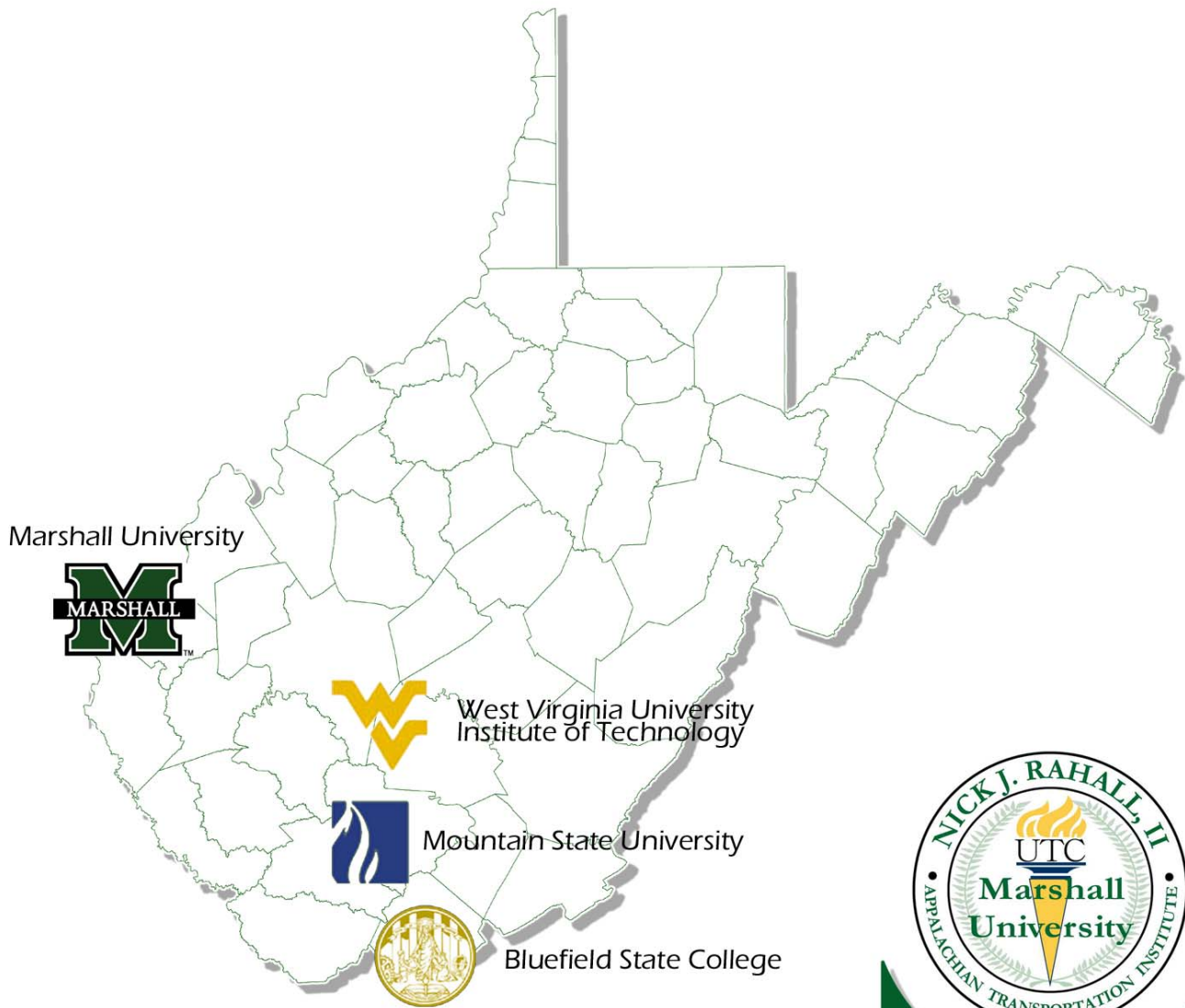


TRP 99-23 Survey of Truck Parking Places (Private) in West Virginia



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16. Abstract <p>The primary objective of this study was to identify public and private rest areas where demand for nighttime truck parking exceeds available space, to project truck parking space demand for the next twenty years, and to make recommendations necessary to meet this demand.</p> <p>West Virginia has traditionally placed the responsibility of operating a commercial motor vehicle by a non-fatigued driver upon carriers and drivers. National and state trends indicate that commercial traffic will increase on highways each year. As commercial traffic increases along West Virginia's corridors, the need for adequate facilities for truckers is manifest. Driver sleepiness and unsafe parking practices of commercial vehicles (on roadway shoulders and interchange ramps) are hazards that can be reduced or eliminated when adequate off-highway parking facilities are available.</p> <p>Even when a trucker does seek adequate rest, many face the further challenge of finding adequate and safe facilities to rest. A 1998 survey of 2,000 truckers, conducted by the Owner-Operator Independent Drivers Association (OOIDA) Foundation Incorporated, found that 90 percent of truckers face a challenge nightly in seeking a place to rest. More alarmingly, it revealed that over 80 percent stated that at least once a week they continue to drive past the point of feeling "safe and alert" because they cannot find a safe place with adequate facilities to rest. These numbers are analogous to an FHWA study where 90 percent of trucker respondents reported that they "perceive a shortage of parking".</p>					
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Commercial Vehicle Rest Area Availability in West Virginia

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Prepared for the West Virginia Department of Transportation, Division of Highways, in cooperation with the US Department of Transportation, Federal Highway Administration.

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Charles Stevens
Benjamin Keenan
Matthew Walker

Purpose of Study

The primary objective of this study was to identify public and private rest areas where demand for nighttime truck parking exceeds available space, to project truck parking space demand for the next twenty years, and to make recommendations necessary to meet this demand.

Background

West Virginia has traditionally placed the responsibility of operating a commercial motor vehicle by a non-fatigued driver upon carriers and drivers. National and state trends indicate that commercial traffic will increase on highways each year. As commercial traffic increases along West Virginia's corridors, the need for adequate facilities for truckers is manifest. Driver sleepiness and unsafe parking practices of commercial vehicles (on roadway shoulders and interchange ramps) are hazards that can be reduced or eliminated when adequate off-highway parking facilities are available.

Fatigue appears to be a critical factor in 30% of heavy vehicle accidents. The Safety Board analysis of Fatal Accident Reporting System (FARS) data indicates that in 1993, 3,783 persons died in accidents involving heavy trucks (432 were occupants of the trucks). Research also suggests that truck driver fatigue may be a contributing factor in 30 to 40 percent of all heavy truck accidents. In 1990, a Safety Board study of the role of drugs and alcohol in accidents found that 31 percent cited driver sleepiness as the most likely cause (1).

Recent research has also associated the effects of sleep deprivation to alcohol intoxication. Subjects were kept awake for various lengths of time (17 and 24 hours), and their performance assessed via a cognitive-psychomotor test. Results reveal that the performance of the subjects kept awake for 17 was the same as that of a rested person with a blood alcohol concentration (BAC) of 0.05 percent, and at 24 hours, performance was equivalent to a BAC of 0.10 percent (2). In sixteen U.S. states, drivers are legally drunk with a BAC of 0.08; the rest, including West Virginia, set a level of 0.10. (It is before the West Virginia Legislature to lower the legal BAC to .08.) Furthermore, sleepiness has been shown to exacerbate the sedating effects of alcohol so that even low BAC's make the sleepy driver much more impaired and thus much more likely to fall asleep while driving (3,4,5).

Even when a trucker does seek adequate rest, many face the further challenge of finding adequate and safe facilities to rest. A 1998 survey of 2,000 truckers, conducted by the Owner-Operator Independent Drivers Association (OOIDA) Foundation Incorporated, found that 90 percent of truckers face a challenge nightly in seeking a place to rest. More alarmingly, it revealed that over 80 percent stated that at least once a week they continue to drive past the point of feeling "safe and alert" because they cannot find a safe place with adequate facilities to rest (6). These numbers are analogous to an FHWA study where 90 percent of trucker respondents reported that they "perceive a shortage of parking"(7).

Findings were similar in a 1997 survey of 593 long-distance truck drivers randomly selected at private truck stops and public rest areas in New York. Eighty percent of the truckers surveyed stated that they often or always unable to find a parking space at a public rest area at night at. In addition, 25 percent of the drivers said that they had fallen asleep while driving at least once during the last year, with 17 percent stating that it occurred on more than one occasion.

Furthermore, an association was revealed between the inability to find adequate facilities and drivers who fell asleep at the wheel in the past year (8).

As truckers cite lack of adequate facilities as their prime reason for continuing to drive beyond the point of feeling “safe and alert” (6), the challenge to safety officials is clear: to provide sufficient and safe facilities for truckers to rest.

Method

The research team inventoried 35 public and private facilities providing rest area type services to truckers along the selected corridors. The major trucking corridors in West Virginia were identified as I-64, I-68, I-70, I-77, I-79, and I-81 (Appendix 1). I-64 and I-77 were further divided into I-64 East, I-64 West, I-77 North and I-77 South, to represent them as segments with their own unique measures and needs. This provides for logical endpoints (cities, truck terminal facilities, and interchanges with other major truck routes) for the analysis of segments, as per the Truck Parking Demand Model. A highway segment database was developed using Microsoft Excel for data entry. Data were collected via direct observation to assess current capacity. The data conformed to that requested by the USDOT memo, “ACTION: Final Status on Partners for Adequate Parking Facilities” Initiative, Attachment 1, dated January 5, 2001. The “Truck Parking Demand Model”, developed by Science Applications International and the Office of Safety Research and development, Federal Highway Administration, was used for estimating need along the selected corridors. Included were variables including number of private and public spaces, route number, length of segment, current estimates of AADT, seasonal peaking factor, average speed limit, etc. (Appendix 2).

Two corridors were considered to be “short” (less than 30 miles). The demand model does not exclude “short” segments but *implies* that segments be of similar length (less than 200 but greater than 60 miles) for consistency. For these “short” segments (I-70 & I-81), site usage data were collected hourly during peak usage hours (10 pm – 6 am) via direct observation. Observers counted the total number of truck parking spaces available at each site, observed use and overflow, as well as any other events relating to parking (i.e., illegal parking, overflow parking on shoulder, etc.).

Though not a criteria for completion of the study, an inventory of facilities (restrooms, vending machines, etc.) was also performed, and the data recorded. Interviews with attendants were conducted regarding enforcement of time limits on parking and the data recorded (Appendix 2). It was felt by the researchers that rest stop amenities, services, and restrictions affect utilization: drivers may not use a facility that is lacking in facilities, does not allow them enough time to sleep, or is not safe.

Upon completion of data collection, twenty-year projections of AADT (provided by the WV DOT) were entered into the database. The Truck Parking Demand Model was then applied to provide an estimate of demand over the next twenty years. This is essential for not only assessing any current excesses or deficits of truck parking spaces, but provides data necessary for the conception of remedies for the problem. The Truck Parking Demand Model produces a segment wide estimate of vehicle hours of parking demand over a 24-hour period and uses peak-parking factors to determine the number of trucks that demand a parking space in the peak hour.

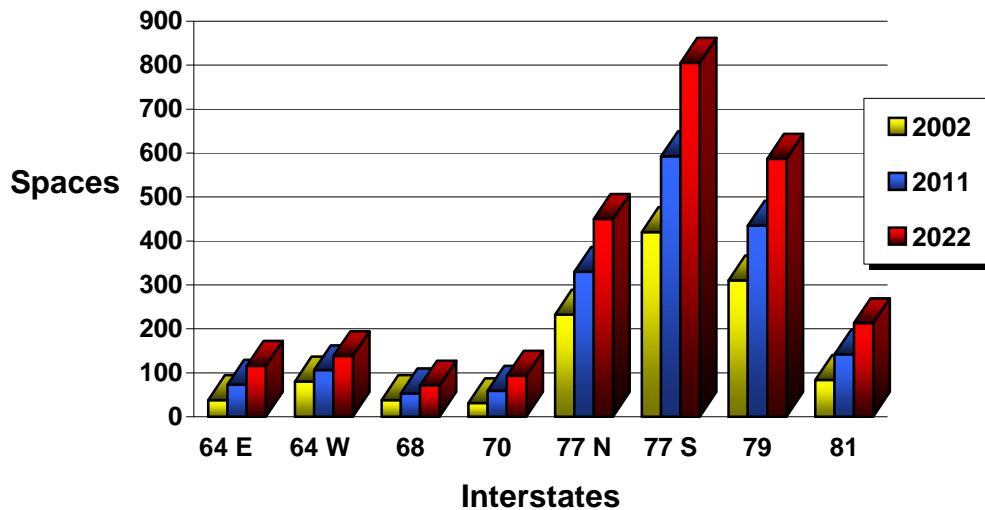
Estimates of demand are based on AADT, short/ long haul truck distribution, and average speed of trucks. Separate estimates are developed for public/private rest areas based on research into driver’s preferences. For the purpose of this study, these estimates were combined in estimating the total parking space demand along the inventoried segments.

A “solutions matrix” was developed to graphically represent options available for a given site. The options in the matrix are attentive to factors such as funds, nature of the site (public or private), and available space. Based on the projected demand and the above factors, the matrix was applied to and suggestions developed for each site.

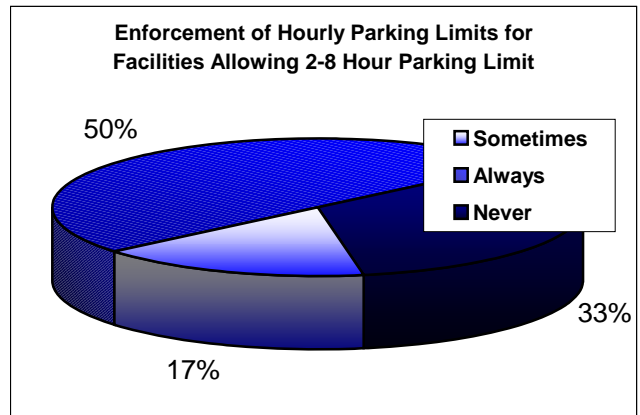
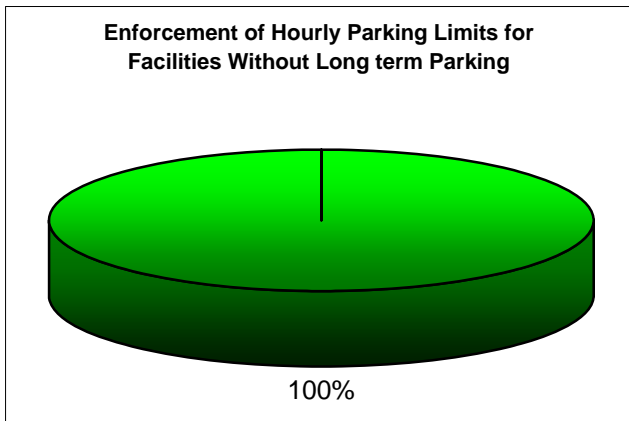
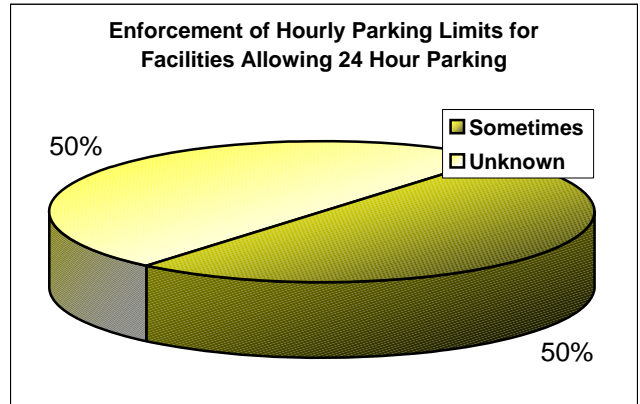
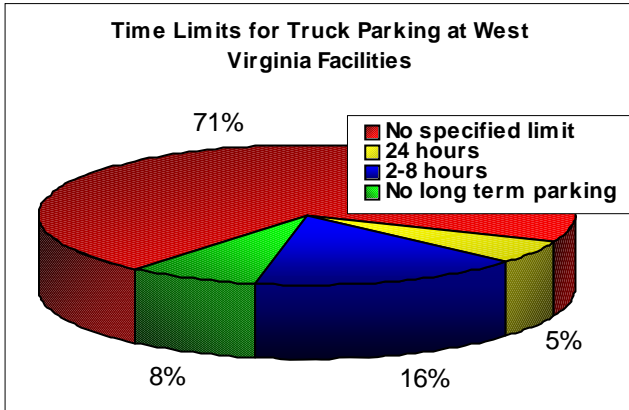
Findings

The major findings on the selected corridors are indicative that West Virginia has an estimated gross deficit of 1234 spaces. The gross deficit will rise to 2476 by 2022 if AADT increases at its present rate. Using the currently accepted demand model and the latest AADT data from the West Virginia Department of Transportation, the inventory revealed that no facilities currently meet the demand for truck parking spaces (Appendix 2). Therefore, none are expected to in the next twenty years as AADT traditionally has increased yearly at a predictable rate

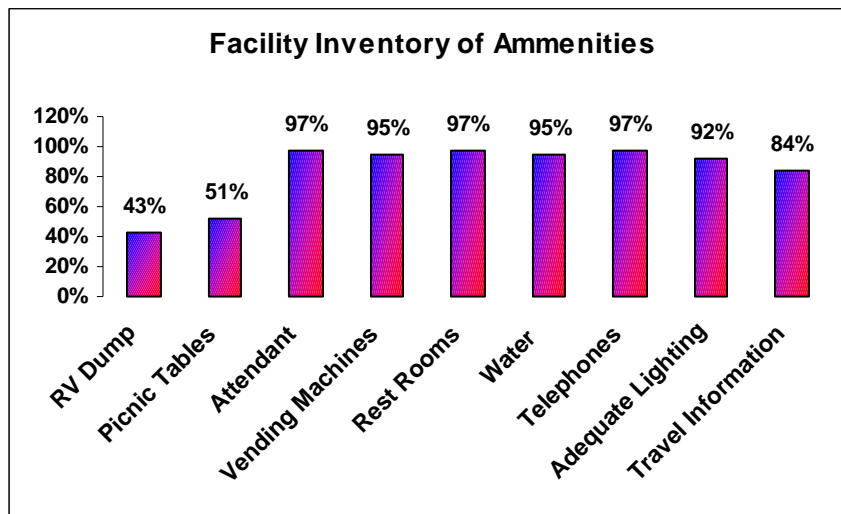
**Parking Space Gross Defecit Summary:
Estimation, 2002-2022**



Time limits on parking varied between facilities, as did enforcement of time limits.



An inventory of facilities revealed that the majority of facilities had most amenities that appear to have statistically significant effect on increasing the usage of rest areas by trucks (restrooms, food, attendant, and lighting)(7).



Discussion

West Virginia

While none of the facilities currently meet the demand, and thus will not as AADT continues to rise, the greatest relative magnitude of the problem in West Virginia appears to be along the interstates 77 (northern and southern sections) and 79. Interstate 77 North is lacking almost 300 spaces, I-77 South over 500 spaces, and I-79 almost 400 spaces. By 2022, the space deficit will rise to over 500, 850, and 650 spaces, respectively. These deficits represent a very real and hazardous situation, as increasingly drivers are left to “drive on” in an unsafe state of sleepiness, being the equivalent of drunk.

During data collection along I-70, at approximately 2 AM (peak hours are considered to be between 10 PM and 6 AM), there was an overflow of eleven trucks, with four parking along the access ramps, wheels protruding over the “white line” into the access lane. During another period on the same site, the overflow was so great and the ramp so obstructed, that truck-drivers resorted to driving across the median between the access ramp and the interstate to access the center. Undoubtedly, this creates a hazard for all drivers, commercial and non-commercial. Similarly, at the site along I-81, trucks were forced to park along the access ramps, blocking traffic signs, again, creating a hazard. This is obviously due to lack of space and not, at least totally, due to “driver preference” as some have theorized, as during all periods of observation overflow was never less than five trucks, and peaked at fourteen. At the I-81 weigh station a total of fourteen trucks, six lining the ramps, were observed parking during the peak hours.

Other States

Several states are attempting to alleviate the problem of overcrowding and or inadequate facilities. Maryland has increased signage along busy corridors and updated maps to inform drivers of public and private rest areas, and has improved security at these areas. In addition, they have opened up “park and ride” areas to truck drivers at night, and are developing a system to educate drivers regarding facilities and their availability. Ohio has a plan for increasing signage relating to parking availability. Michigan has a similar education plan, but in addition, they are making map information more accurate and are providing rest area guides at truck stops. Florida is opening weigh stations up to truck parking, as is Kentucky. The Kentucky Transportation Cabinet has made 225 spaces available for overnight parking at five weigh stations. The weigh station parking areas are open 24 hours a day and are patrolled by the Kentucky Motor Vehicle Enforcement Officers. This approach has met with limited success partially because facilities at the weigh station are not designed to rest area standards (lacking proper amenities). Kentucky has added facilities to existing weigh stations and will include additional parking as well as better facilities to newly constructed weigh stations. The issue of crime is prime in North Carolina, which has stepped up state and local patrols in “Operation Rest Assured”.

Many states have also taken steps to partner with private entities in alleviating the burden on the state. In Iowa, for example, the private developer is responsible for operations and maintenance of the center, with the Iowa Department of Transportation sharing in cost. Iowa contributed \$1.8 million of the \$2.5 million total project development and construction costs. The public/private partnership will save the State of Iowa an estimated \$3.43 million in maintenance costs over 30 years. The New York State Department of Transportation (NYSDOT) is both investing in public

rest area expansion and attempting to add capacity through public/private development. The cost for development of three proposed traveler information centers, including access roads and parking lots, is estimated to be approximately 60 million dollars. The NYSDOT would contribute to the cost of construction. The size of the state's contribution will be determined through the proposal process. Since the 1970s, the California Department of Transportation (CALTRANS) has been attempting to add rest areas at interstate interchanges and along conventional highways through joint public/private development. CALTRANS has recently made progress in its attempt to raise the priority of rest areas within the agency. The 10-year State Highway Operations Protection Plan proposes spending seventy million dollars to restore and renovate state rest areas. A Safety Roadside Rest Area System Improvement Team was formed with the mission of recommending improvements, rest area policies, guidelines, and practices.

Recommendations

Each site has several possible remedies. All remedies, however, are subject to three conditions: public or private ownership, capital, and space. It is our assumption that the issue of private ownership can only be met with economic incentives (tax “breaks”, matching funding, low interest loans, grants, etc.), which would impel a business owner to expand, as the state has no control over the private owner. While private sites were included in the study recommendations made, these sites will not be discussed.

In order to best represent the available options and eschew obfuscation, a matrix of remedies for the parking situation was developed. Options range from the least invasive (lowest cost and use of existing facilities) to creating new sites (greatest cost and need for new land).

Solutions Matrix

Solution	Disadvantages	Advantages
Option 1: Reallocation of space	Same volume	Low cost Type of space (parallel vs. pull through)
Option 2: Minor renovation	Increased cost Temporary loss of space May not meet future needs	Use existing facilities More spaces Type of space
Option 3: Major renovation	Greater expense Temporary loss of space May require land Not an option at some facilities	Use existing facilities Greater number of spaces Type of space
Option 4: Build "pull off areas"	Moderate cost Safety No facilities	Moderate cost Increased parking
Option 5: Build new facilities	Maximum cost New land Exit/ re-entry lanes	New facility Maximum impact Safety

The following is a summary list of sites and available options for each site.

Route	Site #	Site Name	Mile-Post	City	County	Car Spaces	Truck Spaces	% Truck Spaces	Options
I-64 West	1	Welcome Center I-64 E	10	Huntington	Cabell	52	22	30%	1,2,3
	2	Rest Area	35	Hurricane	Putnam	35	19	35%	1,2,3
	3	Rest Area	35	Hurricane	Putnam	56	14	20%	1,2,3
	4	Go Mart	39	Teays	Putnam	25	15	38%	1,2,3
	5	Travel Centers of America	39	Hurricane	Putnam	40	30	43%	1,2,3
	6	Pilot Travel Center #243	45	Nitro	Putnam	30	22	42%	1,2,3
I-64 East	7	Alta Truck Plaza	161	Alta	Greenbreir	30	15	33%	1,2,3
	8	Dixon's Auto Truck Stop	175	White Sulphur Springs	Greenbreir	10	20	67%	2,3
	9	Welcome Center I-64 W	179	White Sulphur Springs	Greenbreir	26	6	19%	1,2,3
I-68	10	Little Sandy's Truck Stop	23	Bruceton Mills	Preston	30	20	40%	1,2,3
I-70	11	Dallas Pike Travel Express	11	Valley Grove	Ohio	30	50	63%	2,3
	12	Welcome Center I-70 W	13	Valley Grove	Ohio	49	19	28%	1,2,3
I-77 South	13	I-77 Truck Stop	9	Princeton	Mercer	20	30	60%	2,3,4,5
	14	Welcome Center I-77 N	9	Princeton	Mercer	40	8	17%	1,2,3,4,5
	15	Welcome Center I-77 N	18	Bluestone	Mercer	17	14	45%	1,2,3,4,5
	16	Welcome Center I-77	45	Beckley	Raleigh	230	65	22%	2,3,4,5
	17	Welcome Center WV Turnpike	72	Morton	Kanawha	80	25	24%	1,2,3,4,5
	18	Go Mart #31 W.U.T.S.	95	Charleston	Kanawha	10	20	67%	2,3,4,5
I-77 North	19	Go Mart	132	Fairplain	Jackson	20	20	50%	1,2,3,4,5
	20	Welcome Center I-77 N	166	Mineral Wells	Wood	29	10	26%	1,2,3,4,5
	21	Welcome Center I-77 S	166	Mineral Wells	Wood	26	10	28%	1,2,3,4,5
	22	Liberty Truck Stop	170	Mineral Wells	Wood	30	70	70%	2,3,4,5
I-79	23	Rest Area	49	Servia	Braxton	50	15	23%	1,2,3,4,5
	24	Rest Area	49	Servia	Braxton	49	15	23%	1,2,3,4,5
	25	John Skidmore Truck Stop	67	Flatwoods	Braxton	10	30	75%	2,3,4,5
	26	Rest Area	85	Burnsville	Lewis	32	13	29%	1,2,3,4,5
	27	Rest Area	85	Burnsville	Lewis	32	12	27%	1,2,3,4,5
	28	I-79 Truck Stop	105	Jane Lew	Lewis	20	100	83%	2,3,4,5
	29	Rest Area	123	Meadowbrook	Harrison	45	15	25%	1,2,3,4,5
	30	Rest Area	123	Meadowbrook	Harrison	46	17	27%	1,2,3,4,5
	31	K & T Truck Stop	139	Fairmont	Marion	10	20	67%	2,3,4,5
	32	Welcome Center I-79 S	159	Morgantown	Monongalia	61	20	25%	1,2,3,4,5
I-81	33	Welcome Center I-81 N	2	Inwood	Berkeley	39	21	35%	1,2,3,4,5
	34	Travel Centers of America	20	Martinsburg	Berkeley	35	113	76%	2,3,4,5
	35	Welcome Center I-81 S	25	Falling Waters	Berkeley	55	21	28%	1,2,3,4,5

Highlight denotes public facility.

E = Eastbound, W = Westbound, S = Southbound, N = Northbound

For each site, there exists a number of options based on ownership (public or private), capital, and space, as mentioned previously. At some sites with percentages of truck spaces approaching 60 percent and higher, it was determined that reallocation of existing space is not an option due to the need to serve the non-carriers as well. It was revealed that private facilities have the highest percentage of truck to car spaces, averaging 58 percent, while public facilities average only 27 percent. I-77 North and South and I-79 exhibit the greatest need for new facilities, as they appear to be in the greatest numerical deficit with regard to current spaces and future need.

I-64 West (Huntington to Charleston)

The space needs along I-64 are analogous to the needs of other interstates in West Virginia: there is a definite need for adequate long term (at least eight hours) parking for truckers. Generally, the terrain along I-64 West is moderately flat, and there is space surrounding existing public facilities to facilitate expansion. Additionally, the percentage of truck to car spaces could be altered to greater serve the industry at the three public facilities. While this incurs the least cost, it is also has the least impact on the overburdened corridor. There are two weigh stations, one each east and westbound, along the corridor that could, with moderate changes, help to meet the current and future parking demand.

I-64 East (Beckley to White Sulphur Springs)

While the need along this corridor is not as high as others, the current number of spaces fails to meet the current and future demand). The Welcome Center at White Sulphur Springs has the lowest percentage of truck to car spaces (19 percent) of any of the public facilities in the state. While reallocating space at this facility will help to meet the demand, it will still fall short of meeting the corridor's parking needs. The best possible solution along this corridor would be to expand the current facility near White Sulphur Springs, and build new facilities along the corridor.

I-68 (Morgantown to Hazelton)

I-68 has no public facilities, though there is one privately owned facility at Bruceton mills. While this corridor has the lowest numerical deficit, one does exist, and therefore it is our recommendation that public facilities be built along the corridor. Possible sites would be Bruceton Mills, Brandonville, or Hazleton. An additional site would be along the interstate near the exit to Cooper's Rock. The area is slowly being developed, and some small service stations and convenience stores are in operation, and are accessible from the interstate.

I-70 (Through Wheeling in northern panhandle)

Wheeling has only one public facility with twenty-eight percent of the spaces dedicated to trucks. The terrain surrounding immediately surrounding wheeling is mountainous, however west of Wheeling there is ample relatively flat terrain along the interstate that would help to meet the increasing demand along this corridor.

I-77 South (Charleston to Princeton)

I-77 South represents one of the greatest challenges both in terrain, as much of it is mountainous, and in that the magnitude of current and future demand (numerically) is the greatest in West Virginia. There are four public facilities along the corridor, the largest of which is in Beckley. The keen demand obviates the need for facilities all along the corridor, closer to Charleston and

Princeton than Beckley, as the Beckley facility is quite large and can service a great number of trucks, though the structure housing the amenities is relatively small. Additionally, there is the possibility that areas adjacent to the toll booths could be developed for truck parking, terrain permitting.

I-77 North (Charleston to Williamstown)

The needs of I-77 North mirror those of I-77 South, though it ranks third in truck space need. Sites along the southern end of I-77 North (near Charleston) would be of great benefit as there are no facilities in this area. The terrain along much of I-77 North is rolling hills, and there are many towns along the way (Pocatalico and Ripley) that could serve as site for new facilities. Ripley also intersects US Route 50, and facilities located there would serve both routes. Additionally, Kenna and Williamstown, though not directly on I-77, are close enough in proximity that they could serve as sites providing there is adequate access (ramps that can handle large numbers of trucks).

I-79 (Charleston to Morgantown)

I-79 ranks second in need for truck parking spaces in the state, with a current deficit of nearly 350 spaces. Much of the terrain along I-79 is mountainous and sparsely inhabited. The greatest need for facilities is between Charleston and Weston. Though there are facilities in Servia, one each northbound and southbound, they are inadequate in serving this area. They average only 23 percent truck spaces and are nearly 50 miles from Charleston (most rest areas average about 20 miles from a city or another rest area). The closest privately owned facility is in Weston, to the north. The need for new facilities along this corridor is manifest in the gap in services and the crevasse in safety for travelers of West Virginia's interstate system.

I-81 (Bunker Hill to Falling Waters)

Though a small segment in the study, it revealed some of the most alarming breaches of safety.

Several times, data collectors observed the unsafe measure truckers take in seeking a safe place to rest. The photo to the right is representative of what greets many tired travelers along I-81... the overflow of trucks dangerously parked along the off and on ramps. To the reader, the image is confusing... to a driver, road weary and traveling at 70 miles per hour, the confusion becomes life threatening.

Though the gross number of spaces in deficit appears low, the *relative* lack of adequate facilities and parking along I-81 represents a clear and present danger to trucks and private vehicles alike.



Conclusion

Our situation, it appears, is not unique as in many states a shortage of adequate facilities and parking spaces for truck drivers exists. However, West Virginia is entering a state of crisis: the problem of inadequate or lack of facilities is becoming acute. It is evident that the greatest impact will be attained through more facilities with better amenities. Clearly, a public policy approach needs to be developed that analyzes current spending practices and integrates truck parking requirements into WVDOT / FHWA planning. It is essential that solutions developed emphasize partnerships between public and private entities to ensure success to such a rest area development program. Objectives must be established, priorities set, and funding levels defined as part of an overall state program.

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Appendix 1

Truck Parking Space Inventory Segments

