Overview

- ITMS Background
- Relationship to Freight and Goods Movement
- ITMS priorities
Transportation Management Program
Background
What is ITMS?

Answer: Delaware’s Integrated Transportation Management System

- ITMS is Delaware’s ITS program. Delaware emphasizes *integration* and *management*, just as much as *technology*. 
Congestion is Increasing Faster than Capacity…

…and most congestion (60%) is for reasons other than a traditional “bottleneck”.

In 2010, the nation spent 4.8 billion hours and 1.9 billion gallons of fuel sitting in traffic, which resulted in a congestion cost of $101 billion dollars

2011 Urban Mobility Report, Texas Transportation Institute

Note: Based on latest available information
Integrated Transportation Management Strategic Plan (1997)

- Required a foundation for a shared mission and vision between all of Delaware’s Transportation Management System stakeholders.

- The plan defined Delaware’s Transportation Management:
  - Mission
  - Vision
  - Goals
  - Strategies for Implementation

- Defined a Statewide Transportation Management Program managed from a central Transportation Management Center (TMC).
Delaware Long Range Transportation Plan 2010

Policy Principle #4:
Cost-Effective Objectives:

• “Use cost-effectiveness as a key indicator when prioritizing projects or choosing among alternatives optimizing the investment of resources across all modes and balancing fiduciary responsibilities”

• “Maintain and use existing resources and equipment as a means toward cost effectiveness”

• “Take advantage of technology as a means of providing efficient service”
Federal Initiatives

- Designing for Operations
- Active Traffic Management and Managing Travel Demand (ATDM)
- Every Day Counts
- Planning for Operations
- Real-Time Traveler Information
- Road Weather Management

Delaware's Integrated Transportation Management System
• Capital Transportation Program (CTP) Project includes:
  – 24-hour statewide Transportation Management Center (TMC)
  – Integrated Transportation Management System (ITMS) – planning, design, implementation, operations and maintenance of statewide intelligent transportation system (ITS)
  – Transportation incident and event planning and operations
  – Transportation Homeland Security planning and operations
Transportation Incident and Event Management Plan (TIEMP)

• Defines how DelDOT will operate during incidents and events.

• Establishes the Transportation Management Team (TMT) concept.
  – Provides for the safe movement of persons and vehicles from the affected area(s).
  – Provides access for emergency responders.

• Defines the responsibilities and guidelines for TMTs.
  – Communication
  – Response
  – Resources

This plan is available online – look for “Project Documents”
http://tmt.deldot.gov

Delaware's Integrated Transportation Management System
Transportation Management Center (TMC)

- 24/7 statewide operation
- Coordinates and manages DelDOT’s response to any incident or event that impacts Delaware’s multimodal transportation system
- Monitors and controls all ITMS intelligent transportation systems
- Transportation incident and emergency management planning and operations
- Transportation Homeland Security planning and operations
ITMS Relationships - Internal

Division of Planning
- CYSIS
- Aeronautics

Division of Maintenance & Operations
- North
- Canal
- Central
- South

Division of Transportation/Solutions
- Planning
- Design
- Construction

Delaware Transit Corporation
- DART
- Rail (SEPTA/Amtrak)

Internal Information Communications

DMV

TMC

Public

DelDOT
- Public Relations
- Web Site
- #77
- WTMC 1380AM

Provide external customers with information on:
- Road Conditions
- Transit Schedules
- Work Zones
- Special Events
- Weather Incidents
- Traffic Conditions

Work with internal divisions to:
- Manage Incidents and Events
- Maintain the System
- Manage work zone traffic
- Maintenance of Traffic
- Manage Construction

Delaware's Integrated Transportation Management System
## ITMS Relationships - External

**Our Neighbors**
- MD
- NJ
- PA
- VA

**Federal**
- DOT
- FHWA
- NTSB
- FAA
- FEMA
- DHS
- DAFB
- FRA
- FTA

**Agencies**
- DRBA
- I-95 CC

**Transit**
- SEPTA
- AMTRAK

**Rail**
- Norfolk Southern
- CSX

### External Agency Communications

**Emergency Management**
- DEMA
- New Castle
- Kent
- Sussex
- Wilmington

**Police**
- State Police
- County Police
- Municipal

**Fire/EMS**
- State Fire School
- DVFA
- Municipal
- City of Wilmington

---

Work with external agencies to share information and to manage Incidents, Events and Homeland Security Issues.


---

Delaware's Integrated Transportation Management System
The TMC Performs Three Critical Functions

- **Monitoring**
  - Did the tow truck arrive?
  - Have conditions changed?

- **Control**
  - Adjust traffic signals to manage the detour route
  - Staff on scene to control traffic

- **Information**
  - Is the public informed?
  - Have conditions changed?

Delaware's Integrated Transportation Management System
Relationship to Freight and Goods Movement
Transportation Management Benefits All Travelers

- 24-7 Operations
  - Control
  - Monitoring
  - Information

- Planning and Teamwork
  - Transportation Management Teams
  - Incident Plans and Procedures
Control Systems

- Traffic signal system
- Transit schedule adherence/AVL system
- Gate control monitoring
- Variable speed limit sign system
- Incident/event management system
- “Back office” administration
“Back Office” Control – CVISN

• CVISN is a collection of state, federal, and private information systems and communications networks that support commercial vehicle operations in three key areas:

1. **Electronic Credentialing:** Allows carriers to apply for and receive credentials electronically

2. **Safety Information Exchange:** Improves the exchange of safety and credential information among state agencies and between states & FMCSA

3. **Electronic Screening:** Automatically screen vehicles at roadside and allow safe and legal vehicles to bypass weigh stations without stopping (*E-ZPass* for trucks)
Back Office” Control – PRISM

- Integrates Commercial Vehicle Registration Process and Motor Carrier Safety Improvement Process (MCSIP)
  - Identify motor carriers and hold responsible for safety of their operations
  - Track performance of unsafe carriers
  - Treatment ranges from “Warning Letters” to revocation of registration for unsafe carriers by State of Delaware & FMCSA
CVISN Vision: Safe & Efficient Shipping Operations

- Automated Fleet and Freight Administration
- Electronic Tag
- Mobile Comm
- Safety Equipment
- Onboard Computer
- Onboard Monitors
- Onboard Navigation
- “Paperless” Vehicle
- Electronic Screening
- Weigh-In-Motion
- Seamless Intermodal Operations
- Automated Inspections
- International Border Clearance
- HAZMAT
- 'Delaware's Integrated Transportation Management System
Monitoring System

• Traffic
  – Traffic volume
  – Occupancy (delay)
  – Speed
  – Classification
  – Travel time
  – Origin and destination
  – Real-time
  – Predictive

• Weather
  – Air temperature
  – Barometric pressure
  – Relative humidity
  – Precipitation type & volume
  – Pavement temperature
  – Subsurface temperature
  – Pavement surface
    • Dry, wet, ice
  – Stream & river
    • Depth & velocity
  – Tide height
Expanding Statewide System

- Statewide electronic monitoring network
  - Fixed and Portable:
    - Video Monitoring System
    - Roadway Weather Information System (RWIS)
    - Signal system loop detectors
    - Microwave (radar) detection on freeways
    - Automated traffic recorders statewide
    - Bluetooth detection
    - Near real-time road status
    - 330+ locations and growing
    - Leveraging existing ITMS spatial data – GIS
    - Permanent, portable in-vehicle “dash” cameras
Freight Traffic Monitoring

- Truck data types
  - Length
  - FHWA classification (by axle)
  - Weight
- Frequency of collection
  - Full-time/real-time
  - Full-time/historical
  - Temporary studies
Providing Customer Information

- WTMC 1380 AM – primary license
  - Statewide synchronized repeater sites

- Real-time website
  - http://www.deldot.gov
  - Interactive traffic maps
    - Incidents, cameras, closures, roadway, weather, traffic delay
    - Freeway travel times
  - http://deldot.gov/mobile
  - Live traffic cameras
  - WTMC 1380 AM

- Twitter, Facebook

- Smartphone applications
  - Android and iPhone

- Electronic Changeable Message Signs
Multi-Agency Electronic Information Exchange

- Email groups
- New world Computer Aided Dispatch (CAD)
- Incident master
- Electronic Operations (EOPS) application
- Smartphone applications
- Extranet

Delaware's Integrated Transportation Management System
Statewide Telecommunications

• Fiber and wireless:
  – Field devices
  – TMC
  – Emergency Operations Centers
  – State police barracks
  – DelDOT buildings
  – Other states
Partnerships and relationships
- Continue improving transportation management teams
- Delaware Intelligence Analysis Center (DIAC)
- Continue regional coordination
  - I-95 Corridor Coalition
  - Integration with adjoining states (MD, PA, NJ)
- Event planning

Training
- TMC staff
- DelDOT 1st responders
Transportation Management Teams

- Multiagency responders collaborating on transportation-related incident management
- Meetings to discuss incidents, construction projects, detours, special initiatives
- Improving incident management reduces congestion and travel delay
Because of These Relationships

- ITMS is critical for planning and managing:
  - Emergencies
  - Evacuations
  - Planned Special Events
Incident Plans and Procedures

- Response plans for natural/manmade events
- Emergency operations and communications
- Routing, detour, and traveler information to facilitate the movement of people and goods
Portable monitoring of work zones, emergencies and planned events
Transportation Management Priorities
1. Keep existing systems working
2. Expand/enhance existing systems
3. Implement new systems
## ITMS Priorities

<table>
<thead>
<tr>
<th>ID</th>
<th>Route</th>
<th>Segment limits</th>
<th>Segment Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>US 202</td>
<td>Wilmington Line to PA line</td>
<td>5.1</td>
</tr>
<tr>
<td>27</td>
<td>SR 2 (Kirkwood Highway)</td>
<td>Newark to Wilmington Line</td>
<td>9.54</td>
</tr>
<tr>
<td>8</td>
<td>SR 4</td>
<td>SR 7 to Wilmington Line</td>
<td>5.79</td>
</tr>
<tr>
<td>2</td>
<td>SR 7</td>
<td>SR 273 to US 40</td>
<td>1.93</td>
</tr>
<tr>
<td>16</td>
<td>SR 273</td>
<td>SR 273(Newark) to SR 141</td>
<td>9.4</td>
</tr>
<tr>
<td>10</td>
<td>US 13</td>
<td>South of Wilmington, I-495 to US 40 split</td>
<td>5.25</td>
</tr>
<tr>
<td>7</td>
<td>SR 4</td>
<td>Elkton Rd. to SR 7</td>
<td>7.48</td>
</tr>
<tr>
<td>11</td>
<td>US 40</td>
<td>MD line to US 13 split</td>
<td>9.93</td>
</tr>
<tr>
<td>1</td>
<td>SR 7</td>
<td>SR 4 Split to PA Line</td>
<td>6.65</td>
</tr>
<tr>
<td>13</td>
<td>Churchmans Rd.</td>
<td>SR 4 to SR 273</td>
<td>3.89</td>
</tr>
<tr>
<td>25</td>
<td>SR 141</td>
<td>SR 37 to SR 9</td>
<td>2.76</td>
</tr>
<tr>
<td>15</td>
<td>SR 92 (Naamans Rd.)</td>
<td>US 202 to US 13</td>
<td>5.7</td>
</tr>
<tr>
<td>29</td>
<td>SR 141</td>
<td>SR 2 to US 202</td>
<td>6.00</td>
</tr>
<tr>
<td>22</td>
<td>Old Baltimore Pike</td>
<td>SR 896 to SR 273</td>
<td>4.62</td>
</tr>
<tr>
<td>19</td>
<td>Foulk Rd.</td>
<td>US 202 to Naaman's Road</td>
<td>3.99</td>
</tr>
<tr>
<td>14</td>
<td>Chapman Rd.</td>
<td>Salem Church Rd. to SR 273</td>
<td>1.43</td>
</tr>
<tr>
<td>28</td>
<td>Silverside Rd</td>
<td>US 202 to US 13</td>
<td>4.56</td>
</tr>
<tr>
<td>20</td>
<td>Milltown Rd.</td>
<td>SR 2 to SR 41</td>
<td>2.94</td>
</tr>
<tr>
<td>6</td>
<td>SR 896</td>
<td>South of Newark to Boyd's Corner</td>
<td>12.92</td>
</tr>
<tr>
<td>21</td>
<td>SR 41</td>
<td>PA line to SR 2</td>
<td>6.15</td>
</tr>
<tr>
<td>4</td>
<td>SR 72</td>
<td>South of Newark to US 13</td>
<td>9.06</td>
</tr>
<tr>
<td>26</td>
<td>SR 48</td>
<td>SR 41 split to Wilmington border</td>
<td>4.83</td>
</tr>
<tr>
<td>9</td>
<td>US 13</td>
<td>North of Wilmington to PA line</td>
<td>5.89</td>
</tr>
<tr>
<td>18</td>
<td>SR 299</td>
<td>US 201 to US 13</td>
<td>3.71</td>
</tr>
<tr>
<td>17</td>
<td>SR 9</td>
<td>Terminal Ave. to Chesnut St.</td>
<td>4.17</td>
</tr>
<tr>
<td>3</td>
<td>SR 72</td>
<td>North of Newark</td>
<td>5.61</td>
</tr>
<tr>
<td>24</td>
<td>SR 52</td>
<td>Wilmington border to PA line</td>
<td>5.51</td>
</tr>
<tr>
<td>5</td>
<td>SR 896</td>
<td>North of Newark</td>
<td>2.92</td>
</tr>
<tr>
<td>23</td>
<td>SR 71</td>
<td>US 13 to SR 896</td>
<td>4.73</td>
</tr>
</tbody>
</table>

### Corridor Prioritization

- **High**
- **Moderate**
- **Low**

Based on following Criteria:
- Location along Current CMS Corridors
- Corridor AADT
- Signal Density
- Failing Intersections
- Crash Rates
- Func. Classification

---

*Delaware's Integrated Transportation Management System*
## ITMS Priorities

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Corridor</th>
<th>Length (mi)</th>
<th>TRS/DSTEP</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US 202</td>
<td>5.1</td>
<td>TRS</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>2</td>
<td>Cleveland Avenue</td>
<td>1.2</td>
<td>DSTEP</td>
<td>Completed in 2010</td>
</tr>
<tr>
<td>3</td>
<td>DEL 896</td>
<td>10.8</td>
<td>TRS</td>
<td>Pending—next in line for retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>4</td>
<td>Old Baltimore Pike</td>
<td>4.7</td>
<td>TRS</td>
<td>Completed in 2011</td>
</tr>
<tr>
<td>5</td>
<td>DEL 273, Christiana</td>
<td>9.2</td>
<td>TRS &amp; DSTEP</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>6</td>
<td>DEL 2, Kirkwood HW</td>
<td>8.8</td>
<td>TRS</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>7</td>
<td>DEL 72</td>
<td>2.6</td>
<td>TRS &amp; DSTEP</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>8</td>
<td>US 40, Pulaski HW</td>
<td>9.9</td>
<td>TRS</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>9</td>
<td>DEL 4</td>
<td>7.6</td>
<td>TRS &amp; DSTEP</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>10</td>
<td>US 13</td>
<td>5.4</td>
<td>TRS</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>11</td>
<td>DEL 141, Basin Rd.</td>
<td>2.8</td>
<td>TRS</td>
<td>Pending—next in line for retiming and/or field installations for traffic responsive operation</td>
</tr>
<tr>
<td>12</td>
<td>DEL 7, Limestone Rd</td>
<td>6.9</td>
<td>TRS</td>
<td>In Progress—undergoing retiming and/or field installations for traffic responsive operation</td>
</tr>
</tbody>
</table>

TRS Status (as of October 2012)
- Complete: Have been re-timed or upgraded
- In-Progress: Currently undergoing retiming or field installations
- Pending: Next in line for retiming or field installations

Map ID Corridor Length (mi) TRS/DSTEP Status Year Completed
1 US 202 5.1 TRS In Progress—undergoing retiming and/or field installations for traffic responsive operation
2 Cleveland Avenue 1.2 DSTEP Completed in 2010
3 DEL 896 10.8 TRS Pending—next in line for retiming and/or field installations for traffic responsive operation
4 Old Baltimore Pike 4.7 TRS Completed in 2011
5 DEL 273, Christiana 9.2 TRS & DSTEP In Progress—undergoing retiming and/or field installations for traffic responsive operation
6 DEL 2, Kirkwood HW 8.8 TRS In Progress—undergoing retiming and/or field installations for traffic responsive operation
7 DEL 72 2.6 TRS & DSTEP In Progress—undergoing retiming and/or field installations for traffic responsive operation
8 US 40, Pulaski HW 9.9 TRS In Progress—undergoing retiming and/or field installations for traffic responsive operation
9 DEL 4 7.6 TRS & DSTEP In Progress—undergoing retiming and/or field installations for traffic responsive operation
10 US 13 5.4 TRS In Progress—undergoing retiming and/or field installations for traffic responsive operation
11 DEL 141, Basin Rd. 2.8 TRS Pending—next in line for retiming and/or field installations for traffic responsive operation
12 DEL 7, Limestone Rd 6.9 TRS In Progress—undergoing retiming and/or field installations for traffic responsive operation

Delaware's Integrated Transportation Management System

35
• Expand the statewide signal system and transportation system monitoring devices
• Transportation Homeland Security and incident management
• Provide customer information
  – Agency to agency
  – Media
  – Public
• Transit schedule adherence system
• Telecommunications
How to Stay Tuned

- [www.deldot.gov](http://www.deldot.gov)
- [www.deldot.gov/mobile](http://www.deldot.gov/mobile)
- WTMC 1380 AM
- Twitter
- Facebook
- RSS Feed