

Michael Baker

INTERNATIONAL

We Make a Difference



Florida DOT Data Symposium Transportation Video log Systems August 2015

Presenter

- **Justin Furch, MCTS**

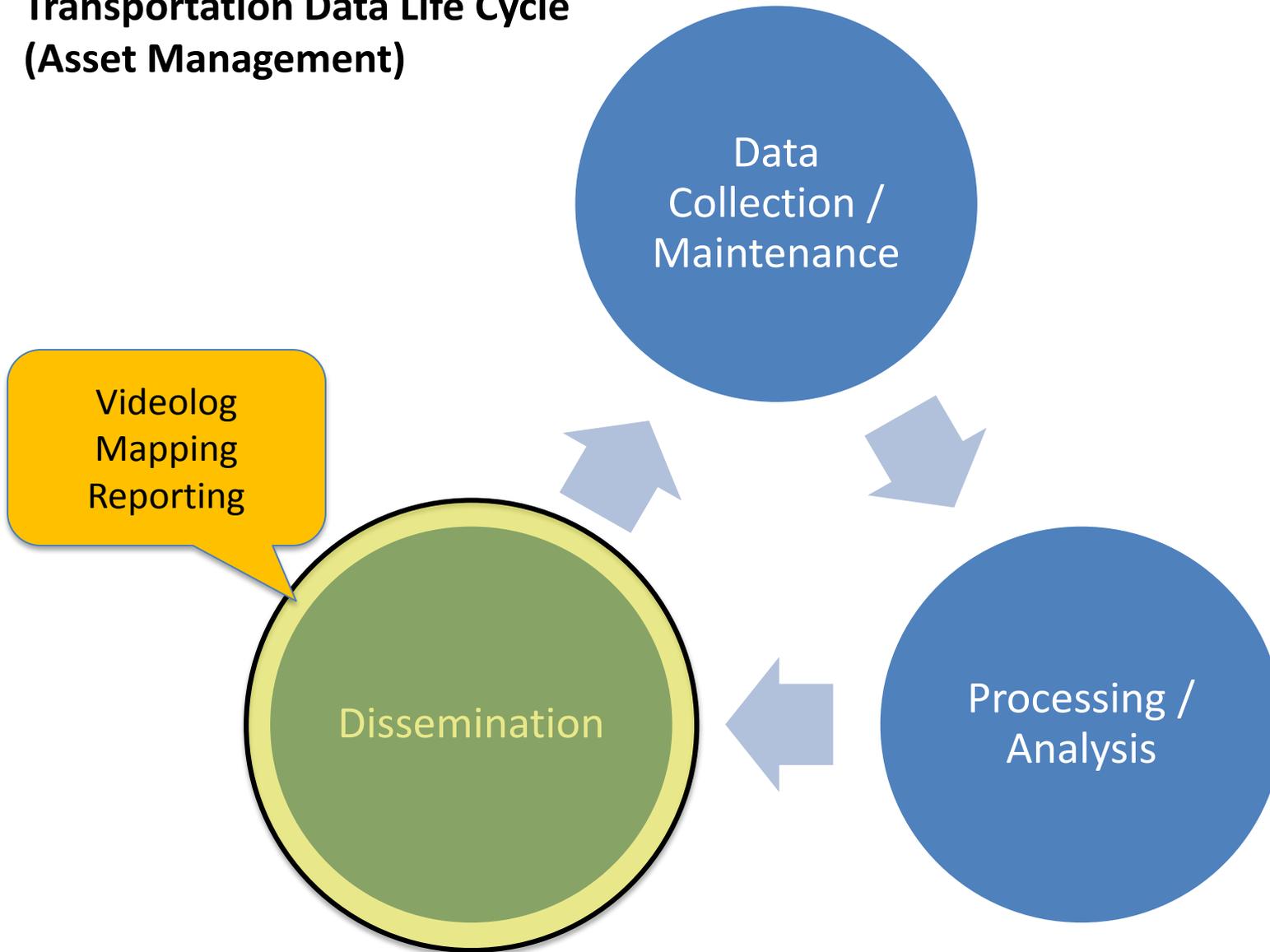
- Department Manager – Geospatial Information Technology (GIT)



Transportation Videolog Systems

- Transportation Data Life Cycle
- Past Inventory Practices
- Modern data collection methods
- 3 Types of Videolog Systems
- Considerations for future systems

Transportation Data Life Cycle (Asset Management)



Past Inventory Practices



Roadway Inventory

- Field Inspection
- "Windshield Survey"
- Office Data Entry



Roadway Videolog

- Motion Cameras
- DMI location
- Limited GPS Capabilities

“Drive Once, Use Many”

Efficient full network data collection should minimize the need for multiple field visits.

Modern data collection methods

Single collection concept

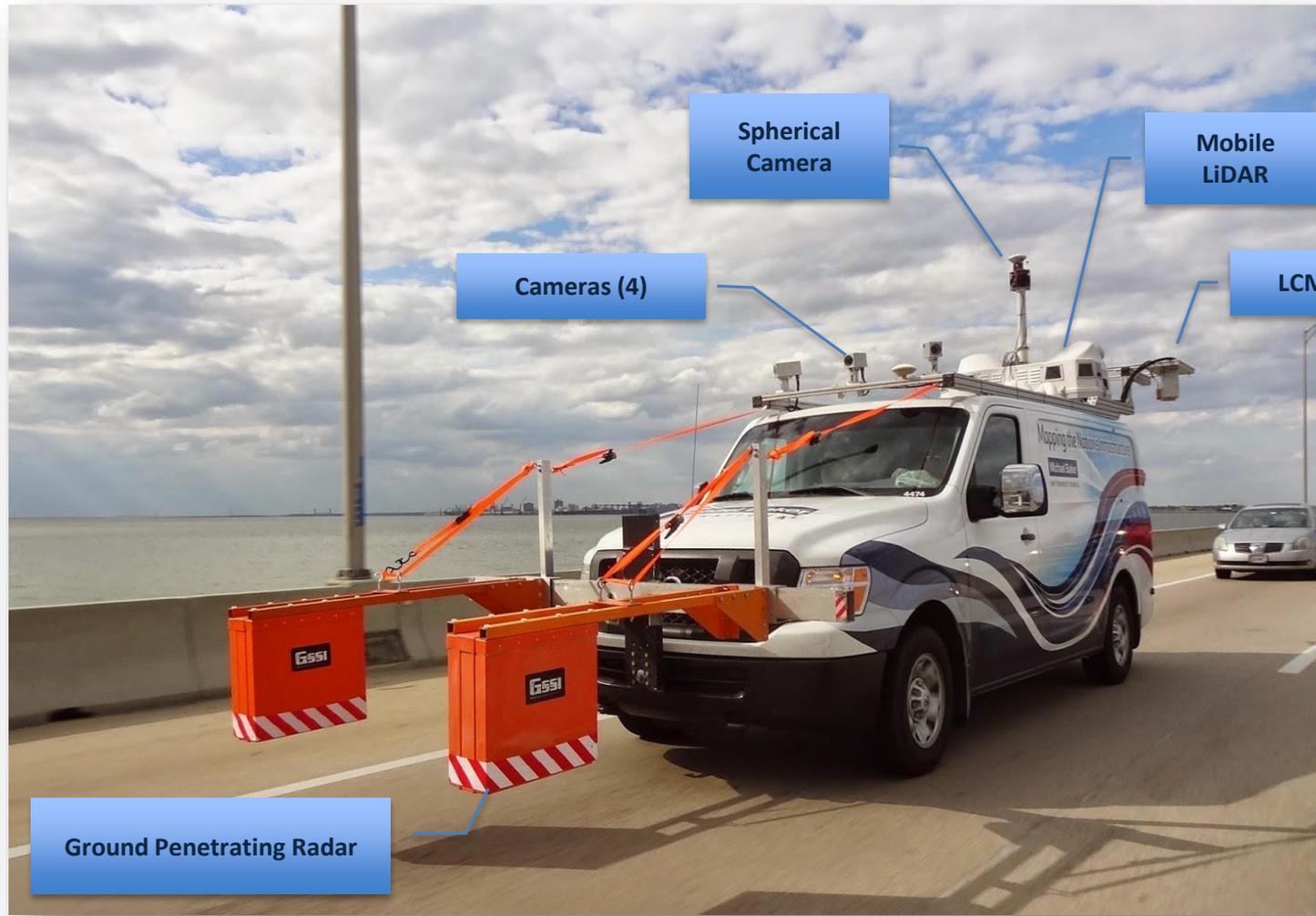




Photo Collection

- Multiple Cameras
- Multiple Formats (standard, 360 deg)

LiDAR Collection

- Asset Collection
- Survey-grade Engineering data

LCMS Collection

- 3D Pavement Imaging
- Transverse Profiling (Rutting)
- Longitudinal Profiling (IRI)

GPR Collection

- Sub-surface assessment
- Pavement thickness and voids

Three types of Videolog systems

1) Basic Videolog Application:

- Roadway Images
- Date\Time
- Image Location
- Playback functionality

2) Specialized Videolog Systems:

- Basic system functionality, plus:
- Subject specific functionality
- (Pavement):
 - Pavement Cameras
 - Pavement Attributes
 - Detailed distress locations

3) Roadway Portal

- Basic system functionality, plus:
- Additional functionality:
 - Roadway attribution
 - Ramps and Cross-streets
 - Searching (Street Names, Counties, etc.)
 - Printing and Reporting
 - Additional Views – Map, Straight Line Diagram, Roadway Profile

1) Basic Videolog Application

Basic Videolog - Mississippi DOT Videolog

The screenshot shows a web browser window with the address `file:///Volumes/dev$/MDOT/Web%20Videolog/CD%20Demo/M`. The page title is "MDOT Video Log".

Route Location: This section contains several dropdown menus: "County: Select" (highlighted in yellow), "Road Number: Select", "Route Name: Select", and "Direction: Select". There is also a "Milepost:" input field and icons for help and FAQ.

Photo: A large video frame showing a road view from a camera perspective. The road has white lane markings and a utility pole is visible on the right side.

Location: A Google Map of the Southeastern United States, showing parts of Arkansas, Mississippi, Alabama, Georgia, Louisiana, and Texas. Major cities like Atlanta, Houston, and New Orleans are labeled. Below the map are fields for "Latitude", "Longitude", and "Satellite" view.

Select Camera: A diagram of a camera unit with a yellow "L" label. Below it is a dropdown menu showing "Camera L".

Playback: A control panel with play/pause, stop, and fast forward buttons. A "Speed" dropdown menu is set to "Fast".

Tip: A text box that reads: "Google Map The Google Map Shows Your Current Location."

Route Position: A horizontal slider bar with a small vertical marker.

Attribute Data: A table with columns for various road attributes:

Speed	Width	Lanes	Surface	Median	Median Width	Left Shoulder	Right Shoulder	RPM	Traffic Flow
-	-	-	-	-	-	-	-	-	-

Basic Videolog - Mississippi DOT Videolog

MDOT Video Log

Route Location

County: Hinds Road Number: 0011 Route Name: Local 11 Direction: Primary Milepost:

Photo

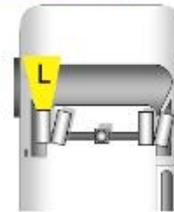


Location



Latitude: 32.235914 Longitude: -90.266333 Satellite:

Select Camera



Camera L

Playback



Speed:

Tip

Direction
Click The ... To Open The Direction Drop Down.

Route Position

- .007 4.82

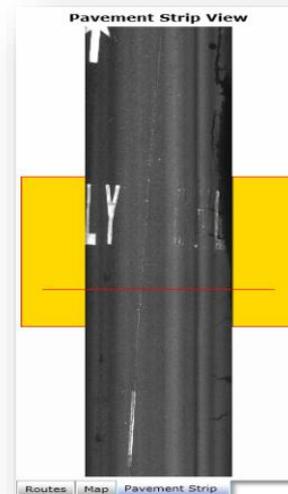
Attribute Data

Speed n/a	Width 20	Lanes 2 / 0 / 2	Surface Intermediate Type Bituminous	Median None	Median Width n/a	Left Shoulder Sod	Right Shoulder Sod	RPM N/A	Traffic Flow Two-Way
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2) Specialized Videolog Systems

Pavement Viewer

- Web-based Application
- Videolog interface, with standard playback controls
- Built on an enterprise relational database system
- Views showing pavement condition details, ROW and aerial map



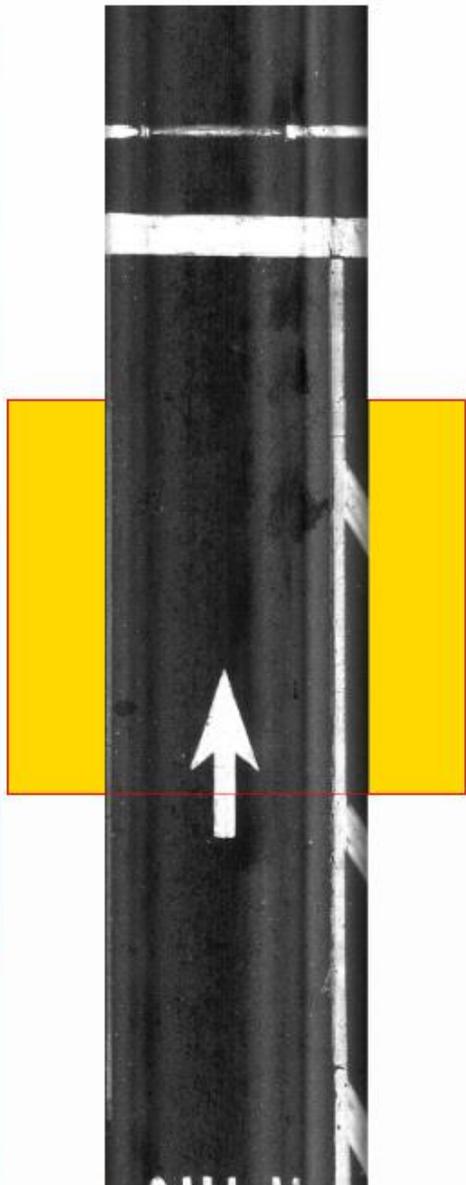
Pavement DataViewer

Navigation Route: 00000446_ Milepost: 0.027 History Clear History

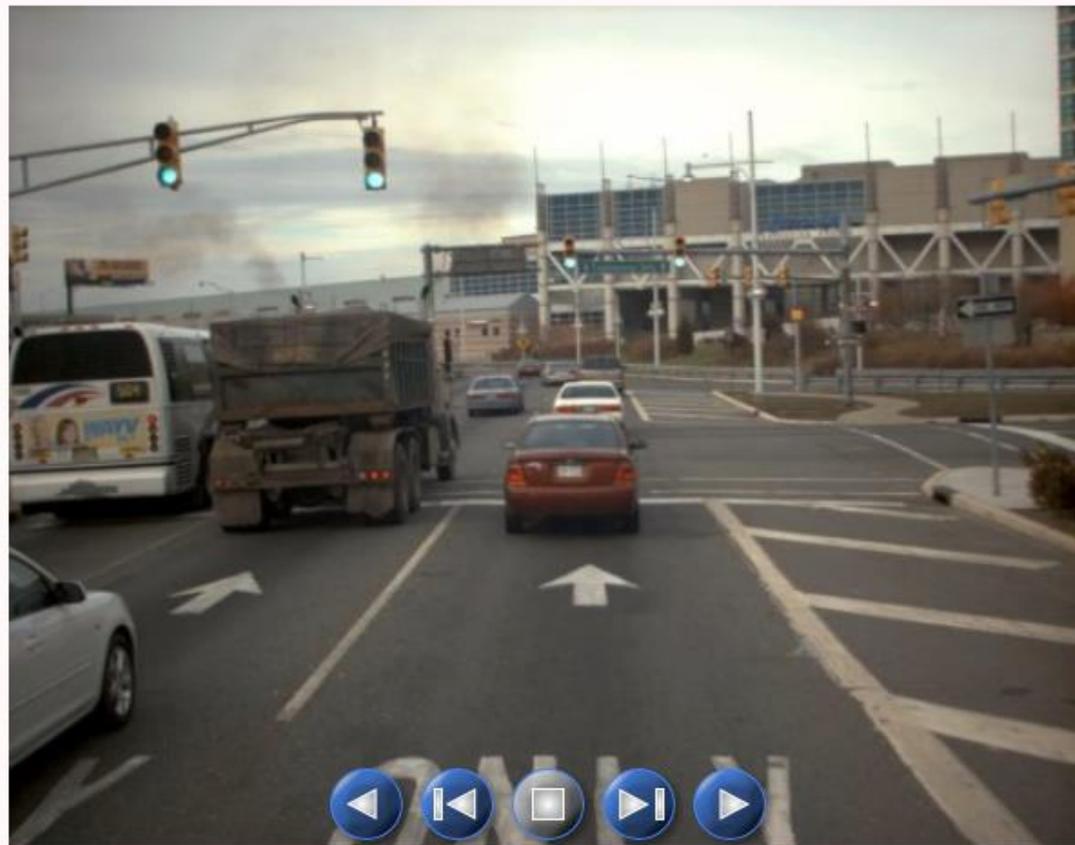
Tools: Forward Came Direction: Northbound Speed: Fast Year: 2007 Baker

Roadway Attributes		Pavement Attributes	
SRI	00000446_	IRI	
Milepost	0.027	Rut Avg.	
County	Atlantic County	MP Start	0.026
Municipality	Atlantic City	MP End	0.030

Pavement Strip View



Navigation Route: Milepost:
[➔](#)
History [Clear History](#)



Tools:
 Direction:
 Speed:
 Year:

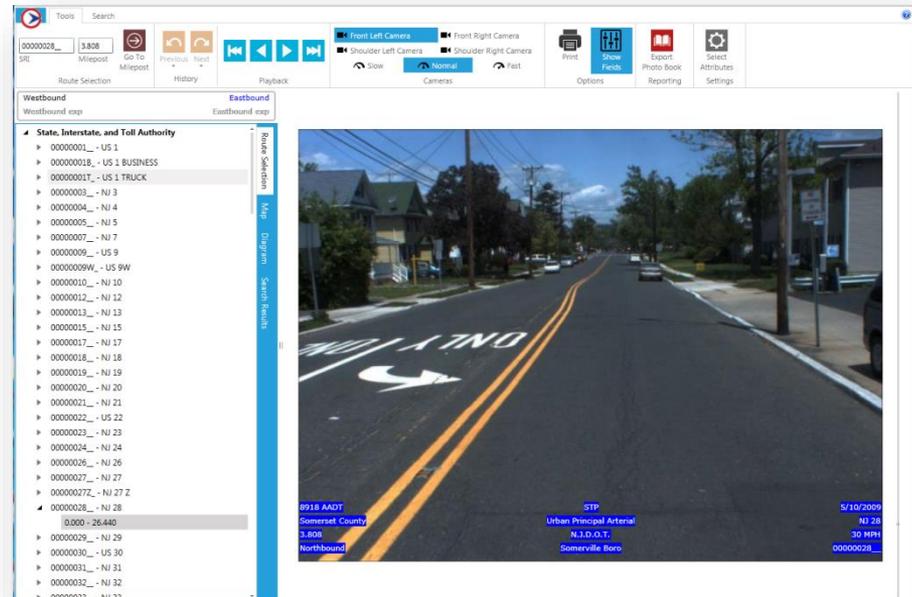
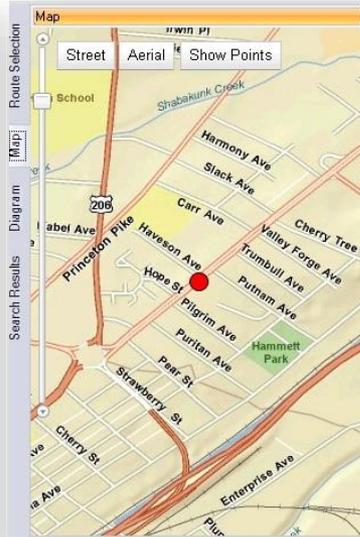
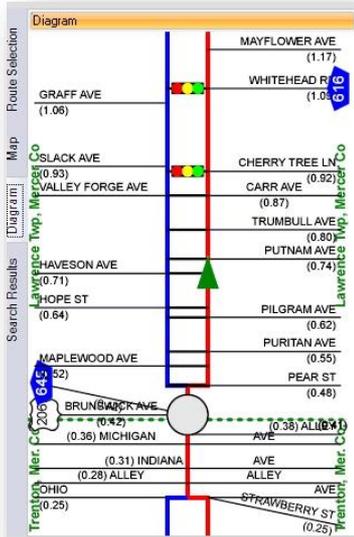
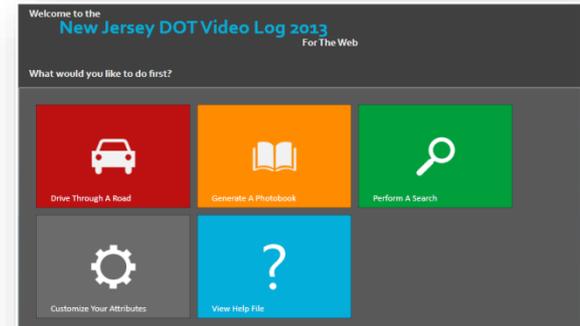
Baker

Attributes			
Roadway Attributes		Pavement Attributes	
<i>SRI</i>	00000446__	<i>IRI</i>	206.4
<i>Milepost</i>	0.068	<i>Rut Avg.</i>	0.06
<i>County</i>	Atlantic County	<i>MP Start</i>	0.068
<i>Municipality</i>	Atlantic City	<i>MP End</i>	0.072
<i>Jurisdiction</i>	South Jersey Transportation Authority	<i>Photo Date</i>	12/19/07 12:57:00 PM -05:00

3) Roadway Portal

NJDOT SLD Video Log

- Connects roadway photos to allow continuous playback
- Includes roadway data from NJDOT's SLD Roadway Inventory Database
- Includes a map window and straight line diagram



NJDOT Video Log (Web)

Tools Search

SRI Milepost Go To Milepost

Route Selection

History Playback

Front Left Camera Front Right Camera
Shoulder Left Camer Shoulder Right Cam

Slow Normal Fast
Cameras

Print Show Fields
Options

Export Photo Book Reporting

Select Attributes Settings

Secondary Primary
Secondary exp Primary exp

Route Selection
Map Diagram Search Results

State, Interstate, an
500 Routes
Atlantic
Bergen
Burlington
Camden
Cape May
Cumberland
Essex
Gloucester
Hudson
Hunterdon
Mercer
Middlesex
Monmouth
Morris
Ocean
Passaic
Salem
Somerset
Sussex
Union

Welcome to the
New Jersey DOT Video Log 2013
For The Web

What would you like to do first?

Drive Through A Road
Generate A Photobook
Perform A Search
Customize Your Attributes
View Help File

New Jersey Department Of Transportation
Copyright © 2013 All Rights Reserved

1.0.0.0 server : SLD_V2 \\10.74.48.6\images\mms\4-Ready_For_Extraction\

NJDOT Video Log (Web)

Tools
Search

00000035_ 12.046

SRI Milepost Go To Milepost

History

Left Camera **Front Camera** Right Camera

Back Camer.

Slow **Normal** Fast

Cameras

Print Show Fields

Options

Export Photo Book Select Attributes

Reporting Settings

Southbound **Northbound**

Southbound ex Northbound ex

Route Selection

- ▶ 00000023_ - NJ 2
- ▶ 00000024_ - NJ 2
- ▶ 00000026_ - NJ 2
- ▶ 00000027_ - NJ 2
- ▶ 00000027Z_ - NJ 2
- ▶ 00000028_ - NJ 2
- ▶ 00000029_ - NJ 2
- ▶ 00000030_ - US 3
- ▶ 00000031_ - NJ 3
- ▶ 00000032_ - NJ 3
- ▶ 00000033_ - NJ 3
- ▶ 00000033B_ - NJ 3
- ▶ 00000034_ - NJ 3
- ▲ 00000035_ - NJ 3
 - 0.000 - 49.380
 - 50.630 - 58.070
- ▶ 00000035Z_ - NJ 3
- ▶ 00000036_ - NJ 3
- ▶ 00000037_ - NJ 3
- ▶ 00000038_ - NJ 3
- ▶ 00000040_ - US 4
- ▶ 00000041_ - NJ 4

Map Diagram Search Results



00000035_

Northbound

N.J.D.O.T.

17739 AADT

12.046

30 MPH

Urban Principal Arterial

Ocean County

8/14/14

Main Avenue

NHS

Bay Head Boro

1.0.0.0 server : SLD_V2 \\10.74.48.6\images\mms\4-Ready_For_Extraction\

NJDOT Video Log (Web)

Tools

Search

Go To Milepost

Left Camera

Front Camera

Right Camera

Back Camera

Normal

Print

Show Fields

Export Photo Book

Select Attributes

Southbound

Northbound

Southbound ex Northbound ex

Route Selection

- ▶ 00000027__ - NJ 2
- ▶ 00000027Z_ - NJ 2
- ▶ 00000028__ - NJ 2
- ▶ 00000029__ - NJ 2
- ▶ 00000030__ - US 3
- ▶ 00000031__ - NJ 3
- ▶ 00000032__ - NJ 3
- ▶ 00000033__ - NJ 3
- ▶ 00000033B_ - NJ 3
- ▶ 00000034__ - NJ 3
- ▲ 00000035__ - NJ 3
- 0.000 - 49.380
- 50.630 - 58.070
- ▶ 00000035Z_ - NJ 3
- ▶ 00000036__ - NJ 3
- ▶ 00000037__ - NJ 3
- ▶ 00000038__ - NJ 3
- ▶ 00000040__ - US 4
- ▶ 00000041__ - NJ 4
- ▶ 00000042__ - NJ 4
- ▶ 00000044__ - NJ 4
- ▶ 00000045__ - NJ 4

Map

Diagram

Search Results

00000035_

Northbound

N.J.D.O.T.

17739 AADT

12.05

30 MPH

Urban Principal Arterial

Ocean County

8/14/14

Main Avenue

NHS

Bay Head Boro

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NJDOT Video Log (Web)

Tools
Search

00000035_ 12.052

SRI Milepost Go To Milepost

Route Selection

History

Playback

Left Camera Front Camera Right Camera

Back Camer.

Slow Normal Fast

Cameras

Print

Show Fields

Options

Export Photo Book Reporting

Select Attributes Settings

Southbound Northbound

Southbound Northbound ex

Route Selection

- ▶ 00000027__ - NJ 2
- ▶ 00000027Z_ - NJ 2
- ▶ 00000028__ - NJ 2
- ▶ 00000029__ - NJ 2
- ▶ 00000030__ - US 3
- ▶ 00000031__ - NJ 3
- ▶ 00000032__ - NJ 3
- ▶ 00000033__ - NJ 3
- ▶ 00000033B_ - NJ 3
- ▶ 00000034__ - NJ 3
- ▶ 00000035__ - NJ 3
- 0.000 - 49.380
- 50.630 - 58.070
- ▶ 00000035Z_ - NJ 3
- ▶ 00000036__ - NJ 3
- ▶ 00000037__ - NJ 3
- ▶ 00000038__ - NJ 3
- ▶ 00000040__ - US 4
- ▶ 00000041__ - NJ 4
- ▶ 00000042__ - NJ 4
- ▶ 00000044__ - NJ 4
- ▶ 00000045__ - NJ 4

Map Diagram Search Results



00000035_

Northbound

N.J.D.O.T.

17739 AADT

12.052

30 MPH

Urban Principal Arterial

Ocean County

8/14/14

Main Avenue

NHS

Bay Head Boro

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NJDOT Video Log (Web)

Tools
Search

00000035_ 12.054

SRI Milepost Go To Milepost

Route Selection

Previous Next

History

Left Camera Front Camera Right Camera

Back Camer.

Normal

Cameras

Slow Fast

Options

Print Show Fields

Options

Export Photo Book Reporting

Options

Select Attributes Settings

Options

Southbound Northbound

Southbound ex Northbound ex

- ▶ 00000027__ - NJ 2
- ▶ 00000027Z_ - NJ 2
- ▶ 00000028__ - NJ 2
- ▶ 00000029__ - NJ 2
- ▶ 00000030__ - US 3
- ▶ 00000031__ - NJ 3
- ▶ 00000032__ - NJ 3
- ▶ 00000033__ - NJ 3
- ▶ 00000033B_ - NJ 3
- ▶ 00000034__ - NJ 3
- ▲ 00000035__ - NJ 3
 - 0.000 - 49.380
 - 50.630 - 58.070
- ▶ 00000035Z_ - NJ 3
- ▶ 00000036__ - NJ 3
- ▶ 00000037__ - NJ 3
- ▶ 00000038__ - NJ 3
- ▶ 00000040__ - US 4
- ▶ 00000041__ - NJ 4
- ▶ 00000042__ - NJ 4
- ▶ 00000044__ - NJ 4
- ▶ 00000045__ - NJ 4

00000035_

Northbound

N.J.D.O.T.

17739 AADT

12.054

30 MPH

Urban Principal Arterial

Ocean County

8/14/14

Main Avenue

NHS

Bay Head Boro

1.0.0.0 server : SLD_V2 \\10.74.48.6\images\mms\4-Ready_For_Extraction\

NJDOT Video Log (Web) - Map

Tools
Search
?

Southbound
Northbound

Southbound exp
Northbound exp

Route Selection
Map
Diagram
Search Results

00000035

Northbound

N.J.D.O.T.

17739 AADT

12.046

30 MPH

Urban Principal Arterial

Ocean County

8/14/14

Main Avenue

NHS

Bay Head Boro

1.0.0.0 server : SLD_V2 \\10.74.48.6\images\mms\4-Ready_For_Extraction\

NJDOT Video Log (Web) – SLD Diagram

Tools
Search
?

Southbound
Northbound

Southbound exp
Northbound exp

00000035_

Northbound

N.J.D.O.T.

17739 AADT

12.087

30 MPH

Urban Principal Arterial

Ocean County

8/14/14

Main Avenue

NHS

Bay Head Boro

1.0.0.0 server : SLD_V2 \\10.74.48.6\images\mms\4-Ready_For_Extraction\

NJDOT Video Log (Web) - Printing

History Playback Cameras Options

Print Preview for Image

SRI: 00000035__ Milepost: 12.087



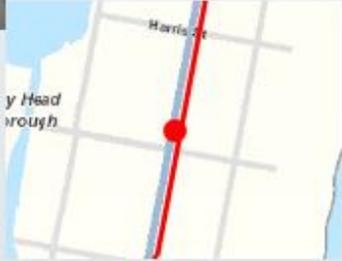
FrontLeft View

Print Date: Thursday, Mar 5, 2015

Print Cancel

Metadata:

- SRI: 00000035
- DIRECTION: Northbound
- JURISDICTION: N.J.D.O.T.
- AADT: 17739 AADT
- CURRENT MILEPOST: 12.087
- SPEED: 30 MPH
- FUNCTIONAL CLASSIFICATION: Urban Principal Arterial
- COUNTY: Ocean County
- PHOTO DATE: 8/14/14
- STREET NAME: Main Avenue
- FEDERAL AID: NHS
- MUNICIPALITY: Bay Head Boro



17739 AADT Ocean County

NJDOT Video Log (Web) - PhotoBook

Report Viewer
roadway.pdf

Open
7 / 268
81.3%
Tools
Fill & Sign
Comment

	Route NJ 35 0000035	Milepost 11.009	Speed Limit 40 MPH	Other Camera Angles
	Direction Primary	City Mantoloking Boro (Ocean County)		
Left Camera				
				
Right Camera				
				
Left Shoulder Camera				
				
Right Shoulder Camera				
				
Photo #5 of 265				
		Federal Aid NHS	Jurisdiction N.J.D.O.T.	Latitude 40.05507 Longitude -74.04725  View in Google Maps
Photo Date 8/14/2014		Traffic Volume 17739	Functional Class Principal Arterial - Other	Page 7 of 267
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NJ Turnpike Web Portal

- Enterprise Web-based Application, utilizing NJTA's existing Oracle database
- Provides three different views (together or separate):
 - Map interface, including roadway assets
 - Video Log interface
 - Real-time Straight Line Diagram
- Roadway attribute search
- Map printing
- Provisions for Utility Asset Management



Web Portal - Dashboard

The screenshot displays the NJTA SEWP Integrated Dashboard. At the top, there is a search bar and navigation links for Support and Links. Below this is a green header with the text "NJTA Spatially Enabled Web Portal (SEWP)" and a menu containing "NJTA SEWP Home", "Dashboard" (which is highlighted), "GIS", "Video Log", "SLD", and "Tools".

The main content area is divided into three sections:

- Map:** A map of the Rochelle Park area in New Jersey, showing roads like Garden State Pkwy, Saddle River Rd, and Saddle River Pkwy. A red circle highlights a specific location on the map. The map is powered by ESRI.
- Video Log:** A live video feed from a camera positioned on a highway. The video shows traffic moving away from the camera. Overhead signs are visible, including "EXIT 161 4 EAST Paramus 3/4 MILE" and "EXIT 160 To 200 Fair Lawn Hackensack 1/2 MILE EXIT ONLY". The video player includes standard playback controls and a camera selection dropdown.
- Diagram:** A schematic diagram of the road network. It shows a horizontal road with several vertical branches. Key locations are labeled with their coordinates: "62 (161,170)", "BRDLE (161,170)", "4 (161,188)", "CENTURY (162,250)", and "SPRUE (162,19)". A red line highlights a specific segment of the road.

At the bottom left of the diagram section, there are buttons for "Diagram" and "Attributes".

Web Portal - Videolog

The screenshot displays the NJTA SEWP Video Log web portal. The browser title bar shows "NJTA SEWP Video Log". The page header includes a search bar and links for "Support" and "Links". The main navigation bar features "NJTA SEWP Home", "Dashboard", "GIS", "Video Log" (highlighted in blue), "SLD", and "Tools".

The interface is divided into two main sections:

- Route Selection:** This section contains controls for selecting a route. It includes radio buttons for "NJTA Roadway" (selected) and "NJDOT SRI". Under "NJTA Roadway", there are dropdown menus for "Roadway:" (GSP), "Segment:" (PSN), "Interchange:", "Maintenance:", and "Engineering:". There is a text input for "Street Name:" with the value "GSP FROM THE SOUTH TO THE NORTH OUTER" and a "Milepost:" input with the value "161.1580". A "Photo Date:" input shows "4/18/2006 1:00:00 PM" and a "Speed Limit:" input shows "55". A "View Image" button is located below these inputs.
- Video Log:** This section displays a live video feed of a highway. The video shows a multi-lane road with several vehicles. Overhead signs are visible, including "EXIT 161 4 EAST Paramus 3/4 MILE" and "EXIT 160 To 208 Fair Lawn Hackensack EXIT ONLY". At the bottom of the video player, there are five navigation buttons: a left arrow, a double left arrow, a play/pause button, a double right arrow, and a right arrow.

Web Portal - SLD

NJTA SEWP Straight Line Diagrams

Search Support Links

NJTA Spatially Enabled Web Portal (SEWP) NJTA SEWP Home Dashboard GIS Video Log **SLD** Tools

121.000 - 123.000

123.000 - 125.000

125.000 - 127.000

127.000 - 129.000

129.000 - 131.000

131.000 - 133.000

133.000 - 135.000

135.000 - 137.000

137.000 - 139.000

139.000 - 141.000

141.000 - 143.000

143.000 - 145.000

145.000 - 147.000

147.000 - 149.000

149.000 - 151.000

151.000 - 153.000

153.000 - 155.000

155.000 - 157.000

157.000 - 159.000

159.000 - 161.000

161.000 - 163.000

163.000 - 165.000

165.000 - 167.000

167.000 - 169.000

169.000 - 171.000

171.000 - 172.330

▶ PSNI__

▶ PSN__

Garden State Parkway Mainline Secondary (North to South) Mile Posts: 161.000 - 163.000

Street Name	GSP FROM THE NORTH TO THE SOUTH		
Engineering Section	1		
Maintenance District	North (P1)		
Interchange	160	161	163
Jurisdiction	New Jersey Turnpike Authority		
Functional Class	Urban Freeway/Expressway		
Control Section	0200		
Speed Limit	55		
Number of Lanes	5		
Med. Type			
Med. Width			
Pavement	60		
Shoulder	10		
Traffic Volume	115170	98070	

NJTA ID: PNS__ Date last inventoried: January 1997

Web Portal – GIS (As-builts)

The screenshot displays the NJTA Spatially Enabled Web Portal (SEWP) GIS interface. The main map area shows an aerial view of a facility with a red circle highlighting a specific feature. A data popup window is open, displaying the following information:

Sanitary System (Asbuilts_Demo)	
OBJECTID	1
FILE_NAME	Service Areas 6N & 6E
ITEM	As-built
DESCRIPTION	Utilities
FEATURE	Sanitary System
LOCATION_NAME	Service Area 6N
COMMON_NAME	Woodrow Wilson
N	489403
E	455646
NEW_FILE_NAME	AsBuilt2.pdf
Shape	Point

Below the table is a button labeled "Show As Built". An inset window in the bottom-left corner displays a technical drawing titled "NEW JERSEY TURNPIKE COLLECTING SEWER SYSTEM PLAN" with a scale of 200ft.

Web Portal – GIS (Sign Inventory)

The screenshot displays the NJTA Spatially Enabled Web Portal interface. On the left is a 'Map Legend' with various categories like 'Base Map', 'Signs', 'Destination', 'Electronic', etc. The main area shows a 'Guide Sign Report' for 'EXIT 161' dated 'May 03, 2013'. It includes a photograph of the sign and a table of metadata.

Sign Text
NJ 4 EAST Paramus 3/4 MILE

NJTA ID	PSN	Sign Height	120
Milepost	161.177	Sign Width	132
Location	Overhead	Sheeting Type	Type I
Unique Sign ID	8108	Sign Lighting	N
Sign Type	Destination	Estimated Service Life	2011
Sign Code	OTHER-D	Row	1
Background Color	Green	Column	A
Text Color	White	Support Type	Truss
Inventory Date	2/28/2010	Support Material	Steel

On the right, a 'Click to identify features' window shows a table for 'EXIT 161 (Signs)' with the following data:

MP	161.784
SIGN_ID	8115
SIGN_CODE	E5-1a
BACK_COLOR	Green
LEGEND_COLOR	White
SIGN_TEXT	EXIT 161
SIGN_HEIGHT	60
SIGN_WIDTH	72
SHEETING_TYPE	Type III
SIGN_LIGHT	N
SIGN_LOC	Right
EST_SERV_LIFE	2011
ASSEMBLY_POSITION_ROW	1
ASSEMBLY_POSITION_COLUMN	A
BACK_RETRO	53
LEGEND_RETRO	278
MOUNTING_HEIGHT	65.52
VIS_OBSTRUCTION	N
SIGN_ASSEMBLY_FACING	SW
DELIVERY_REGION	P3

At the bottom right of the report area is a button labeled 'Show Guide Sign Report'.

- Considerations for future systems:
 - Cross Organization Integration
 - Mobile-friendly platforms
 - Native Compiled
 - HTML5
 - Data collection enhancements:
 - 360 deg. Cameras
 - Mobile LiDAR data
 - Pavement sensors
 - Asset Management and MAP-21 Reporting

Questions?



Michael Baker

INTERNATIONAL

Justin Furch

NORTHEAST REGIONAL GIT MANAGER

300 American Metro Blvd., suite 154,
Hamilton, NJ 08619

d: 609-807-9552 c: 609-578-9202 o:
609-807-9500

jfurch@mbakerint.com