Outline

- Problem Statement
- Research Objective and Scope
- Survey Data
- Visualization Tool Demo
- Results Analysis
- Conclusions
- Future Applications
Problem Statement

- 10-state Mississippi Valley (MV) region has about 20% of nation’s metro regions and metro population
- 11 metro areas in MV region with population greater than 1 million
- Chicago and Detroit – Bigger than the average size of 50 largest metro areas in the US
Problem Statement

- Metro areas serve as freight hubs connecting MV region to rest of the country
- This region is at the crossroads of the continental US and bridges E-W and N-S cross-country freight routes
- Freight mobility in MV region has been facing several critical issues. One of these issues is related to:
  - Lack of adequate truck parking facilities
  - Mismatch between available facilities and truckers need with regard to location, amenities and functional characteristics
Engage transportation stakeholders in improving truck parking planning and operations by the use of web-based GIS

- Identifying spatial locations where current truck parking problems occur
- Identifying the attendant circumstances driving the need for additional parking
- Proposing low-cost solutions to address the truck parking issue
Research Scope

- Area under consideration: 10-state Mississippi Valley region
- Truck parking facilities along interstate highways in the region
- Truck parking facilities along state highways in Wisconsin
## Distribution of Survey Responses

<table>
<thead>
<tr>
<th>Respondents Group</th>
<th>No. of Responses</th>
<th>No. of Locations Marked</th>
<th>No. of Valid Markers</th>
<th>No. of Invalid Markers</th>
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<tbody>
<tr>
<td>Highway Patrol</td>
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<td>31</td>
<td>30</td>
<td>1</td>
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<tr>
<td>Freight Planners</td>
<td>34</td>
<td>83</td>
<td>80</td>
<td>3</td>
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<td>Truck Drivers</td>
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<td>283</td>
<td>250</td>
<td>33</td>
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<td><strong>Total</strong></td>
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<td><strong>397</strong></td>
<td><strong>360</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

### Distribution of Survey Responses

- State Patrol: 71%
- Freight Planners: 21%
- Truck Drivers: 8%

### Invalid Markers

- Highway Patrol: 2.9%
- Freight Planners: 2.2%
- Truck Drivers: 9%

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Survey Data 04/14/2009
Welcome to MVFC Truck Parking Study
National Center For Freight & Infrastructure Research & Education

STEP 1: Select a designation

FOR HIGHWAY PATROL
- Truck Parking Space Shortage: 21
- Ramp Parking: 10
- No Idea: 5
- Other: 4

FOR FREIGHT PLANNERS
- Truck parking space shortage: 15
- Parking sufficient overall but shortage at critical points: 16
- No communication mechanism to inform drivers: 22
- Ramp parking: 16
- For TRUCK DRIVERS
- Availability of Gas/Restroom/Food: 117
- Level space/Lights/Noise: 44
- Security: 85
- Proximity to destination: 50

Parking issue Causes Suggestions
Problem: Always too full
Frequency: Almost every trip
Problem Observed At: 8pm - night
Among: somewhat serious locations.
Parking fees: Overnight stay waiting for next day delivery near defendant.
Steps: Not that I know of
Clusters of Parking Facilities

Clusters of Problem Parking Facilities in the MVFC Region

Average Severity of the Parking Issues for Clusters

- 0.45 - 0.54
- 0.55 - 0.61
- 0.62 - 0.63
- 0.64 - 0.72
- 0.73 - 0.78
- 0.79 - 0.84
- 0.84 - 0.95

CFIRE
Locations with Insufficient Parking

A Location near Chicago Showing Lack of Parking in Vicinity

- Public Rest Areas
- Private Truck Stops
- Problem parking facility from survey
- Not enough parking around
Possible Reasons for Parking Problems

Possible Reasons Causing Parking Issues

Parking areas are being used for staging purposes for nearby customers

Parking spaces are used for a break, to conform to the hours of service regulation

Peak demand occurs and there is not enough space during popular hours of use

Parking area is constantly full – no overflow available

Availability of truck parking along nearby highway is too limited

Other

% response value in each group
Conclusions

- Web-based technologies and open source GIS make it possible to enhance the stakeholders participation in transportation research

- Web-based GIS developed in this research offers a platform
  - To collect freight related geo-spatial data
  - To visualize the problem truck parking locations
  - To enhance public and private stakeholders communication

- Most common parking problem is related to capacity

- Major causes for truck parking
  - Parking areas being used for staging purposes
  - Break to conform to the hours of service regulation
  - Not enough parking spaces to meet the peak demand
  - Lack of communication systems informing truckers about available parking spaces nearby

- Solutions should be considered in the context of freight logistics and operations
Future Applications

- Establishment of a national or regional registering system for truck drivers to log their experienced problems regarding parking or congestions
- Correlation analysis of density of parking spaces and density of highway freight traffic
- Additional customized tools to facilitate users drawing lines and polygons on the map to show a corridor and region
- Implementation of other search methods such as intersection of highways and interchanges
Thank you

Questions