CVO ENFORCEMENT
Using Technology and Partnerships to Solve Problems
(The Law Enforcement Perspective)

Presented to

2007 NATIONAL RURAL ITS CONFERENCE
TRAVERSE CITY, MICHIGAN – OCTOBER 9, 2007

BY
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Commanding Officer
Traffic Safety Division
Michigan State Police
Overweight trucks cause millions of dollars worth of premature damage to Michigan’s highway infrastructure each year.

Damage increases exponentially as weight increases.
EXAMPLES OF DAMAGE

- 80,000 pound truck (typical 5 axle semi truck-tractor/trailer) causes wear equivalent to 8,000-11,000 cars.
- 90,000 pound truck = 62% more damage than an 80,000 pound truck.
- 100,000 pound truck = 145% more damage.
- 120,000 pound truck = 420% more damage.

*Source: Prof. Kumares Sinha, Purdue University*
90,000 pound truck = $45,000/lane mile/year
100,000 pound truck = $106,000/lane mile/year
110,000 pound truck = $192,000/lane mile/year
120,000 pound truck = $306,000/lane mile/year

*Based on 1999 costs

**Source: Prof. Kumares Sinha, Purdue University
WEIGHT LIMITS IN MICHIGAN

- 164,000 pounds GVW spread over 11 axles.
  - No permit or escort required
  - No restriction on time/day of operation

- Superloads exceeding 164,000 pounds.
  - Special permit required
  - Special routing, time/day, and speed restrictions
  - Escort required
1982 – Weight Enforcement Transferred to Michigan State Police:

- 2007: Traffic Safety Division Created

- Merges Motor Carrier Division and Traffic Safety Section

- All State Police Traffic Safety programs under one command
CURRENT ENFORCEMENT

- 194 employees – CV Operations
- 15 weigh stations
- 110 mobile patrols (Tahoes)
- Special Transportation Enforcement Teams
MSP/MDOT COLLABORATION

2005: Commercial Vehicle Strategy Team
- MDOT and MSP meet regularly
- Collaboration and communication on all CV enforcement matters
- Strategies to improve CV enforcement

(cc) MMVI Jenni Jones @ flickr.com
PROGRAM PURPOSE

Purpose of the Motor Carrier Enforcement Program: Promote highway safety and security, protect highway infrastructure, and enforce the general laws of the State as they pertain to Commercial Motor Vehicle operations.
OBJECTIVE: PROTECT HIGHWAY INFRASTRUCTURE

- Enhanced enforcement
  - Safe enforcement sites
    - Road/Rest Area Program, other facilities
  - Asset management based decision-making
  - Appropriate weighing systems/technology
  - CV operational strategies

- Enhance communications
  - MSP Districts/MDOT Regions & TSCs
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION – WEIGH IN MOTION

- **Accuracy** – Gross vehicle weight
  - Piezo (left) 85%
  - Piezo (center) 85%
  - Quartz (right) 95%

- **Cost per lane**
  - Piezo (left) $16,000
  - Piezo (center) $16,000
  - Quartz (right) $26,000
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION – WEIGH IN MOTION

Vehicle Classification
Accuracy – Gross vehicle weight, 95% accuracy
Cost per lane $40,000
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION – WEIGH IN MOTION

QUARTZ WIRELESS
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRUCK WEIGHT INFORMATION SYSTEM

- Weigh in Motion data input into Truck Weight Information System (TWIS)
  - Data is downloaded on a daily basis
  - Gross level edit checks performed

- Staff compiles data monthly

- Data review
  - Compare average ESALS
  - Review commercial distribution by classification
  - Review mis-classifications
  - Trend comparisons
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRUCK WEIGHT INFORMATION SYSTEM

- Data availability
  - Through TWIS
  - Every truck
    - Date, time, direction, lane, truck classification, axle weights, axle spacing
    - Total trucks recorded to date – 1.75 million
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRUCK WEIGHT INFORMATION SYSTEM

I-69 South of Coldwater near Welcome Center, March 2007
Distribution of Trucks by Class

<table>
<thead>
<tr>
<th>Truck Classification</th>
<th>Percent of Total Trucks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buses</td>
<td>1.31%</td>
</tr>
<tr>
<td>Two Axles, Six tire, Single Unit</td>
<td>5.38%</td>
</tr>
<tr>
<td>Three Axles, Single Unit</td>
<td>1.83%</td>
</tr>
<tr>
<td>Four or More Axles, Single Unit</td>
<td>0.09%</td>
</tr>
<tr>
<td>Three or Four Axles, Single Trailer</td>
<td>3.23%</td>
</tr>
<tr>
<td>Four or More Axles, Single Unit</td>
<td>83.11%</td>
</tr>
<tr>
<td>Five Axles, Single Trailer</td>
<td>1.23%</td>
</tr>
<tr>
<td>Six or More Axles, Multi Trailer</td>
<td>2.42%</td>
</tr>
<tr>
<td>Five or Less Axles, Multi Trailer</td>
<td>0.51%</td>
</tr>
<tr>
<td>Six Axles, Multi Trailer</td>
<td>0.32%</td>
</tr>
<tr>
<td>Seven or More Axles, Multi Trailer</td>
<td>0.32%</td>
</tr>
</tbody>
</table>
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION - MSP

STATIC SCALES
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION - MSP

RAISED PORTABLE SCALES
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION - MSP

RECESSED PORTABLE SCALES - HMA
OBJECTIVE: PROTECT HWY INFRASTRUCTURE
TRAFFIC DATA COLLECTION - MSP

RECESSED PORTABLE SCALES - CONCRETE
## Wireless WIM Sites and Activity

<table>
<thead>
<tr>
<th>District</th>
<th>Location</th>
<th>Date Operational</th>
<th>Avg. Hours Per Week</th>
<th>Citations for Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US-127 – Clinton Cty.</td>
<td>February 2006</td>
<td>8-10</td>
<td>38</td>
</tr>
<tr>
<td>2N</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I-75 – Saginaw Cty.</td>
<td>June 2006</td>
<td>10</td>
<td>76</td>
</tr>
<tr>
<td>5</td>
<td>I-69 – Branch Cty.</td>
<td>February 2006</td>
<td>20</td>
<td>273</td>
</tr>
<tr>
<td>6</td>
<td>M-6 – Kent Cty.</td>
<td>July 2006</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>7</td>
<td>I-75 – Otsego Cty.</td>
<td>August 2007</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>8</td>
<td>US-2 - Delta Cty.</td>
<td>November 2006</td>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>858</strong></td>
</tr>
</tbody>
</table>

Average Fine - $2,000 \times 858 = $1,716,000
# OVERWEIGHT VIOLATIONS – RECENT EXAMPLES

<table>
<thead>
<tr>
<th>DATE</th>
<th>POUNDS OVERWEIGHT</th>
<th>STATUTORY FINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 20, 2007</td>
<td>20,300</td>
<td>$3,365</td>
</tr>
<tr>
<td>August 23, 2007</td>
<td>49,100</td>
<td>$9,722</td>
</tr>
<tr>
<td>September 14, 2007</td>
<td>39,900</td>
<td>$6,800</td>
</tr>
<tr>
<td>September 20, 2007</td>
<td>15,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>September 20, 2007</td>
<td>20,000</td>
<td>$3,720</td>
</tr>
<tr>
<td>September 21, 2007</td>
<td>25,000</td>
<td>$4,380</td>
</tr>
<tr>
<td>September 21, 2007</td>
<td>22,000</td>
<td>$3,920</td>
</tr>
<tr>
<td>September 24, 2007</td>
<td>29,700</td>
<td>$5,150</td>
</tr>
<tr>
<td>September 27, 2007</td>
<td>19,800</td>
<td>$5,560</td>
</tr>
<tr>
<td>September 28, 2007</td>
<td>14,800</td>
<td>$3,295</td>
</tr>
<tr>
<td>September 28, 2007</td>
<td>19,600</td>
<td>$5,832</td>
</tr>
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</table>
QUESTIONS??????

THANK YOU

Contact Information:
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