District Five **Truck Parking Study**





Technical Report #4:

Observation Location Findings
January 2018

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Truck Parking Demand Observations

The availability of adequate parking is important for commercial vehicle operators to obtain the required rest needed to operate their vehicles safely. Lack of available truck parking is a safety problem for not just the commercial trucking industry but for all highway users. Trucks parked in unofficial locations such as exit and entrance ramps and on highway shoulders pose a safety risk to the public. According to the FHWA truck parking survey, 90 percent of drivers have struggled to find safe parking at night. Facilitating the efficiency of freight movement is of high importance. Data collection efforts provide a sample of commercial motor vehicle (CMV) parking demand and will be beneficial for future planning efforts.

The federal regulations define a CMV as a vehicle that meets the following criteria:

- 1. Gross vehicle weight rating or gross combination weight rating, or gross vehicle weight or gross combination weight, of 10,001 pounds or more, whichever is greater; or
- 2. Transporting hazardous materials in a quantity requiring placards.

Examples of commercial vehicles include box trucks, semi-trucks, vans, coaches, buses, trailers and travel trailers. The purpose of determining utilization at selective rest areas is to ultimately identify commercial vehicle parking demand, parking availability throughout the day, and time and duration of parking deficiencies at each of the observation locations.

The five (5) data collection rest areas are:

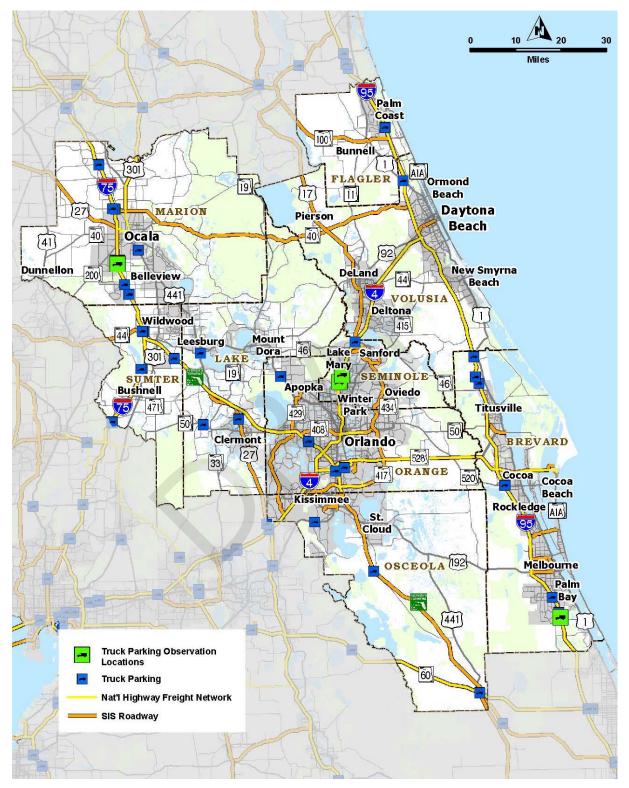
- 1. I-4 Eastbound Longwood Rest Area
- 2. I-4 Westbound Longwood Rest Area
- 3. I-75 Northbound Ocala Rest Area
- 4. I-75 Southbound Ocala Rest Area
- 5. I-95 Northbound Palm Bay Rest Area

Figure 4-1 shows a map of the commercial vehicle parking locations observed during the data collection process. These observation locations were evaluated to determine the commercial vehicle parking demand. Truck activity at the I-4 Longwood rest areas was collected and evaluated continuously using seven day/24-hour video surveillance. Video cameras were used at both the eastbound and westbound I-4 rest areas to capture truck movements at the entrance of each location. Truck activity at the I-75 Ocala rest areas and the I-95 Palm Bay rest area were collected using seven day/24-hour pneumatic tube counts.

Summary tables and graphs representing truck activity were developed for each observation location for the recorded week. The time, day, and duration of the peak parking demand were identified for each rest area, as well as the maximum parking occupancy. The average truck parking demand and the maximum truck parking demand were also identified at each of the observation locations.



Figure 4-1 | Data Collection Rest Area Locations





Interstate 4: Longwood Eastbound Rest Area

The I-4 Eastbound Rest Area, located in Seminole County, is 2.5 miles east of SR 434. This facility provides the necessary amenities such as family restrooms, handicap facilities, nighttime security, and 24-hour service, as reported by the FDOT Office of Maintenance. The facility offers 17 truck parking spaces with the ability for commercial vehicle operators to park overnight.

According to the Roadway Characteristics Inventory (RCI) database, adjacent to the rest area, I-4 experienced 6.9 percent truck volume in 2016 (9,879 Truck Average Annual Daily Traffic (AADT)) along the interstate's mainline and a 28.1



percent truck percentage (393 Truck AADT) at the eastbound rest area ramp. Data collected from Tuesday, October 10th to Monday, October 16th in 2017 captured a total of 1,647 semitrucks entering the eastbound rest area. **Figure 4-2** shows the average weekday and weekend commercial vehicle volume.

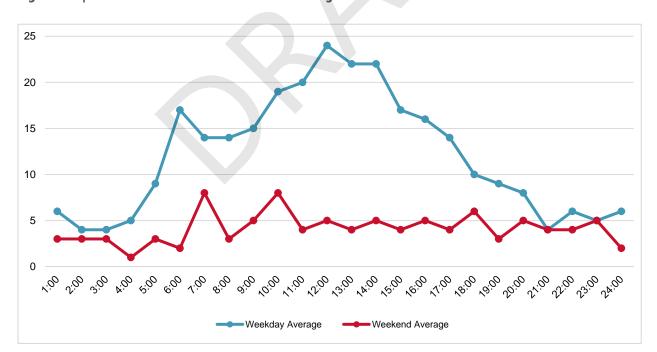


Figure 4-2 | I-4 Eastbound Rest Area Entrance Average Volume



As observed, the highest average number of commercial vehicles entering the rest area during the week was 24 vehicles at 12:00 p.m. The highest average number of commercial vehicles on the weekend was reported to be eight vehicles at 7:00 a.m. and 10:00 a.m. **Table 4-1** reports the commercial vehicle counts per day per hour over the course of the data collection period.

Table 4-1 | I-4 Eastbound Rest Area Traffic Counts

Time	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Total	Daily
Time	10/13	10/14	10/15	10/16	10/10	10/11	10/12	Total	Average
1:00	8	4	2	2	9	8	5	38	5
2:00	0	4	2	1	6	7	6	26	4
3:00	4	3	2	5	5	2	4	25	4
4:00	5	1	1	5	5	5	7	29	4
5:00	11	5	0	7	8	5	13	49	7
6:00	13	2	2	24	20	12	14	87	12
7:00	16	11	5	16	9	13	15	85	12
8:00	11	5	1	13	14	17	13	74	11
9:00	13	5	5	13	16	12	22	86	12
10:00	17	11	5	25	18	15	21	112	16
11:00	14	3	4	24	20	22	22	109	16
12:00	13	5	5	29	26	22 31		131	19
13:00	20	4	3	22	23	25	22	119	17
14:00	25	4	6	27	21	20	19	122	17
15:00	10	6	2	24	19	18	13	92	13
16:00	16	5	4	21	16	15	14	91	13
17:00	12	3	4	17	17	10	12	75	11
18:00	5	6	6	13	8	12	12	62	9
19:00	5	4	1	12	14	7	7	50	7
20:00	8	4	5	8	9	9	7	50	7
21:00	4	5	3	3	4	6	5	30	4
22:00	7	1	6	7	8	3	6	38	5
23:00	5	5	4	6	6	5	2	33	5
24:00	2	0	4	8	11	6	3	34	5
Total	244	106	82	332	312	276	295	1,647	235



The peak hour for the weekday average was 11:00 a.m.-12:00 p.m. while the peak hour for the weekend average was 9:00 a.m.-10:00 a.m. The observations below were made with respect to queuing outside of each rest area exit. It is important to note that these commercial vehicles are part of the overall truck count, as they were counted entering the rest area and traveled through the rest area to park along the entrance ramp to I-4.

A maximum of three semi-trucks were queuing along the right shoulder of the I-4 on ramp, from the rest area, on weekdays between 11:00 p.m. and 7:00 a.m. There was no report of queuing along the shoulder during the weekend.

Figure 4-3 shows the daily truck vehicle volume during the data collection period.







Interstate 4: Longwood Westbound Rest Area

The I-4 Westbound Rest Area, located in Seminole County, is 3.5 miles west of Lake Mary Boulevard. This facility provides the necessary amenities such as family restrooms, handicap facilities, nighttime security, and 24-hour service, as reported by the FDOT Office of Maintenance. The facility offers 16 truck parking spaces with the ability for commercial vehicle operators to park overnight.

According to the RCI database, adjacent to the rest area, I-4 experienced 6.9 percent truck volume in 2016 (9,879 Truck AADT) along the interstate's mainline and a 20.3 percent truck



percentage (345 Truck AADT) at the westbound rest area ramp. Data collected from Tuesday, October 10th to Monday, October 16th in 2017 captured a total of 1,650 semi-trucks entering the westbound rest area. **Figure 4-4** shows the average weekday and weekend commercial vehicle volume.

25
20
15
10
10
10
10
10
10
Weekday Average
Weekend Average

Figure 4-4 | I-4 Westbound Rest Area Entrance Average Volume



As observed, the highest average number of commercial vehicles entering the rest area during the week was 21 vehicles at 1:00 p.m. The highest average number of commercial vehicles on the weekend was reported to be 14 vehicles at 7:00 p.m. **Table 4-2** reports the commercial vehicle counts per day per hour over the course of the data collection period.

Table 4-2 | I-4 Westbound Rest Area Traffic Counts

Time	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Total	Daily
Time	10/13	10/14	10/15	10/16	10/10	10/11	10/12	Total	Average
1:00	10	6	6	5	8	5	8	48	7
2:00	9	4	1	7	8	3	14	46	7
3:00	10	3	6	4	8	5	3	39	6
4:00	3	9	4	12	6	1	3	38	5
5:00	6	3	3	7	9	7	7	42	6
6:00	10	0	3	14	9	6	12	54	8
7:00	12	6	2	10	16	5	5	56	8
8:00	15	5	3	12	10	14	15	74	11
9:00	13	11	3	10	18	13	13 13		12
10:00	12	6	1	17	12	26	26 12		12
11:00	20	3	6	16	17	18	18 31		16
12:00	16	6	5	21	26	20 17		111	16
13:00	21	7	6	16	29	19 20		118	17
14:00	19	5	10	12	20	17	13	96	14
15:00	8	6	12	21	11	20	8	86	12
16:00	11	4	9	19	8	6	7	64	9
17:00	11	7	11	10	13	12	11	75	11
18:00	4	6	9	9	11	15	6	60	9
19:00	3	9	19	8	8	9	9	65	9
20:00	9	6	13	3	10	15	8	64	9
21:00	6	7	11	14	6	13	11	68	10
22:00	7	6	8	8	6	7	18	60	9
23:00	6	3	7	7	16	12	11	62	9
24:00	4	5	9	4	8	8	8	46	7
Total	245	133	167	266	293	276	270	1,650	236



The peak hour for the weekday average was 12:00 p.m.-1:00 p.m. while the peak hour for the weekend average was 6:00 p.m.-7:00 p.m. The observations below were made with respect to queuing outside of each rest area exit. It is important to note these commercial vehicles are part of the overall truck count, as they were counted entering the rest area and traveled through the rest area to park along the entrance ramp to I-4.

A maximum of five semi-trucks were queuing along the right shoulder of the I-4 on ramp, from the rest area, on weekdays between 8:00 p.m. and 7:00 a.m. Approximately half of the observed queue remained on the shoulder for the duration of the night, and the other half were observed staying for approximately one hour. There was no report of queuing along the shoulder during the weekend.

Figure 4-5 shows the daily truck vehicle volume during the data collection period.

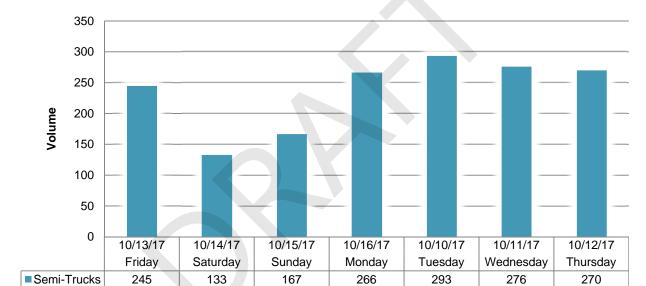


Figure 4-5 | I-4 Westbound Rest Area Entrance Volume per Day



Interstate 75: Ocala Northbound Rest Area

The I-75 Northbound Rest Area, located in Marion County, is 4 miles north of SR 484. This facility provides the necessary amenities such as family restrooms, handicap facilities, nighttime security, and 24-hour service, as reported by the FDOT Office of Maintenance. The facility offers 43 truck parking spaces with the ability for commercial vehicle operators to park overnight.

According to the RCI database, I-75 experienced 19.7 percent truck volume in 2016 (17,877 Truck AADT) along the interstate's mainline and a 25.4 percent truck percentage (610 Truck AADT) at



the northbound rest area ramp. Data collected from Sunday, November 12th to Saturday, November 18th in 2017 captured a total of 3,013 semi-trucks entering the northbound rest area. **Figure 4-6** shows the average weekday and weekend commercial vehicle volume.

Figure 4-6 | I-75 Northbound Rest Area Entrance Average Volume





As observed, the highest average number of commercial vehicles entering the rest area during the week was 41 vehicles at 1:00 p.m. The highest average number of commercial vehicles on the weekend was reported to be 19 vehicles at 3:00 p.m. **Table 4-3** reports the commercial vehicle counts per day per hour over the course of the data collection period.

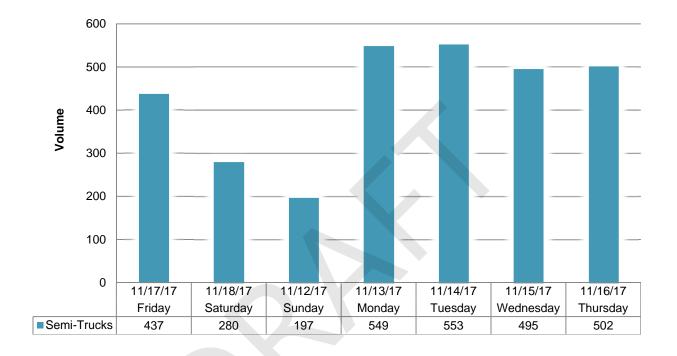
Table 4-3 | I-75 Northbound Rest Area Traffic Counts

T:	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Total	Daily
Time	11/17	11/18	11/12	11/13	11/14	11/15	11/16	Total	Average
1:00	5	14	5	6	11	12	6	59	8
2:00	7	8	4	7	9	11	8	54	8
3:00	11	5	4	12	6	7	6	51	7
4:00	14	8	8	8	3	9	5	55	8
5:00	10	14	3	11	17	10	7	72	10
6:00	13	7	5	16	14	16	15	86	12
7:00	19	14	9	16	20	8	12	98	14
8:00	16	11	6	28	23	18	9	111	16
9:00	26	8	5	18	20	28	19	124	18
10:00	22	12	9	29	28	22	26	148	21
11:00	20	17	7	28	28	34	29	163	23
12:00	21	14	8	40	36	24	32	175	25
13:00	36	19	15	42	42	40	46	240	34
14:00	41	14	5	31	38	38	33	200	29
15:00	22	23	14	40	43	25	37	204	29
16:00	27	9	14	36	44	25	34	189	27
17:00	32	10	12	35	30	23	36	178	25
18:00	19	11	14	27	36	31	26	164	23
19:00	10	15	8	33	27	29	18	140	20
20:00	13	14	11	27	25	21	30	141	20
21:00	11	7	6	20	18	21	22	105	15
22:00	16	7	12	18	9	12	17	91	13
23:00	9	10	8	13	15	16	17	88	13
24:00	17	9	5	8	11	15	12	77	11
Total	437	280	197	549	553	495	502	3,013	430



The peak hour for the weekday average was 12:00 p.m.-1:00 p.m. while the peak hour for the weekend average was 2:00 p.m.-3:00 p.m. In addition to commercial vehicle movement, passenger vehicles were observed using the rest areas to divert around mainline traffic during peak hours. **Figure 4-7** shows the daily truck vehicle volume during the data collection period.

Figure 4-7 | I-75 Northbound Rest Area Entrance Volume per Day





Interstate 75: Ocala Southbound Rest Area

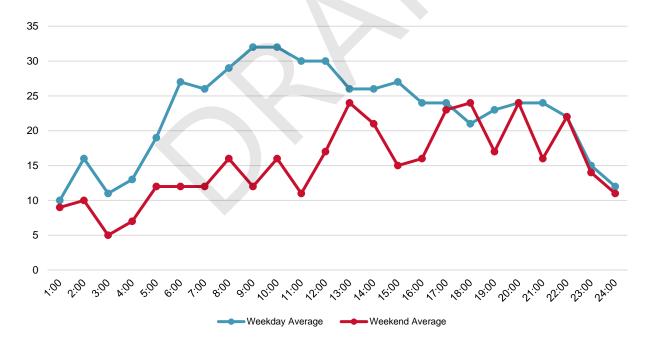
The I-75 Southbound Rest Area, located in Marion County, is 3 miles south of SR 200. This facility provides the necessary amenities such as family restrooms, handicap facilities, nighttime security, and 24-hour service, as reported by the FDOT Office of Maintenance. The facility offers 43 truck parking spaces with the ability for commercial vehicle operators to park overnight.

According to the RCI database, I-75 experienced 19.7 percent truck volume in 2016 (17,877 Truck AADT) along the interstate's mainline and a 27.8 percent truck percentage (528 Truck AADT) at



the southbound rest area ramp. Data collected from Sunday, November 12th to Saturday, November 18th in 2017 captured a total of 3,443 semi-trucks entering the southbound rest area. **Figure 4-8** shows the average weekday and weekend commercial vehicle volume.

Figure 4-8 | I-75 Southbound Rest Area Entrance Average Volume





As observed, the highest average number of commercial vehicles entering the rest area during the week was 32 vehicles at 9:00 a.m. and 10:00 a.m. The highest average number of commercial vehicles on the weekend was reported to be 24 vehicles at various times (1:00 p.m., 6:00 p.m., and 8:00 p.m.). **Table 4-4** reports the commercial vehicle counts per day per hour over the course of the data collection period.

Table 4-4 | I-75 Southbound Rest Area Traffic Counts

	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday		Daily	
Time	11/17	11/18	11/12	11/13	11/14	11/15	11/16	Total	Average	
1:00	10	13	5	11	11	10 9		69	10	
2:00	19	9	11	14	14	23	12	102	15	
3:00	10	6	3	14	11	8	11	63	9	
4:00	15	9	5	15	12	13	9	78	11	
5:00	18	12	11	15	23	22	16	117	17	
6:00	23	12	12	16	36	26	34	159	23	
7:00	30	20	4	24	27	28	22	155	22	
8:00	32	17	14	22	31	29	30	175	25	
9:00	29	14	9	35	32	33 33		185	26	
10:00	29	16	15	26	24	43 39		192	27	
11:00	19	10	12	25	26	36	45	173	25	
12:00	25	17	16	31	21	39	34	183	26	
13:00	23	26	21	17	35	30	27	179	26	
14:00	33	21	20	22	24	26	26	172	25	
15:00	23	11	19	22	25	35	31	166	24	
16:00	17	9	23	24	24	34	23	154	22	
17:00	11	11	35	23	32	27	28	167	24	
18:00	14	13	35	27	21	22	23	155	22	
19:00	12	9	25	26	22	27	29	150	21	
20:00	17	17	31	22	34	24	21	166	24	
21:00	20	7	24	24	19	26	29	149	21	
22:00	12	16	27	24	25	29	19	152	22	
23:00	14	11	16	18	11	16	14	100	14	
24:00	10	5	17	14	15	12	9	82	12	
Total	465	311	410	511	555	618	573	3,443	493	



The peak hour for the weekday average was 8:00 a.m.-9:00 a.m. while the peak hour for the weekend average occurred twice, from 12:00 p.m.-1:00 p.m. and 7:00 p.m.-8:00 p.m. In addition to commercial vehicle movement, passenger vehicles were observed using the rest areas to divert around mainline traffic during peak hours. **Figure 4-9** shows the daily truck vehicle volume during the data collection period.

Figure 4-9 | I-75 Southbound Rest Area Entrance Volume per Day





Interstate 95: Palm Bay Northbound Rest Area

The I-95 Northbound Rest Area, located in Brevard County, is 4.6 miles south of SR 514. This facility provides the necessary amenities such as family restrooms, handicap facilities, nighttime security, and 24-hour service, as reported by the FDOT Office of Maintenance. The facility offers 60 truck parking spaces with the ability for commercial vehicle operators to park overnight.

According to the RCI database, I-95 experienced 15.5 percent truck volume in 2016 (6,628 Truck AADT) along the interstate's mainline and a 26.7 percent truck percentage (320 Truck AADT) at



the southbound rest area ramp. Data collected from Tuesday, November 14th to Monday, November 20th in 2017 captured a total of 1,786 semi-trucks entering the southbound rest area. **Figure 4-10** shows the average commercial vehicle volume during the week and during the weekend.

Figure 4-10 | I-95 Northbound Rest Area Entrance Average Volume



As observed, the highest average number of commercial vehicles entering the rest area during the week was 17 vehicles at 3:00 p.m. and 4:00 p.m. The highest average number of commercial vehicles on the weekend was reported to be nine vehicles at various times (11:00 a.m., 2:00 p.m., and 6:00 p.m.). **Table 4-5** reports the commercial vehicle counts per day per hour over the course of the data collection period.

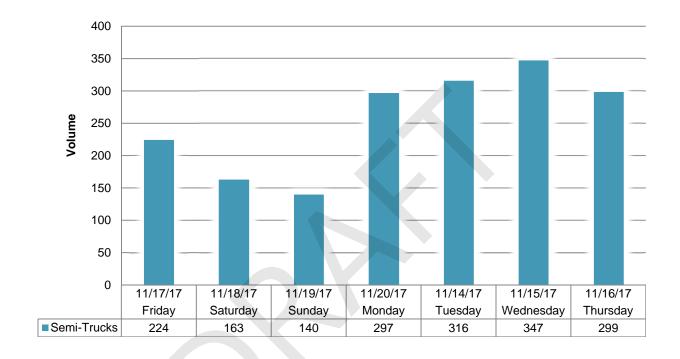
Table 4-5 | I-95 Northbound Rest Area Traffic Counts

	Friday	y Saturday Sunday Monday		Tuesday	Tuesday Wednesday			Daily	
Time	11/17	11/18	11/19	11/20	11/14	11/15	11/16	Total	Average
1:00	10	1	7	6	12	13 7		56	8
2:00	10	7	3	1	4	23	13	61	9
3:00	8	12	4	6	13	12	15	70	10
4:00	6	6	6	9	10	11	12	60	9
5:00	10	7	2	9	11	15	11	65	9
6:00	8	8	3	10	11	15	9	64	9
7:00	7	5	6	8	18	12	12	68	10
8:00	6	5	4	9	16	21	13	74	11
9:00	20	12	2	13	13	18	18 13		13
10:00	10	11	5	14	12	14	14 18		12
11:00	11	11	7	17	9	12	12 9		11
12:00	12	7	8	18	8	22 13		88	13
13:00	10	9	6	13	15	18 10		81	12
14:00	13	10	8	12	25	9	17	94	13
15:00	6	6	6	21	25	17	17	98	14
16:00	15	6	8	24	18	17	10	98	14
17:00	9	6	4	8	12	21	17	77	11
18:00	4	9	9	21	15	16	11	85	12
19:00	4	3	6	14	14	12	16	69	10
20:00	8	5	10	14	15	6	5	63	9
21:00	15	2	6	14	16	11	15	79	11
22:00	8	4	11	8	12	9	10	62	9
23:00	5	7	3	10	9	8	13	55	8
24:00	9	4	6	18	3	15	13	68	10
Total	224	163	140	297	316	347	299	224	163



The peak hour for the weekday average was 2:00 p.m.-3:00 p.m. while the peak hour for the weekend average occurred twice, from 1:00 p.m.-2:00 p.m. and 5:00 p.m.-6:00 p.m. In addition to commercial vehicle movement, passenger vehicles were observed using the rest areas to divert around mainline traffic during peak hours. **Figure 4-11** shows the daily truck vehicle volume during the data collection period.

Figure 4-11 | I-95 Northbound Rest Area Entrance Volume per Day





Summary of Observation Location Findings

Although the five interstate rest areas observed provide similar, if not the same amenities for commercial vehicle operators, these public rest areas offer a varying number of parking spaces. The I-4 rest area locations provide 16 to 17 truck parking spaces, compared to the 43 parking spaces provided at the I-75 eastbound and westbound locations or to the 60 parking spaces offered at the I-95 rest area. Additionally, a comparison of the truck AADT captured along these three interstate highways, recorded by the RCI database, are provided in **Table 4-6**. As noted in the table, I-75 has the greatest truck AADT and provides the second highest capacity of truck parking spaces, while I-4 has the second highest truck AADT and provides the fewest parking spaces for commercial vehicle operators.

Table 4-6 | Comparing Observation Locations – Maximum Capacity and Corridor Truck Volumes

Interstate	Number of Parking Spaces	Truck AADT (RCI Database, 2016)
I-4	17 (Eastbound) & 16 (Westbound)	9,879
I-75	43 (Eastbound) & 43 (Westbound)	17,877
I-95	60 (Northbound)	6,628

The number of commercial vehicles entering through the rest areas was observed to be significantly higher during the week than on the weekend. The weekday average observed at the I-4 rest areas was analyzed to be between 4 and 24 commercial vehicles. The average recorded at the I-75 rest areas ranged from 8 to 41 commercial vehicles, and at the I-95 rest area, an average of 9 to 17 commercial vehicles entered the rest area during the data collection period. **Table 4-7** compares the observed demand and number of available parking spaces.

Table 4-7 | Comparing Observation Locations – Parking Capacity and Observed Daily Demand

		Average Daily Demand				Maximum Daily Demand			
Location	Available Parking Spaces	6 a.m. – 10 a.m.	10 a.m. – 3 p.m.	3 p.m. – 7 p.m.	7 p.m. – 6 a.m.	6 a.m. – 10 a.m.	10 a.m. – 3 p.m.	3 p.m. – 7 p.m.	7 p.m. – 6 a.m.
I-4 Eastbound	17	83	119	80	37	87	131	92	50
I-4 Westbound	16	67	105	72	53	81	118	86	68
I-75 Northbound	43	105	186	184	85	124	240	204	141
I-75 Southbound	43	169	180	161	112	185	192	167	166
I-95 Northbound	60	75	85	90	65	91	94	98	79

Conclusion

Following the analysis of the commercial vehicle data collected at each of the five rest areas, it was observed that the rest areas experience truck parking demand exceeding truck parking availability. The greatest demand was observed during the mid-day period, peaking after 10:00 a.m. and reducing at 3:00 p.m. before the evening/nighttime peak period.

