

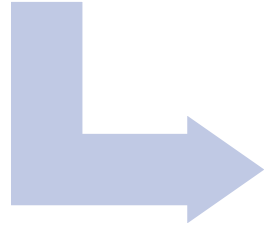
PAVEMENT TESTING AND ASSET MANAGEMENT

**2022 PAPA/PENNDOT BUS TOUR
JULY 26, 2022**

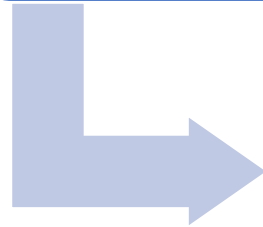
ORGANIZATION

Bureau of
Operations

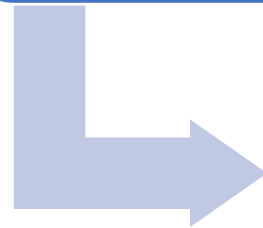
- Previously a part of the Bureau of Maintenance and Operations



Asset
Management
Division



Pavement Testing
and Asset
Management
Section



PennDOT Annex

- Previously the BOMO Annex



ROUGHNESS (IRI) TESTING

Fleet Includes:

- 3 Highspeed Profilers
- 2 Lightweight Profilers
- 1 Walking Profiler



IRI Categories	Interstate Routes	IHS Non-Interstate Routes	Non-IHS Routes with ADT \geq 2000	Non-IHS Routes with ADT $<$ 2000
≤ 70	Excellent	Excellent	Excellent	Excellent
71-75	Good	Good	Good	Good
76-100	Fair	Fair	Fair	Fair
101-120	Poor	Poor	Poor	Poor
121-150				
151-170				
171-195				
196-220				
> 220				



FRICTION TESTING

Fleet Includes:

- 3 Locked-Wheel Skid Testers

Used For:

- Wet Pavement Accident Clusters
- High Friction Surface Treatment Testing
- Research Testing
- Special Request Testing



FALLING WEIGHT DEFLECTOMETER (FWD) TESTING

Fleet Includes:

- 2 Falling Weight Deflectometer Units

Used for:

- Basin Testing
- Load Transfer
- Void Detection



VIDEO LOG TESTING

Fleet Includes:

- 2 Video Log Vans

Used For:

- Video Log QA
- Warranty Projects
- Special Requests



TESTING REQUESTS

Testing Request Forms can be accessed using the RITU intranet website:

<https://dot.state.pa.us/penndot/Bureaus/Intranet/BOMOintra.nsf/infoRMRIhome?OpenForm>

***Note: File must be renamed before saving** Save As Reset Form Print Form

Friction (skid), Roughness (IRI), Location Reference (LRS) and VideoLog Testing Request Form

Current Date:

Requested By: Title: District/Bureau:

Phone Number: Address: Address Line 1:
 Address Line 2:
 City, State, Zip:
 Attn:

Fax Number:

Time Frame Needed By:

Type of Test	County /State	SR (s)	From Segment	From Offset	If Non State Road, Please specify a starting location	To Segment	To Offset	If Non State Road, Please specify an ending location	Dir.	Test Lane (s)	Total Test Miles
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

All testing requests of non state owned roads must include a map of the area(s) to be tested. The map can be emailed, faxed or mailed with this testing request form.

S For Skid testing, please select a reason for the request:

K For Skid Testing please select test tire type: Blank Ribbed

I

D

O Further information on PennDOT's skid/friction pavement policies can be found at the following location:
[N p:penndot/shared/Bureau of Maintenance and Operations/Roadway Management Division/Roadway Inventory & Testing/Shared](#)
[L Data/SKID/PennDOT Skid Policy.pdf](#)

Y

Additional Comments or Instructions For Any Type of the Testing:

Submit Requests To: Ty E. Reed, Chief, BOMO, Roadway Inventory & Testing Unit
 Bureau of Maintenance & Operations - BOMO Annex
 907 Elmerton Ave, Harrisburg, PA 17110

*Email: Tyreed@pa.gov Phone: (717) 787-7294 Fax: (717) 787-6013 (Faxes must be confirmed by a phone call)

*Note: To submit or email this form use the Save As button (at top), rename the file, save to a local folder and then attach to recipients email.

For additional testing request information or general testing questions please call (717) 783-6843 (M-F 7:00AM to 3:00PM). This form can be found on the Bureau of Maintenance and Operation's Intranet web site at: Bureau/Maintenance and Operations/Roadway Management Roadway Inventory and Testing Section/Testing Request Forms/Friction-Roughness-LRS-Videotesting Request Form.pdf

For Chief of Roadway Inventory & Testing Section Only
 Approved For Testing: Date:

Modified 03/06/2011

Save As Clear Form Print Form

Falling Weight Deflectometer (FWD) Testing Request Form

Current Date: District/Bureau:

Requested By: Title:

Phone Number: Address:
 (Required if testing results are to be mailed)
 Fax Number:
 Email:

Please fill out a separate form for each individual SR or pavement section to be tested.
 *If a divided SR needs to have testing done in each direction, use the blue section below for the North/East or even segments and the yellow section for the South/West or odd segments.

County	SR	Test Location				Dir.	Lane (s) to Test	Total Test Miles	Design Field View Date
		From Segment	From Offset	To Segment	To Offset				
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Surface		Joint Spacing (ft)	Base		Subbase		SubGrade Type
Type	Depth (in)		Type	Depth (in)	Type	Depth (in)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Type of Testing Required

Basin Testing *Note: Basin Testing is for Bituminous Pavements only, at a fixed test interval, minimum 10 test points per pavement section spacing not to exceed 250ft. If a closer test interval is required please specify:
 For Basin Testing on Flexible or Composite Pavements, (* If Pub 242 criteria is met), in both directions, should test locations in adjacent lanes be staggered, (Usually "yes")
 Existing Pavement Type: Flexible Composite

Load Transfer Before and After Joint Other, please specify:

For Joint Testing on Rigid Pavements:
 a) Select Pavement Joint Test Interval: Every 1st Joint 2nd Joint 3rd Joint Other Please Specify:
 b) Select Patch Joint Test Interval: Every 1st Joint 2nd Joint 3rd Joint Other Please Specify:

Void Detection Before and After Joint Other, please specify:

Please select how you would like to receive the testing results: Email PennDot Shared Drive Inter Office Mail Mail

Project Charge Numbers: Rec, Cctr Receiver WBS Element Fund

Additional Comments:

Submit Requests To: Ty E. Reed, Chief, BOMO, Roadway Inventory & Testing Unit
 Bureau of Maintenance & Operations - BOMO Annex
 907 Elmerton Ave, Harrisburg, PA 17110
 *Email: Tyreed@pa.gov Phone: (717) 787-7294

*Note: To submit or email this form use the Save As button (at top), rename the file, save to a local folder and then attach to recipients email.
 For additional testing request information or general testing questions please call (717) 783-6843 (M-F 7:00AM to 3:00PM).

BOMO Use Only Approved For Testing: Date:
 Approved For Testing: Date: *BOMO Use Only*



- Fugro Data collection
 - Collect all PennDOT miles – almost 40,000 segment miles
 - Collect Business Plan Networks 1 (interstate) and 2 (National Highway System - NHS) **Annually**
 - Collect Business Plan Networks 3 (Non-NHS >2000 ADT) and 4 (Non-NHS <2000 ADT) **Every other year**
 - Collect IRI, OPI, and 18 other pavement Distresses
 - Report to FHWA through HPMS (Highway Performance Monitoring System)



ROADWAY MANAGEMENT SYSTEM

- RMS is the system of record for our roadways;
 - Maintains an inventory of the roadway features, conditions, and characteristics
- Provides decision-makers with the information necessary for funding, business planning, project design, maintenance programming, and information for the annual allocation of maintenance funding
- Data stored and managed in RMS includes;

```
ANSR771 ROADWAY MANAGEMENT INFORMATION SYSTEM 05/13/2016 11:04:29
LTERM: HALHART TREATMENT GROUPS MENU
VIDED LOGGING
---SEGMENT--- TREATMENT
COUNTY NO. COUNTY NAME SR FROM TO DIR YEAR GROUP
-
-----BITUMINOUS-----
B1 - ROUTINE MAINTENANCE
B2 - SEAL COAT
B3 - MINOR REHABILITATION
B4 - MAJOR REHABILITATION
B5 - RECONSTRUCT
-----CONCRETE-----
C1 - ROUTINE MAINTENANCE
C2 - PRESERVATION - DPR
C3 - PRESERVATION - DPR & OVERLAY
C4 - RECONSTRUCT
-----UNPAVED-----
U1 - ROUTINE MAINTENANCE
U2 - SHAPING
U3 - RESTABILIZATION
-----CR-----
R1 - ROUTINE MAINTENANCE
R2 - C.R.C. PATCHING
R3 - MAJOR REHABILITATION
ACTION: I (D E G H I J P Q R S X)
MESSAGES:
NO 06/006
```

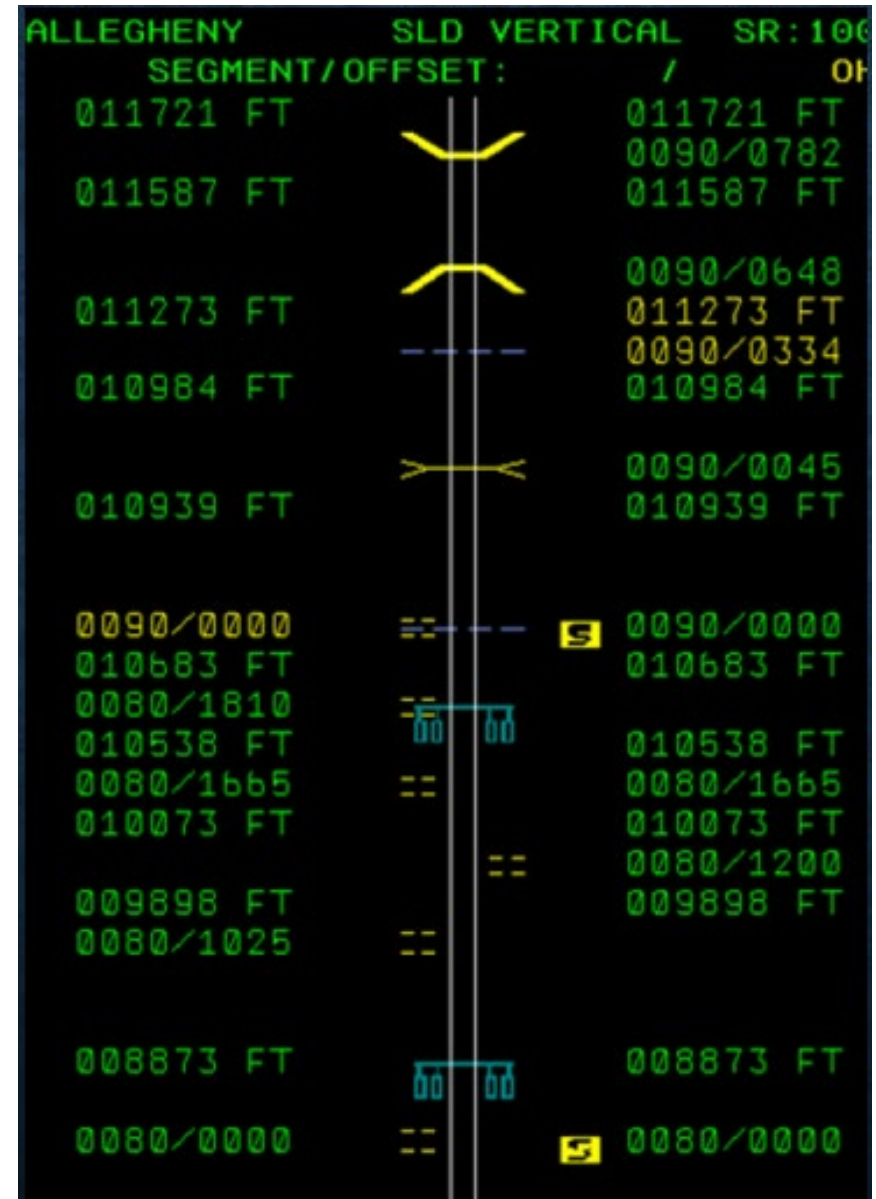
- Geometry information
- Traffic information
- Pavement and shoulder history
- Maintenance history
- Municipal and legislative boundaries
- Intersections

- Roadside features
- Structure locations
- Railroad crossings information
- Pavement testing
- Condition survey information (including guiderail and drainage)
- Posting/bonding information



RMS STRAIGHT LINE DIAGRAM

- One of the most important aspects of RMS is having a viewable representation of a state road (SR).
- This is accomplished with a graphical diagram called a straight-line diagram (SLD).
- PennDOT produces electronic versions of the SLD for every state road, in every county, annually.



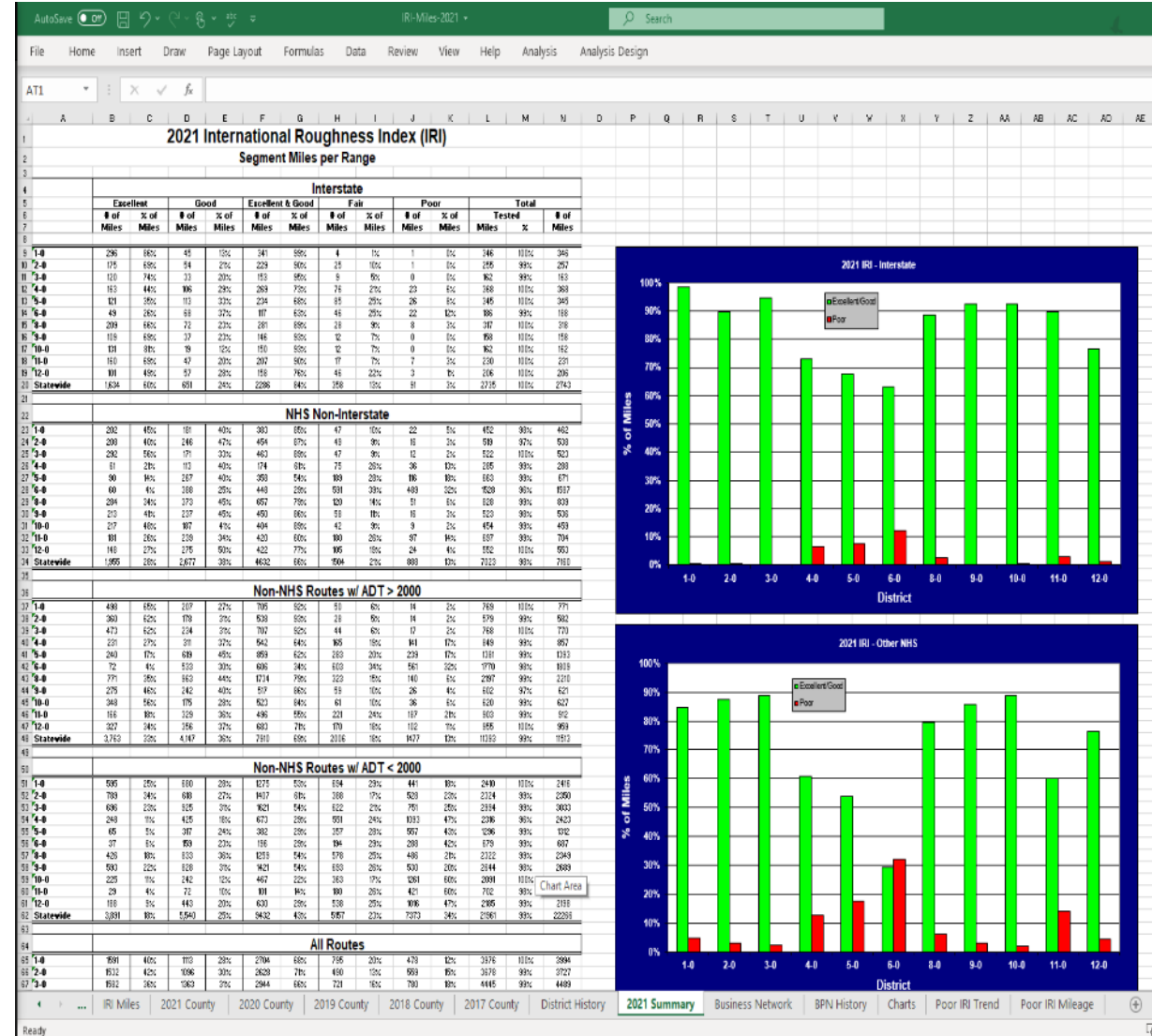
ROADWAY MANAGEMENT SYSTEM

Many other PennDOT computer systems depend on data from RMS



D196 REPORTS

- State-wide pavement data collected by Fugro
- Internally facing information
- D196 comes in a variety of reports;
 - Each business plan network
 - International Roughness Index (IRI) Median and Miles reports
 - Overall Pavement Index (OPI) Median and Miles reports



PAVEMENT HISTORY

- Pavement History is the documented layers of pavement entered into RMS by the Districts
- Both internally and externally facing
- Link to Pavement History: <https://gis.penndot.gov/PavementHistory/>

pennsylvania
DEPARTMENT OF TRANSPORTATION

Pavement History

Home Tutorial About

Location: 22 - DAUPHIN 0022 - WILLIAM PE... 0010 - WILLIAM PE... Show Street Names VideoLog Hide Map Current Location

PAVEMENT HISTORY Segments Scale

22 - DAUPHIN, 0022, WILLIAM PENN HW, Segment: 0010

SR 8037

0010

SR 8037

Scale Bar(ft) Total - 1673(ft)

500 1000

Verification Status

VC

Total pavement width

24

Pavement History Layer Type Code

2016

SPAV WMA WRG, 76-22, 12.5MM, E / Depth: 2 (in.) / Year: 2016

SPAV WMA BNR, 76-22, 19MM / Depth: 2.5 (in.) / Year: 2016

MILLING (AVERAGE DEPTH) / ...

MILLING (AVERAGE DEPTH) / Depth: -1.5 (in.) / Year: 2016

Map Satellite OSM

Millerstown Reward Liverpool Millersburg Mt Patrick Fisherville Endersville

Wills Newport Bailey Halifax Enter

Field Inglenook

Mecks Corner Duncannon Singersville Elmdale Forge

Delville Cove Marysville

mans Dale Summerdale

Wertzville Enola Harrisburg

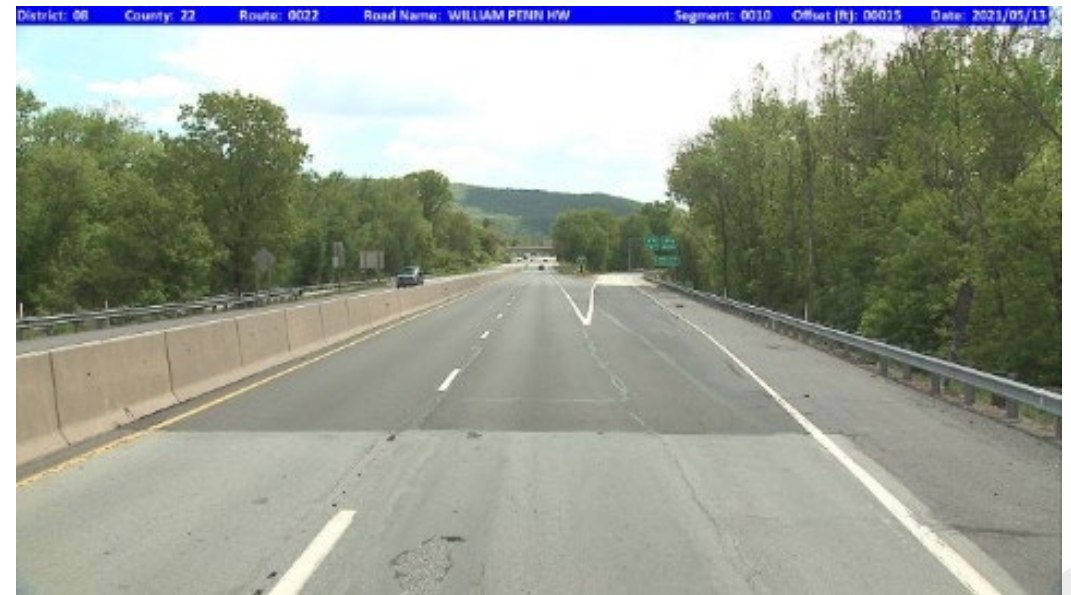
Hogestown Good Hope

Map data ©2022 Google Terms of Use



VIDEOLOG

- VideoLog is the term used to describe the automated collection of pavement conditions and roadway imagery.
- VideoLog data is collected on all state-owned asphalt and jointed concrete pavements by a vehicle called a VideoLog Van or Video Van.
 - Data collected is a series of individual pictures set in intervals that are sequenced together
- VideoLog is both internally and externally facing
- Link to VideoLog:
<https://gis.penndot.gov/videolog/>




VIDEOLOG

video log

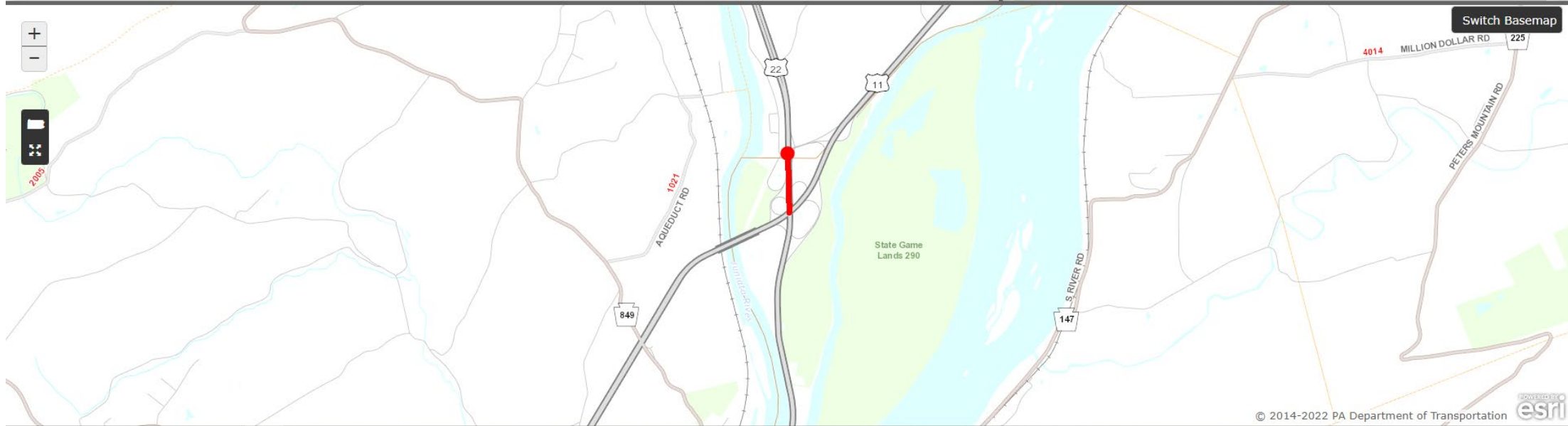
Search: AOI Tools ↕ ?

County: 22 Route: 0022 Road Name: WILLIAM PETERS HWY Segment: 0010 Offset: (2) 00213 Date: 2021/07/13




Basic Info Reports ▾ Export ▾

Basic Info	
County	DAUPHIN (22)
Route	0022 (US - 022)
Type	State
Direction	EAST
Segment	0010
Offset	36 ft.
Latitude	40:25:35.10120
Longitude	-77:00:38.21400



Switch Basemap

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VIDEOLOG BENEFITS

- There are two key benefits gained with VideoLogging;
 - Safety:
 - Conducting manual pavement surveys can present hazards for PennDOT personnel because the process involves traveling on the roadway shoulder at slow speeds. VideoLogging replaces the need for frequent manual survey, so it is much safer.
 - Efficiency:
 - VideoLogging provides panoramic images for personnel to view, instead of having to physically travel to a location to view pavement conditions.

Select Area of Interest



ROUTE# - Select from the options below then click Go!

County

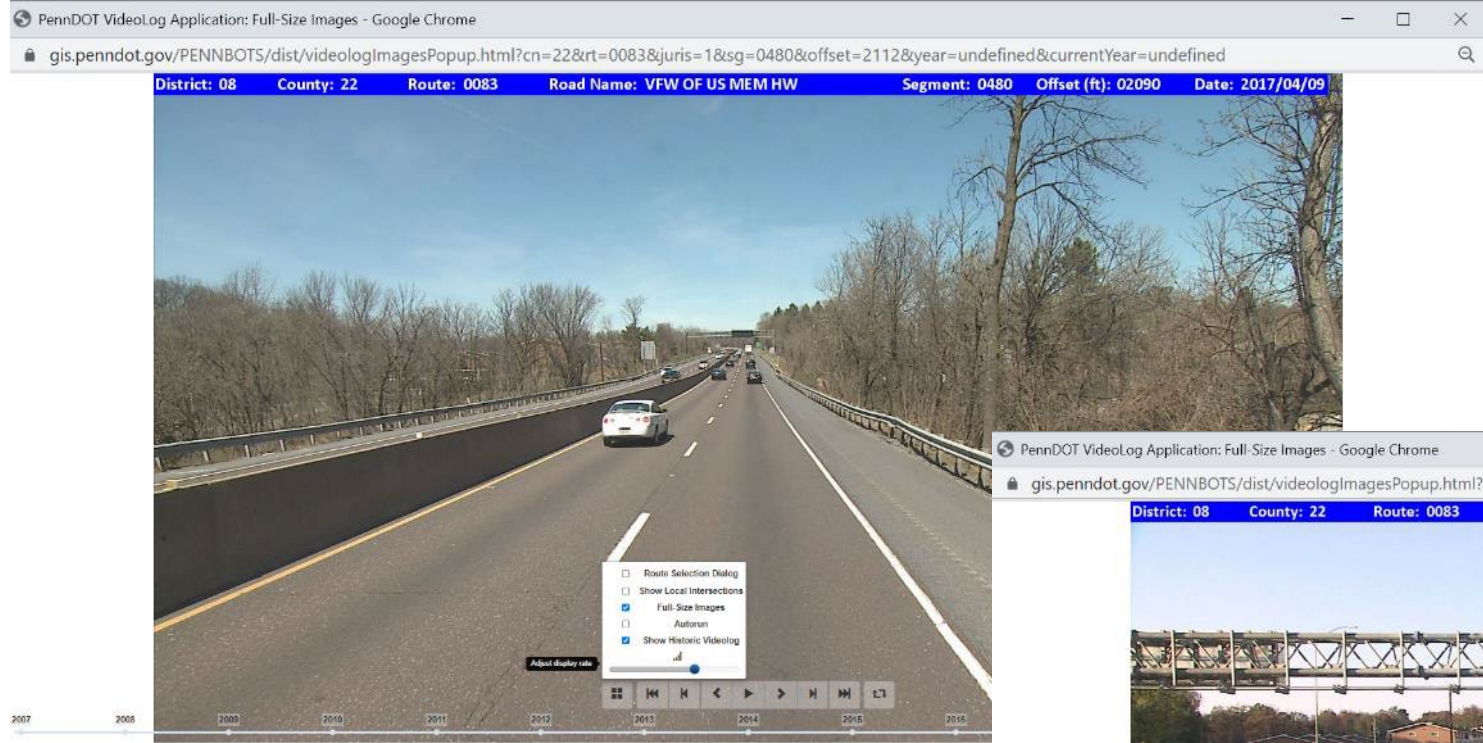
PennDOT Route

Go

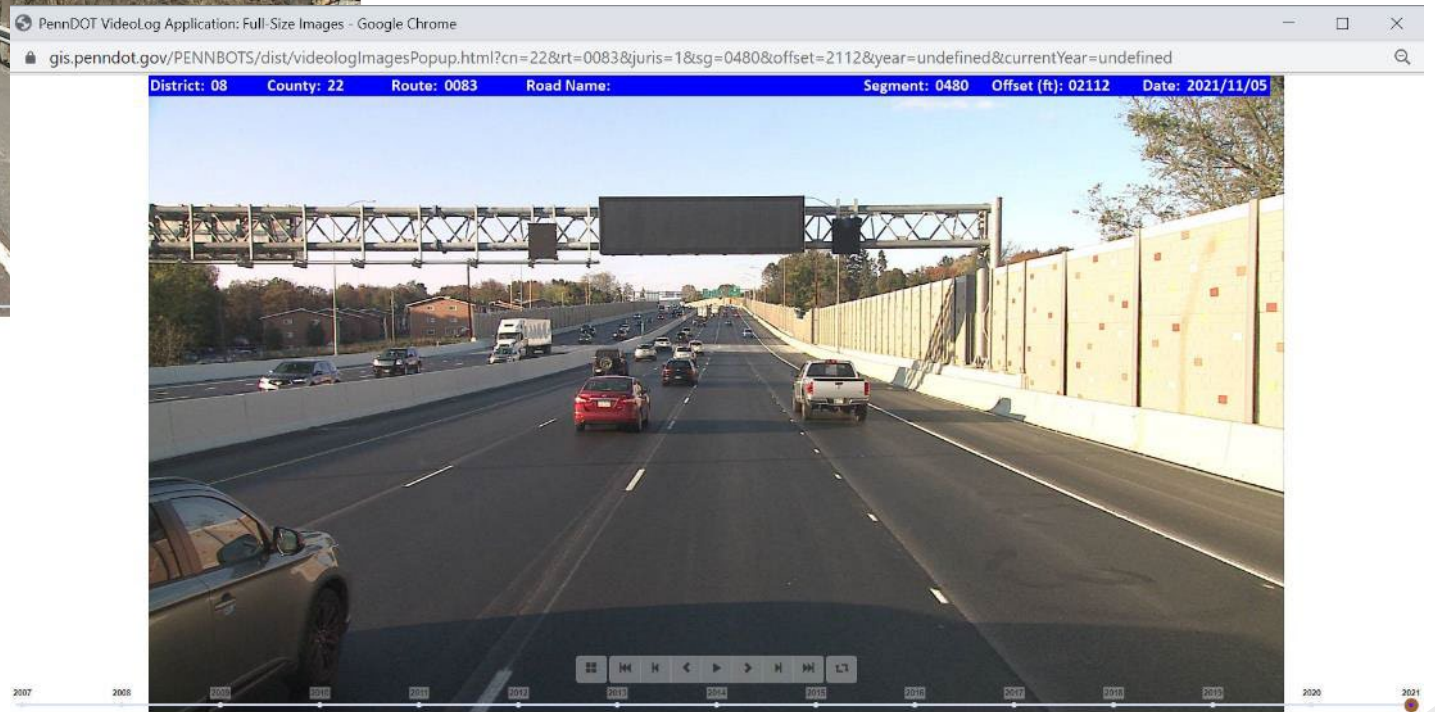
Close



VIDEOLOG



Historical Data available through “Show Historical VideoLog” check box



SR 83 in Dauphin County
2017 vs 2021



- Penndot Data Integration Facility (PDIF) – Internal Facing

- Applications: Road Management for BOMO (ROAD)



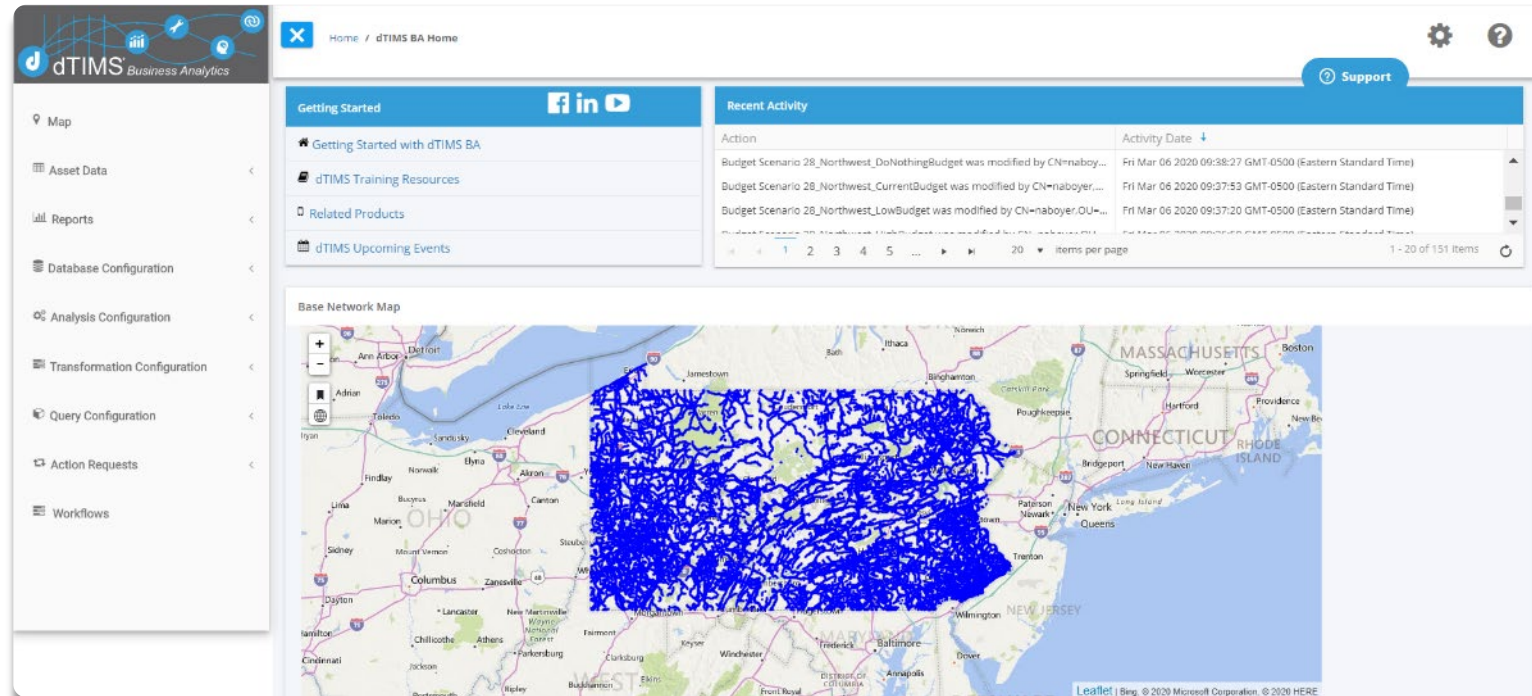
- Reports:

- Roadway Management
- Pavement History
- Posted and Bonded
- STAMPP



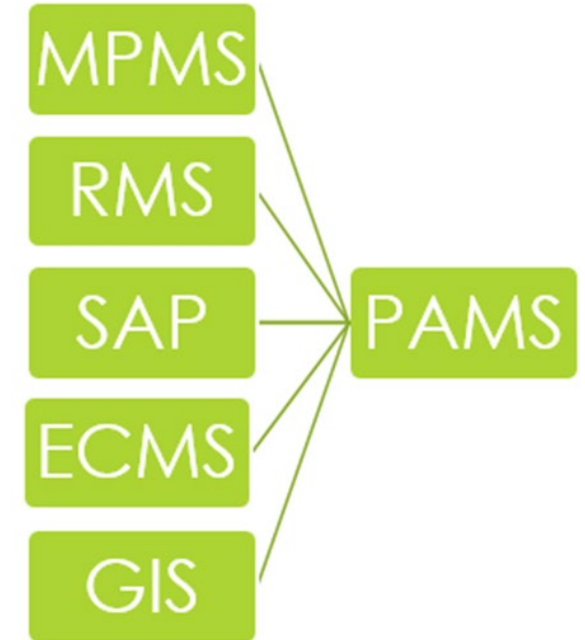
PAMS

- Pavement Asset Management System (PAMS) is an asset management solution that assists with strategic planning with maintenance operations and capital investment decision making
- Project optimization based on funding
- Future prediction of deterioration and benefits from proposed projects
- Bring together data from multiple systems for analysis and reporting



PAVEMENT ASSET MANAGEMENT SYSTEM

- PAMS connects to other PennDOT systems (legacy and updated systems) to ensure smart project recommendations
 - Planning information comes from MPMS
 - Historical information and past treatments and condition data from RMS
 - Maintenance from SAP
 - Construction projects and costs from ECMS
 - Mapping from GIS



Export to Excel

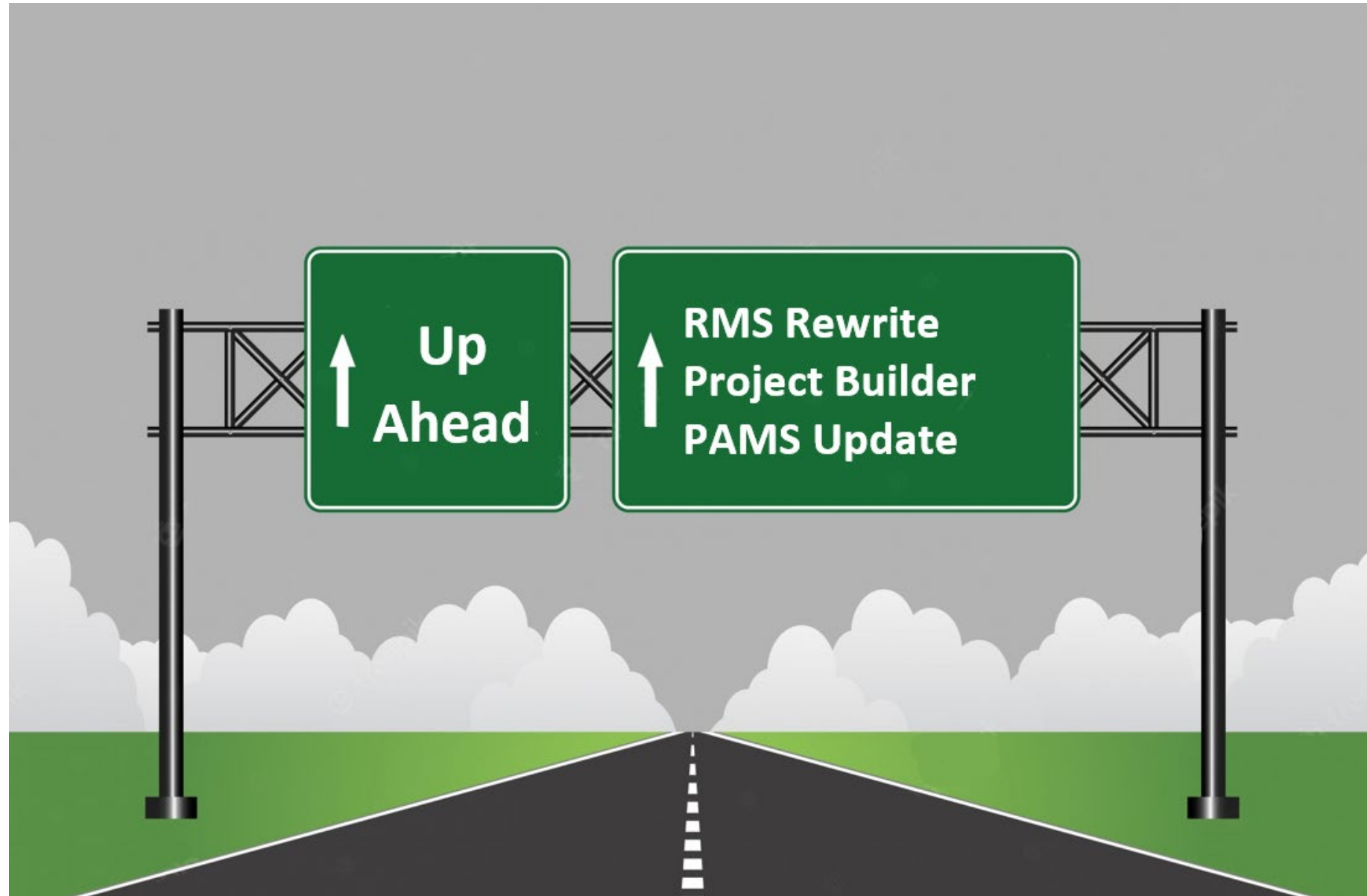
Drag a column header and drop it here to group by that column

Year	Road Name	Name	From	To	Length	Treatment	Cost
2024	01-0094-N	1	0.956	4.635	3.679	LEVEL_RESURFACE	\$4,000,020.71
2024	01-0194-B	3	0.000	1.950	1.950	LEVEL_RESURFACE	\$2,023,960.22
2028	02-0008-N	5	2.749	3.148	0.399	RECONSTRUCTION	\$1,356,465.51
2028	02-0008-S	10	6.634	8.467	1.833	RECONSTRUCTION	\$9,688,123.01
2028	02-0008-S	9	2.752	3.148	0.396	RECONSTRUCTION	\$1,346,266.52
2023	02-0019-N	12	0.000	1.229	1.229	RECONSTRUCTION	\$5,222,732.18
2025	02-0019-N	14	2.323	4.622	2.299	LEVEL_RESURFACE	\$3,579,295.81
2028	02-0019-N	15	5.682	7.086	1.404	LEVEL_RESURFACE	\$2,252,115.74
2023	02-0019-S	18	0.000	1.852	1.852	RECONSTRUCTION	\$7,870,219.69
2023	02-0019-S	19	1.859	2.312	0.453	RECONSTRUCTION	\$1,848,056.77
2023	02-0019-S	21	10.807	10.983	0.176	LEVEL_RESURFACE	\$199,282.24
2023	02-0019-S	22	10.987	11.495	0.508	LEVEL_RESURFACE	\$575,201.00
2025	02-0028-N	27	6.377	7.097	0.720	MILL_LEVEL_RESURFACE	\$1,004,098.87
2023	02-0028-N	29	19.865	24.087	4.222	RECONSTRUCTION	\$17,224,052.29
2023	02-0028-S	31	0.474	0.707	0.233	RECONSTRUCTION	\$1,126,541.16

1 - 100 of 689 items



PTAMS MOVING FORWARD



QUESTIONS?

Halley Cole P.E.
Chief Pavement Testing and Asset Management
halcole@pa.gov

