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Mn/DOT Truck Parking Study: Phase 2

Omar Smadi, Principal Investigator
Center for Transportation Research and Education
Iowa State University

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Your Destination... Our Priority



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Prepared by:

Thomas H. Maze
Christopher P. Albrecht
Omar Smadi

Center for Transportation Research and Education
Iowa State University

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Executive Summary

Previous research sponsored by the Minnesota DOT (Mn/DOT) documented the state of truck parking issues throughout Minnesota. The study, the results of which were published in January 2008, specifically examined the supply and demand of public and private commercial vehicle parking along Minnesota's three primary Interstate corridors: I-35, I-90, and I-94. This report revealed some critical parking capacity issues at many of the state's rest area facilities and concluded that further research would be necessary to identify potential remedies to improve truck parking into the future.

Mn/DOT funded this second phase with the objective of determining opportunities for expanding truck parking where needed across Minnesota. Existing research suggests that although interstate and intercity truck parking may be very limited and marginally expanding existing congested facilities would be useful, parking in urban core areas was overwhelmingly identified as the key truck parking problem in Minnesota. Therefore, Phase 2 looked at parking both in the Twin Cities and in outstate Minnesota.

Study Approach

This research, Mn/DOT Truck Parking Study: Phase 2, involved:

1. Investigating lower cost marginal improvements to truck parking capacity along the state's Interstate highway system (Task 1).
2. Investigating development of urban truck parking in other metropolitan areas around the United States (Task 2).
3. Investigating the truck parking demand derived from major truck traffic generators in the Twin Cities metropolitan area in order to better understand any spatial relationships between locations generating truck traffic and roadway truck traffic flow and truck parking needs (Task 3).
4. Coordinating amongst internal Mn/DOT stakeholders to review the research results and potential solutions to Minnesota's truck parking shortages (Task 4).
5. Communicating with selected external stakeholders (Task 5).

The final recommendations were divided into short- and long-term priorities as follows:

Short-Term Recommendations

1. Capacity enhancement of **I-94** St. Croix facility by 5 to 10 spaces
2. Capacity enhancement of **I-94** Elm Creek and Burgen Lake facilities by 15 to 23 spaces
3. Capacity enhancement of **I-35** Albert Lea and Heath Creek facilities by 9 to 25 spaces
4. Truck-only designation of **I-35** Straight River northbound facility
5. Utilization of abandoned **I-35** weigh station(s) south of Straight River facilities
6. Coordination with WisDOT in providing parking information and capacity along **I-94**
7. Improved information regarding parking availability along **I-94** corridor east of the Twin Cities

8. Improved information regarding parking availability along **I-90** corridor east of Albert Lea

Long-Term Recommendations

1. Capacity enhancement of **I-94** Fuller Lake facility by 5 to 10 spaces (long-term)
2. Capacity enhancement of **I-90** High Forest and Oakland Woods facilities by 10 to 20 spaces (long-term)
3. Capacity enhancement of **I-90** Clear Lake facility by 5 to 7 spaces (long-term)
4. Private truck stop facility south of the Twin Cities along **I-35** near New Market facilitated through public-private partnering (long-term)
5. Improved information regarding parking availability **statewide** (long-term)
6. Utilize wide median along **I-35** south of Heath Creek (long-term)
7. Truck-only designation of additional facilities, as determined through Mn/DOT Truck Haven initiative

Commercial vehicle operators rely on parking areas for 1) their safety-driven hours of service requirements as well as 2) load delivery and pick-up staging needs. Therefore, enhancements of existing facilities and new parking for trucks both inbound to and outbound from the Twin Cities are critical.

This study provides a combination of short and long-term recommendations to expand available parking focused on Minnesota's three primary Interstate corridors. Ultimately, these recommendations benefit both outstate Minnesota and the Twin Cities urban core in terms of safety and economics.

Chapter 1. Background

A previous research project sponsored by Mn/DOT documented the state of truck parking issues throughout Minnesota. The study, *The Minnesota Interstate Truck Parking Study*,¹ was undertaken to help the department produce the information necessary to support decisions regarding future approaches to truck parking. The study specifically examined the supply and demand of public and private commercial vehicle parking along Minnesota's three primary Interstate corridors: I-35, I-90, and I-94. The study was conducted through three major tasks: 1) an inventory of Minnesota's interstate truck parking supply, 2) a truck parking demand analysis, and 3) a survey of trucking companies regarding practices and attitudes toward truck parking. Results of the study were compiled into a final report that was published in January 2008. This report revealed some critical parking capacity issues at many of the state's rest area facilities and concluded that further research would be necessary to identify potential remedies to improve truck parking into the future.

Mn/DOT decided to fund a second phase to further investigate truck parking issues. The objective of Phase 2 was to determine opportunities for expanding truck parking where needed across Minnesota. Existing research suggests that although interstate and intercity truck parking may be very limited and marginally expanding existing congested facilities would be useful, parking in urban core areas was overwhelmingly identified as the key truck parking problem in Minnesota. Therefore, Phase 2 looked at parking both in the Twin Cities and in greater Minnesota.

This document serves as the final deliverable for the Minnesota Truck Parking Study: Phase 2, sponsored by the Minnesota Department of Transportation (Mn/DOT). This research project previously produced three technical memorandums that served as interim deliverables. These memorandums, along with results of internal and external stakeholder outreach efforts, have been summarized into this final report and are included as appendices to this report.

Chapter 2. Low Cost Marginal Capacity Enhancements

This first task under Phase 2 investigated lower cost marginal improvements to truck parking capacity along the state's Interstate highway system. Marginal approaches were seen as remedies ranging from restriping or expanding surface pavement at existing rest areas to allowing overnight parking at weigh stations to developing primitive facilities along spare portions of the existing state right-of-way.

This task was conducted through analysis of data from the previous study, site inspections, and discussions with planners and engineers at various levels within Mn/DOT and local agencies. Through this investigation, it was determined which improvements to existing rest areas would benefit the overall truck parking problem along Interstate corridors. Discussion of solutions were organized and analyzed by corridor. The corridors were defined as they were in the previous study: Interstate 35 North, Interstate 35 South, Interstate 90 East, Interstate 90 West, Interstate 94 East, and Interstate 94 West.

Task 1 looked specifically at the Interstate system and its truck parking capacity, but primarily focused on the deficiencies related to routes feeding the Twin Cities, since most of the capacity issues are nearest to the metropolitan area. Minnesota has 50 rest areas that were analyzed in the previous study. Of these, 35 rest areas are situated along the state's interstate system and are included as part of this task.

One of the first steps taken under the first task was to compare the ratio of truck stalls to automobile stalls in the public rest areas of Minnesota and its neighboring states. As shown in Table 1, Minnesota has the lowest truck stall to automobile stall ratio of these surrounding states. In addition, Minnesota rest areas have, on average, 0.55 truck parking stalls per acre. Overall, this relatively low density suggests that it may be possible to expand truck parking within the geographic bounds of a rest area and/or convert some parking from automobile to truck parking where possible.

Table 1. Stall Comparison

State	Trucks/Autos
Iowa	0.502
Minnesota	0.282
Missouri	0.366
Nebraska	0.301
Wisconsin	0.403
Average	0.371

Analysis and review of the Phase 1 study identified 20 rest areas on Minnesota's Interstate system with capacity issues. Three of these were noted as over capacity between 15 and 25 percent of days, twelve were noted as over capacity between 26 and 50 percent of days, and five were noted as over capacity over 50 percent of days.

Table 2 indicates the locations and additional information on the rest areas with congestion problems.

Table 2. Congested Rest Areas

Rank	Site Name (Direction)	Corridor	Mile Post	Truck Stalls	Auto Stalls	Truck/Auto Stall Ratio	% Days At or Over Capacity
1	Elm Creek (E.B.)	I-94 West	215	10	30	0.33	65.2%
2	Marion (W.B.)	I-90 East	222	20	45	0.44	64.9%
3	Burgen Lake (W.B.)	I-94 West	105	12	30	0.40	59.5%
4	Albert Lea TIC (N.B.)	I-35 South	1	29	75	0.39	58.0%
5	St. Croix TIC (W.B.)	I-94 East	265	35	100	0.35	50.8%
6	Clear Lake (E.B.)	I-90 West	69	7	30	0.23	47.4%
7	Fuller Lake (W.B.)	I-94 West	177	17	80	0.21	45.8%
8	Lake Latoka (E.B.)	I-94 West	100	18	45	0.40	45.7%
9	Lake Iverson (E.B.)	I-94 West	60	11	50	0.22	45.0%
10	New Market (S.B.)	I-35 South	75	15	50	0.30	41.1%
11	High Forest (E.B.)	I-90 East	202	16	80	0.20	39.7%
12	Hansel Lake (W.B.)	I-94 West	69	10	30	0.33	38.9%
13	Oakland Woods (W.B.)	I-90 East	171	10	50	0.20	34.6%
14	Straight River (N.B.)	I-35 South	35	13	50	0.26	33.1%
15	Straight River (S.B.)	I-35 South	35	12	50	0.24	32.2%
16	Heath Creek (N.B.)	I-35 South	68	20	55	0.36	30.6%
17	Adrian (W.B.)	I-90 West	25	6	55	0.11	29.2%
18	Adrian (E.B.)	I-90 West	24	6	55	0.11	20.0%
19	Hayward (E.B.)	I-90 East	162	10	45	0.22	17.5%
20	Blue Earth (W.B.)	I-90 West	119	10	45	0.22	15.3%

Figure 1 identifies the location of each of these rest areas on the highway network.

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Interstate Rest Areas

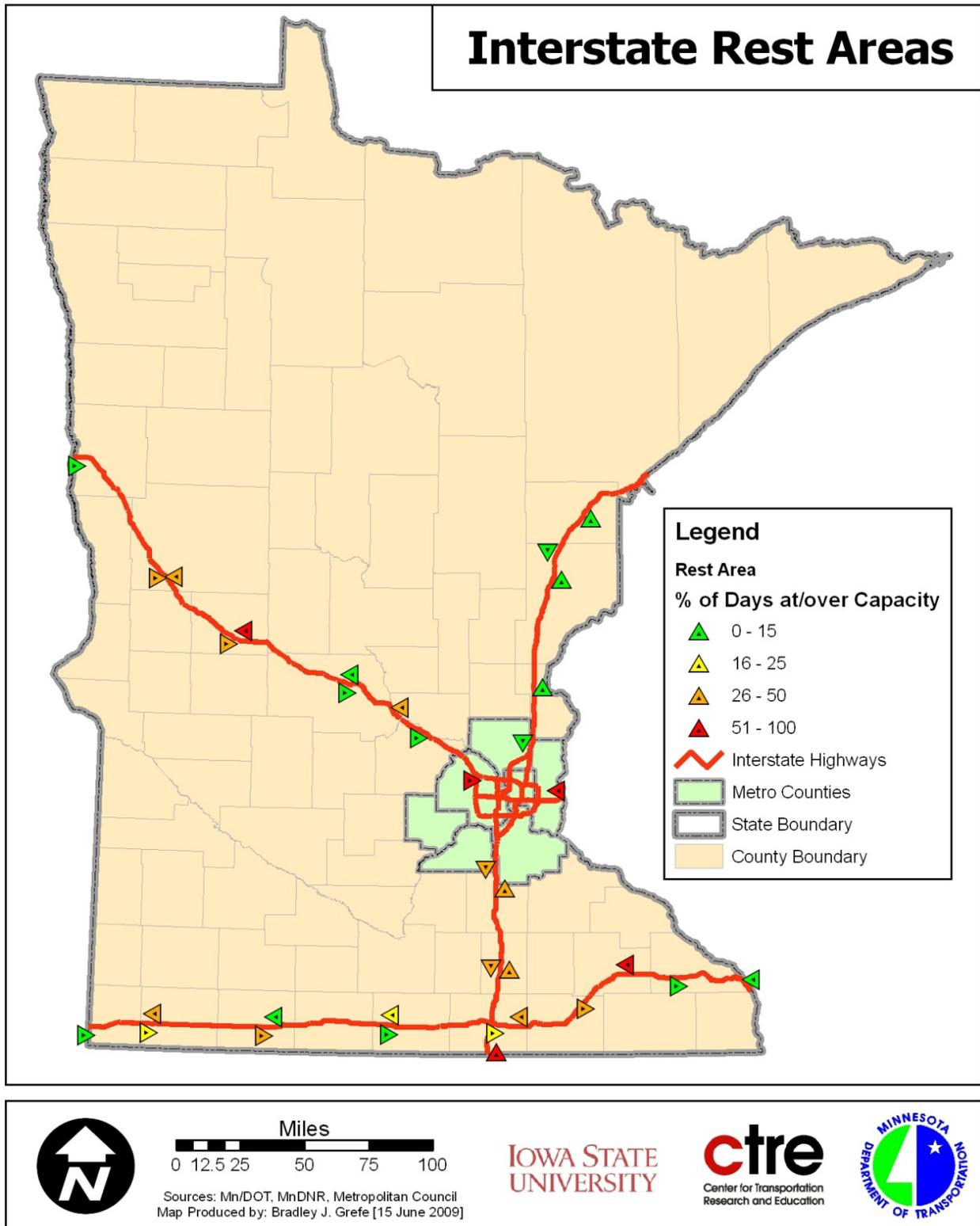


Figure 1. Interstate Rest Areas in Minnesota

2.1 Corridor Analysis

As previously noted, rest areas were grouped by location into six corridors: Interstate 35 North, Interstate 35 South, Interstate 90 East, Interstate 90 West, Interstate 94 East, and Interstate 94 West. The bulk of congestion problems lie within both portions of Interstate 94 and the southern stretch of Interstate 35 corridors. Interstate 90 has moderate congestion, while the northern part of Interstate 35 has no imminent problems. Table 3 describes the congestion issues by corridor.

Table 3. Congested Rest Areas by Corridor

Corridor	Corridor R.A. Total	Rest Areas by Congestion Level			
		0-15%	15-25%	25-50%	Over 50%
Interstate 94 East	1	0	0	0	1
Interstate 94 West	10	4	0	4	2
Interstate 35 South	5	0	0	4	1
Interstate 90 East	6	2	1	2	1
Interstate 90 West	7	3	2	2	0
Interstate 35 North	6	6	0	0	0
Total	35	15	3	12	5

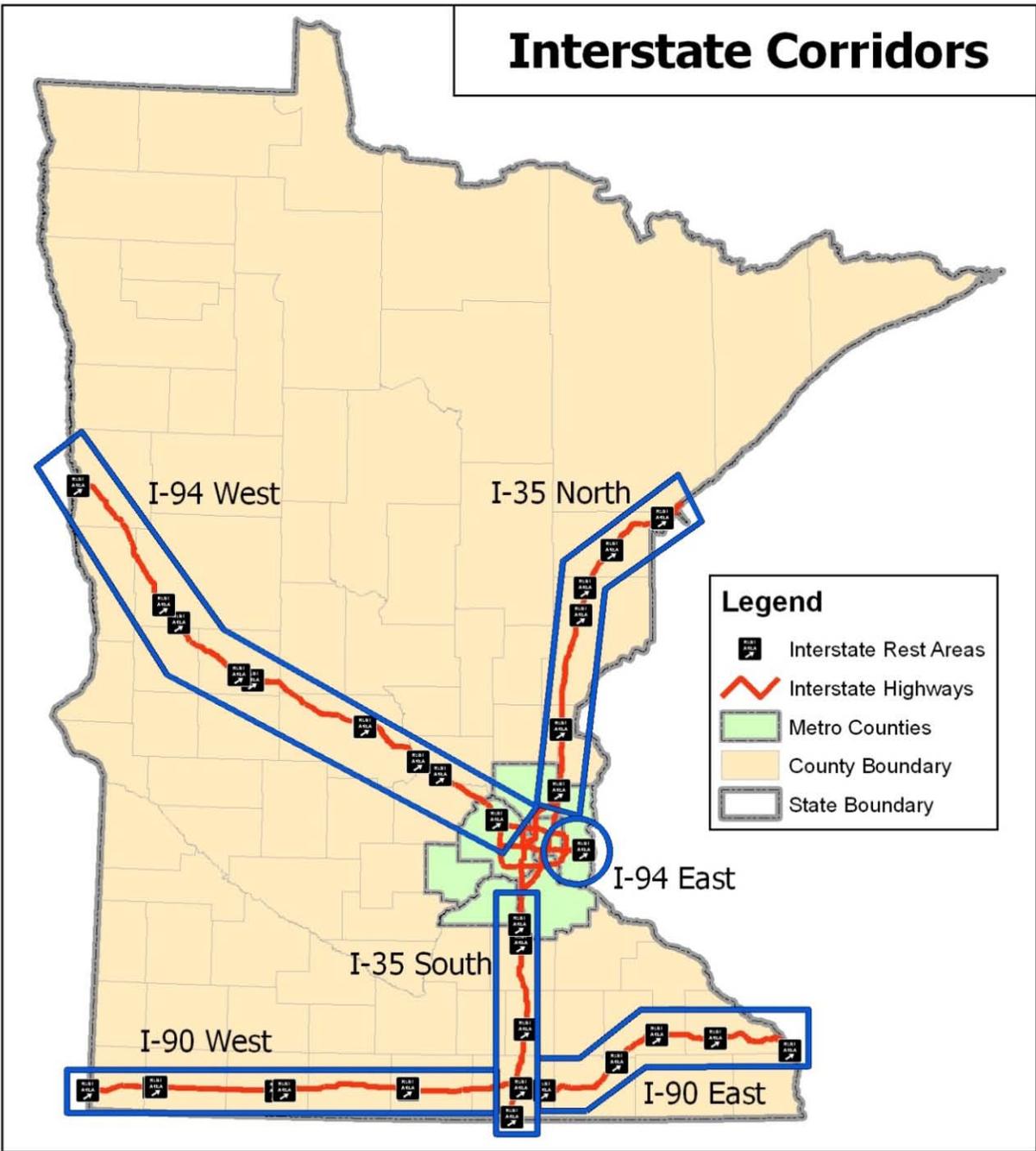
Figure 2 shows a statewide view of the six corridors. The following sections detail the analysis and preliminary recommendations for each of the six corridors.

Interstate 94 East Corridor

The Interstate 94 East corridor is the smallest of the corridors and only has one facility, the St. Croix Travel Information Center (TIC). St. Croix TIC handles westbound traffic headed into the Twin Cities and is the fifth most congested, in terms of truck parking, of the state's publicly owned Interstate rest facilities. The St. Croix TIC, although the largest rest area in terms of both auto and truck stalls, has truck parking capacity issues. After analyzing the site, a few potential enhancements were identified. First, with its situation within the metropolitan area and its proximity to the border of Wisconsin, it may be beneficial to coordinate needs and potential mitigations with the Wisconsin Department of Transportation. Inevitably, any measure(s) taken on either side of the Mississippi River to relieve truck parking congestion will affect the level of congestion on the other. In addition, and related to the first measure, providing improved information on alternative parking (both along Interstate 94 and potential urban parking facilities in the Twin Cities) to commercial vehicle operators and companies may provide some relief. Finally, capacity improvements to the St. Croix TIC are recommended. The addition of 5 to 10 stalls would help alleviate parking congestion without much disturbance to current traffic flow. Therefore, suggested recommendations for this corridor are:

- Capacity enhancement of St. Croix facility.
- Improved information regarding parking availability.
- Coordination with WisDOT in providing parking information and spaces.

Mn/DOT Truck Parking Study: Phase 2



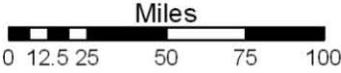
  Sources: Mn/DOT, MnDNR, Metropolitan Council
Map Produced by: Bradley J. Grefe [18 May 2009]

Figure 2. Interstate Corridors

Interstate 94 West Corridor

The Interstate 94 West corridor has the most rest areas of all six study corridors and has more congested rest areas (six) than any other corridor, two of which are over capacity more than 50% of days. Elm Creek, the state's most congested public rest area, in terms of truck parking, is located near Interstate 94's confluence with Interstate 494. Twenty-eight miles up the road at Enfield is another eastbound rest area. This rest area has eighteen truck stalls and has minimal congestion. It may be possible to relieve much of the congestion in Elm Creek by making the Enfield location somehow more attractive to commercial vehicle operators through better parking availability information. In addition, providing additional truck parking capacity of about 5 to 8 spaces at Elm Creek, coupled with better information, could provide relief. A similar relationship exists between the Burgen Lake and Middle Spunk Lake rest areas. Making this information available to truckers may be the cheapest and least laborious means of relieving congestion, at least in the short-term. Another option for Burgen Lake is to expand truck parking capacity by 10 to 15 spaces. Capacity improvements of between 5 and 10 spaces could also be considered at the Fuller Lake rest area. Improved information could be useful in relieving congestion at the remaining facilities along this corridor, especially since the Lake Lakota, Lake Iverson, and Hansel Lake rest areas are not as favorable for capacity improvements. Suggested recommendations for this corridor are:

- Capacity enhancement of Elm Creek, Burgen Lake, and Fuller Lake facilities.
- Improved information regarding parking availability.

Interstate 35 South Corridor

Interstate 35 south of the Twin Cities has moderate to high levels of truck parking congestion at all five of its rest facilities. Albert Lea TIC, located just across the border from Iowa, is Minnesota's fourth most congested rest area. In addition, the other four facilities along this corridor are relatively congested. Since the entire corridor has shown some level of congestion, simply providing better truck parking availability information will not likely make a significant impact. Nonetheless, this information may help to some extent. Providing additional truck parking at the Albert Lea TIC and Heath Creek rest area, coupled with better information, would likely provide relief. Such capacity enhancements could include 4 to 5 new spaces at the Albert Lea facility and 5 to 20 spaces at Heath Creek. As mentioned before, such an enhancement at one rest area might have a positive effect of relieving some amount of the congestion at facilities up and downstream. The two Straight River rest areas and the New Market rest area are not as favorable for capacity improvements. Through discussions with Mn/DOT and local officials, it was noted that the northbound Straight River facility could be used as a truck only facility in the future with minor modifications. This may provide an opportunity for some capacity improvements in the northbound direction. Beyond improvements at existing rest areas, additional potential truck parking locations were identified. Mn/DOT district personnel noted the abandoned weigh stations south of Clarks Grove as a possible relief location for some of the congestion for both northbound and southbound traffic. Also, a very wide median is located in the Mn/DOT right-of-way approximately 5 miles south of the Heath Creek facility. This could be a possible location for a new truck parking facility as well, whether primitive or modern.

Additionally, local officials noted the New Market location may be an opportune site for a major urban truck parking facility that will be discussed in later tasks. Recommendations for this corridor are:

- Capacity enhancement of Albert Lea and Heath Creek facilities.
- Possible truck-only designation of Straight River northbound facility.
- Improved information regarding parking availability.
- Utilization of abandoned weigh station south of Straight River facilities.
- Possibly utilize wide median south of Heath Creek.

Interstate 90 East Corridor

While a couple of its rest areas see moderate congestion, the Interstate 90 East corridor has one major problem spot. The Marion rest area serves westbound traffic and is likely significantly impacted by trucks traveling to both Rochester and the Twin Cities. Since expansion of truck parking at the Marion site is not likely, The Dresbach rest area could serve as a relief for the Marion facility by making it more attractive to commercial vehicle operators through better parking information. In addition, capacity improvements of 5 to 10 spaces could be made at both the High Forest and Oakland Woods facilities. Although the Hayward site could be expanded, other capacity improvements along Interstates 90 and 35 plus improved information could be more useful in relieving congestion in this area. Suggested remedies for this corridor are:

- Capacity enhancement of High Forest and Oakland Woods facilities.
- Improved information regarding parking availability.

Interstate 90 West Corridor

The congestion on Interstate 90 west of Albert Lea is not a major concern compared to previous corridors. The Clear Lake rest area is approaching a higher level of congestion than any other location along the corridor. Expansion of capacity at this location of about 5 to 7 spaces is possible, plus the Blue Earth eastbound facility could also serve as a relief for the Clear Lake and Adrian eastbound facilities by making it more attractive to commercial vehicle operators through better parking information. In much the same way, truck parking information could help in shifting congestion away from the Adrian westbound and Blue Earth westbound facilities to the Des Moines River facility. Therefore, suggested recommendations for this corridor are:

- Capacity enhancement of Clear Lake facility.
- Improved information regarding parking availability.

Interstate 35 North Corridor

There appear to be no imminent capacity issues on the Interstate 35 North corridor.

2.2 Task 1 Recommendations

Table 4 below is an aggregated list of suggested remedies by corridor. Table 5 details a list of recommendations and cost estimates by rest area. Assumptions for capacity enhancements that add truck parking stalls are based on Mn/DOT construction costs completed in 2000 and indexed to 2009 dollars. The estimated cost per truck stall is \$60,000. This figure includes design and administration costs in addition to the construction costs.

Table 4. Suggested Remedies by Corridor

Corridor	Recommendations
I-94 East	<ul style="list-style-type: none"> Capacity enhancement of St. Croix facility Improved information regarding parking availability Coordination with WisDOT in providing parking information and spaces
I-94 West	<ul style="list-style-type: none"> Capacity enhancement of Elm Creek, Burgen Lake, and Fuller Lake facilities Improved information regarding parking availability
I-35 South	<ul style="list-style-type: none"> Capacity enhancement of Albert Lea and Heath Creek facilities Possible truck-only designation of Straight River northbound facility Improved information regarding parking availability Utilization of abandoned weigh station south of Straight River facilities Possibly utilize wide median south of Heath Creek
I-90 East	<ul style="list-style-type: none"> Capacity enhancement of High Forest and Oakland Woods facilities Improved information regarding parking availability
I-90 West	<ul style="list-style-type: none"> Capacity enhancement of Clear Lake facility Improved information regarding parking availability
I-35 North	<ul style="list-style-type: none"> None

Table 5. Suggested Remedies by Rest Area

Site Name (Direction)	Corridor	Recommendations	Estimated Cost
Elm Creek (E.B.)	I-94 West	Capacity Enhancement (5-8 spaces)	\$300,000 to \$480,000
Marion (W.B.)	I-90 East	Information Only	N/A
Burgen Lake (W.B.)	I-94 West	Capacity Enhancement (10-15 spaces)	\$600,000 to \$900,000
Albert Lea TIC (N.B.)	I-35 South	Capacity Enhancement (4-5 spaces)	\$240,000 to \$300,000
St. Croix TIC (W.B.)	I-94 East	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
Clear Lake (E.B.)	I-90 West	Capacity Enhancement (5-7)	\$300,000 to \$420,000
Fuller Lake (W.B.)	I-94 West	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
Lake Latoka (E.B.)	I-94 West	Information Only	N/A
Lake Iverson (E.B.)	I-94 West	Information Only	N/A
New Market (S.B.)	I-35 South	Information Only (possible future enhancement)	N/A
High Forest (E.B.)	I-90 East	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
Hansel Lake (W.B.)	I-94 West	Information Only	N/A
Oakland Woods (W.B.)	I-90 East	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
Straight River (N.B.)	I-35 South	Truck-Only Designation and Weigh Station Use	\$240,000 to \$310,000
Straight River (S.B.)	I-35 South	Weigh Station Use / New Facility (30 spaces)	\$10,000 to \$1,800,000
Heath Creek (N.B.)	I-35 South	Capacity Enhancement (5-20 spaces)	\$300,000 to \$1,200,000
Adrian (W.B.)	I-90 West	Information Only	N/A
Adrian (E.B.)	I-90 West	Information Only	N/A
Hayward (E.B.)	I-90 East	Information Only	N/A
Blue Earth (W.B.)	I-90 West	Information Only	N/A

Chapter 3. Development of Urban Parking in Other Parts of the United States

Task 2 investigated development of urban truck parking in other metropolitan areas around the United States. This involved review of land development literature and telephone interviews with metropolitan and city planners in other large metropolitan areas, National Association of Truck Stop Operators (NATSO) officials, and other large truck stop operators. The findings from this task indicated that many states and some urban areas have conducted truck parking supply and usage studies, finding that truck parking supply is deficient. The motor carrier industry has also identified this shortage as a growing issue. The research produced four primary approaches for improving the truck parking supply that will allow for truck operators to comply with hours of service regulation and for staging for deliveries. The first two, rest area enhancements and providing truckers with better information, were mentioned briefly in Task 1. The others include policy adjustments and partnerships between state and local agencies and the private sector.

3.1 Findings on Expanding Existing Rest Areas or Constructing New Facilities

The first, most direct method to expand public sector parking supply is by adding to the parking available at existing public rest stops along the highway system or by building entirely new rest areas that include or are dedicated for truck parking. Federal transportation legislation enacted in 1998, TEA-21, required a national assessment of truck parking that was conducted in 2000.² A study funded by the Federal Highway Administration (FHWA) and conducted by the Truck Research Institute projected in 1996 an estimated shortfall of 28,400 public truck parking spaces nationwide.³ About this time, several states, including Minnesota, developed studies for truck parking supply and demand. Based on these studies, some states targeted rest areas for expansion of truck parking. They developed programs to allow for truck parking at other publicly owned facilities (i.e. weigh stations) or to construct entirely new facilities. In most states, these rest areas are located outside of the large metropolitan areas, making truck operators reposition their trucks to locations near the pickup and delivery areas during morning commute hours or to park closer to destinations on the roadside or other unsafe locations. Since the late 1990s, the Iowa DOT has increased space through each method. However, all expansion has been outside urban areas and large freight destinations.

3.2 Findings on More Efficient Use of Parking through Better Information

Another method is through providing better information on the locations of truck parking. If operators have better information on the availability of truck parking, they can make more efficient use of the truck parking that is available. In Phase I of this study, researchers were surprised that only two percent of the firms surveyed gave directions to their operators as to where they should park their trucks.⁴ This means that the operators were left largely on their own to plan their trips and know or find where they should park for staging or overnight parking. Parking information is largely learned through repetitive experience or through informal communication networks between drivers using devices such as CB radios or cellular telephones. There have been several studies suggesting that information could be provided by Intelligent Transportation Systems (ITS) like dynamic message signs that display the availability or unavailability of parking at rest areas and the use of internet kiosks to tell drivers where parking exists (as recommended by Maze, et. al. in 1997).⁵

Under SAFETEA-LU, Section 1305; Congress created a program to improve truck parking and develop a pilot program to address the long-term shortages. Twenty applications were received from states in 2007, with two being selected in the summer of 2008.⁶ Both were for truck parking management/information systems along very long corridors. One is along Interstate 5 from the Canadian border to the Mexican border (IPark program), and the other is along the Interstate 95 corridor (I-95 Corridor Coalition). The two projects were awarded about \$11,000,000 and were just getting underway with concepts of operation in the winter of 2008/09.

In preparation for the Caltrans IPark application, a University of California Davis study was conducted for truck parking issue in California. A survey of 433 truck operators found almost seventy percent would use up-to-the-minute information on the availability of parking spaces to make decisions regarding where to park. The same survey found that of those truckers that would use current information, about half liked road-side information signs, but many still preferred the radio or cellular telephone for information.⁷ However, as long as spaces are occupied on first-come-first-served basis, there is no way to actually ensure that a space will be available when a truck arrives at the rest area some time later. To overcome the dynamic availability of spaces, the survey asked operators if they were willing to use current information on space availability to reserve a space. About half indicated they would be willing to reserve spaces in advance. Unfortunately they were never asked how much they would be willing to pay for this service.

IPark is still in the concept stage, but the plan is to build the system around an internet portal that will allow the truck operator to conduct pre-trip and en-route planning for parking.⁸ Registered customers of IPark will be able to look at the inventory of public and private truck parking near their overnight destination as well as the services available at each parking location. Spaces available will be determined by sensors at the parking location which can determine if a space is occupied or not. The truck operator can then reserve a space for a fee. Truck operators may make similar reservations en-route with special GPS enabled cellular telephones. The business model and user fee decisions will be made at a later date. The current thinking for the IPark concept is that the trucking company will be billed for the service. Since parking is generally free of charge and parking is usually the responsibility of the driver, this project faces interesting challenges.

The I-95 Corridor Coalition program is similar to IPark as it will collect real-time parking availability information.⁹ Drivers will be able to access this information through roadside dynamic message signs, highway advisory radio, and special in-cab cellular telephones. Unlike IPark, the I-95 Corridor Coalition concept does not include reservations and user fees; though the concepts are still evolving.

3.3 Findings on Implementing Land Use Legislation

A third technique is to take a long-range approach to truck parking. This approach will implement truck parking requirements for industrial and warehouse land uses similar to passenger car requirements for commercial development. This approach places the burden of truck parking costs on the shippers and receivers that benefit through access to truck transportation. Working through local governments to build and develop facilities compatible with truck service was recommended in a prior study prepared for Mn/DOT.¹⁰

The California Department of Transportation (Caltrans) has developed what it believes is a model process for land use planning in a metropolitan area, and it requires the accommodation of goods movement (in addition to other functions like ITS).¹¹ The Caltrans process is called “Blue Print Planning”. The Sacramento area was the first urban area to develop a plan under this process. When discussing truck parking issues with transportation planners at metropolitan planning organization (MPO) meetings across the country, many suggested that truck parking *is* a land use issue and the Caltrans approach to the problem may be correct for the long-run.

3.4 Findings on Partnering

The final approach is to partner with the private sector or local governments to establish truck parking. Two urbanized areas are known to be trying this approach. Rather than wait for ten to twenty years for a land use approach to take form, these MPOs are taking a proactive approach. The Baltimore Metropolitan Council and the North Jersey Transportation Planning Authority (Newark), are two organizations which have conducted truck parking supply studies and have attempted to develop public-private partnerships (PPP) to encourage the private sector to expand truck parking.

Baltimore Metropolitan Council developed a truck parking partnership study 2006.¹² The first part was to identify the problem and look for a solution, particularly those involving PPP. Having made little progress involving the private sector and having lost personnel to carry this initiative forward, the Council has turned their focus toward public-public partnership with local governments in the region. Although council staff is hopeful, very little change in the truck parking supply has resulted in the urban area. At the same time, the Maryland State Highway Administration (MSHA) has been making marginal expansions (of 10 to 20 additional spaces) in rest areas nearby, but outside of the region.

A few locations exist within the Baltimore metropolitan area where parking lots are underutilized where local land use ordinances could be modified to make these locations amenable to overnight truck parking. The two examples that were given by staff were a historic inner-city, large multi-tenant shopping facility and the State Fairgrounds. The Metropolitan Council plans to work with the local chapter of the American Planning Association (APA) to develop model ordinances that would permit the use of under-utilized locations for truck parking.

The Northern New Jersey Transportation Planning Authority is the other organization that is known to take a direct approach. To date, they have not been successful in implementing any new truck parking.¹³ However, they have formed a public-private partnership, identified characteristics that would make a site attractive as a truck parking location, identified sites, and discussed locating truck stops at these locations with representatives of the National Truck Stop Owners Association (NATSO) and one individual truck stop owner. One of the interesting dynamics involved in the Northern New Jersey area is its location on the edge of a large city with little alternative access for truck freight to New York, and the opportunities to cooperate with ocean ports and major airports. Although the Northern New Jersey Planning Authority has identified suitable locations for truck parking, they have not been able to move forward with a private partner. Staff pointed out that some of the properties initially identified have since been sold for other uses.

Through discussions with private truck stop operators, a business development manager for a very large chain noted that his company would be interested in locating in the Twin Cities area if it made good sense from a business perspective. Generally, drivers will position themselves within a half an hour to an hour from their destination to make their next pickup or delivery, depending on weather and traffic conditions. This means that the driver can catch up on hours of sleep or just stage on the fringe of the Twin Cities. Drivers do like to position themselves as close to their destination as possible to avoid circumstances such as unreliable transit times; therefore, there should be a strong market for closer facilities with more security and driver amenities.

In discussions with MPOs and chain truck stop operators, the relationship between the state highway agencies and trucks positioning for rest and staging has been adversarial. Trucks would sometimes park on unsafe locations, ramps, and other locations blocking the design clear zone. Additionally drivers simply may drop garbage in the area. Often, spaces occupied by truck stops are at major intersections or interchanges, resulting in conflict with developers and creating inconsistent land uses, abutting businesses, and residences. There are several countervailing forces for PPP. Both sides need to decide what is required to make a successful relationship. Truck stops may need to commit to shielding lighting and noise, while public agencies may need to make long-term commitments regarding permissible land use policies.

One of the issues facing truck stop owners is that their business model has fundamentally changed in the last twenty years. Locations that provided services to truckers (fuel, parking, maintenance, showers, etc.) have often become travel centers with wider selections of services for automobile customers, as well. This includes restaurants with wider and more popular selections of meals, better stocked convenience stores, tourism information, and products that address the maintenance needs of automobiles. To attract motorists, the travel center needs to be visible and accessible from a highly trafficked highway with other nearby travel-oriented destinations.

At the same time, this same land for the same reasons is attractive to developers and local economic planners. Most of the alternative uses offer a greater rate of return than truck parking. In addition, when a location is found, the truck stop owner often has to pay up front for the costs of the infrastructure and impact fees, where applicable.

There are other aspects of truck stops that could make them an attribute to communities. Truck stops can occupy land that may be undesirable without significant remediation. They are compatible with other similar land uses like warehousing and with proper noise barriers and access management they could possibly make a buffer between neighborhoods and noisy highways.

3.5 Survey of Metropolitan Areas

A list was developed for the 31 largest metropolitan areas in the United States (by population), and the MPO for each area was contacted. Often the organization's internet web page identified a planner in charge of freight issues. This individual was contacted to determine if there were any initiatives by the MPO (or the state containing the MPO) to manage and create truck parking in the urban area. Although in many cases this involved an exchange of voicemails, only the two metro areas mentioned above were proactively investigating the expansion of truck parking. Most urban agencies were allowing the state to handle parking issues and the solution examined were urban fringe or rural areas. For example, the St. Louis and Kansas City MPOs have let the Missouri Department of Transportation address the issue by looking to increase the truck parking between the two cities along Interstate 70.

Very few urban areas have conducted studies to characterize the issue and the study may not even about finding solutions to expanding parking supply. A study in Chicago, for example, was conducted to characterize nuisance parking in the region (i.e. parking on ramps or other unsafe locations, parking and blocking traffic, congestion, emissions, etc.).¹⁴ Many of the planners described issues similar to those of the Twin Cities. Most had no formal plans for expanding or managing truck parking in their area and most were interested in plans developed by Mn/DOT as an example of how to approach this problem.

Chapter 4: Need and Demand for Parking

The objective of the third task was to investigate the truck parking demand derived from major truck traffic generators in the Twin Cities metropolitan area. These generators included manufacturing, warehouse, and distribution centers in the immediate seven-county region. In addition, the major intermodal facilities in the area were mapped and analyzed along with the other generators. Ultimately, this analysis looked to better understand any spatial relationships between locations generating truck traffic and roadway truck traffic flow and truck parking needs.

More specifically, the third task was conducted through spatial analysis of both linear roadway attribute data and truck traffic generator data provided by the Minnesota Department of Transportation (Mn/DOT), interviews with and surveys of managers from larger truck traffic generators, and discussions with and guidance from the Metropolitan Council and county-level land use and transportation planners.

4.1 Spatial Analysis

Task 3 was undertaken to provide a better understanding of where parking problems may exist by locating truck traffic generators and their relationship to the greater transportation network. Figure 3 shows the major highways in the Twin Cities area. Figure 4 shows heavy commercial average daily traffic (HCADT), along the interstate routes in and round the Twin Cities. The rest areas along the interstates were included in this figure and categorized by their percentage of days at or over capacity.

As would be expected, looking at these two figures, the more heavily used sections of interstate closely correlate to the congestion issues at the rest areas that were discovered in Phase 1 of the Minnesota Truck Parking Study and discussed in Task 1 of this second phase.

Mn/DOT Truck Parking Study: Phase 2



Figure 3. Twin Cities Major Highways

Mn/DOT Truck Parking Study: Phase 2

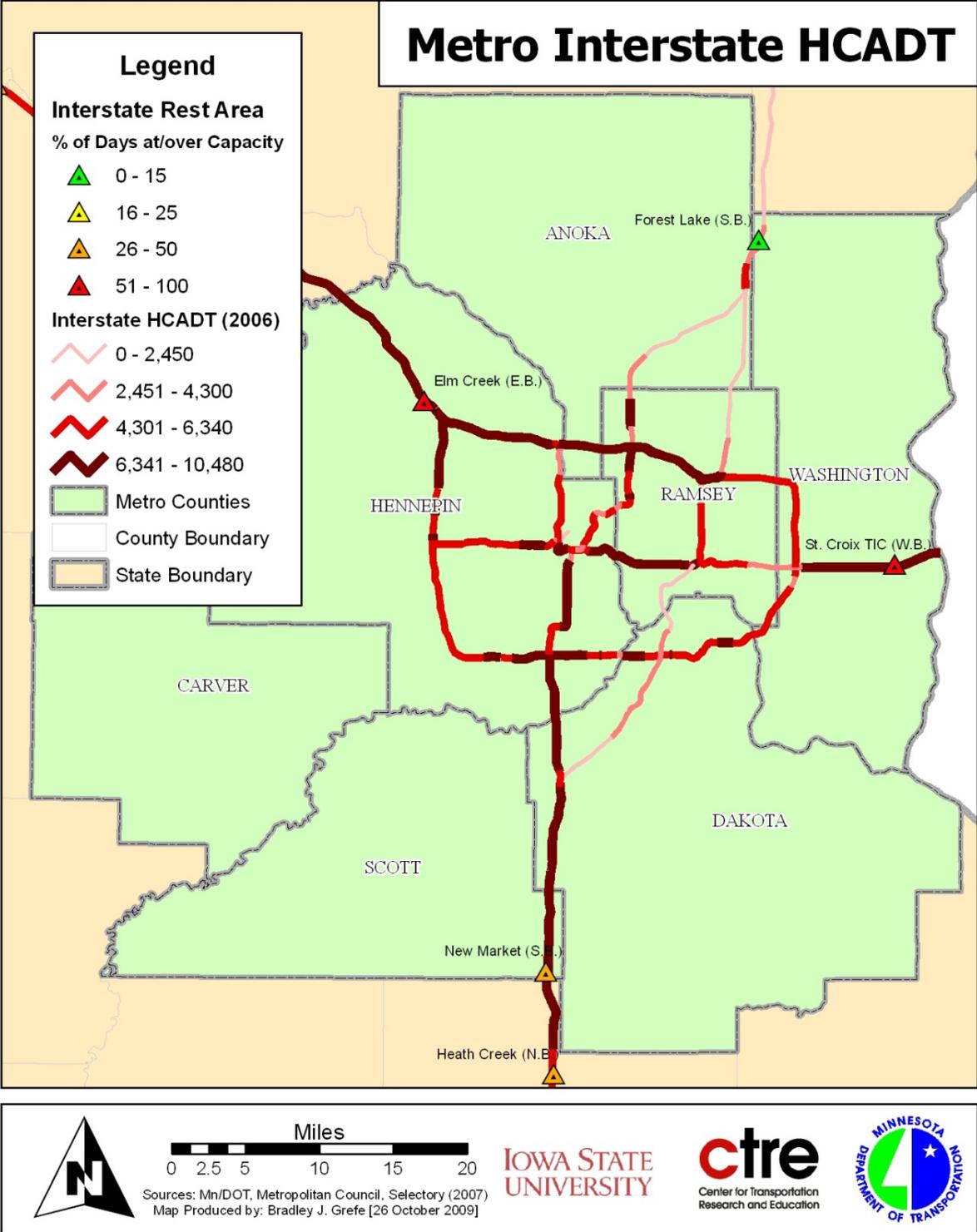


Figure 4. Heavy Commercial Average Daily Traffic (HCADT) along Interstates in the Twin Cities

The Mn/DOT Office of Freight Planning and Development provided data regarding the state’s major freight facilities. This data included business names, locations, and general functions of each industry. Additionally, Mn/DOT provided a list of the state’s top 50 freight facilities, 49 of which were within the seven county metropolitan region. A database of intermodal facilities was also provided and mapped in Figure 5 along with the major generators. While the traffic generators, including the top 49, were somewhat evenly distributed across the region, the intermodal facilities are primarily found in the central and southeastern parts of the metro, along the two major area rivers and railways.

In order to get a better understanding of the distribution of the truck traffic generators across the region and in relation to the roadway system, the locations of the generators were analyzed using geographic information systems (GIS). This spatial analysis was executed in two parts; 1) by determining the number of facilities within certain threshold distances of the interstate routes, and 2) by dividing the Twin Cities metro into quadrants and finding the general distribution of facilities across the region.

Distance Analysis

The first analysis examined the distribution of truck traffic generators using distance from an Interstate highway route as a function. Table 6 shows the number of Twin Cities metropolitan area truck traffic generators within specified threshold distances of an Interstate. Approximately 73% of all generators and intermodal facilities are within 2 miles of an Interstate.

Table 6. Distance from Metro Generators to Interstate Routes

Distance (Miles)	All Generators*		Top 50 Only*		Intermodal	
	No.	Pct.	No.	Pct.	No.	Pct.
0.25	503	21.0%	9	18.4%	6	9.7%
0.50	895	37.4%	20	40.8%	9	14.5%
0.75	1,204	50.3%	25	51.0%	19	30.6%
1.00	1,365	57.0%	29	59.2%	23	37.1%
1.25	1,485	62.0%	31	63.3%	30	48.4%
1.50	1,589	66.3%	32	65.3%	35	56.5%
1.75	1,692	70.6%	34	69.4%	35	56.5%
2.00	1,754	73.2%	34	69.4%	40	64.5%
3.00	1,980	82.7%	39	79.6%	48	77.4%
4.00	2,076	86.7%	41	83.7%	52	83.9%
5.00	2,138	89.3%	44	89.8%	55	88.7%
Total	2,395	100.0%	49	100.0%	62	100.0%

*Non-intermodal facilities

The distance analysis supports the assumption that a truck parking facility along, or relatively accessible to, the Interstate highway system would provide considerable accessibility for the majority of truck traffic and subsequent vehicles using overnight truck parking for staging.

Mn/DOT Truck Parking Study: Phase 2

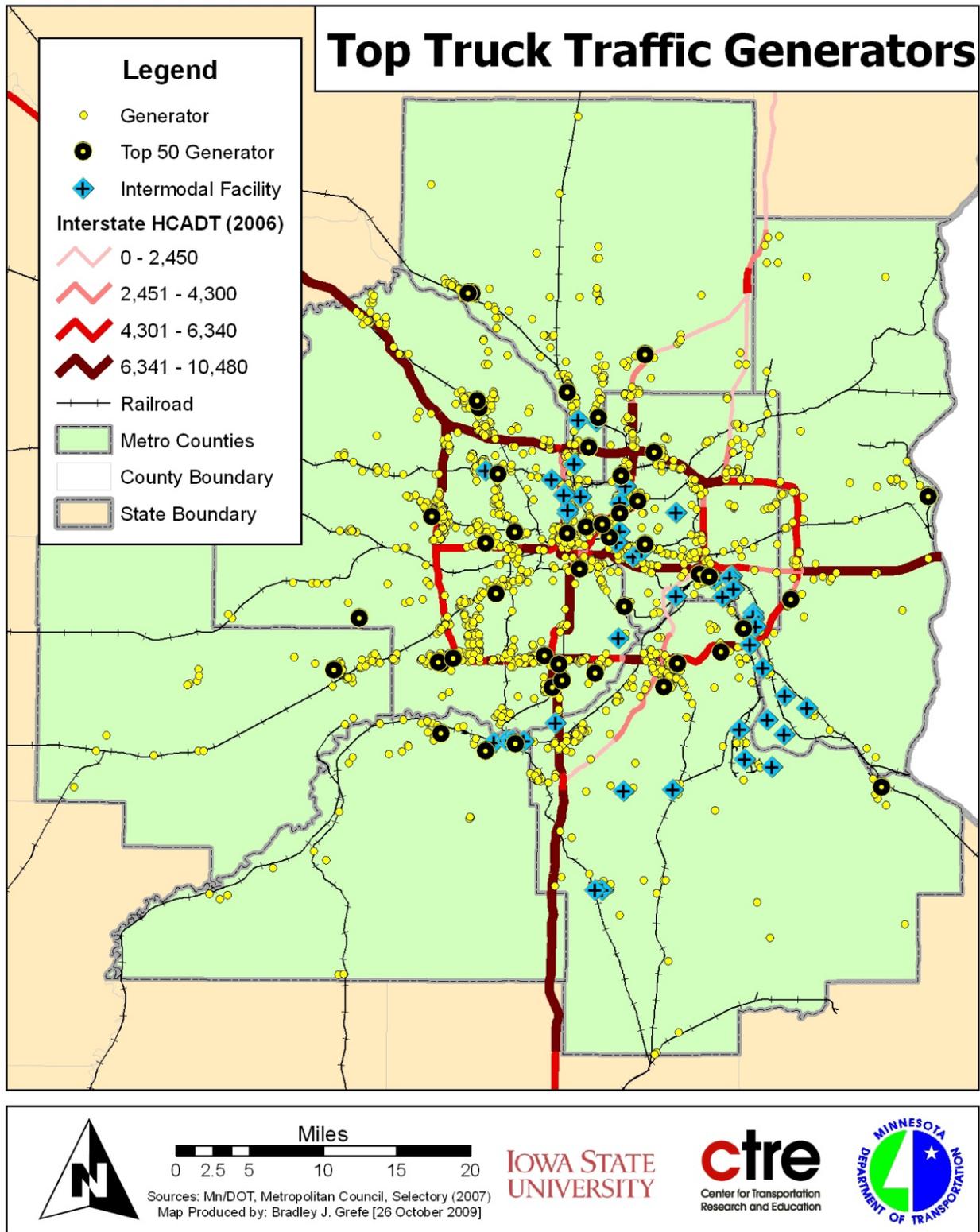


Figure 5. Intermodal Facilities and Major Truck Traffic Generators in the Twin Cities Region

Distribution Analysis

For the second part of the spatial analysis the Twin Cities metropolitan area was divided into quadrants to provide a better idea of where facilities are located. The highway system was used for setting quadrant boundaries. The east/west cordon was established by the north and south sections of Interstate 35, with Interstate 35W as the connecting link through the center. The north/south cordon was determined by extending the easternmost leg of Interstate 94 through the metro area via I-394 and U.S. Highway 12. Figure 6 shows the cordon lines by which the generalized location of each facility was determined. The distribution analysis is summarized in the following tables, Tables 7-9.

Table 7. Distribution Analysis Summary of All Generators

All Generators (2,395)			
986 (NW)	380 (NE)	1,549 (W)	846 (E)
563 (SW)	466 (SE)	1,366 (N)	
		1,029 (S)	
41.2% (NW)	15.9% (NE)	64.7% (W)	35.3% (E)
23.5% (SW)	19.5% (SE)	57.0% (N)	
		43.0% (S)	

Table 8. Distribution Analysis Summary of Top 50 Generators

Top 50 Generators (49)			
16 (NW)	7 (NE)	28 (W)	21 (E)
12 (SW)	14 (SE)	23 (N)	
		26 (S)	
32.7% (NW)	14.3% (NE)	57.1% (W)	42.9% (E)
24.5% (SW)	28.6% (SE)	46.9% (N)	
		53.1% (S)	

Table 9. Distribution Analysis Summary of Intermodal Facilities

Intermodal Facilities (62)			
13 (NW)	7 (NE)	22 (W)	40 (E)
9 (SW)	33 (SE)	20 (N)	
		42 (S)	
21.0% (NW)	11.3% (NE)	35.5% (W)	64.5% (E)
14.5% (SW)	53.2% (SE)	32.3% (N)	
		67.7% (S)	

Mn/DOT Truck Parking Study: Phase 2

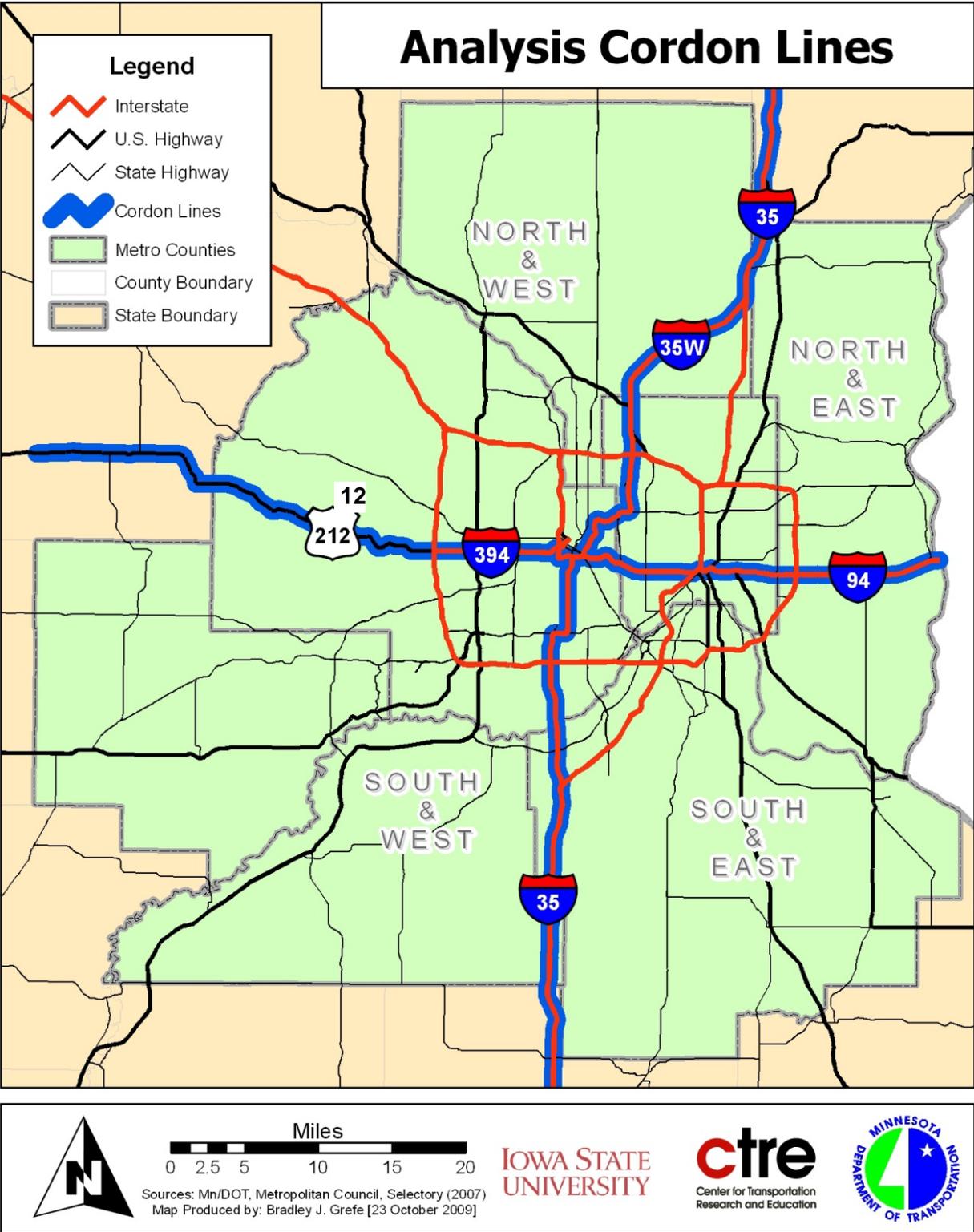


Figure 6. Distribution Analysis Cordon Lines

The distribution analysis of all truck traffic generators shows that the northwest quadrant includes the largest share (about 41%) of generators while the northeast has the smallest share (about 16%). The southern half of the metro contains about 43% of the facilities. This would support the Task 1 assumption that the inbound parking congestion is oriented along Interstate 94 to the northwest and somewhat along Interstate 35 to the south, but not necessarily the need for more parking to the east of the metropolitan area. Focusing on the top 50 generators, percentages shift to the south and east, distributing the generators more evenly around the metro.

Looking at HCADT volumes in addition to locations of truck traffic generators, it becomes clearer that although truck traffic enters the metro area from each of the four major corridors, the trip characteristics are likely different for each. First of all, the distribution analysis and HCADT volumes support the contention that a truck parking facility on Interstate 35 to the north of the metropolitan area is not a significant priority. Truck traffic on Interstate 94 to the east of the Twin Cities is both terminating in the metro area and continuing through it. HCADT volumes seem to support this assumption with higher volumes along the Interstate 694 bypass than into the heart of the metro area along Interstate 94. The same assumption can be made concerning Interstate 94 to the west. Interviews with representatives of local truck traffic generators support this assumption as well. In contrast, the majority of inbound truck traffic along Interstate 35 to the south can be characterized as terminating in the Twin Cities metropolitan area. In other words, Interstate 35 as it comes to the Twin Cities is much more of an “end of the road” destination than Interstate 94. In addition to the spatial analysis, a review of the 2003 Mn/DOT study of the adequacy of freight corridors shows that 2/3 of the clusters fall in the southern half of the Twin Cities.

4.2 Interviews/Surveys of Traffic Generators

Task 3 also involved interviews and surveys of personnel from larger truck traffic generators in the Twin Cities in order to gain a better understanding of truck parking issues. Although very few formal surveys and interviews were completed, contacts with a few of the industry representatives provided some insight. Highlights include:

- Freightmasters, Inc.: indicated that parking along Interstate 35 to the south would be the highest priority, followed by Interstate 94 to the east.
- Select Comfort: indicated that their vehicles do not stage, but he did note that he has observed very crowded rest areas along Interstate 35 in southern Minnesota. He also noted that trucks delivering to and from his facility sometimes park in their lot, which they offer as an alternative.
- Andersen Corporation: noted that their vehicles do not stage, but he has heard of few problems along Interstate 94 to the east or west.
- Ford Motor Company: noted that his trucks do not stage for delivery, but that truck stops along Interstate 94 do need expansion.
- Aggregate Industries: noted that Aggregate Industries trucks are parked at their plants each night and do not have inbound trucks requiring parking.

4.3 Discussions with Local and Regional Jurisdictions

This third task also involved discussions with local and regional transportation and land use planners. To date, discussions with Metropolitan Council and representatives from a few of the counties in the region have provided insight into possible locations that could accommodate a new truck parking facility. A brief summary of the discussions with metro area county officials follows:

- Scott County staff noted that land along Interstate 35 is mostly agricultural, and there may be potential for this type of land use in the southern portion of Scott County near the existing interchange just north of the New Market rest area.
- Washington County staff noted that land along Interstate 94 in Washington County is primarily incorporated and planned for future uses that would be less compatible with a truck parking facility. Overall, options are limited in Washington County. Nonetheless, an existing site of a mining/quarry operation in Lakeland Township may be suitable in the longer term (15-20 years). In addition, there may be smaller sites in and around Afton that currently have similar uses.
- Carver County noted staff a few existing locations of Mn/DOT right-of way and other potential locations, but they were not easily accessible to the Interstate network.

The preliminary locations identified by local planners include a few potential sites in Carver County that were identified as nodes of future industrial uses, a site in Scott County near the existing interchange at Interstate 35 and County Highway 2, and a site in Washington County that currently serves a mining/quarry operation in Lakeland Township. The sites in Scott and Washington County have very direct proximity to the Interstate system, while the Carver County sites may potentially serve more local traffic only.

In addition, preliminary discussions with the Metropolitan Council seem to support the location of truck parking facility to the south along Interstate 35 over locations along either Interstate 94 east or west. In general, according to Metropolitan Council, the long term land use plan and urban services boundary would provide for more compatible land use to the south portions of the metro. In other words, the NIMBY effect would be less of an issue to the south. Higher uses will be much more prevalent to north, especially along Interstate 94 west and along Interstate 94 east, as Washington County has also noted.

4.4 Interviews of Truck Stop Operators

This task also involved interviews and surveys of major truck stop operators. Three interviews were completed, which provided valuable insight into a potential for a partnership between the state of Minnesota and a private truck stop/parking company.

The interview questions and responses follow:

1. Do you currently have plans to expand your business?
 - Yes
 - Unsure
 - Plans have not been finalized, but possibly

2. Do they include plans to open a new facility in the Twin Cities area?
 - No new development or expansion of facilities in Minnesota
 - No answer
 - Unlikely

3. If so, how large in terms of parking spaces do these plans entail?
 - No answer
 - No answer
 - No answer

4. If there are no expansion plans currently, are there reasons that they have not planned for a Twin Cities location?
 - Just not interested - the cost of property, expense of building a facility in an urban area, and the current economic conditions
 - Simply cited the economy – the main reason for not pursuing any expansion plans, not just the Twin Cities area.
 - In the Twin Cities area specifically, the expense of building a facility in an urban area, compatible land use, the cost of property, and truck drivers may not want to stop in more urban areas (difficult to maneuver their trucks, busier, etc.)

5. What kind of conditions would make a Twin Cities location attractive?
 - Generally unsure – mentioned high truck traffic volumes, but seemed unsure
 - Not sure
 - Not sure

6. What role should government (Mn/DOT) play in providing expanded truck parking?
 - Felt that the government should provide more parking options, but expressed concern about competition with their business. They would not approve of government run full service truck stops, but rest areas are okay. Also mentioned that the government could help them expand their facilities via grants or low interest loan programs (to offset the expansion costs in some way).
 - Indicated that providing more parking would be good. They also mentioned that their facilities often fill up, especially overnight, and they recognize that parking is an issue for truck drivers.
 - They indicated that the government/Mn/DOT should do more to provide more parking. They also mentioned that Mn/DOT should keep their current facilities open.

7. What is your opinion of the “Truck Oasis” program that was proposed awhile back?
 - Unsure if it has changed business at all
 - This person was not familiar with the program. They were to inquire with someone else within the company, but no response was received.
 - Not sure if it has helped for truck drivers (maybe a slight increase in other traffic, but didn’t know for sure).

8. Would you support government developing “non-commercialized” truck havens along Interstates to expand truck parking? The government would gear such Truck Havens to CMV operators, and the facilities would resemble rest areas featuring flush toilets and vending machines.
 - Not sure
 - Yes
 - Yes

9. Would you support government partnering with private truck stops at new and existing Interstate interchanges? The partnering could include sharing in the cost of expanding truck parking.
 - Not sure
 - Not sure
 - Not sure

10. Would you be willing to work with the Mn/DOT to address the truck parking shortage issue in Minnesota/Twin Cities Metropolitan Area?
 - Not sure
 - Not sure
 - Not sure

11. Are there incentives that would make the Twin Cities an attractive location?
 - Unsure of what incentives would be needed
 - Any way to reduce the operating or building costs would be an incentive. Also, any way to make it easier to expand their current facilities would be an incentive.
 - Indicated that financial incentives would help

12. Any further comments, recommendations, etc.?
 - None
 - None
 - None

In summary, the interviews of truck stop operators provided some insight into the need and demand for truck parking. In short, although the current economic recession has lowered the likelihood of a new private facility in the Twin Cities metropolitan area, at least in the near term, private interests would likely support limited government involvement in the basic role of supplying parking.

4.5 Additional Issues

This section discusses related initiatives that will be important to consider as the truck parking efforts move forward in Minnesota. The first is a proposal to implement a pilot project of a statewide Rural Interstate Truck Haven Program. Mn/DOT has identified a shortage of CMV parking services along freight movement corridors as a contributing factor to fatigue-related highway crashes. In addition, a Minnesota Freight Advisory Committee (MFAC) goal includes increasing truck parking on the urban fringe and expanding the rest area system. This project would evaluate and recommend the most cost effective approach to developing Truck Havens and Public Private Partnerships (PPP) to expand CMV parking services along Minnesota's highways where a shortage of CMV parking exists. The project would include the development of a pilot project and assess its effectiveness.

Mn/DOT also has a pending initiative to install wireless Internet at some of Minnesota's rest areas. Motorist and their electronic devices often need Internet access when traveling. Use of smartphones and other devices continue to grow and will help meet some motorist needs, however, the need for wireless Internet access will continue in the near future. Also, many motorists will continue to travel without such electronic devices and they could benefit from information that Mn/DOT would make available on rest area kiosks. Mn/DOT desires the introduction of wireless Internet access and kiosks at select Safety Rest Areas to better serve the communication needs of the motoring public. Mn/DOT would retain a vendor to design, develop, deploy and maintain wireless Internet access at select Mn/DOT rest areas.

In addition to the above Mn/DOT initiatives, there is national legislation being supported by the American Trucking Association that would provide federal funding for commercial vehicle parking at rest areas. This legislation, commonly known as "Jason's Law", would provide funds for building new rest areas and expanding and improving existing ones, consequently allowing truck drivers to safely and effectively follow hours-of-service regulations and get off the road when they are tired.

4.6 Task 3 Conclusions

The goal of the third task was to better understand the spatial relationships between locations generating truck traffic and roadway traffic flow and parking needs in order to find potential locations for future truck parking facilities. Based on the spatial analysis, locating a facility adjacent to the Interstate system would provide good access to a majority of trucking destinations. In addition, guidance from Task 2 has identified proximity to the Interstate System as a major priority.

The spatial analysis also suggests locating a facility or facilities at a location along either Interstate 35 south of the Twin Cities, Interstate 94 west of the metro, or Interstate 94 east of the Twin Cities. Discussions with representatives from traffic generators and planners from the region further suggest that a site to the south along Interstate 35 would be the most feasible in the short term.

Chapter 5. Stakeholder Feedback

5.1 Task 4

The fourth task involved coordination amongst internal Mn/DOT stakeholders to review the research results and potential solutions to Minnesota's truck parking shortages. Throughout the project, several technical advisory panel (TAP) meetings were held where findings and recommendations were discussed. The final recommendations are discussed in the conclusions section of this document.

5.2 Task 5

The fifth task involved communication with selected external stakeholders. Originally planned to be done in a single workshop, the researchers conducted targeted interviews with several external stakeholders toward the end of the project. During these interviews, the research process and results were presented to each stakeholder and reactions and opinions on the research results were solicited.

The main points of discussion for the interviews were:

1. Review problem and study purpose
2. Summarize Mn/DOT study findings/priorities
3. Get reaction to Mn/DOT solutions
4. Ask for input on problem
5. Ask for potential solutions they would suggest in addition to what the study has considered

Interviews were conducted with the following entities:

- Transport Design
- Malt O Meal
- Dart Transit
- Service Plus Transport
- NATSO
- Minnesota Transportation Alliance
- Freightmasters
- Minnesota Trucking Association
- Metropolitan Council

The results of the interviews were generally very supportive of the research study and its recommendations.

The major points resulting from the interviews are:

- Universal agreement that overnight truck parking is an issue around Minnesota and US
- Agreement that private truck stops are more appealing to drivers and companies because of amenities offered and safety
- Agreement that Interstate 35 south of the Twin Cities is a priority
- Agreement that government should “help truck stops help truckers”
- Agreement that Mn/DOT has a role in truck parking ... marginal expansions are needed ... trading of some car parking for truck parking
- Noted that Mn/DOT should share in benefits as well as costs
- Noted that providing parking within 1 hour of Twin Cities is important
- Noted that inbound and outbound traffic are issues around Twin Cities
- Noted that other partnerships with major retail facilities (malls, Cabela’s, etc.) could help
- Noted that I-95 corridor is testing cameras and better parking information

Chapter 6. Conclusions

The final recommendations from the Minnesota Truck Parking Study: Phase 2 are summarized by corridor in Table 10 below.

Table 10. Recommendations by Corridor

Corridor	Recommendations
I-94 East	<ul style="list-style-type: none"> • Capacity enhancement of St. Croix rest area facility by 5 to 10 spaces (short-term) • Improved information regarding parking availability (short-term) • Coordination with WisDOT in providing parking information and spaces (short-term)
I-94 West	<ul style="list-style-type: none"> • Capacity enhancement of Elm Creek and Burgen Lake rest area facilities by 15 to 23 spaces (short-term) • Improved information regarding parking availability (long-term) • Capacity enhancement of Fuller Lake rest area facility by 5 to 10 spaces (long-term)
I-90 East	<ul style="list-style-type: none"> • Improved information regarding parking availability (short-term) • Capacity enhancement of High Forest and Oakland Woods facilities by 10 to 20 spaces (long-term)
I-90 West	<ul style="list-style-type: none"> • Improved information regarding parking availability (long-term) • Capacity enhancement of Clear Lake facility by 5 to 7 spaces (long-term)
I-35 South	<ul style="list-style-type: none"> • Utilization of abandoned weigh station(s) south of Straight River facilities (short-term) • Possible truck-only designation of Straight River northbound facility (short-term) • Capacity enhancement of Albert Lea and Heath Creek facilities by 9 to 25 spaces (short-term) • Improved information regarding parking availability (long-term) • Private truck stop facility south of the Twin Cities near New Market facility (long-term) • Possibly utilize wide median south of Heath Creek (long-term)
I-35 North	<ul style="list-style-type: none"> • Improved information regarding parking availability (long-term)

Recommendations were also divided into short- and long-term priorities as follows:

6.1 Short-Term Recommendations

- Capacity enhancement of **I-94** St. Croix facility by 5 to 10 spaces
- Capacity enhancement of **I-94** Elm Creek and Burgen Lake facilities by 15 to 23 spaces
- Capacity enhancement of **I-35** Albert Lea and Heath Creek facilities by 9 to 25 spaces
- Truck-only designation of **I-35** Straight River northbound facility
- Utilization of abandoned **I-35** weigh station(s) south of Straight River facilities
- Coordination with WisDOT in providing parking information and capacity along **I-94**
- Improved information regarding parking availability along **I-94** corridor east of the Twin Cities
- Improved information regarding parking availability along **I-90** corridor east of Albert Lea

6.2 Long-Term Recommendations

- Capacity enhancement of **I-94** Fuller Lake facility by 5 to 10 spaces (long-term)
- Capacity enhancement of **I-90** High Forest and Oakland Woods facilities by 10 to 20 spaces (long-term)
- Capacity enhancement of **I-90** Clear Lake facility by 5 to 7 spaces (long-term)
- Private truck stop facility south of the Twin Cities along **I-35** near New Market facilitated through public-private partnering (long-term)
- Improved information regarding parking availability **statewide** (long-term)
- Utilize wide median along **I-35** south of Heath Creek (long-term)
- Truck-only designation of additional facilities, as determined through Mn/DOT Truck Haven initiative

The need for additional truck parking across Minnesota, as well as around the entire United States, has been well documented. There are two main reasons driving this growing need for truck parking. Commercial vehicle operators rely on parking areas for 1) their safety-driven hours of service requirements as well as 2) load delivery and pick-up staging needs. Therefore, enhancements of existing facilities and new parking for trucks both inbound to and outbound from the Twin Cities are critical.

This study provides a combination of short and long-term recommendations to expand available parking focused on Minnesota's three primary Interstate corridors. Ultimately, these recommendations benefit both outstate Minnesota and the Twin Cities urban core in terms of safety and economics.

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Appendix A: Technical Memorandum 1: Low Cost Marginal Capacity Enhancements on Rural Interstate System

Mn/DOT Truck Parking Study: Phase 2

Technical Memorandum 1: Low Cost Marginal Capacity Enhancements on Rural Interstate System

Prepared for:

Minnesota Department of Transportation

Prepared by:

Center for Transportation Research and Education (CTRE) at Iowa State University



July 10, 2009

Mn/DOT Truck Parking Study: Phase 2

Technical Memorandum 1: Low Cost Marginal Capacity Enhancements on Rural Interstate System

This technical memorandum serves as the deliverable for Task 1 of the Minnesota Truck Parking Study: Phase 2, sponsored by the Minnesota Department of Transportation (Mn/DOT). This first task investigated lower cost marginal improvements to truck parking capacity along the state's Interstate highway system.

I. Background

Previous research sponsored by Mn/DOT, *The Minnesota Interstate Truck Parking Study*, documented the state of truck parking issues throughout Minnesota. This study was undertaken to help the department produce the information necessary to support decisions regarding future approaches to truck parking. More specifically, the study examined the supply and demand of public and private commercial vehicle parking along Minnesota's three primary Interstate corridors: I-35, I-90, and I-94. The study was conducted through three major tasks: 1) an inventory of Minnesota's interstate truck parking supply, 2) a truck parking demand analysis, and 3) a survey of trucking companies regarding practices and attitudes toward truck parking. The results of the study were compiled into a final report that was published in January 2008. The report included a literature review, case studies on current research in truck parking, the findings of the supply and demand analyses, and responses from the truck parking surveys. The supply and demand analyses revealed some critical capacity issues at many of the state's rest area facilities. The demand analysis indicated that five rest areas are at or over capacity at least fifty percent of the time and that an additional twelve rest areas are at or over capacity at least twenty-five percent of the time. It was also determined that a second phase of this study would be necessary to identify potential remedies to improve truck parking into the future.

The objective of the Phase 2 research is to determine opportunities of expanding short and long term parking in the Twin Cities and areas surrounding the metro, with a focus on partnerships between state and local government agencies along with the private sector. In addition, the second phase will focus more on short-term parking used as positioning for deliveries and pickups in and around the Twin Cities. The existing research suggests that although interstate and intercity truck parking may be very limited at some locations and marginally expanding existing congested facilities would be useful, parking in urban core areas was overwhelmingly identified as the key truck parking problem in Minnesota. This leads to several questions, including:

1. What are the problems with truck parking and positioning in the urban core, and is there a legitimate public role in expanding truck parking?
2. How extensive are these problems?
3. How can Mn/DOT partner with other public agencies and with the private sector to provide truck positioning and short-rest spaces in the urban core that promote safety and economic development opportunities without harming the environment?
4. What are the benefits and costs associated with any strategies identified?

II. Task 1 Objective

The objective of the first task of Phase 2 was to investigate options for marginally expanding truck parking capacity at the most congested existing public rest areas and possible parking enhancements at other existing public facilities, such as abandoned weigh stations and right-of-way. Such marginal approaches were seen as remedies ranging from restriping or expanding surface pavement at existing rest areas to allowing overnight parking at weigh stations to developing primitive facilities along spare portions of the right-of-way.

This task was conducted through analysis of data from the previous study, site inspections, and discussions with district and local level planners and engineers. Through this investigation, it was determined which improvements to existing rest areas would benefit the overall truck parking problem on each of the three primary Interstate corridors. Discussion of solutions were organized and analyzed by corridor, which were defined as each of the Interstates on either direction from the Twin Cities, as was done in the Phase 1 study.

III. Task 1 Outcomes

Task 1 looked specifically at the Interstate system and its truck parking capability, but primarily focused on the deficiencies related to routes feeding the Twin Cities, since most of the capacity issues are nearest to the metropolitan area. Minnesota has 50 rest areas that were analyzed in the previous study. Of these, 35 rest areas are situated along the state's interstate system and are included as part of this task.

One of the first steps taken under this task was to compare the ratio of truck stalls to automobile stalls in the rest areas of Minnesota and surrounding states. As shown in Table 1, Minnesota has the lowest ratio. The data used for this comparison was derived from the rest area websites of the respective department of transportation of each state. Minnesota's truck parking information was provided by Mn/DOT, although the automobile parking was estimated from aerial imagery. The other surrounding states of Illinois, Kansas, North Dakota, and South Dakota do not have information readily available on their websites. In addition, Minnesota rest areas have, on average, 0.55 truck parking stalls per acre. This suggests that it may be possible to expand truck parking within the geographic bounds of a rest area.

Table 1. Stall Comparison

State	Trucks/Autos
Iowa	0.502
Minnesota	0.282
Missouri	0.366
Nebraska	0.301
Wisconsin	0.403
Average	0.371

Geographic information systems (GIS) data files used in this and following tasks were acquired through a variety of sources. Administrative boundaries and roadway network shapefiles were obtained from the Minnesota Department of Natural Resources (MnDNR) Data Deli. Aerial imagery was acquired from the U.S. Department of Agriculture's National Agriculture Imagery Program (NAIP). Twin Cities land use and boundary lines were obtained from the Metropolitan Council. The rest area locations were provided by Mn/DOT.

Initial analysis and review of the Phase 1 study identified 20 rest areas on Minnesota’s Interstate system with capacity issues. Three of these are noted as over capacity between 15 and 25 percent of days, twelve are noted as over capacity between 26 and 50 percent of days, and five are noted as over capacity over 50 percent of days.¹ Table 2 indicates the locations and additional information on the rest areas with congestion problems.

Table 2. Congested Rest Areas

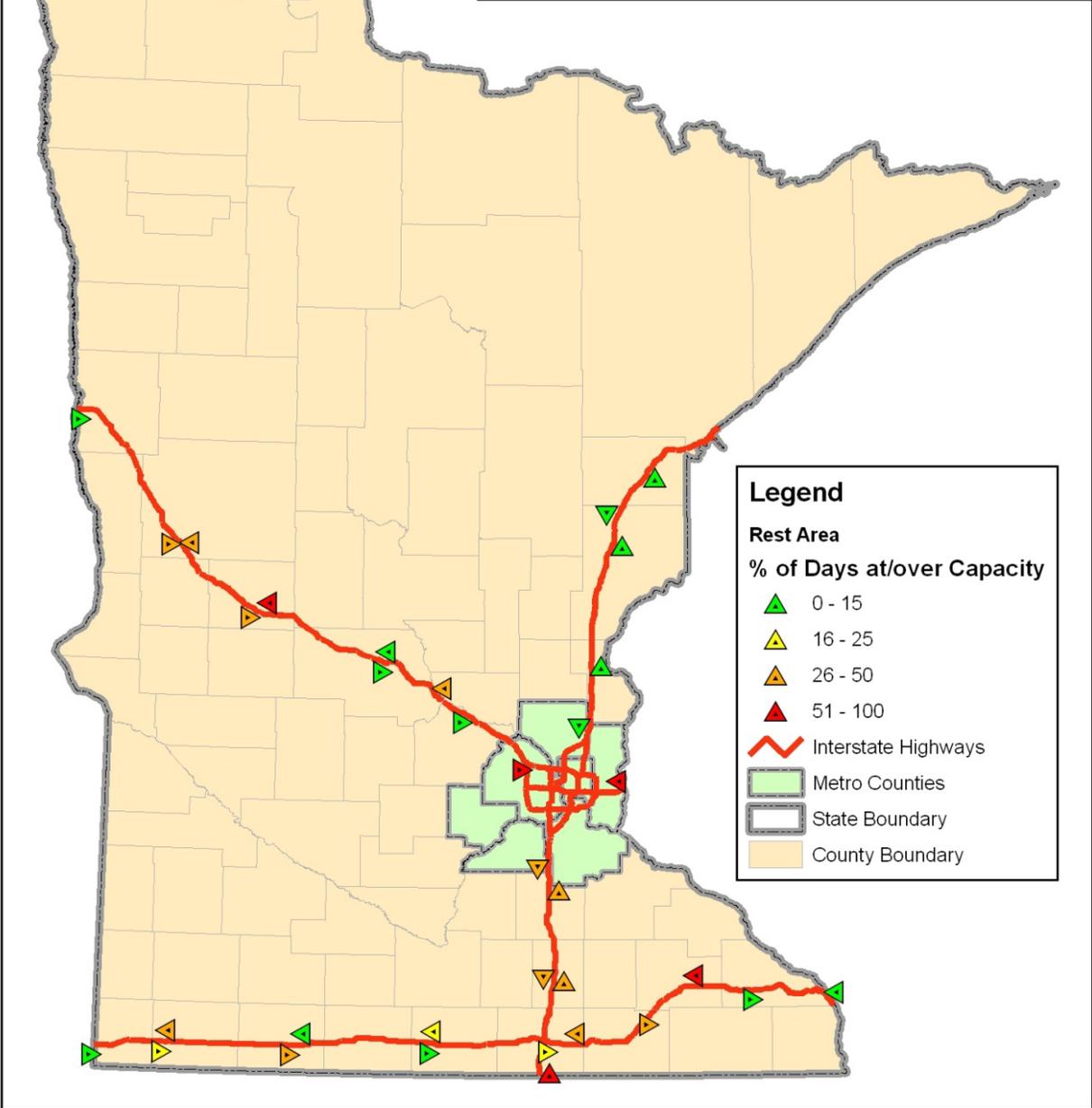
Rank	Site Name (Direction)	Corridor	Mile Post	Truck Stalls	Auto Stalls	% of Days At or Over Capacity
1	Elm Creek (E.B.)	I-94 West	215	10	30	65.2%
2	Marion (W.B.)	I-90 East	222	20	45	64.9%
3	Burgen Lake (W.B.)	I-94 West	105	12	30	59.5%
4	Albert Lea TIC (N.B.)	I-35 South	1	29	75	58.0%
5	St. Croix TIC (W.B.)	I-94 East	265	35	100	50.8%
6	Clear Lake (E.B.)	I-90 West	69	7	30	47.4%
7	Fuller Lake (W.B.)	I-94 West	177	17	80	45.8%
8	Lake Latoka (E.B.)	I-94 West	100	18	45	45.7%
9	Lake Iverson (E.B.)	I-94 West	60	11	50	45.0%
10	New Market (S.B.)	I-35 South	75	15	50	41.1%
11	Highforest (E.B.)	I-90 East	202	16	80	39.7%
12	Hansel Lake (W.B.)	I-94 West	69	10	30	38.9%
13	Oakland Woods (W.B.)	I-90 East	171	10	50	34.6%
14	Straight River (N.B.)	I-35 South	35	13	50	33.1%
15	Straight River (S.B.)	I-35 South	35	12	50	32.2%
16	Heath Creek (N.B.)	I-35 South	68	20	55	30.6%
17	Adrian (W.B.)	I-90 West	25	6	55	29.2%
18	Adrian (E.B.)	I-90 West	24	6	55	20.0%
19	Hayward (E.B.)	I-90 East	162	10	45	17.5%
20	Blue Earth (W.B.)	I-90 West	119	10	45	15.3%

Figure 1, on the following page, identifies the location of each of the rest areas above.

¹ This and other figures were calculated from the observations of Mn/DOT field staff reporting on capacity issues between the hours of 10:00 PM and 4:00 AM.

Mn/DOT Truck Parking Study: Phase 2

Interstate Rest Areas









Sources: Mn/DOT, MnDNR, Metropolitan Council
 Map Produced by: Bradley J. Grefe [15 June 2009]

Figure 1. Interstate Rest Areas in Minnesota

IV. Corridor Analysis

As they were organized in the Phase 1 study, Interstate rest areas were grouped by location into six corridors: Interstate 35 North, Interstate 35 South, Interstate 90 East, Interstate 90 West, Interstate 94 East, and Interstate 94 West. Based on the previous study, the bulk of congestion problems lie within both portions of Interstate 94 and the southern stretch of Interstate 35 corridors. Interstate 90 has moderate congestion, while the northern part of Interstate 35 has no imminent problems. Table 3 describes the congestion issues by corridor.

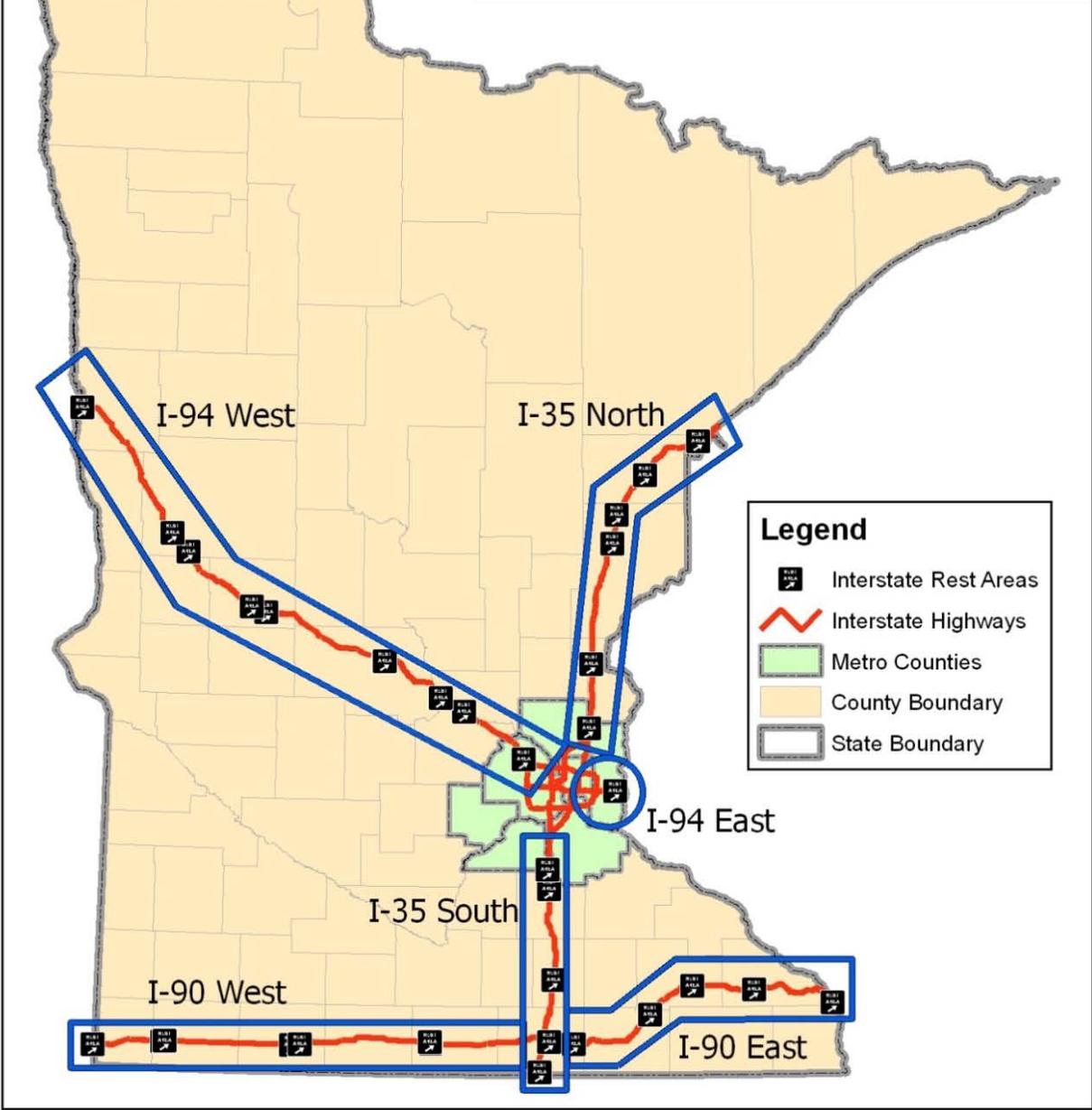
Table 3. Congested Rest Areas by Corridor

Corridor	Corridor R.A. Total	Rest Areas by Congestion Level			
		0-15%	15-25%	25-50%	Over 50%
Interstate 94 East	1	0	0	0	1
Interstate 94 West	10	4	0	4	2
Interstate 35 South	5	0	0	4	1
Interstate 90 East	6	2	1	2	1
Interstate 90 West	7	3	2	2	0
Interstate 35 North	6	6	0	0	0
Total	35	15	3	12	5

Figure 2, on the following page, shows a statewide view of the six corridors. Maps for each corridor and each of the twenty identified rest areas within each corridor follow in sections that detail issues along each corridor.

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Interstate Corridors



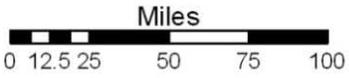
  Sources: Mn/DOT, MnDNR, Metropolitan Council
Map Produced by: Bradley J. Grefe [18 May 2009]

Figure 2. Interstate Corridors

Interstate 94 East Corridor

The Interstate 94 East corridor is the smallest of the corridors and only has one facility, the St. Croix Travel Information Center (TIC). St. Croix TIC handles westbound traffic headed into the Twin Cities and is the fifth most congested, in terms of truck parking, of the state's publicly owned Interstate rest facilities.

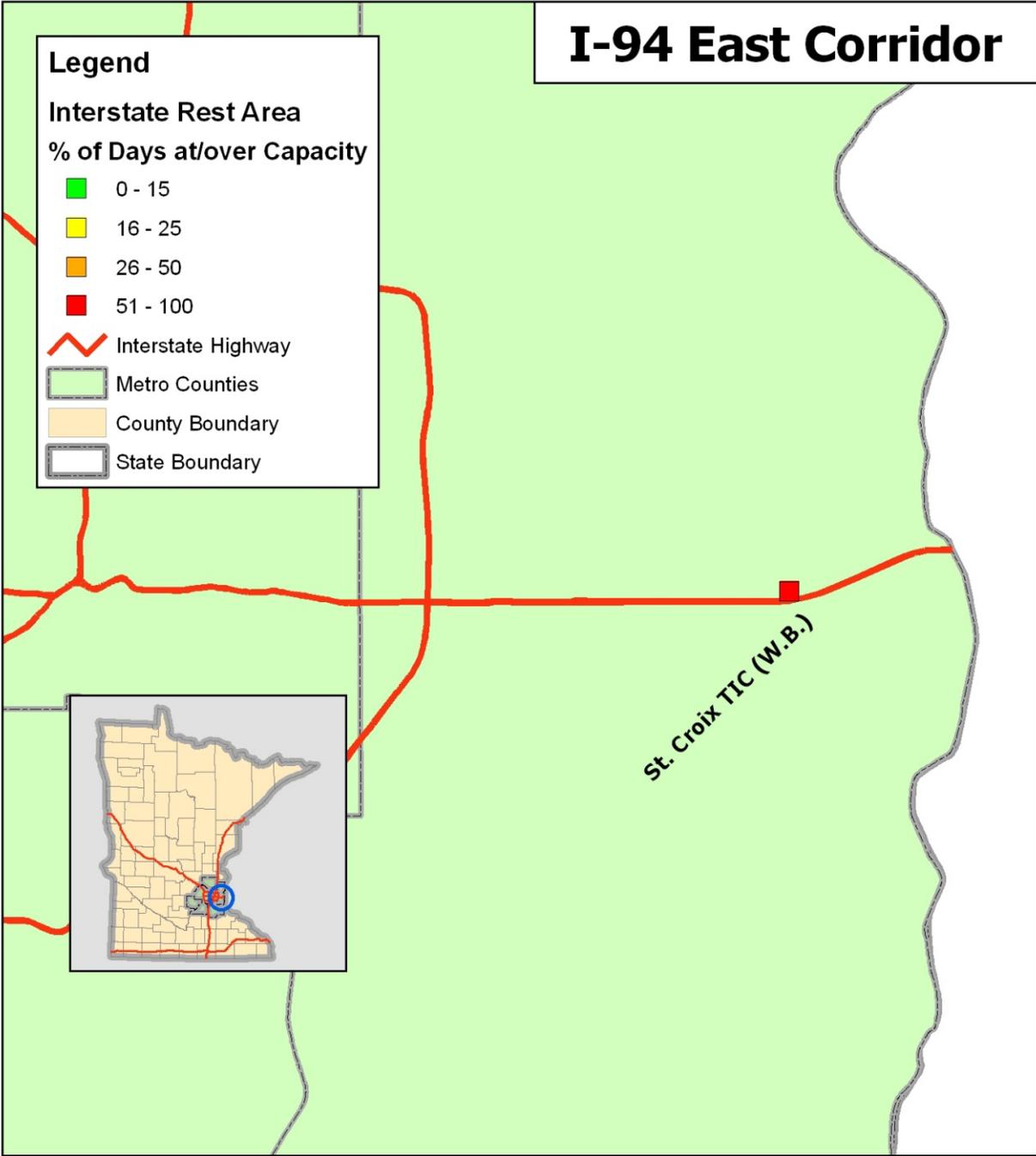
<i>Rank</i>	<i>Site Name</i>	<i>Maint. Area</i>	<i>Mile Post</i>	<i>Truck Stalls</i>	<i>Max # Trucks In Site</i>	<i>Avg. Trucks In Site</i>	<i>% of Days At or Over Capacity</i>
5	St. Croix TIC (W.B.)	ME	256	35	536	24.7	50.8%

St. Croix TIC, although the largest rest area in terms of both auto and truck stalls, has truck parking capacity issues. After analyzing the site, a few potential enhancements were identified. First, with its situation within the metropolitan area and its proximity to the border of Wisconsin, it may be beneficial to coordinate needs and potential mitigations with the Wisconsin Department of Transportation. Inevitably, any measure(s) taken on either side of the Mississippi River to relieve truck parking congestion will affect the level of congestion on the other. In addition, and related to the first measure, providing improved information on alternative parking (both along Interstate 94 and potential urban parking facilities in the Twin Cities) to commercial vehicle operators and companies may provide some relief. Finally, capacity improvements to the St. Croix TIC are recommended. The addition of 5 to 10 stalls would help alleviate parking congestion without much disturbance to current traffic flow.

Summary of Suggested Remedies

- Capacity enhancement of St. Croix facility.
- Improved information regarding parking availability.
- Coordination with WisDOT in providing parking information and spaces.

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Sources: Mn/DOT, MnDNR, Metropolitan Council
 Map Produced by: Bradley J. Grefe [18 May 2009]

Figure 3. Interstate 94 East Corridor

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Figure 4. St. Croix T.I.C.

Interstate 94 West Corridor

The Interstate 94 West corridor has the most rest areas of all the six study corridors. This corridor also has more congested rest areas than any of the other corridors; with two in the over 50% category and four in the category between 25% and 50%.

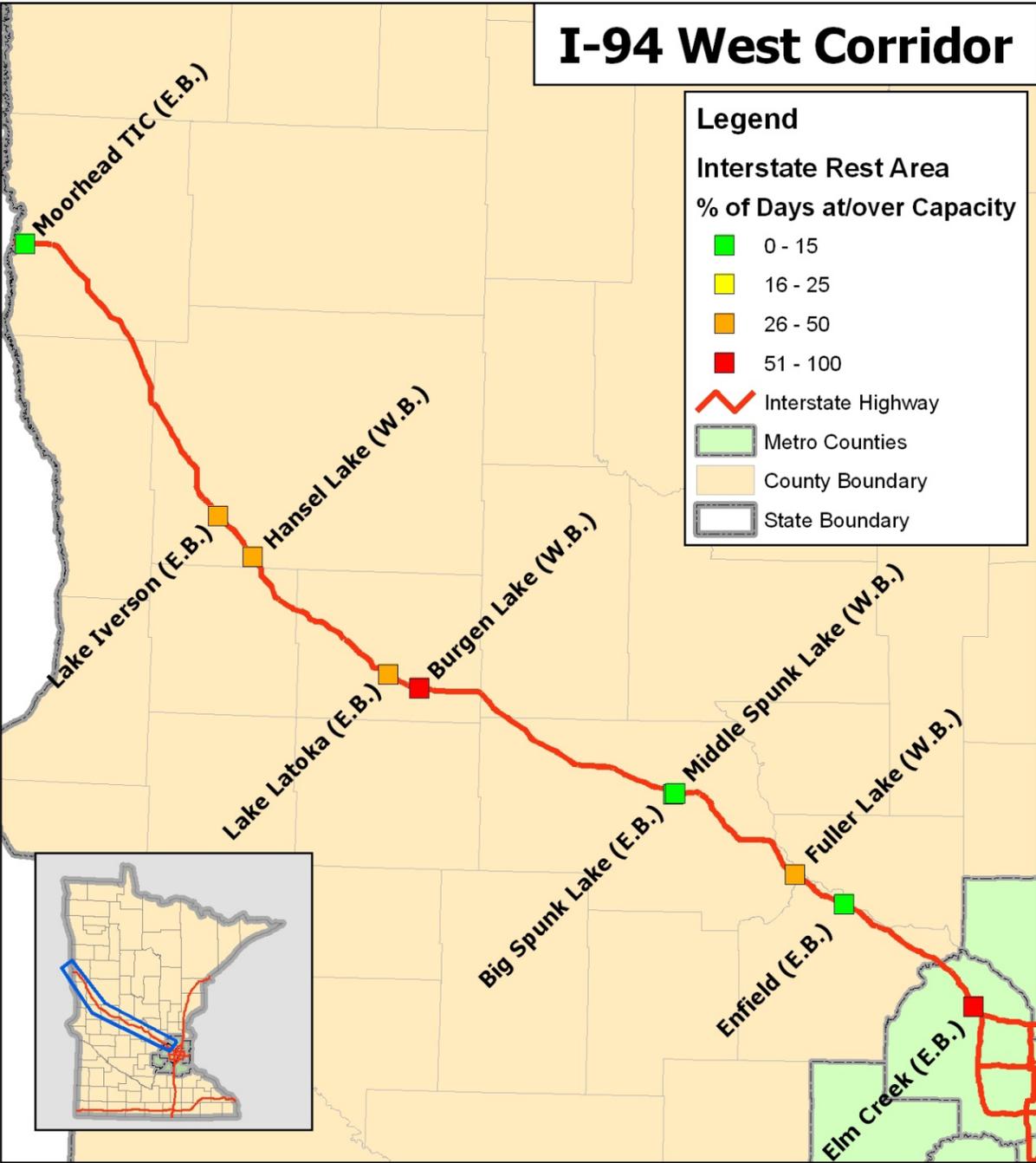
<i>Rank</i>	<i>Site Name</i>	<i>Maint. Area</i>	<i>Mile Post</i>	<i>Truck Stalls</i>	<i>Max # Trucks In Site</i>	<i>Avg. Trucks In Site</i>	<i>% of Days At or Over Capacity</i>
1	Elm Creek (E.B.)	MW	215	10	136	8.6	65.2%
3	Burgen Lake (W.B.)	4B	105	12	413	8.2	59.5%
7	Fuller Lake (W.B.)	3B	177	17	230	10.8	45.8%
8	Lake Latoka (E.B.)	4B	100	18	219	11.6	45.7%
9	Lake Iverson (E.B.)	4A	60	11	66	6.6	45.0%
12	Hansel Lake (W.B.)	4A	69	10	36	4.8	38.9%
21	Big Spunk Lake (E.B.)	3B	152	17	169	8.3	10.8%
23	Middle Spunk Lake (W.B.)	3B	152	18	136	8.2	9.6%
28	Moorhead TIC (E.B.)	4A	2	12	60	4.3	1.6%
29	Enfield (E.B.)	3B	187	18	112	6.4	1.5%

Elm Creek, the state's most congested public rest area, in terms of truck parking, is located near Interstate 94's confluence with Interstate 494. Twenty-eight miles up the road at Enfield is another eastbound rest area. This rest area has eighteen truck stalls and has minimal congestion. It may be possible to relieve much of the congestion in Elm Creek by making the Enfield location somehow more attractive to commercial vehicle operators through better parking availability information. In addition, providing additional truck parking capacity of about 5 to 8 spaces at Elm Creek, coupled with better information, could provide relief. A similar relationship exists between the Burgen Lake and Middle Spunk Lake rest areas. Making this information available to truckers may be the cheapest and least laborious means of relieving congestion, at least in the short-term. Another option for Burgen Lake is to expand truck parking capacity by 10 to 15 spaces. Capacity improvements of between 5 and 10 spaces could also be considered at the Fuller Lake rest area. Improved information could be useful in relieving congestion at the remaining facilities along this corridor, especially since the Lake Lakota, Lake Iverson, and Hansel Lake rest areas are not as favorable for capacity improvements.

Summary of Suggested Remedies

- Capacity enhancement of Elm Creek, Burgen Lake, and Fuller Lake facilities.
- Improved information regarding parking availability.

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Sources: Mn/DOT, MnDNR, Metropolitan Council
 Map Produced by: Bradley J. Grefe [15 June 2009]

Figure 5. Interstate 94 West Corridor

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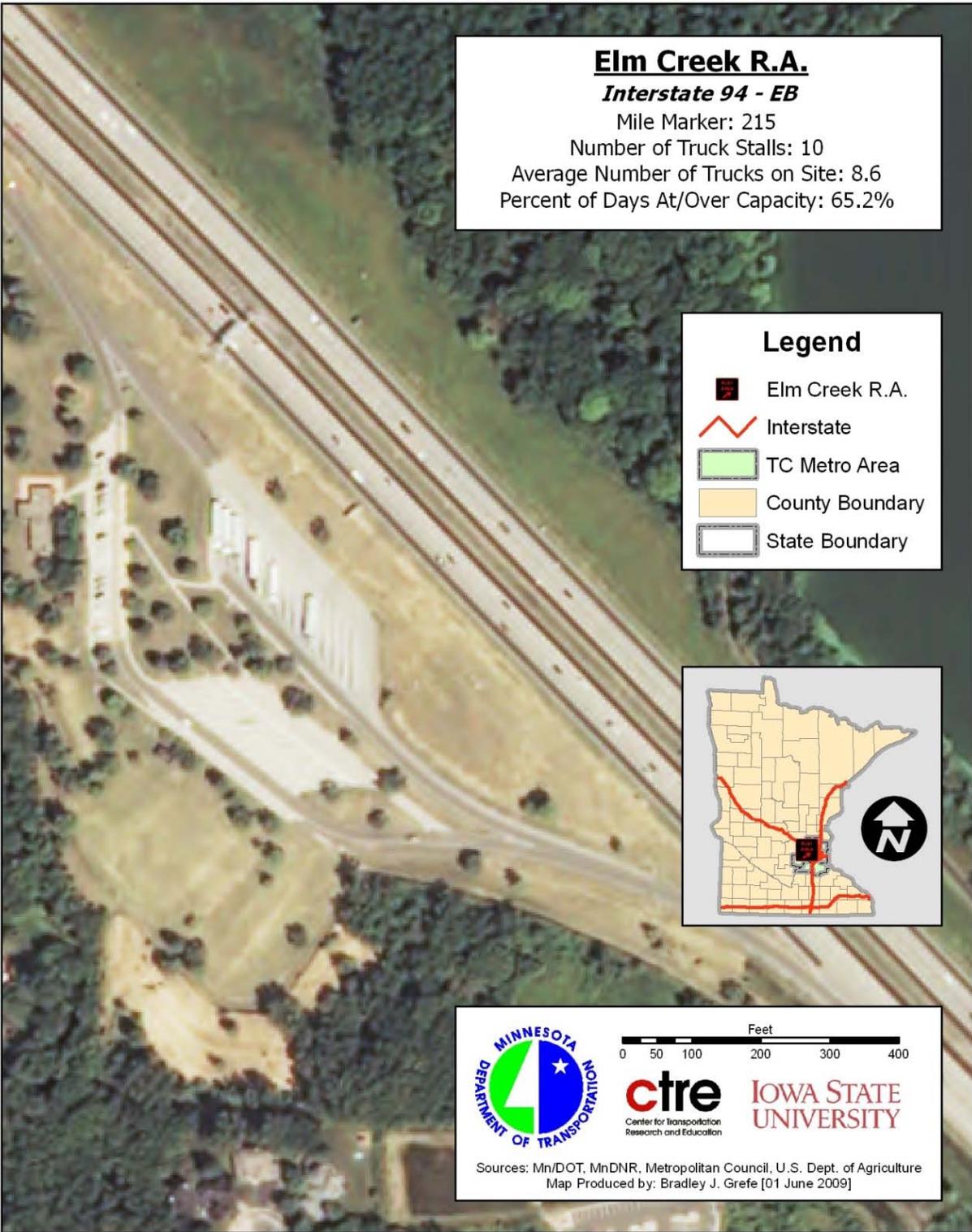


Figure 6. Elm Creek Rest Area

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Figure 7. Burgen Lake Rest Area

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Figure 8. Fuller Lake Rest Area

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Figure 9. Lake Latoka Rest Area

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Figure 10. Lake Iverson Rest Area

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Figure 11. Hansel Lake Rest Area

Interstate 35 South Corridor

Interstate 35 south of the Twin Cities has moderate to high levels of truck parking congestion for all of its rest facilities. Albert Lea TIC, located just across the border from Iowa, is Minnesota's fourth most congested rest area. In addition, the other four facilities along this corridor are also relatively congested.

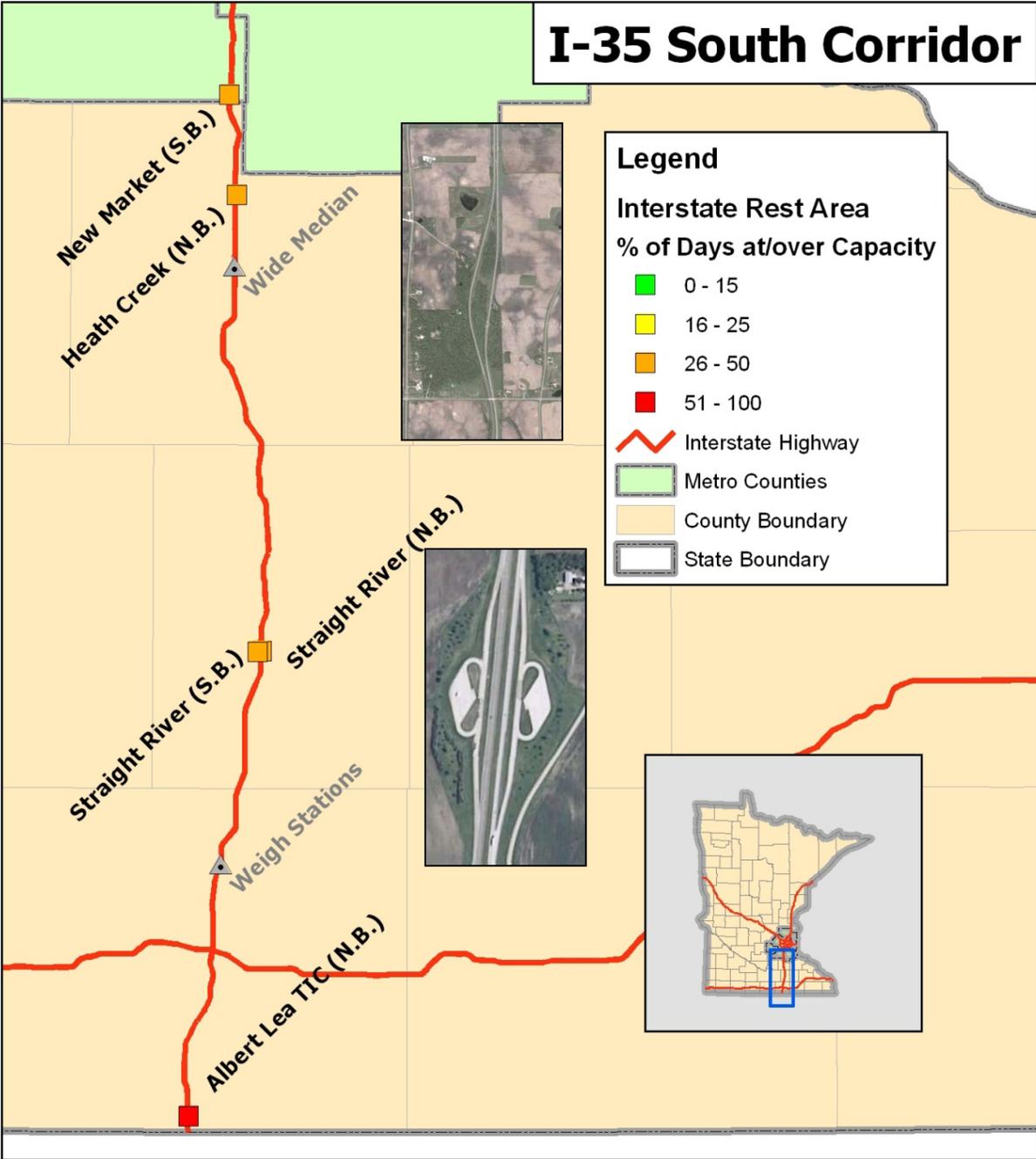
<i>Rank</i>	<i>Site Name</i>	<i>Maint. Area</i>	<i>Mile Post</i>	<i>Truck Stalls</i>	<i>Max # Trucks In Site</i>	<i>Avg. Trucks In Site</i>	<i>% of Days At or Over Capacity</i>
4	Albert Lea TIC (N.B.)	6B	1	29	213	9.5	58.0%
10	New Market (S.B.)	6B	75	15	131	9.1	41.1%
14	Straight River (N.B.)	6B	35	13	111	5.8	33.1%
15	Straight River (S.B.)	6B	35	12	146	6.3	32.2%
16	Heath Creek (N.B.)	6B	68	20	265	9.6	30.6%

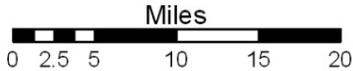
Since the entire corridor has shown some level of congestion, simply providing better truck parking availability information will not likely make a significant impact. Nonetheless, this information may help to some extent. Therefore, providing additional truck parking at the Albert Lea TIC and Heath Creek rest area, coupled with better information, would likely provide relief. Such capacity enhancements could include 4 to 5 new spaces at the Albert Lea facility and 5 to 20 spaces at Heath Creek. As mentioned before, such an enhancement at one rest area might have a positive effect of relieving some amount of the congestion at facilities up and downstream. The two Straight River rest areas and the New Market rest area are not as favorable for capacity improvements. Through discussions with Mn/DOT and local officials, it was noted that the northbound Straight River facility could be used as a truck only facility in the future with minor modifications. This may provide an opportunity for some capacity improvements in the northbound direction. Beyond improvements at existing rest areas, additional potential truck parking locations were identified. Mn/DOT district personnel noted the abandoned weigh stations south of Clarks Grove as a possible relief location for some of the congestion for both northbound and southbound traffic. Also, a very wide median is located in the Mn/DOT right-of-way approximately 5 miles south of the Heath Creek facility. This could be a possible location for a new truck parking facility as well, whether primitive or modern. Finally, local officials have noted the fact that the New Market location may be in an opportune location to be used in a larger role as an urban major truck parking facility that will be discussed in later tasks.

Summary of Suggested Remedies

- Capacity enhancement of Albert Lea and Heath Creek facilities.
- Possible truck-only designation of Straight River northbound facility.
- Improved information regarding parking availability.
- Utilization of abandoned weigh station south of Straight River facilities.
- Possibly utilize wide median south of Heath Creek.

Mn/DOT Truck Parking Study: Phase 2






Sources: Mn/DOT, MnDNR, Metropolitan Council
 Map Produced by: Bradley J. Grefe [04 June 2009]

Figure 12. Interstate 35 South Corridor

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Figure 13. Albert Lea T.I.C.

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Figure 14. New Market Rest Area

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Figure 15. Northbound Straight River Rest Area

Mn/DOT Truck Parking Study: Phase 2



Figure 16. Southbound Straight River Rest Area

Mn/DOT Truck Parking Study: Phase 2

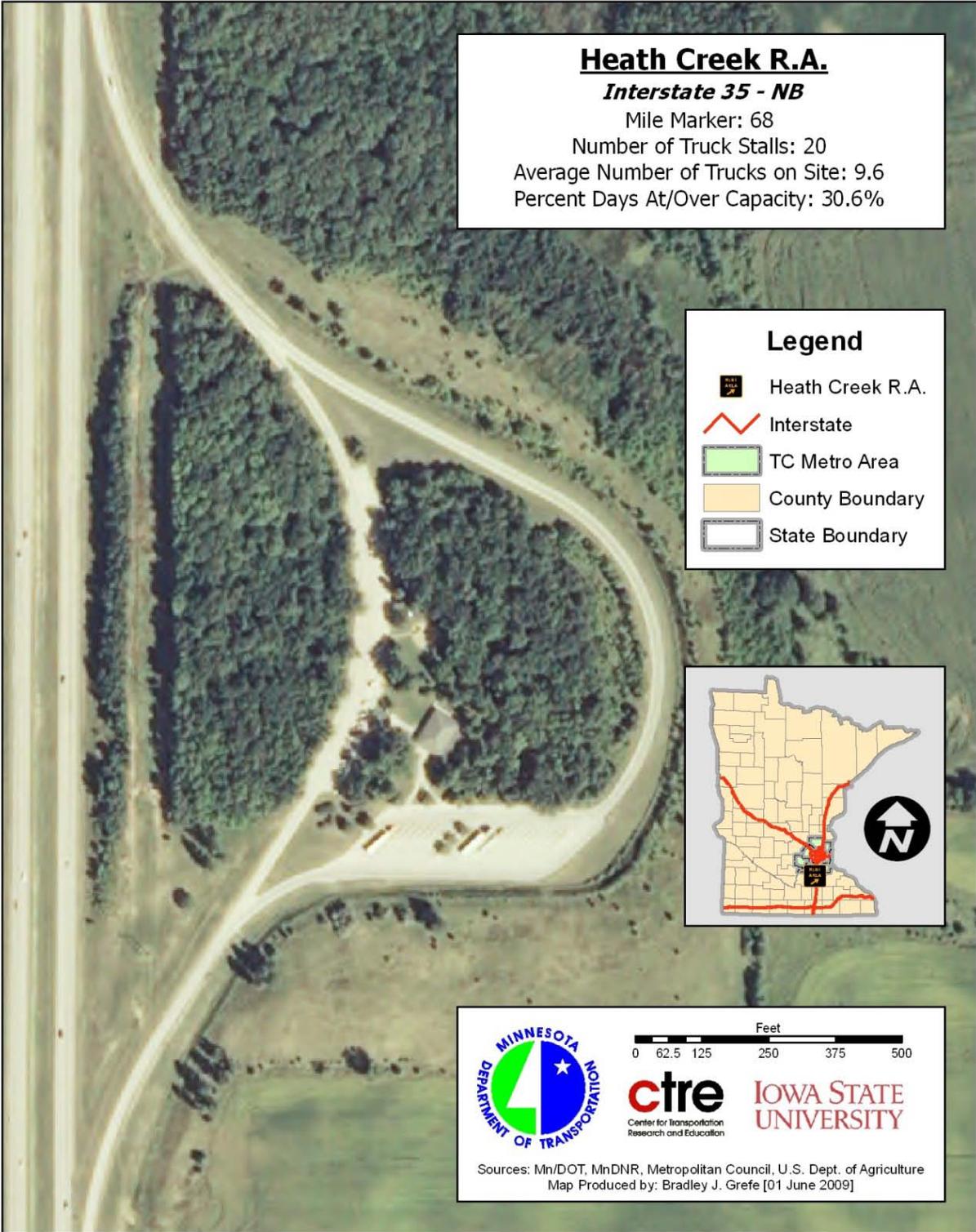


Figure 17. Heath Creek Rest Area

Interstate 90 East Corridor

The Interstate 90 East corridor has one major problem spot, three approaching capacity issues and two that look to be clear of concern.

<i>Rank</i>	<i>Site Name</i>	<i>Maint. Area</i>	<i>Mile Post</i>	<i>Truck Stalls</i>	<i>Max # Trucks In Site</i>	<i>Avg. Trucks In Site</i>	<i>% of Days At or Over Capacity</i>
2	Marion (W.B.)	6A	222	20	330	17.1	64.9%
11	Highforest (E.B.)	6A	202	16	26	5.1	39.7%
13	Oakland Woods (W.B.)	6B	171	10	40	5	34.6%
19	Hayward (E.B.)	6B	162	10	110	4.1	17.5%
25	Enterprise (E.B.)	6A	244	17	132	6.6	7.4%
35	Dresbach TIC (W.B.)	6A	275	13	12	2	0.0%

The Marion rest area serves westbound traffic and is likely significantly impacted by trucks traveling into the Rochester area, as well as the Twin Cities, and is quite congested. Since expansion of truck parking at the Marion location is not likely, The Dresbach rest area could serve as a relief for the Marion facility by making it more attractive to commercial vehicle operators through better parking availability information. In addition, capacity improvements of 5 to 10 spaces could be made at both the High Forest and Oakland Woods facilities. Although the Hayward site could be expanded, other capacity improvements along Interstates 90 and 35 plus improved information could be more useful in relieving congestion in this area.

Summary of Suggested Remedies

- Capacity enhancement of High Forest and Oakland Woods facilities.
- Improved information regarding parking availability.

Mn/DOT Truck Parking Study: Phase 2

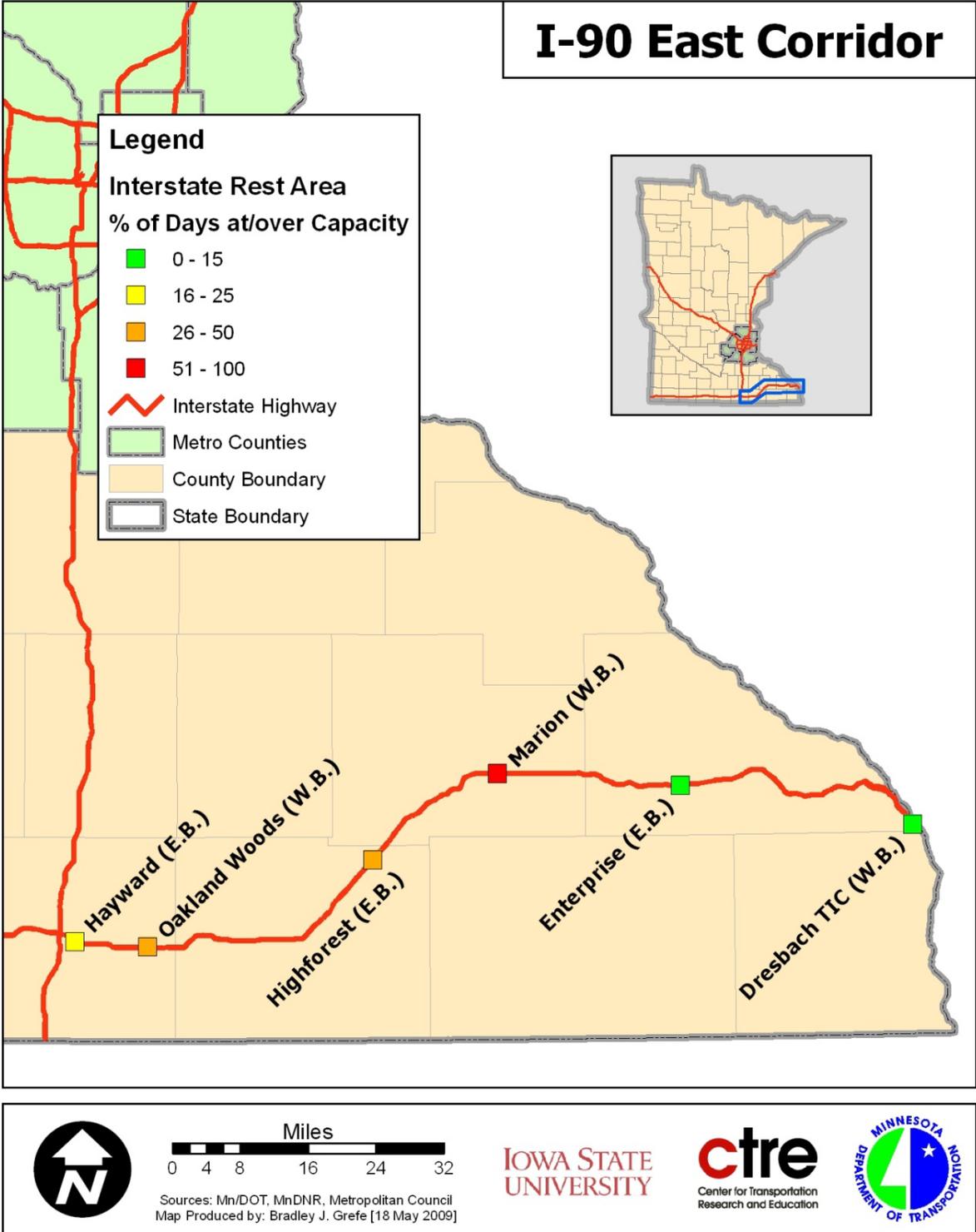


Figure 18. Interstate 90 East Corridor

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Figure 19. Marion Rest Area

Mn/DOT Truck Parking Study: Phase 2



Figure 20. Highforest Rest Area

Mn/DOT Truck Parking Study: Phase 2



Figure 21. Oakland Woods Rest Area

Mn/DOT Truck Parking Study: Phase 2

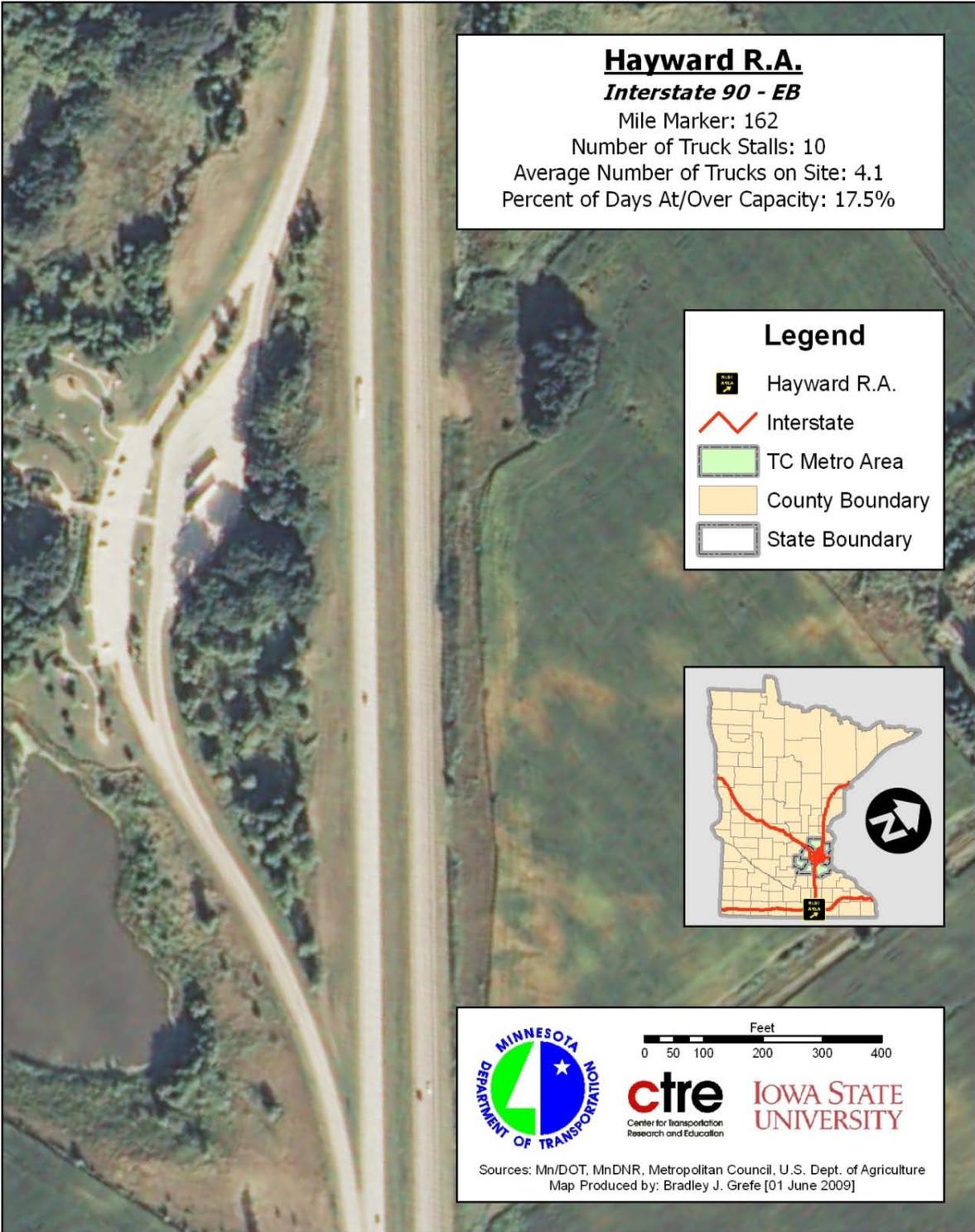


Figure 22. Hayward Rest Area

Interstate 90 West Corridor

The congestion on Interstate 90 west of Albert Lea is not a major concern, compared to other corridors. Six of the seven rest areas experience capacity issues fewer than 30% of days.

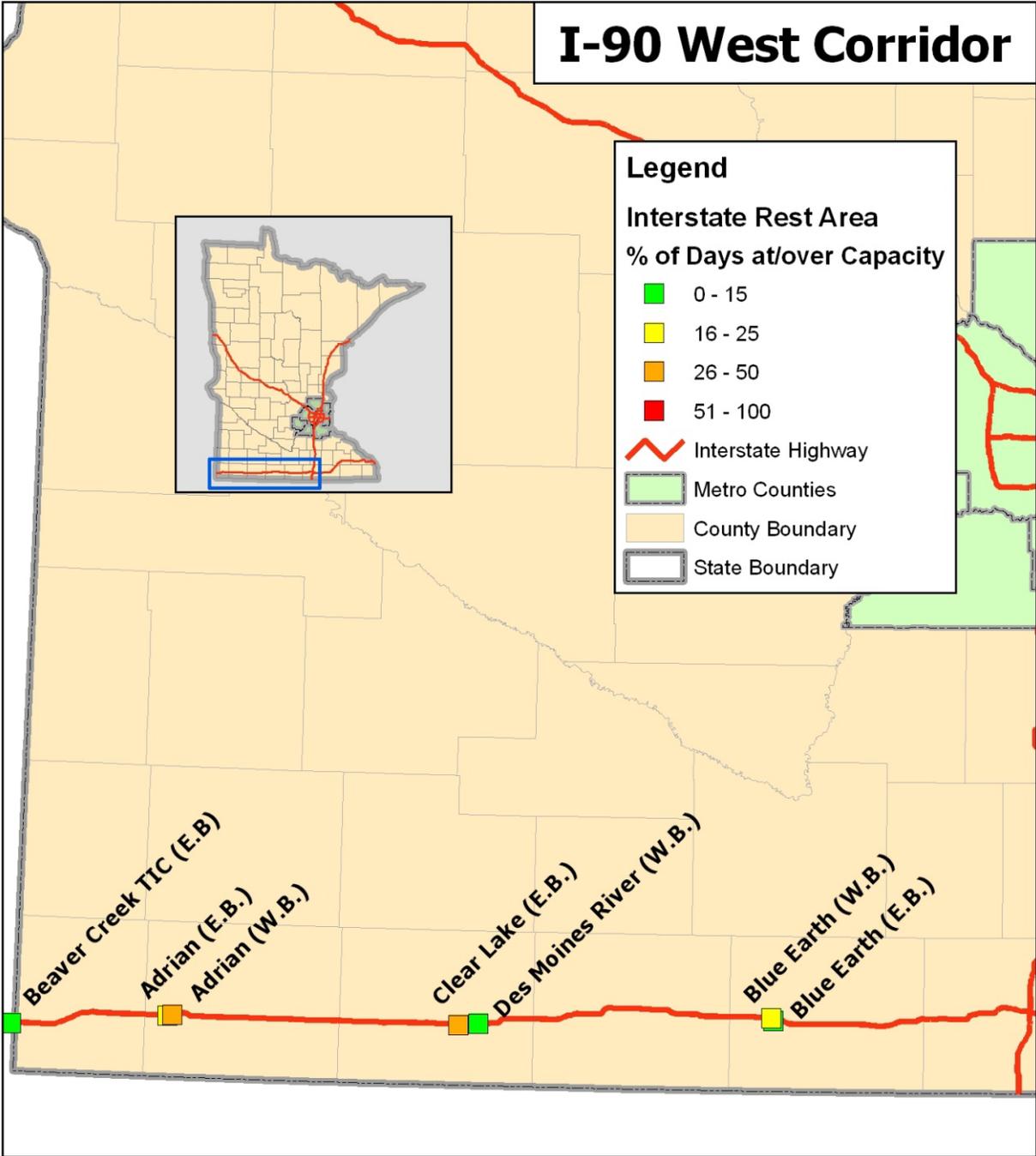
<i>Rank</i>	<i>Site Name</i>	<i>Maint. Area</i>	<i>Mile Post</i>	<i>Truck Stalls</i>	<i>Max # Trucks In Site</i>	<i>Avg. Trucks In Site</i>	<i>% of Days At or Over Capacity</i>
6	Clear Lake (E.B.)	7B	69	7	57	4.4	47.4%
17	Adrian (W.B.)	7B	25	6	62	2.8	29.2%
18	Adrian (E.B.)	7B	24	6	52	2.6	20.0%
20	Blue Earth (W.B.)	7A	119	10	31	4.5	15.3%
22	Blue Earth (E.B.)	7A	119	11	36	4.3	9.9%
24	Des Moines River (W.B.)	7B	72	9	140	2.7	7.6%
33	Beaver Creek TIC (E.B.)	7B	0	16	17	3.2	0.4%

The Clear Lake rest area is approaching a higher level of congestion than any other location along the corridor. Expansion of capacity at this location of about 5 to 7 spaces is possible, plus the Blue Earth eastbound facility could also serve as a relief for the Clear Lake and Adrian eastbound facilities by making it more attractive to commercial vehicle operators through better parking availability information. In much the same way, truck parking information could help in shifting congestion away from the Adrian westbound and Blue Earth westbound facilities to the Des Moines River facility.

Summary of Suggested Remedies

- Capacity enhancement of Clear Lake facility.
- Improved information regarding parking availability.

Mn/DOT Truck Parking Study: Phase 2









Sources: Mn/DOT, MnDNR, Metropolitan Council
 Map Produced by: Bradley J. Grefe [18 May 2009]

Figure 23. Interstate 90 West Corridor

Mn/DOT Truck Parking Study: Phase 2



Figure 24. Clear Lake Rest Area

Mn/DOT Truck Parking Study: Phase 2



Figure 25. Westbound Adrian Rest Area

Mn/DOT Truck Parking Study: Phase 2

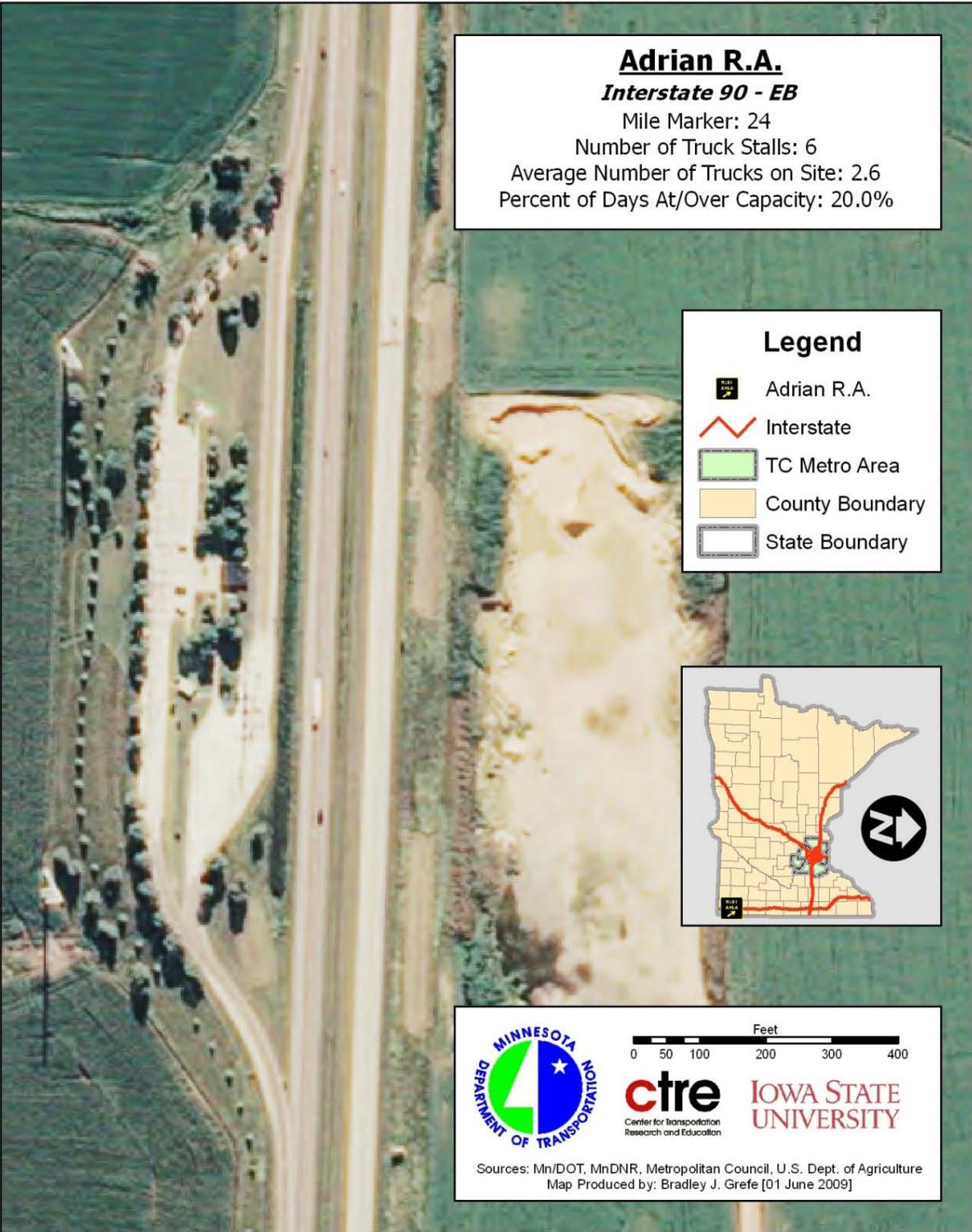


Figure 26. Eastbound Adrian Rest Area

Mn/DOT Truck Parking Study: Phase 2



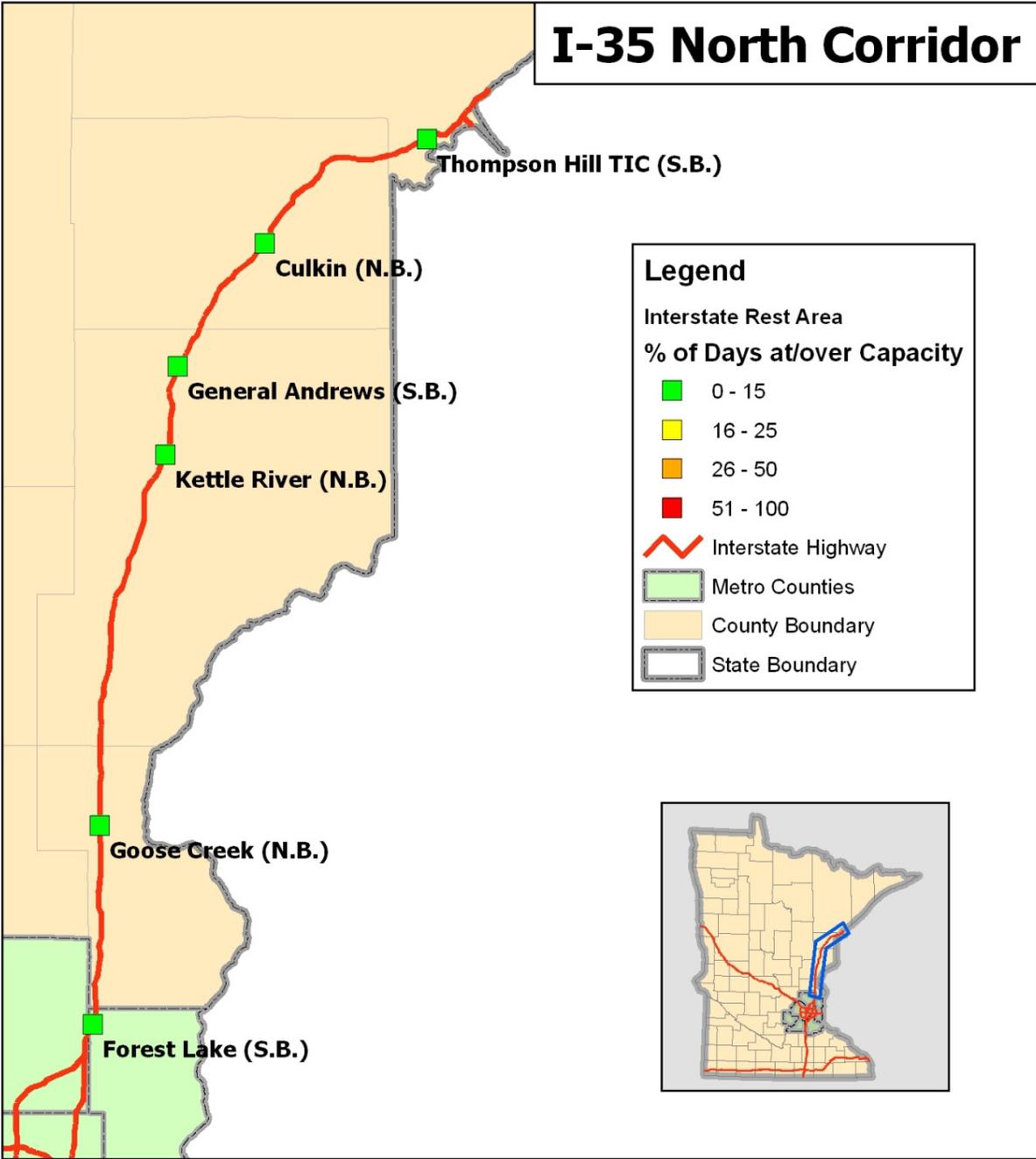
Figure 27. Blue Earth Rest Area

Interstate 35 North Corridor

There appear to be no imminent capacity issues on the Interstate 35 North corridor.

<i>Rank</i>	<i>Site Name</i>	<i>Maint. Area</i>	<i>Mile Post</i>	<i>Truck Stalls</i>	<i>Max # Trucks In Site</i>	<i>Avg. Trucks In Site</i>	<i>% of Days At or Over Capacity</i>
26	Goose Creek (N.B.)	ME	154	12	16	4.2	3.4%
27	Forest Lake (S.B.)	ME	131	15	111	4.3	2.2%
30	General Andrews (S.B.)	1A	250	10	13	2.7	1.4%
31	Kettle River (N.B.)	1A	198	10	61	2.2	1.1%
32	Thompson Hill TIC (S.B.)	1A	250	10	44	1.4	1.1%
34	Culkin (N.B.)	1A	226	11	32	1.9	0.2%

Mn/DOT Truck Parking Study: Phase 2









Sources: Mn/DOT, MnDNR, Metropolitan Council
Map Produced by: Bradley J. Grefe [18 May 2009]

Figure 28. Interstate 35 North Corridor

V. Summary

Table 4 below is an aggregated list of suggested remedies by corridor.

Table 4. Suggested Remedies by Corridor

Corridor Name	Suggested Remedies
I-94 East	<ul style="list-style-type: none"> • Capacity enhancement of St. Croix facility • Improved information regarding parking availability • Coordination with WisDOT in providing parking information and spaces
I-94 West	<ul style="list-style-type: none"> • Capacity enhancement of Elm Creek, Burgen Lake, and Fuller Lake facilities • Improved information regarding parking availability
I-35 South	<ul style="list-style-type: none"> • Capacity enhancement of Albert Lea and Heath Creek facilities • Possible truck-only designation of Straight River northbound facility • Improved information regarding parking availability • Utilization of abandoned weigh station south of Straight River facilities • Possibly utilize wide median south of Heath Creek
I-90 East	<ul style="list-style-type: none"> • Capacity enhancement of High Forest and Oakland Woods facilities • Improved information regarding parking availability
I-90 West	<ul style="list-style-type: none"> • Capacity enhancement of Clear Lake facility • Improved information regarding parking availability
I-35 North	<ul style="list-style-type: none"> • None

Table 5 on the following page is a list of the long-term suggested remedies and preliminary cost estimates for each rest area. Assumptions for capacity enhancements which add truck parking stalls are based on Mn/DOT construction costs completed in 2000 and indexed to 2009 dollars. The estimated cost per truck stall is \$60,099.65. This figure includes design and administration costs in addition to the construction costs.

Table 5. Suggested Long-term Remedy by Rest Area

<i>Congestion Rank</i>	<i>Site Name (Direction)</i>	<i>Corridor</i>	<i>Truck Stalls</i>	<i>Major Suggested Remedy</i>	<i>Estimated Cost</i>
1	Elm Creek (E.B.)	I-94 West	10	Capacity Enhancement (5-8 spaces)	\$300,000 to \$480,000
2	Marion (W.B.)	I-90 East	20	Information Only	N/A
3	Burgen Lake (W.B.)	I-94 West	12	Capacity Enhancement (10-15 spaces)	\$600,000 to \$900,000
4	Albert Lea TIC (N.B.)	I-35 South	29	Capacity Enhancement (4-5 spaces)	\$240,000 to \$300,000
5	St. Croix TIC (W.B.)	I-94 East	35	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
6	Clear Lake (E.B.)	I-90 West	7	Capacity Enhancement (5-7)	\$300,000 to \$420,000
7	Fuller Lake (W.B.)	I-94 West	17	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
8	Lake Latoka (E.B.)	I-94 West	18	Information Only	N/A
9	Lake Iverson (E.B.)	I-94 West	11	Information Only	N/A
10	New Market (S.B.)	I-35 South	15	Information Only (possible future enhancements*)	N/A*
11	High Forest (E.B.)	I-90 East	16	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
12	Hansel Lake (W.B.)	I-94 West	10	Information Only	N/A
13	Oakland Woods (W.B.)	I-90 East	10	Capacity Enhancement (5-10 spaces)	\$300,000 to \$600,000
14	Straight River (N.B.)	I-35 South	13	Truck-Only Designation (4-5 spaces) and Weigh Station Use	\$240,000 to \$310,000
15	Straight River (S.B.)	I-35 South	12	Weigh Station Use and/or New Facility Creation (20-30 spaces)	\$10,000 to \$1,800,000
16	Heath Creek (N.B.)	I-35 South	20	Capacity Enhancement (5-20 spaces)	\$300,000 to \$1,200,000
17	Adrian (W.B.)	I-90 West	6	Information Only	N/A
18	Adrian (E.B.)	I-90 West	6	Information Only	N/A
19	Hayward (E.B.)	I-90 East	10	Information Only	N/A
20	Blue Earth (W.B.)	I-90 West	10	Information Only	N/A

Appendix B: Tech Memo 2: Development of Urban Parking in Other Major Metropolitan Areas

Mn/DOT Truck Parking Study: Phase 2

Technical Memorandum 2: Development of Urban Parking in Other Major Metropolitan Areas

Prepared for:

Minnesota Department of Transportation

Prepared by:

Center for Transportation Research and Education (CTRE) at Iowa State University



Center for Transportation
Research and Education

July 31, 2009

Mn/DOT Truck Parking Study: Phase 2

Technical Memorandum 2: Development of Urban Parking in other Major Metropolitan Areas

This technical memorandum serves as the deliverable for Task 2 of the Minnesota Truck Parking Study: Phase 2, sponsored by the Minnesota Department of Transportation (Mn/DOT). This task investigated development of urban truck parking in other metropolitan areas around the United States.

I. Task 2 Objective

Under this task the research team reviewed land development literature and conducted interviews with metropolitan and city planners in other large metropolitan areas to investigate innovative ways truck parking has been expanded in other areas. Similar interviews were held with National Association of Truck Stop Operators (NATSO) officials and other large truck stop operators. This task was conducted largely through telephone interviews with regional planning entities and their NATSO contacts.

II. Initiatives to Augment Truck Parking Around the Country

Many states and some urban areas have conducted truck parking supply and usage studies, finding that truck parking supply is deficient. The motor carrier industry has identified this shortage as a growing issue. The research produced four primary approaches for improving the truck parking supply that will allow for truck operators to comply with hours of service regulation and for staging for deliveries. The first two, rest area enhancements and providing truckers with better information, were mentioned briefly in Task 1. The others include policy adjustments and partnerships between various entities.

Expanding Existing Rest Areas or Constructing New Facilities

The first, most direct method to expand public sector supply is by adding to the parking available at existing public rest stops along the highway system or by building entirely new rest areas that include or are dedicated for truck parking. Federal transportation legislation enacted in 1998, TEA-21, required a national assessment of truck parking that was conducted in 2000.¹ A study funded by the Federal Highway Administration (FHWA) and conducted by the Truck Research Institute projected in 1996 an estimated shortfall of 28,400 public truck parking spaces nationwide.² About this time, several states including Minnesota developed studies for truck parking supply and demand. Based on these studies, some states targeted rest areas for expansion of truck parking. They developed programs to allow for truck parking at other publicly owned facilities (i.e. weigh stations) or to construct entirely new facilities. In most states, these rest areas are located outside of the large metropolitan areas, making truck operators reposition their trucks to locations near the pickup and delivery areas during morning commute hours or to park closer to destinations on the roadside or other unsafe locations. Since the late 1990s, the Iowa DOT has increased space in each method. However, all expansion has been outside urban areas and large freight destinations.

More Efficient Use of Parking through Better Information

Another method is through providing better information on the locations of truck parking. If operators have better information on the availability of truck parking, they can make more efficient use of the truck parking that is available.

In Phase I of this study, we were surprised that only two percent of the firms we surveyed gave directions to their operators as to where they should park their trucks.³ This means that the operators were left largely on their own to plan their trips and know or find where they should park for staging or overnight parking. Parking information is largely learned through repetitive experience or through informal communication networks between drivers using devices such as CB radios or cellular telephones. There have been several studies suggesting that information could be provided by Intelligent Transportation Systems (ITS) like dynamic message signs that display the availability or unavailability of parking at rest areas and the use of internet kiosks to tell drivers where parking exists (as recommended by Maze, et. al. in 1997)⁴.

Under SAFETEA-LU, Section 1305; Congress created a program to improve truck parking and develop a pilot program to address the long-term shortages. Twenty applications were received from states in 2007, with two being selected in the summer of 2008.⁵ Both were for truck parking management/information systems along very long corridors. One is along Interstate 5 from the Canadian border to the Mexican border (IPark program), and the other is along the Interstate 95 corridor (I-95 Corridor Coalition). The two projects were awarded about \$11,000,000 and were just getting underway with concepts of operation in the winter of 2008/09.

In preparation for the Caltrans application, IPark, a recent University of California Davis study was conducted for the truck parking issue in California. A survey of 433 truck operators found almost seventy percent would use up-to-the-minute information on the availability of parking spaces to make decisions regarding where to park. The same survey found that of those truckers that would use current information, about half liked road-side information signs, but many still preferred the radio or cellular telephone for information.⁶ However, as long as spaces are occupied on first-come-first-served basis, there is no way to actually ensure that a space will be available when a truck arrives at the rest area some time later. To overcome the dynamic availability of spaces, the survey asked operators if they were willing to use current information on space availability to reserve a space. About half indicated they would be willing to reserve spaces in advance. Unfortunately they were never asked how much they would be willing to pay for this service.

IPark is still in the concept stage, but the plan is to build the system around internet portal that will allow the truck operator to conduct pre-trip and en-route planning for parking.⁷ Registered customers of IPark will be able to look at the inventory of public and private truck parking near their overnight destination as well as the services available at each parking location. Spaces available will be determined by sensors at the parking location which can determine if a space is occupied or not. The truck operator can then reserve a space for a fee. Truck operators may make similar reservations en-route with special GPS enabled cellular telephones. The business model and user fee decisions will be made in 2009. The current thinking for the IPark concept is that the trucking company will be billed for the service. Since parking is generally free of charge and parking is usually the responsibility of the driver, this project faces interesting challenges.

The I-95 Corridor Coalition program is similar to IPark as it will collect real-time parking availability information.⁸ Drivers will be able to access this information through roadside dynamic message signs, highway advisory radio, and special in-cab cellular telephones. Unlike IPark, the I-95 Corridor Coalition concept does not include reservations and user fees; though the concepts are still evolving.

Implementing Land Use Legislation

A third technique is to take a long-range approach to truck parking. This approach will implement truck parking requirements for industrial and warehouse land uses similar to passenger car requirements for commercial development. This approach places the burden of truck parking costs on the shippers and receivers that benefit through access to truck transportation. Working through local governments to build and develop facilities compatible with truck service was recommended in a prior study prepared for Mn/DOT.⁹ The California Department of Transportation (Caltrans) has developed what it believes is a model process for land use planning in a metropolitan area, and it requires the accommodation of goods movement (in addition to other functions like ITS).¹⁰ The Caltrans process is called “Blue Print Planning”. The Sacramento area was the first urban area to develop a plan under this process. When discussing truck parking issues with transportation planners at metropolitan planning organization (MPO) meetings across the country, many suggested that truck parking *is* a land use issue and the Caltrans approach to the problem may be correct for the long-run.

Partnering

The final approach is to partner with the private sector or local governments to establish truck parking. Two urbanized areas are known to be trying this approach. Rather than wait for ten to twenty years for a land use approach to take form, these MPOs are taking a proactive approach. The Baltimore Metropolitan Council and the North Jersey Transportation Planning Authority (Newark), are two organizations which have conducted truck parking supply studies and have attempted to develop public-private partnerships (PPP) to encourage the private sector to expand truck parking.

Baltimore Metropolitan Council developed a truck parking partnership study 2006.¹¹ The first part was to identify the problem and look for a solution, particularly those involving PPP. Having made little progress involving the private sector and having lost personnel to carry this initiative forward, the Council has turned their focus toward public-public partnership with local governments in the region. Although council staff is hopeful, very little change in the truck parking supply has resulted in the urban area. At the same time, the Maryland State Highway Administration (MSHA) has been making marginal expansions (of 10 to 20 additional spaces) in rest areas nearby, but outside of the region.

A few locations exist within the Baltimore metropolitan area where parking lots are underutilized where local land use ordinances could be modified to make these locations amenable to overnight truck parking. The two examples that were given by staff were a historic inner-city, large multi-tenant shopping facility and the State Fairgrounds. The Metropolitan Council plans to work with the local chapter of the American Planning Association (APA) to develop model ordinances that would permit the use of under-utilized locations for truck parking.

The Northern New Jersey Transportation Planning Authority is the other organization that is known to take a direct approach. To date, they have not been successful in implementing any new truck parking.¹² However, they have formed a public-private partnership, identified characteristics that would make a site attractive as a truck parking location, identified sites, and discussed locating truck stops at these locations with representatives of the National Truck Stop Owners Association (NATSO) and one individual truck stop owner. One of the interesting dynamics involved in the Northern New Jersey area is its location on the edge of a large city with little alternative access for truck freight to New York, and the opportunities to cooperate with ocean ports and major airports. Although the Northern New Jersey Planning Authority has identified suitable locations for truck parking, they have not been able to move forward with a private partner. Staff pointed out that some of the properties initially identified have since been sold for other uses.

We were pleasantly surprised when we contacted the business development manager for a very large chain of truck stop operators and his chain did wish to locate in the Twin Cities area if it made good sense from a business perspective. Generally, drivers will position themselves within a half an hour to an hour from their destination to make their next pickup or delivery, depending on weather and traffic conditions. This means that the driver can catch up on hours of sleep or just stage on the fringe of the Twin Cities. Drivers do like to position themselves as close to their destination as possible to avoid circumstances such as unreliable transit times; therefore, there should be a strong market for closer facilities with more security driver amenities.

The Northern New Jersey Transportation Planning Authority is trying to establish a partnership with the private sector. Such a partnership would involve the use of private sector authority and/or financing in return for parking service at a specific location. Although we found an organization like Port Authority which arranges facilities for truck parking, this was not entirely the same as partnering with a general transportation agency.

In discussions with MPOs and chain truck stop operators, the relationship between the state highway agencies and trucks positioning for rest and staging has been adversarial. Trucks would sometimes park on unsafe locations, ramps, and other locations blocking the design clear zone. Additionally drivers simply may drop garbage in the area. Often, spaces occupied by truck stops are at major intersections or interchanges, resulting in conflict with developers and creating inconsistent land uses, abutting businesses, and residences. There are several countervailing forces for PPP. Both sides need to decide what is required to make a successful relationship. Truck stops may need to commit to shielding lighting and noise, while public agencies may need to make long-term commitments regarding permissible land use policies.

One of the issues facing truck stop owners is that their business model has fundamentally changed in the last twenty years. Locations that provided services to truckers (fuel, parking, maintenance, showers, etc.) have often become travel centers with wider selections of services for automobile customers, as well. This includes restaurants with wider and more popular selections of meals, better stocked convenience stores, tourism information, and products that address the maintenance needs of automobiles. To attract motorists, the travel center needs to be visible and accessible from a highly trafficked highway with other nearby travel-oriented destinations.

At the same time, this same land for the same reasons is attractive to developers and local economic planners. Most of the alternative uses offer a greater rate of return than truck parking. In addition, when a location is found, the truck stop owner often has to pay up front for the costs of the infrastructure and impact fees, where applicable.

There are other aspects of truck stops that could make them an attribute to communities. Truck stops can occupy land that may be undesirable without significant remediation. They are compatible with other similar land uses like warehousing and with proper noise barriers and access management they could possibly make a buffer between neighborhoods and noisy highways.

III. Survey of Metropolitan Areas

A list was developed for the 31 largest metropolitan areas (by population), and the MPO for each area was contacted. Often the organization's internet web page identified a planner in charge of freight issues. This individual was contacted to determine if there were any initiatives by the MPO (or the state containing the MPO) to manage and create truck parking in the urban area. Although in many cases this involved an exchange of voicemails, only the two metro areas mentioned above were proactively investigating the expansion of truck parking. Most urban agencies were allowing the state to handle parking issues and the solution examined were urban fringe or rural areas. For example, the St. Louis and Kansas City MPOs have let the Missouri Department of Transportation address the issue by looking to increase the truck parking between the two cities along Interstate 70. Very few urban areas have conducted studies to characterize the issue and the study may not even about finding solutions to expanding parking supply. A study in Chicago, for example, was conducted to characterize nuisance parking in the region (i.e. parking on ramps or other unsafe locations, parking and blocking traffic, congestion, emissions, etc.).¹³ Many of the planners described issues similar to those of the Twin Cities. Most had no formal plans for expanding or managing truck parking in their area and most were interested in plans developed by Mn/DOT as an example of how to approach this problem.

IV. References

¹. *Truck Parking Areas*, Highway Special Investigation, Report NTSB/SIR-00/01, National Transportation Safety Board, Washington, D.C., May 2000.

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 - ⁹. T.H. Maze, Dennis Kroeger, and Mark Berndt. “Trucks and Twin Cities Traffic Management,” Minnesota Department of Transportation, St. Paul, Minnesota, 2005.
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Appendix C: Tech Memo 3: Need and Demand for Parking

Mn/DOT Truck Parking Study: Phase 2

Technical Memorandum 3:
Need and Demand for Parking

Prepared for:

Minnesota Department of Transportation

Prepared by:

Center for Transportation Research and Education (CTRE) at Iowa State University



March 31, 2010

Mn/DOT Truck Parking Study: Phase 2

Technical Memorandum 3: Need and Demand for Parking

This technical memorandum serves as the deliverable for Task 3 of the Minnesota Truck Parking Study: Phase 2, sponsored by the Minnesota Department of Transportation (Mn/DOT). This task investigated truck traffic generators and the demand for truck parking facilities in and around the greater Twin Cities metropolitan area.

I. Task 3 Objective

The objective of this task was to investigate the truck parking demand derived from major truck traffic generators in the Twin Cities metropolitan area. These generators included manufacturing, warehouse, and distribution centers in the immediate seven-county region. In addition, the major intermodal facilities in the area were mapped and analyzed along with the other generators. Ultimately, this analysis looked to better understand any spatial relationships between locations generating truck traffic and roadway truck traffic flow and truck parking needs.

More specifically, the third task was conducted through spatial analysis of both linear roadway attribute data and truck traffic generator data provided by the Minnesota Department of Transportation (Mn/DOT), interviews with and surveys of managers from larger truck traffic generators, and discussions with and guidance from the Metropolitan Council and county-level land use and transportation planners.

II. Task 3 Spatial Analysis

Task 3 was undertaken to provide a better understanding of where parking problems may exist by locating truck traffic generators and their relationship to the greater transportation network. The base map, Figure 1, on the following page shows the major highways in the Twin Cities area. Figure 2 shows heavy commercial vehicle volumes, or heavy commercial average daily traffic (HCADT), along the interstate routes in and round the Twin Cities. In Figure 2, the rest areas along the interstates were included and categorized by their percentage of days at or over capacity. As would be expected, the more heavily used sections of interstate closely correlate to the congestion issues at the rest areas that were discovered in Phase 1 of the Minnesota Truck Parking Study and discussed in Task 1 of this second phase.

The Mn/DOT Office of Freight Planning and Development provided data regarding the state's major freight facilities. This data included business names, locations, and general functions of each industry.¹ Additionally, Mn/DOT provided a list of the state's top fifty (50) freight facilities, forty-nine (49) of which were within the seven county metropolitan region. A database of intermodal facilities was also provided and mapped in Figure 3 along with the major generators. While the traffic generators, including the top 49, were somewhat evenly distributed across the region, the intermodal facilities are primarily found in the central and southeastern parts of the metro, along the two major area rivers and railways.

¹ 2007 Selectory Business Database.

Mn/DOT Truck Parking Study: Phase 2

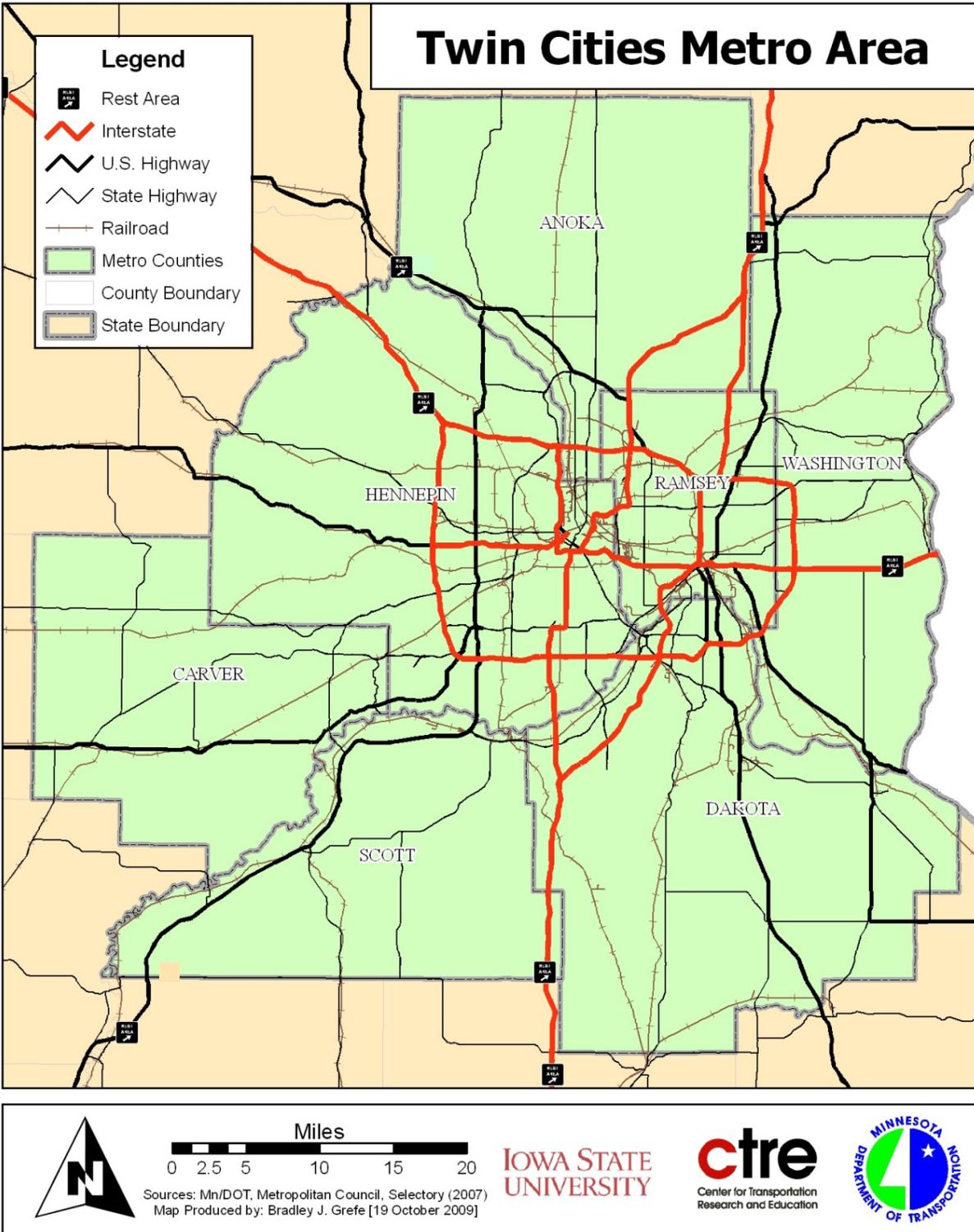


Figure 1. Major Highways in the Twin Cities and Rest Areas in the Metropolitan Region

Mn/DOT Truck Parking Study: Phase 2

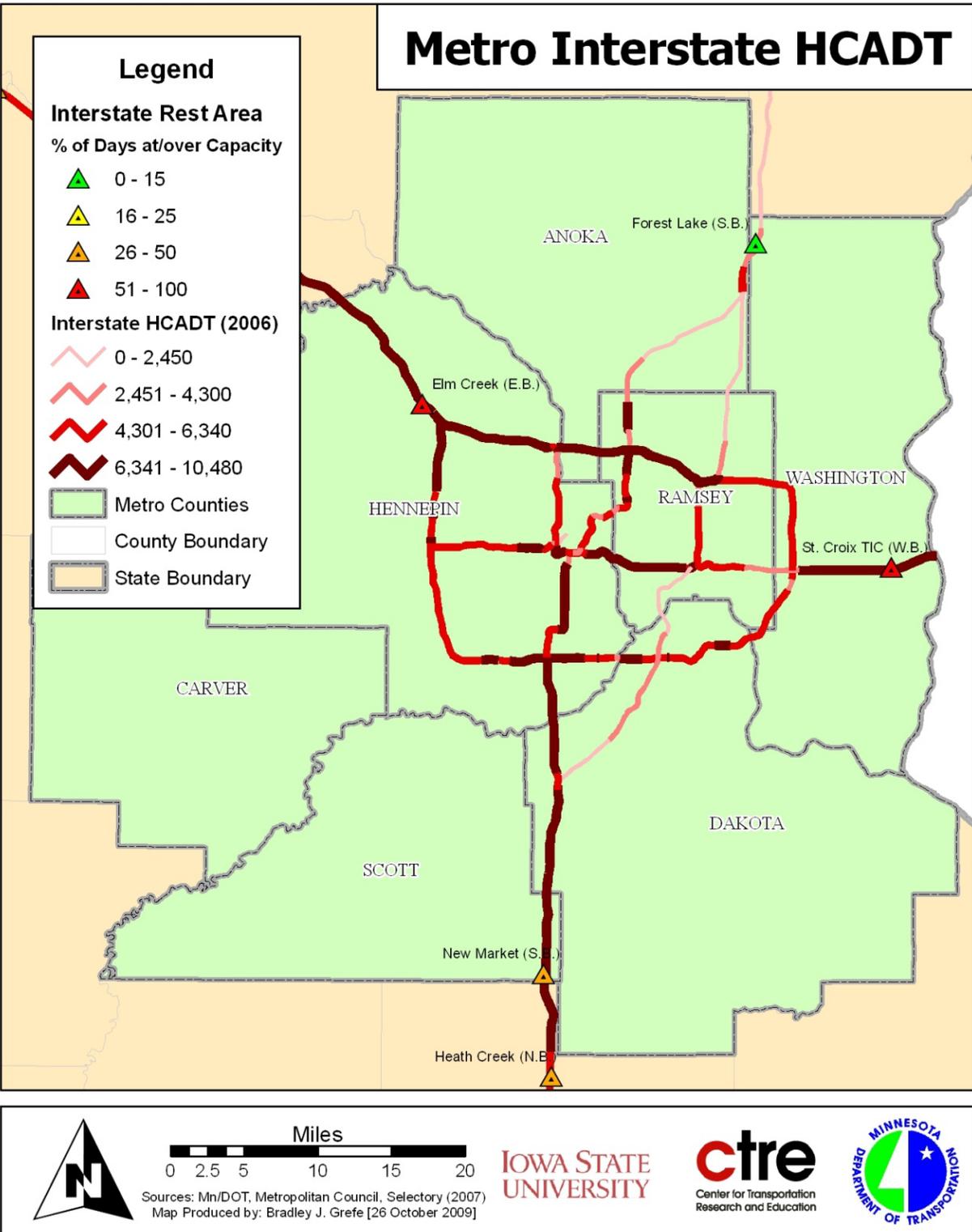
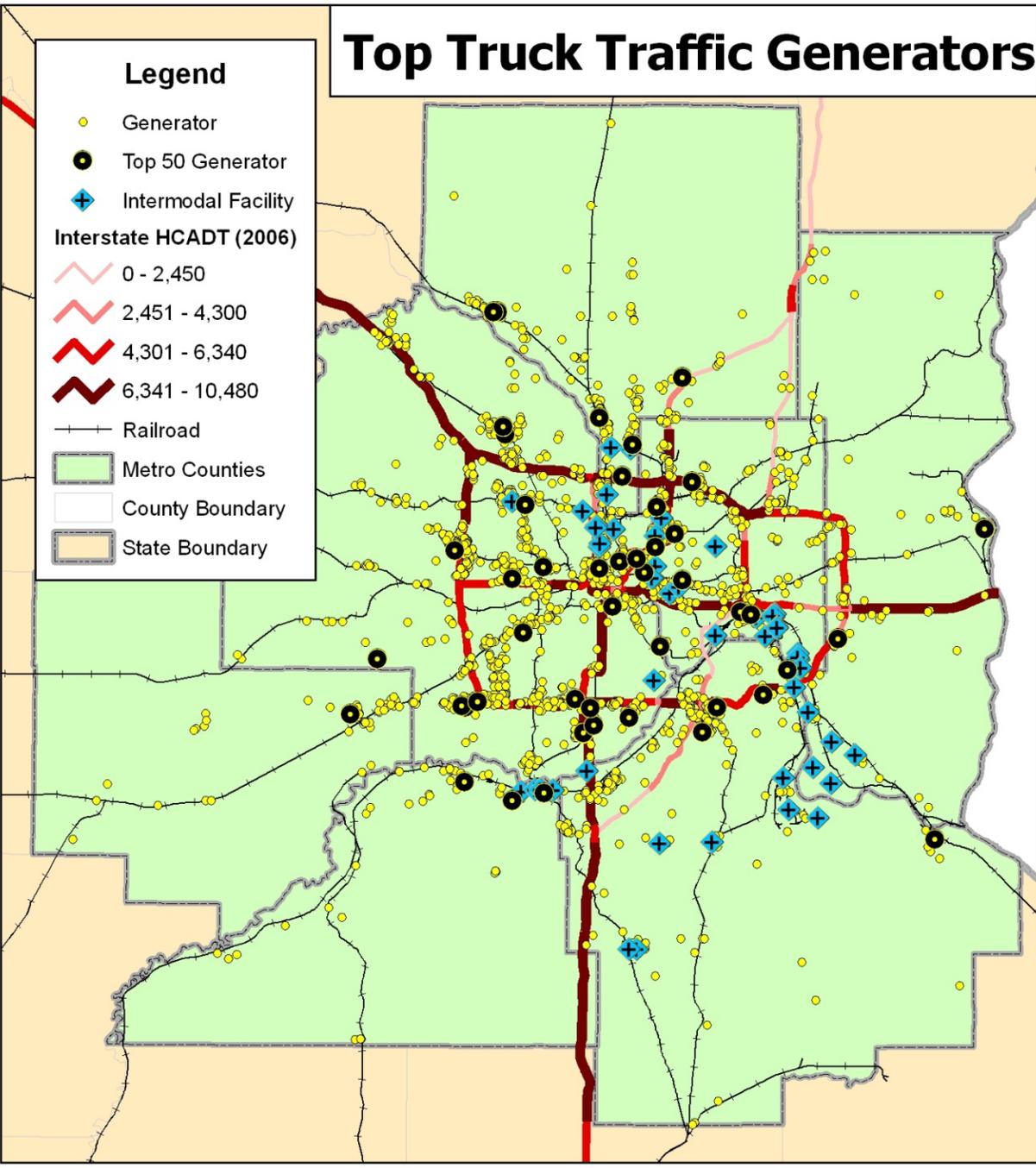


Figure 2. Heavy Commercial Average Daily Traffic (HCADT) along Interstates in the Twin Cities

Mn/DOT Truck Parking Study: Phase 2



Miles

IOWA STATE UNIVERSITY

ctre
Center for Transportation Research and Education

Sources: Mn/DOT, Metropolitan Council, Selectory (2007)
Map Produced by: Bradley J. Grefe [26 October 2009]

Figure 3. Intermodal Facilities and Major Truck Traffic Generators in the Twin Cities Region

In order to get a better understanding of the distribution of the truck traffic generators across the region and in relation to the roadway system, the locations of the generators were analyzed using geographic information systems (GIS). This spatial analysis was executed in two parts; 1) by determining the number of facilities within certain threshold distances of the interstate routes, and 2) by dividing the Twin Cities metro into quadrants and finding the general distribution of facilities across the region.

Distance Analysis

The first analysis examined the distribution of truck traffic generators using distance from an Interstate highway route as a function. Table 1 shows the number of Twin Cities metropolitan area truck traffic generators within specified threshold distances of an Interstate. Approximately 73% of all generators and intermodal facilities are within 2 miles of an Interstate.

Table 1. Distance from Metro Generators to Interstate Routes

Distance (Miles)	All Generators*		Top 50 Only*		Intermodal	
	No.	Pct.	No.	Pct.	No.	Pct.
0.25	503	21.0%	9	18.4%	6	9.7%
0.50	895	37.4%	20	40.8%	9	14.5%
0.75	1,204	50.3%	25	51.0%	19	30.6%
1.00	1,365	57.0%	29	59.2%	23	37.1%
1.25	1,485	62.0%	31	63.3%	30	48.4%
1.50	1,589	66.3%	32	65.3%	35	56.5%
1.75	1,692	70.6%	34	69.4%	35	56.5%
2.00	1,754	73.2%	34	69.4%	40	64.5%
3.00	1,980	82.7%	39	79.6%	48	77.4%
4.00	2,076	86.7%	41	83.7%	52	83.9%
5.00	2,138	89.3%	44	89.8%	55	88.7%
Total	2,395	100.0%	49	100.0%	62	100.0%

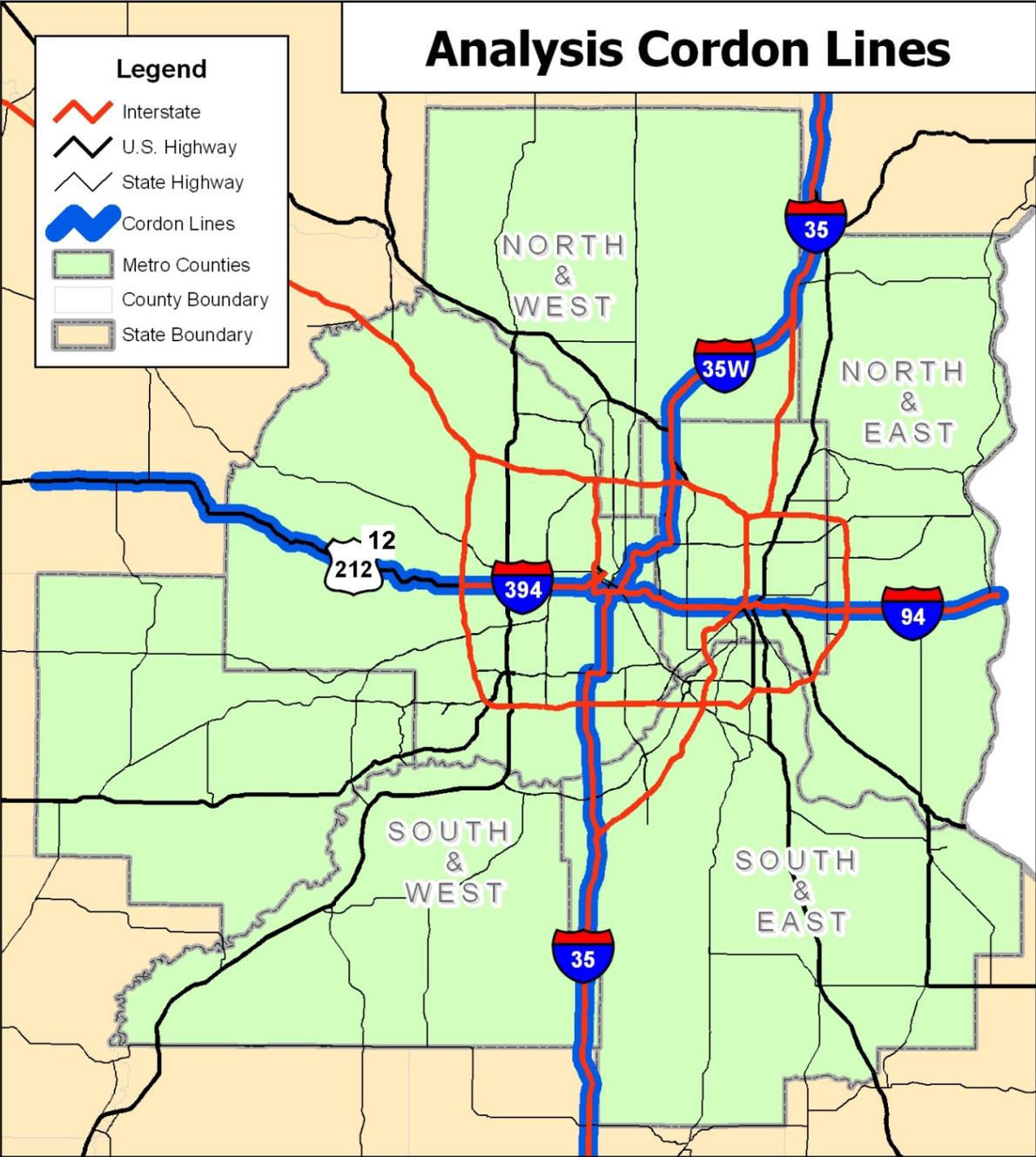
*Non-intermodal facilities

This analysis supports the assumption that a truck parking facility along, or relatively accessible to, the Interstate highway system would provide considerable accessibility for the majority of truck traffic and subsequent vehicles using overnight truck parking for staging.

Distribution Analysis

For the second part of the spatial analysis the Twin Cities metropolitan area was divided into quadrants to provide a better idea of where facilities are located. The highway system was used for setting quadrant boundaries. Figure 4 shows the cordon lines by which the generalized location of each facility was determined.

Mn/DOT Truck Parking Study: Phase 2









Sources: Mn/DOT, Metropolitan Council, Selectory (2007)
 Map Produced by: Bradley J. Grefe [23 October 2009]

Figure 4. Distribution Analysis Cordon Lines

As part of the distribution analysis, the east/west cordon was established by the north and south sections of Interstate 35, with Interstate 35W as the connecting link through the center. The north/south cordon was determined by extending the easternmost leg of Interstate 94 through the metro area via I-394 and U.S. Highway 12. The distribution analysis is summarized in the following tables.

Table 2. Distribution Analysis Summary of All Generators

All Generators (2,395)			
986 (NW)	380 (NE)	1,549 (W)	846 (E)
563 (SW)	466 (SE)	1,366 (N)	
		1,029 (S)	
41.2% (NW)	15.9% (NE)	64.7% (W)	35.3% (E)
23.5% (SW)	19.5% (SE)	57.0% (N)	
		43.0% (S)	

Table 3. Distribution Analysis Summary of Top 50 Generators

Top 50 Generators (49)			
16 (NW)	7 (NE)	28 (W)	21 (E)
12 (SW)	14 (SE)	23 (N)	
		26 (S)	
32.7% (NW)	14.3% (NE)	57.1% (W)	42.9% (E)
24.5% (SW)	28.6% (SE)	46.9% (N)	
		53.1% (S)	

Table 4. Distribution Analysis Summary of Intermodal Facilities

Intermodal Facilities (62)			
13 (NW)	7 (NE)	22 (W)	40 (E)
9 (SW)	33 (SE)	20 (N)	
		42 (S)	
21.0% (NW)	11.3% (NE)	35.5% (W)	64.5% (E)
14.5% (SW)	53.2% (SE)	32.3% (N)	
		67.7% (S)	

The distribution analysis of all truck traffic generators shows that, of the four quadrants, the northwest quadrant includes the largest share (about 41%) of generators while the northeast has the smallest share (about 16%). The southern half of the metro contains about 43% of the facilities. This would support the Task 1 assumption that the inbound parking congestion is oriented along Interstate 94 to the northwest and somewhat along Interstate 35 to the south, but not necessarily the need for more parking to the east of the metropolitan area. Focusing on the top 50 truck traffic generators, the percentages shifts to the south and east considerably, distributing the generators more evenly around the metro and supporting the need for parking on Interstate 35 to the south and Interstate 94 to the east. The distribution of intermodal facilities shifts these percentages even further to the southeast.

Looking at HCADT volumes in addition to locations of truck traffic generators, it becomes clearer that although truck traffic enters the metro area from each of the four major corridors discussed in Task 1, the trip characteristics are likely significantly different for each. First of all, the distribution analysis and HCADT volumes support the contention that a truck parking facility on Interstate 35 to the north of the metropolitan area is not a significant priority. Truck traffic on Interstate 94 to the east of the Twin Cities is both terminating in the metro area and continuing through it. HCADT volumes seem to support this assumption with higher volumes along the Interstate 694 bypass than into the heart of the metro area along Interstate 94. The same assumption can be made concerning Interstate 94 to the west. Interviews with representatives of local truck traffic generators, which will be discussed later in this document, support this assumption as well. In contrast, the majority of inbound truck traffic along Interstate 35 to the south can be characterized as terminating in the Twin Cities metropolitan area. In other words, Interstate 35 as it comes to the Twin Cities is much more of an “end of the road” destination than Interstate 94.

In addition to the spatial analysis, a review of the 2003 Mn/DOT study of the adequacy of freight corridors shows that 2/3 of the clusters fall in the southern half of the Twin Cities metropolitan area.

III. Interviews/Surveys of Traffic Generators

Task 3 also involved interviews and surveys of personnel from larger truck traffic generators in the Twin Cities in order to gain a better understanding of truck parking issues. Although very few formal surveys and interviews were completed, contacts with a few of the industry representatives provided some insight. Highlights include:

- Ron Have of Freightmasters, Inc. indicated that parking along Interstate 35 to the south would be the highest priority, followed by Interstate 94 to the east.
- Mike Feriancek of Select Comfort indicated that their vehicles do not stage, but he did note that he has observed very crowded rest areas along Interstate 35 in southern Minnesota. He also noted that trucks delivering to and from his facility sometimes park in their lot, which they offer as an alternative.
- Marty Tanke of Andersen Corporation noted that their vehicles do not stage, but he has heard of few problems along Interstate 94 to the east or west.
- Greg Nascene of Ford Motor Company noted that his trucks do not stage for delivery, but that truck stops along Interstate 94 do need expansion.
- Mark Bintzler of Aggregate Industries noted that Aggregate Industries trucks are parked at their plants each night and do not have inbound trucks requiring parking.

A copy of the interview form sent to the truck generators is attached as an appendix to this document.

IV. Discussions with Local and Regional Jurisdictions

This third task also involved discussions with local and regional transportation and land use planners. To date, discussions with Metropolitan Council and representatives from a few of the counties in the region have provided insight into possible locations that could accommodate a new truck parking facility. A brief summary of the discussions with the county officials follows:

- Brad Davis of Scott County noted that land along Interstate 35 is mostly agricultural, and there may be potential for this type of land use in the southern portion of Scott County near the existing interchange just north of the New Market rest area.
- Dennis O'Donnell of Washington County noted that land along Interstate 94 in Washington County is primarily incorporated and planned for future uses that would be less compatible with a truck parking facility. Overall, options are limited in Washington County. Nonetheless, an existing site of a mining/quarry operation in Lakeland Township may be suitable in the longer term (15-20 years). In addition, there may be smaller sites in and around Afton that currently have similar uses.
- Carver County noted a few existing locations of Mn/DOT right-of way and other potential locations, but they were not easily accessible to the Interstate network.
- Hennepin County has not responded to a request for information.
- Dakota County has not responded to a request for information.

A few preliminary/potential locations are shown in Figure 5 on the following page.

Mn/DOT Truck Parking Study: Phase 2

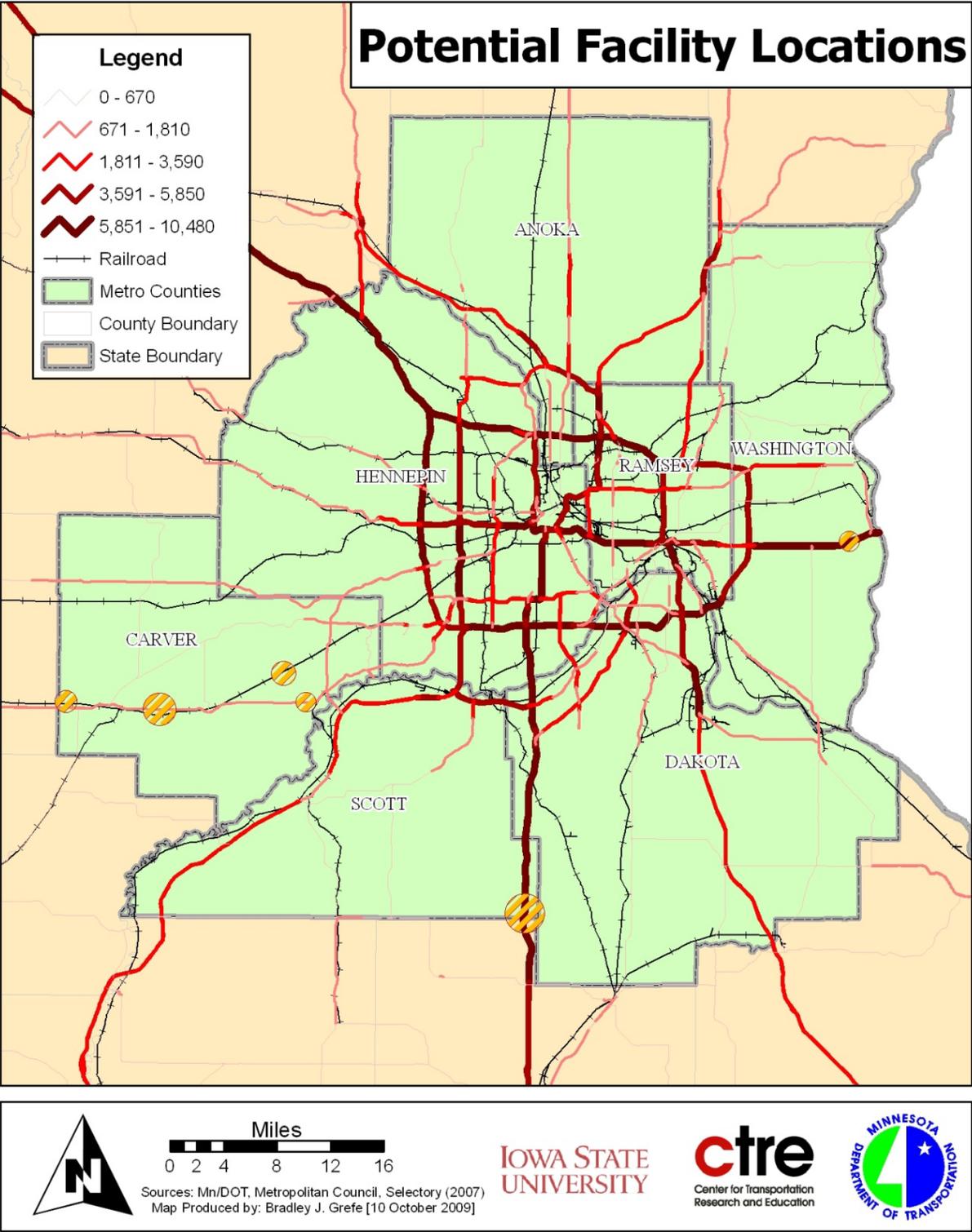


Figure 5. Potential Locations for a Future Truck Parking Facility

The preliminary locations identified by local planners include a few potential sites in Carver County that were identified as nodes of future industrial uses, a site in Scott County near the existing interchange at Interstate 35 and County Highway 2, and a site in Washington County that currently serves a mining/quarry operation in Lakeland Township. The sites in Scott and Washington County have very direct proximity to the Interstate system, while the Carver County sites may potentially serve more local traffic only.

In addition, preliminary discussions with the Metropolitan Council seem to support the location of truck parking facility to the south along Interstate 35 over locations along either Interstate 94 east or west. In general, according to Metropolitan Council, the long term land use plan and urban services boundary would provide for more compatible land use to the south portions of the metro. In other words, the NIMBY effect would be less of an issue to the south. Higher uses will be much more prevalent to north, especially along Interstate 94 west and along Interstate 94 east, as Washington County has also noted.

V. Interviews of Truck Stop Operators

This task also involved interviews and surveys of major truck stop operators. Three interviews were completed, which provided valuable insight into a potential for a partnership between the state of Minnesota and a private truck stop/parking company. The interview questions and responses follow:

1. Do you currently have plans to expand your business?
 - Yes
 - Unsure
 - Plans have not been finalized, but possibly
2. Do they include plans to open a new facility in the Twin Cities area?
 - No new development or expansion of facilities in Minnesota
 - No answer
 - Unlikely
3. If so, how large in terms of parking spaces do these plans entail?
 - No answer
 - No answer
 - No answer
4. If there are no expansion plans currently, are there reasons that they have not planned for a Twin Cities location?
 - Just not interested - the cost of property, expense of building a facility in an urban area, and the current economic conditions
 - Simply cited the economy – the main reason for not pursuing any expansion plans, not just the Twin Cities area.
 - In the Twin Cities area specifically, the expense of building a facility in an urban area, compatible land use, the cost of property, and truck drivers may not want to stop in more urban areas (difficult to maneuver their trucks, busier, etc.)

5. What kind of conditions would make a Twin Cities location attractive?
 - Generally unsure – mentioned high truck traffic volumes, but seemed unsure
 - Not sure
 - Not sure

6. What role should government (Mn/DOT) play in providing expanded truck parking?
 - Felt that the government should provide more parking options, but expressed concern about competition with their business. They would not approve of government run full service truck stops, but rest areas are okay. Also mentioned that the government could help them expand their facilities via grants or low interest loan programs (to offset the expansion costs in some way).
 - Indicated that providing more parking would be good. They also mentioned that their facilities often fill up, especially overnight, and they recognize that parking is an issue for truck drivers.
 - They indicated that the government/Mn/DOT should do more to provide more parking. They also mentioned that Mn/DOT should keep their current facilities open.

7. What is your opinion of the “Truck Oasis” program that was proposed awhile back?
 - Unsure if it has changed business at all
 - This person was not familiar with the program. They were to inquire with someone else within the company, but no response was received.
 - Not sure if it has helped for truck drivers (maybe a slight increase in other traffic, but didn’t know for sure).

8. Would you support government developing “non-commercialized” truck havens along Interstates to expand truck parking? The government would gear such Truck Havens to CMV operators, and the facilities would resemble rest areas featuring flush toilets and vending machines.
 - Not sure
 - Yes
 - Yes

9. Would you support government partnering with private truck stops at new and existing Interstate interchanges? The partnering could include sharing in the cost of expanding truck parking.
 - Not sure
 - Not sure
 - Not sure

10. Would you be willing to work with the Mn/DOT to address the truck parking shortage issue in Minnesota/Twin Cities Metropolitan Area?
 - Not sure
 - Not sure
 - Not sure

11. Are there incentives that would make the Twin Cities an attractive location?

- Unsure of what incentives would be needed
- Any way to reduce the operating or building costs would be an incentive. Also, any way to make it easier to expand their current facilities would be an incentive.
- Indicated that financial incentives would help

12. Any further comments, recommendations, etc.?

- None
- None
- None

In summary, the interviews of truck stop operators provided some insight into the need and demand for truck parking. In short, although the current economic recession has lowered the likelihood of a new private facility in the Twin Cities metropolitan area, at least in the near term, private interests would likely support limited government involvement in the basic role of supplying parking.

VI. Other Relevant Issues

The Minnesota DOT has two related initiatives that will be important to consider as the truck parking efforts move forward. The first is a proposal to implement a pilot project of a statewide Rural Interstate Truck Haven Program and the other is to install wireless Internet at some of Minnesota's rest areas. Details on these proposals are detailed below.

Mn/DOT Rural Interstate Truck Havens & Public Private Partnerships Pilot Project

Mn/DOT has identified a shortage of CMV parking services along freight movement corridors as a contributing factor to fatigue-related highway crashes. In addition, a *Minnesota Freight Advisory Committee* goal includes increasing truck parking on the urban fringe and expanding the rest area system. This project would evaluate and recommend the most cost effective approach to developing Truck Havens and Public Private Partnerships (PPP) to expand CMV parking services along Minnesota's highways where a shortage of CMV parking exists. The project would include the development of a pilot project and assess its effectiveness.

Mn/DOT Safety Rest Area Wireless Internet Services

Motorist and their electronic devices often need Internet access when traveling. Use of smartphones and other devices continue to grow and will help meet some motorist needs, however, the need for wireless Internet access will continue in the near future. Also, many motorists will continue to travel without such electronic devices and they could benefit from information that Mn/DOT would make available on rest area kiosks. Mn/DOT desires the introduction of wireless Internet access and kiosks at select Safety Rest Areas to better serve the communication needs of the motoring public. Mn/DOT would retain a vendor to design, develop, deploy and maintain wireless Internet access at select Mn/DOT rest areas.

In addition, there is national legislation being supported by the American Trucking Association that would provide federal funding for commercial vehicle parking at rest areas. This legislation, commonly known as “Jason’s Law”, would provide funds for building new rest areas and expanding and improving existing ones, consequently allowing truck drivers to safely and effectively follow hours-of-service regulations and get off the road when they are tired.

VI. Summary/Conclusion

The goal of this task was to better understand the spatial relationships between locations generating truck traffic and roadway traffic flow and parking needs in order to find potential locations for future truck parking facilities.

Based on the spatial analysis, locating a facility adjacent to the Interstate Highway system would provide good access to a majority of trucking destinations. In addition, guidance from Task 2 has identified proximity to the Interstate System as a major priority.² The spatial analysis also suggests locating a facility or facilities at a location along either Interstate 35 south of the Twin Cities, Interstate 94 west of the metro, or Interstate 94 east of the Twin Cities.

Discussions with representatives from traffic generators and planners from the region further suggest that a site to the south along Interstate 35 would be the most feasible in the short term.

² Northern New Jersey Transportation Planning Authority