Automated Permitting and Routing for Oversized and Overweight Vehicles

Jay Adams, Oklahoma Department of Transportation
Politically Charged Atmosphere of OS/OW

1. What the Legislature Always Wanted – And Didn’t know
   • 24 hour system
   • Computers making decisions
   • Should Be Easy, Right?

2. 2 Different Agencies Involved – Yours, Mine and Ours
   • Oklahoma Department of Public Safety – Size and Weights Division, Law Enforcement and Finance
   • Oklahoma Department of Transportation – Bridge and Road Data, Engineering and Public Safety
   • ODOT only agency with successful implementations of IT – Should be Easy, Right?

3. Project Management – Who’s your Daddy?
   • Legislature – It’s our Money
   • ODPS – It’s our Laws and Employees
   • ODOT – It’s our Bridges, Roads and Safety (better living through engineering)

4. Challenge – Ownership and Management
## Evaluation for Oklahoma Legislature

<table>
<thead>
<tr>
<th>Business Problem</th>
<th>• Rapid Growth of OS/OW Permits and unacceptable times to provided safe routes and permits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution</td>
<td>• Develop an Internet based Routing and Permitting Solution, generate permits in a timely manner, provide a 24 hour web service and maintain public safety</td>
</tr>
<tr>
<td>Benefits</td>
<td>• Trucking Industry can maintain their critical schedules and the State doesn’t sacrifice public safety</td>
</tr>
<tr>
<td>Anticipated Long-Term Benefits</td>
<td>• Increased economic development for a friendlier business environment and overall cost savings to the State in better management operations</td>
</tr>
<tr>
<td>Future Plans and Strategy</td>
<td>• Work with surrounding states to look at possible OS/OW Permitting and Routing in the Cloud for a single permitting source for multiple states</td>
</tr>
</tbody>
</table>
Business Problem

- Increased safety and protection of the infrastructure
- Experienced exponential growth in OS/OW truck traffic
  - Agriculture, Oil, and Gas Industries power the Oklahoma Economy
  - Issues more than 200,000 permits per year (~800 per day)
  - Limited resources to fill the requests
- Increased pressure by the trucking industry
  - Carriers were waiting three days to a week for a permit
- Economic issues were prevalent
  - Delay in permits encouraged carriers to operate without a permit
Solution: Project Goals and Functionality

The Project Provides

- **DPS/DOT customers the ability to:**
  - Submit a permit request electronically
  - Generate safe routes automatically
  - Pay for and receive permits electronically

- **DPS/DOT with ability to:**
  - Keep pace with OS/OW permits demand
  - Preserve roadway infrastructure
  - Ensure public safety
  - Improve customer service
  - Enable monitoring and analysis

Through Key Components

- **Permitting**
- **Routing**
- **Restriction Management**
- **Administration**
- **Data Integration**
Solution: Project Goals and Functionality

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Through Key Components

- **Permitting**
- **Routing**
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- **Administration**
- **Data Integration**
Solution: Project Approach / Timeline

- **Nov 2009**
  - Project Kickoff

- **Aug 2011**
  - Code complete
  - FAT/SAT

- **Oct 2011**
  - Industry Training

- **Dec 2009 - July 2011**
  - Iteration Design

- **Sept 2011**
  - Beta Testing

- **Nov 2011**
  - Production Go Live!!!
Solution: Technical Approach

**Permitting**
- Cambridge provided web application
  - Java based
  - Oracle Database

**Automated Routing & Restriction Management**
- Intergraph Provided COTS
  - GeoMedia Desktop Products (Data processing / Management)
  - GeoMedia WebMap Professional
- Industryware – Configurable Software
  - Route Planner
  - Restriction Manager
  - VIRTIS Interface – Live Load Analysis
- Oracle Spatial Database
  - NAVTEQ Streets
  - Google Premium
  - Oklahoma Roadway and PONTIS Data
Solution: Technical Approach

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  - **Restriction Manager**
  - **VIRTIS Interface – Live Load Analysis**
- Oracle Spatial Database
  - NAVTEQ Streets
  - Google Premium
  - Oklahoma Roadway and PONTIS Data
Solution: Customer and Agent Friendly
Solution: Customer and Agent Friendly
Solution: Automated Routing

1. Road Network
2. Apply Roadway Restriction
3. Enter Vehicle and Load Information
4. Enter Origin and Destination
5. Submit Route Request

Automated Routing Application selects the Safe Route
Solution: Technical Challenges

- Cutting edge technology
- IT Infrastructure to support the application
- Conflation of Roadway and PONTIS Data to NAVTEQ
  - Positional Accuracy
    - Assignment to Road vs Ramps or both
    - On-structure vs over / under
    - Bridge Ratings and Vehicle Classification
  - Alignment of route identification with NAVTEQ Road Names
Lessons Learned – The Good, The Bad and The Ugly

**The Good** – Intergraph Commitment
- Ensuring success and commit resources to make it happen
- Thinking out of the Box with Successful Technology
- Intergraph Management took Ownership of Project

**The Bad** – Never a Crystal Ball when you need one
- NAVTEQ and Data Issues
- Bridge Location Dynamics
- Programming for the Unforeseen U Turns

**The Ugly** – Fool Me Once Shame on You, Fool Me Twice, You’re Out of Here!
- Project Management Issues
- Communication Issues
- Legislative Issues
- Ownership Issues
Benefits and Future

- **Benefits**
  - **Industry:** Can maintain their critical schedules with automated permitting and Live Load analysis for weights
  - **State:** Doesn’t sacrifice public safety and streamlines workflows for better productivity and accuracy

- **Anticipated Long-Term Benefits**
  - **Industry:** Increased economic development with a friendlier business environment and increased productivity
  - **State:** Overall cost savings to the State in better management operations and public safety

- **Future Plans and Strategy**
  - Work with surrounding states to look at possible OS/OW Permitting and Routing in the Cloud for a single permitting source for multiple states

**The End**
Applying for a permit

### Manager Queue

<table>
<thead>
<tr>
<th>Submitted Date</th>
<th>Application Id</th>
<th>Start Date</th>
<th>Status</th>
<th>Purchasing Company</th>
<th>Carrier</th>
<th>Outcome</th>
<th>Awaiting # Documents</th>
<th>Needs Info</th>
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<tbody>
<tr>
<td>3/1/11</td>
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### Agent Queue

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<th>Vehicle Load</th>
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### Weight Specialist Queue

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Local internet | Protected Mode: Off
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<th>Type</th>
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<th>Needs Info</th>
</tr>
</thead>
</table>

Release 1.11.13
Confirm Application

Payment and Delivery

Delivery Type: EMAIL

Comment

Customer Comment:

Additional Restrictions:

Branch and Contact Person

Carrier: OKLAHOMA TRUCKING
Branch: Oklahoma Trucking - Oklahoma City

Contact First Name: JAY
Contact Phone: 405-555-5555
Contact Fax: 405-521-4184

Contact Last Name: ADAMS
Contact Email: jadams@odot.org

Permit Details

GENERAL

Application ID: TBD
Permit Type: GENERAL
Permit Subtype: OVERSIZE
Configuration: TRUCK AND TRAILER

OVERSIZE

Trailer and Load Length: 50-1
Total Length (ft-in): 60-1
Height (13-9): 13-9
Width (ft-in): 10-6
**Permit Details**

**GENERAL**
- **Application ID:** TBD
- **Permit Type:** GENERAL
- **Permit Subtype:** OVERSIZE
- **Configuration:** TRUCK AND TRAILER
- **Travel Dates:** 02/21/2011; 02/22/2011; 02/23/2011
- **WalkIn:** NO
- **Emergency:** NO

**OVERSIZE**
- **Trailer and Load Length:** 50 ft
- **Total Length (ft-in):** 60 ft-1 in
- **Height (13-9):** 13 ft-9 in
- **Width (ft-in):** 10 ft-6 in
- **Gross Weight (lbs):** 60000

**TRUCK**
- **Make:** FORD
- **Year:** 2007
- **Tag Number:** 1346574
- **Tag State:** Oklahoma
- **Turnpike Speed:** YES
- **Interstate Speed:** NO
- **Special Purpose Dr...** NO

**TRAILER**
- **Make:** C & W MANUFACTURING
- **Year:** 1996
- **Tag Number:** 549843
- **Tag State:** Illinois
- **Serial Number:** 15-98436
- **Newly Manufacture...** NO
- **Lowboy-style Trailer:** NO

**Load Description:** MANUFACTURING PARTS
### Permit Details

**Screening Warnings**
No warnings for this application.

**General Info**

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**Carrier Info**

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<tr>
<th>Branch name</th>
<th>OKLAHOMA TRUCKING - OKLAHOMA CITY</th>
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<tbody>
<tr>
<td>Address Line 1</td>
<td>123 Main</td>
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<tr>
<td>City</td>
<td>OKLAHOMA CITY</td>
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<td>State/Province</td>
<td>OK</td>
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<td>Postal Code</td>
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**Vehicle Info**

| Truck Make:      | FORD                             |
| Truck Year:      | 2007                             |
| Turnpike Speed?: | Yes                              |
| Load Description:| MANUFACTURING PARTS               |
| Trailer Make:    | C & W MANUFACTURING              |
| Load Serial Number: | 15-988436            |
| Newly Manufactured?: | No                           |
| Total Length (ft-in): | 60-1                          |
| Truck Tag Number:        | 1546574                     |
| Interstate Speed?:       | Yes                            |
| Truck Tag State:         | Oklahoma                        |
| Lowboy?:                 | No                             |
| Trailer Year:           | 1996                           |
| Trailer Tag Number:      | 549843                        |
| Trailer Tag State:       | Illinois                        |
### Load Details

- **Load Serial Number:** 15-988426
- **Newly Manufactured:** No
- **Total Length (ft-in):** 60-1
- **Height (ft-in):** 13-9
- **Width (ft-in):** 10-6
- **Gross Weight (lbs):** 60000
- **Trailer Year:** 1995
- **Trailer Tag Number:** 549843
- **Trailer Tag State:** Illinois

### Contact Info

- **First Name:** JAY
- **Phone Number:** 405-555-5555
- **Fax Number:** 405-521-4184
- **Last Name:** ADAMS
- **Email Address:** jadams@odot.org

### Fees

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<thead>
<tr>
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<th>Description</th>
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<tbody>
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### Restrictions

Must contact all local authorities prior to movement on city streets and county roads. Travel prohibited during periods when conditions exist, which makes travel unsafe as determined by Troop Commander and/or Director of Size and Weights Permits Division.

All vehicles traveling Oklahoma turnpikes with loads in excess of 10-0 width shall be equipped with a Pikepass and utilize appropriately sized pikepass lanes.

Must Maintain Minimum Speed on Turnpikes and Interstates.

### Status Change/Comments

- **Date:** 17 Feb 2011 08:18:54
- **User:** AGENT
- **Status Change/Comment:** Submitted
- **Date:** 17 Feb 2011 08:18:54
- **User:** SYSTEM
- **Status Change/Comment:** Approved

[make payment button]
Restriction Manager Workflow
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<th>County</th>
<th>Division</th>
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<td>Closure</td>
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