking issues are the most frequently reported – a majority of Nevada shippers and receivers rarely/never permit on-site parking outside of appointments (62.5%), and loading/unloading delays often/always exceed one hour (64.6%). Fortunately, parking in unsafe locations was reported rarely/never (43.8%). Drivers report that finding parking only on ramps/shoulders as an occasional problem (45.3%).

**Figure 10: Parking Issue Frequency**

Can only find parking on ramps or shoulders		
Rarely / Never	Occasionally	Often / Always
31.3%	45.3%	23.4%
Parking only available in unsafe locations		
Rarely / Never	Occasionally	Often / Always
43.8%	37.5%	18.8%
Shipper/Receiver permits on-site parking outside of appointment hours		
Rarely / Never	Occasionally	Often / Always
62.5%	28.1%	9.4%
Shipper/Receiver loading/unloading delays exceed one hour		
Rarely / Never	Occasionally	Often / Always
18.5%	16.9%	64.6%

**CONCLUSION**

**Difficulty.** Over 38 percent of drivers indicated that finding parking in Nevada is easy relative to surrounding states, while nearly one quarter of drivers indicate that finding parking in Nevada is difficult relative to surrounding states. Drivers were less likely to indicate finding parking for mandatory HOS breaks is easy – only 23.4 percent indicated finding parking for HOS breaks is easy. Over 35 percent of drivers indicated that finding parking for staging purposes in Nevada is difficult.

I-15, followed by I-80 were indicated to be the most difficult corridors for finding truck parking. Over half of drivers (53.0%) indicated they spend 15 to 30 minutes on average searching for parking in Nevada. The annual opportunity cost of searching for truck parking per driver is 13 hours, or \$852 of lost revenue.

The difficulty of locating truck parking is further compounded by shipper/receiver policies. 62.5 percent of drivers indicate that shippers and receivers rarely/never permit parking on-site outside of appointment hours, and loading/unloading delays often/always exceed one hour (64.6%).

**Unauthorized Parking.** A majority of drivers (66.1%) indicate they park in an unauthorized location rarely or occasionally. Drivers indicated they park in an unauthorized location when they run out of available HOS (57.4%), there are no nearby facilities (51.5%), or there are no available spaces at nearby facilities (44.1%).

**Preferred Solutions.** Drivers prefer new parking facilities to alleviate truck parking issues in Nevada. The top ranked solution was new large private truck parking facilities spaced 50 to 100 miles apart, followed by new large public parking facilities spaced 50 to 100 miles apart.

Improving advance notification of available parking and expanding existing rest areas were the least preferred solutions.