
Using LTPP InfoPave to Obtain Data for Analysis

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U.S. Department of Transportation
Federal Highway Administration



LONG TERM
Pavement
PERFORMANCE

Overview

- Focus is on assessing the available data, and obtaining that data for use in analysis
- Analysis of the data is not included in this presentation
- Three examples are presented; all are real situations for which InfoPave has been used

Three InfoPave Examples

- Obtain data for a small data analysis project
- Check data availability to supplement an ongoing research project
- Utilize data for analysis for a graduate course

Example 1: AC Maintenance Treatments for Pennsylvania

Goal: Review the effectiveness of maintenance treatments for AC pavements in Pennsylvania

Step 1: Select “Data” on the home page

HOME SEARCH MAP DATA MEDIA TOOLS LIBRARY HELP MY LTPP

Getting Started with LTPP InfoPave

Announcements

- LTPP Standard Data Release 28 Availability
- LTPP InfoPave Debut at 93rd TRB Annual Meeting
- LTPP SPS-10 Recruitment
- LTPP InfoPave - Access to Everything LTPP

Search

Map

Data

Media

Tools

Library

My LTPP

Help

LTPP Professional Network

LTPP Contacts

Step 2: Select “Data Selection and Download”

HOME SEARCH MAP DATA MEDIA TOOLS LIBRARY HELP MY LTPP

Section Summary Reports

Want to get a basic section information?

Access Single- and Multi-Section Summary Repo... on the selected section(s) with tabulated data and graphs.

Data Selection and Download



How to View LTPP Data?



Ready to Use
Data Sets

Standard Data
Release

SQL Export

Table Export

Data Pivot

Section Timeline

Ancillary Data
Export

Help



Step 3: Use filter function to locate desired data

The screenshot displays the LTPP Data Selection interface. On the left, a sidebar contains filter categories: General, Structure, Climate, Traffic, and Performance, each with a list of sub-filters and checkboxes. A red box highlights this sidebar. The main area is titled 'Data Selection' and shows 'There are 2509 of 2509 sections currently selected.' Below this is a search bar and a table of data classes: Primary Data Classification, Advanced Data Classification, Primary Data, Advanced Data, and Auxiliary Data. A 'Structure' section is expanded, showing a tree view of data elements such as General Section Information, Section Experiment Type and Improvement (M&R) History, Compiled Section Data (Layout and Structure History), GPS Coordinates, Age (Inventory), Pavement Structure (Representative Structure and Related Data Sources), Representative Pavement Structure (Section Level), Material - Layer Properties and Field Sampling (Test, M&R, Inventory), AC, PCC, Bound Base/Subbase, Unbound Base/Subbase, Unbound Base/Subbase and Subgrade (Applied To Both), Subgrade, Surface Treatments, Feature - Drainage, Joints, Shoulder, Reinforcement (Monitored, M&R, Experiment Specific, Inventory), Joints, Maintenance and Rehabilitation (M&R), Improvement (M&R) Details, AC Treatments, PCC Treatments, Joint Seal, Patching, and Grinding, Milling, Grooving. At the bottom, there are buttons for 'Add to Selection' and 'Collapse All', and a list of filter categories with 'Show Advanced Data Classification' options.


Step 4: Select Experiment Type to find SPS-3 data

Find Sections 

General


- Age
- Experiment Type/Study
- Section
- Location
- Maintenance and Rehabilitation
- Roadway Functional Class

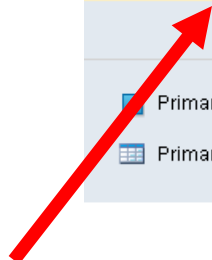
Data Selection

There are 445 of 2509 sections currently selected. 

Find:

Primary Data Classification Advanced Data Classification

Primary Data Advanced Data  Ancillary Data




Experiment Type/Study

Selects sections by LTPP defined Experiment Type and Other Studies (SMP-Seasonal Monitoring Program and TPFS-Traffic Pool Fund Study)


Please select options from the list below:

- SPS-2 - Strategic Study of Structural Factors for Rigid Pavements, New/Reconstructed JPCC pavements
- SPS-3 - Preventive Maintenance of AC Pavement
- SPS-4 - Preventive Maintenance of Jointed Concrete Pavement
- SPS-5 - AC Overlay of AC Pavement
- SPS-6 - Rehabilitation of Jointed PCC Pavement

Step 5: Select Location to find SPS-3 in PA only

Find Sections 

General

- Age
- [Experiment Type/Study](#) (1) 
- Section
- Location**
- Maintenance and Rehabilitation
- Roadway Functional Class

Location

Selects sections by State/Province

Select All


United States


- Indiana
- Kansas
- Louisiana
- Maryland
- Michigan
- Mississippi
- Montana
- Nevada
- New Jersey
- New York
- North Dakota
- Oklahoma
- Pennsylvania**
- Rhode Island
- South Dakota
- Texas
- Vermont
- Washington
- Wisconsin

- Iowa
- Kentucky
- Maine
- Massachusetts
- Minnesota
- Missouri
- Nebraska
- New Hampshire
- New Mexico
- North Carolina
- Ohio
- Oregon
- Puerto Rico
- South Carolina
- Tennessee
- Utah
- Virginia
- West Virginia
- Wyoming

Canada

- Alberta
- Manitoba
- Newfoundland
- Ontario
- Quebec

Data Selection 

There are **11** of **2509** sections currently selected. 

Find:

- Primary Data Classification
- Advanced Data Classification
- Primary Data
- Advanced Data
- Ancillary Data

Step 6: Before data extraction, we can review and compare sections using “Show Sections”

Selected Section:

State/Province:
Pennsylvania

Section:
42-A310
42-A320
42-A330
42-A340
42-A350
42-A351
42-B310
42-B330
42-B340
42-B350
42-B351

Section Information:

Age:
24 (years)

Experiment Type/Study:
SPS-3 - Preventive Maintenance of AC Pavement

Roadway Functional Class:
Urban Other Principal Arterial

Climatic Region:
Wet, Freeze

Freezing Index (Annual):
311 (deg C degree days)

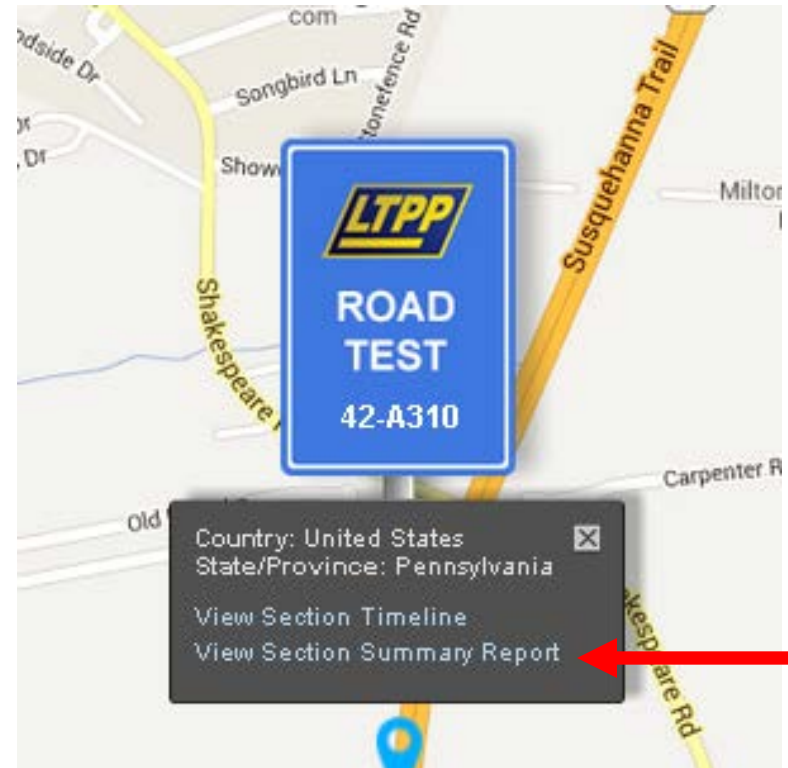
Precipitation (Annual):
890.7 (mm)

Temperature (Annual):
10.4 (deg C)

Avg. Annual Daily Traffic (AADT):
3232

Avg. Annual Daily Truck Traffic (AADTT):
890

Locate Close



Step 7: Compare sections

State/Province:

Section:

[View Section Timeline](#)

Data

Graphs

Compare



Basic Section Overview (42-A310)

State/Province	Pennsylvania	GPS- Lat., Long. (Degrees)	40.99241, -76.83727	Date of Construction	01-Sep-1971
County	NORTHUMBERLAND	Functional Class	Urban Other Principal Arterial	Date Start of LTPP Section	01-Aug-1988
Route, Direction	State-147, North Bound	No. of Lanes	1	LTPP Monitoring Status (Date Inactive)	Out-of-study (14-Jun-1995)
Mile Post	78	Climatic Zone	Wet, Freeze	Region (Code and Description)	1- North Atlantic

LTPP Section History and Pavement Structure

LTPP Section M&R History				Layer Information				Strength or Stiffness Measures (Multiple)	
Experiment Number	Construction Number (CN) and Max Layer Number	CN Event (M&R) Date	CN Event (Code and Description)	Layer Number	Layer Type	Thickness, (in.)	Material Code Description	Test Results (Abbr,Unit)	Other (Abbr,Unit)
SPS-3	CN1 (Layer Max =5)	Aug-1988		1	Subgrade (untreated)		267-Coarse-Grained Soil: Clayey Gravel with Sand		
SPS-3	CN2 (Layer Max =6)	Jun-1990	10-AC Shoulder Restoration (sq. yards), 19-Asphalt Concrete Overlay (sq. yards)	2	Unbound (granular) base	16.2	304-Crushed Gravel		



Basic Section Overview

		Select	Select	Select
State Code	42			
Section ID	A310			
State/Province	Pennsylvania			
County	NORTHUMBERLAND			
Route, Direction	State-147, North Bound			
Mile Post	78			
GPS- Lat., Long.	40.99241, -76.83727			
Functional Class	Urban Other Principal Arterial			
No. of Lanes	1			
Climatic Zone	Wet, Freeze			
Date of Construction	01-Sep-1971			
Date Start of LTPP Section	01-Aug-1988			
LTPP Monitoring Status (Date Inactive)	Out-of-study (14-Jun-1995)			
Region (Code and Description)	1-North Atlantic			
Current Experiment Type	SPS-3			

Structure

- The PA SPS-3 sections fall into two route classes, with different structures
- Section A is Urban Other Principal Arterial, which has an average AC thickness equal to 8 inches with 0.2-inch seal coat on top of the AC
- Section B is Rural Minor Arterial, which has an average AC thickness equal to 6.62 inches
- Base and subgrade are the same for all sections

Performance Data

- The research team plans to use IRI progression as an indicator for performance evaluation.
- The various treatment types must be identified
- Detailed information can be found from M&R History.

Step 8: Data extraction

← Structure ■ Show Advanced Data Classification

Collapse All

- General Section Information
 - Section Experiment Type and Improvement (M&R) History
 - Compiled Section Data (Layout and Structure History)
 - GPS Coordinates
 - Age (Inventory)
- Pavement Structure (Representative Structure and Related Data Sources)
 - Representative Pavement Structure (Section Level)

- + Structure Show Advanced Data Classification
- + Climate Show Advanced Data Classification
- + Traffic Show Advanced Data Classification
- Performance Show Advanced Data Classification

Collapse All

- Manual Distress
 - AC
 - JPCP
 - CRCP
- Deflection
 - Deflection Data
 - Temperature Data
 - Equipment Data
- Surface Characteristics
 - Longitudinal Profile (IR)

Add to Selection



Step 9: Make a request

Remove All

Selected Data (3)

Structure ▶ General Section Information ▶ Section Experiment Type and Improvement (M&R) History: 11 Sections, 33 Records, 13 Attributes



Structure ▶ Pavement Structure (Representative Structure and Related Data Sources) ▶ Representative Pavement Structure (Section Level): 11 Sections, 161 Records, 6 Attributes



Performance ▶ Surface Characteristics ▶ Longitudinal Profile (IRI): 11 Sections, 466334 Records, 15 Attributes



Add to Data Bucket



Selected Data (3)

Structure ► General Section Information ► Section Experiment Type and Improvement (M&R) History: 11 Sections, 33 Records, 13 Attributes ✕

Structure ► Pavement Structure (Representative Structure and Related Data Sources) ► Representative Pavement Structure (Section Level): 11 Sections, 161 Records, 6 Attributes ✕

Performance ► Surface Characteristics ► Longitudinal Profile (IRI): 11 Sections, 466334 Records, 15 Attributes ✕

Export File Format

Please select file format for data export and submit Data Bucket for extraction. You will receive an e-mail notification when your data bucket is ready for download or you can check the status of your Data Bucket from [My Data Extractions](#) page in My LTPP.

Export File Format:

Microsoft Excel ▼[Submit Data Bucket for Extraction](#)

Thank You!

Your data bucket has been submitted for data extraction successfully. Your **data extraction number is 003207**, you will receive a notification email with a download link as soon as the data is ready for you to download. You can access your bucket detail **in My Data Extraction.**

Step 10: Download requested data

HOME SEARCH MAP DATA MEDIA TOOLS LIBRARY HELP **MY LTPP**

My LTPP

My Account

My Data Buckets

My Data Extractions

My Data Extractions Help?

This section displays current status of your data extraction requests and allows to download data for completed requests.

Extraction Number	Date	Extraction Status	
003207	1/10/2014 10:33:27 AM	In Progress	
003204	1/10/2014 9:52:52 AM	Completed	Download

File Download ✕

Your requested file "**Bucket_3207.zip**" is ready for download. Click [Download](#) to proceed.

Close

Table Tools

File Home Create External Data Database Tools Fields Table

View Paste Format Painter Filter Filter Ascending Descending Remove Sort Toggle Filter Sort & Filter Selection Advanced Refresh All Delete More Records New Save Delete More Records Totals Spelling Find Go To Select Find Replace

Calibri 11 Text Formatting

All Access Objects

Search...

Tables

- Codes_Reference
- Field_Reference
- Table_Reference
- TST_L05B

Record: 1 of 9 of 9 No Filter Search

TABLE_NAME	FIELD_NAME	FIELD_ALIAS	FIELD_DESCRIPTION	FIELD_UNIT	FIELD_CODETYPE
TST_L05B	CONSTRUCTION_NO	Construction Number	Event number used to relate changes in pavement structure		
TST_L05B	DESCRIPTION	Layer Description Code	Code indicating general type of layer.		DESCRIPTION
TST_L05B	LAYER_NO	Layer Number	Unique sequential number assigned to pavement layers, starting with 1		
TST_L05B	LAYER_TYPE	Layer Type Code	Code identifying the type of layer.		LAYER_TYPE
TST_L05B	MATL_CODE	Material Code	Code corresponding to the material type classification.		MATERIAL
TST_L05B	REPR_THICKNESS	Representative Thickness	Representative thickness for a layer in a section.	in	
TST_L05B	SHRP_ID	LTPP Section Identifier	Test section identification number assigned by LTPP program		
TST_L05B	STATE_CODE	State Code	Numerical code for state or province. U.S. codes are consistent with the		STATE_PROVINCE
*					

Datasheet View

Windows Taskbar: Start, Internet Explorer, Google Chrome, File Explorer, PowerPoint, Word, Access



Table Tools: Fields, Table

File Home Create External Data Database Tools Fields Table

View Paste Copy Format Painter Filter Filter Ascending Descending Remove Sort Selection Advanced Toggle Filter

Refresh All New Save Delete Records

Totals Spelling More Find Replace Go To Select Find

Calibri 11 Bold Italic Underline Text Formatting

All Access Objects

Search...

Tables

- Codes_Reference
- Field_Reference
- Table_Reference
- TST_L05B**

SHRP_ID	STATE_CODE	CONSTRUCTI	LAYER_NO	DESCRIPTION	LAYER_TYPE	REPR_THICKI	MATL_CODE
A310	42	2	1	7	SS		267
A310	42	2	2	5	GB	16.2	304
A310	42	2	3	4	AC	7.5	1
A310	42	2	4	3	AC	1.5	1
A320	42	2	1	7	SS		267
A320	42	2	2	5	GB	16.2	304
A320	42	2	3	4	AC	6.4	1
A320	42	2	4	3	AC	1.2	1
A330	42	2	1	7	SS		267
A330	42	2	2	5	GB	16.2	304
A330	42	2	3	4	AC	7	1
A330	42	2	4	3	AC	1.5	1
A350	42	2	1	7	SS		267
A350	42	2	2	5	GB	16.2	304
A350	42	2	3	4	AC	6.4	1
A350	42	2	4	3	AC	1.5	1
A351	42	2	1	7	SS		267
A351	42	2	2	5	GB	16.2	304
A351	42	2	3	4	AC	6.5	1
A351	42	2	4	3	AC	1.2	1
B310	42	2	1	7	SS		111
B310	42	2	2	5	GB	16.4	302
B310	42	2	3	4	AC	4.9	1
B310	42	2	4	3	AC	1.5	1

Record: 1 of 161 No Filter Search

Datasheet View

Windows Taskbar: Start, Internet Explorer, Google Chrome, File Explorer, Word, PDF Reader, PowerPoint, Access



Table Tools

File Home Create External Data Database Tools Fields Table

View Paste Copy Cut Copy Paste Format Painter Filter Filter Ascending Descending Remove Sort Toggle Filter Selection Advanced Refresh All New Save Delete More Totals Spelling Find Replace Go To Select Text Formatting

All Access Objects

- Search...
- Tables
- Codes_Reference
 - EXPERIMENT_SECTION
 - Field_Reference
 - MON_PROFILE_DATA
 - MON_PROFILE_MASTER
 - Table_Reference

MON_PROFILE_DATA

STATE_CODE	SHRP_ID	PROFILE_DATE	RUN_NUMBI	SEQUENCE_I	LEFT_ELEVAT	RIGHT_ELEV
42	A310	Jun/02/1994	1	95	-6.807	-17.221
42	A310	Jun/02/1994	1	96	-6.706	-16.485
42	A310	Jun/02/1994	1	97	-6.528	-15.875
42	A310	Jun/02/1994	1	98	-6.629	-15.723
42	A310	Jun/02/1994	1	99	-6.655	-16.358
42	A310	Jun/02/1994	1	100	-6.452	-16.789
42	A310	Jun/02/1994	1	101	-6.401	-16.383
42	A310	Jun/02/1994	1	102	-6.528	-16.612
42	A310	Jun/02/1994	1	103	-6.553	-16.84
42	A310	Jun/02/1994	1	104	-6.401	-17.272
42	A310	Jun/02/1994	1	105	-6.274	-17.526
42	A310	Jun/02/1994	1	106	-5.969	-17.12
42	A310	Jun/02/1994	1	107	-5.944	-17.17
42	A310	Jun/02/1994	1	108	-6.071	-17.323
42	A310	Jun/02/1994	1	109	-5.766	-17.678
42	A310	Jun/02/1994	1	110	-5.385	-17.526
42	A310	Jun/02/1994	1	111	-5.258	-16.891
42	A310	Jun/02/1994	1	112	-5.232	-16.764
42	A310	Jun/02/1994	1	113	-5.309	-16.916
42	A310	Jun/02/1994	1	114	-4.902	-16.942
42	A310	Jun/02/1994	1	115	-4.343	-16.205
42	A310	Jun/02/1994	1	116	-4.14	-15.57
42	A310	Jun/02/1994	1	117	-4.267	-15.545
42	A310	Jun/02/1994	1	118	-4.318	-15.545

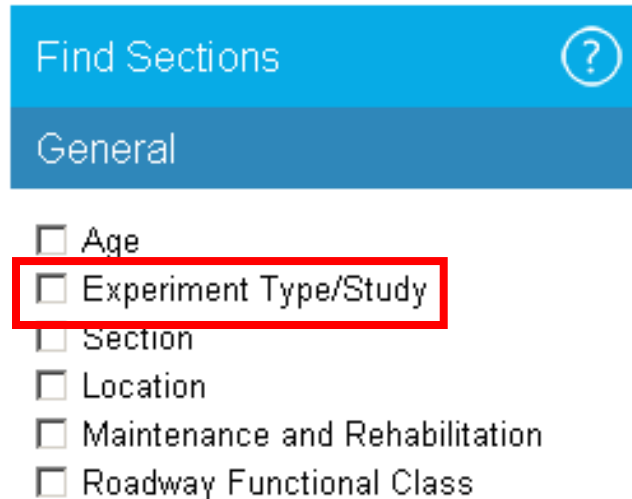
Record: 1 of 466334 No Filter Search


Datasheet View



Example 2: GPS-9 Data Extraction Utilizing InfoPave

Goal: How does the interlayer affect the performance of unbonded overlays?



Find Sections 

General

- Age
- Experiment Type/Study
- Section
- Location
- Maintenance and Rehabilitation
- Roadway Functional Class

Step1: Use the filter function to select GPS-9 data

Experiment Type


Selects sections by LTPP defined experiment type (pavement structure and other experiment design factorials) during the life of the pavement

Please select options from the list below:





- GPS-7S - AC Overlay on PCC Pavement with Pretreatment
- GPS-9 - Unbonded PCC Overlay of PCC Pavement
- SMP - All Seasonal Monitoring Program
- SPS-1 - Strategic Study of Structural Factors for Flexible Pavements, New/Reconstructed AC pavements
- SPS-2 - Strategic Study of Structural Factors for Rigid Pavements, New/Reconstructed JPCP pavements

[Apply](#) [Cancel](#)

Data Selection [Help?](#)

There are **26** of **2509** sections currently selected. 


[+ Show Sections](#)

Find:    


- Primary Data Classification
- Advanced Data Classification
- Primary Data
- Advanced Data
- Ancillary Data

Step 2: Use Performance filter to find the most comprehensive data for analysis


Performance

- Deflection (9-kip, wheel path) ✘
0 - 1500 (microns)

- Fatigue Cracking
- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile


Data Selection

There are **26** of **2509** sections currently selected. 

Performance

- Deflection (9-kip, wheel path)
- Fatigue Cracking ✘
0 - 850 (sq. m)

- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

Data Selection

There are **2** of **2509** sections currently selected. 

Performance


- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting

-1 - 9 (mm)



- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

Data Selection

There are **22** of **2509** sections currently selected. 

Performance


- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking

0 - 500 (m)



- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

Data Selection

There are **26** of **2509** sections currently selected. 

Performance


- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking

0 - 500 (m)



- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

Data Selection

There are **26** of **2509** sections currently selected. 

Performance


- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking

0 - 1400 (m)



- Transverse Profile

Data Selection

There are **26** of **2509** sections currently selected. 


Performance

- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

1 - 33 (mm)




Data Selection

There are **26** of **2509** sections currently selected. 

From preliminary filtering, it was determined to use the 22 sections based on faulting information.

Step 3. Select data for analysis

Data Bucket

 Options



Bucket Status: In Progress
Export File Format: Access
Date/Time Saved: 11/20/2013 11:41:49 AM

Selected Data (5)

Structure ► Pavement Structure (Representative Structure and Related Data Sources) ► Representative Pavement Structure (Section Level): 22 Sections, 276 Records, 5 Attributes

Traffic ► Computed Traffic Data (ESAL) ► Equivalent Single Axle Load (ESAL): 22 Sections, 193 Records, 38 Attributes

Performance ► Manual Distress ► JPCP: 22 Sections, 3245 Records, 77 Attributes

Performance ► Deflection ► Deflection Data: 22 Sections, 105580 Records, 30 Attributes

Performance ► Surface Characteristics ► Longitudinal Profile (IRI): 22 Sections, 1239782 Records, 13 Attributes



Table Tools

File Home Create External Data Database Tools Fields Table

View Paste Copy Format Painter Filter Filter Ascending Descending Remove Sort Toggle Filter Selection Advanced Refresh All New Save Delete More Totals Spelling Find Replace Go To Select Text Formatting

All Access Objects

- Search...
- Tables
- Codes_Reference
 - Field_Reference
 - MON_DEFL_DROP_D...
 - MON_DEFL_LOC_INFO
 - MON_DEFL_MASTER
 - MON_DIS_JPCC_FAULT
 - MON_DIS_JPCC_FAU...
 - MON_DIS_JPCC_REV
 - MON_PROFILE_DATA
 - MON_PROFILE_MAS...
 - Table_Reference
 - TRF_ESAL_AC_THICK
 - TRF_ESAL_COMPUTED
 - TRF_ESAL_DRAINAGE...
 - TRF_ESAL_INPUTS_S...
 - TRF_ESAL_PCC_COM

STATE_CODE	SHRP_ID	TEST_DATE	TEST_TIME	DEFL_UNIT_I	POINT_LOC	LANE_NO	CONSTRUCTI	CONFIGURA1	CRACK_JOIN
89	9018	7/6/1990 12:00	1016	8002-058	72.8	J2	1	100004	
89	9018	7/6/1990 12:00	0849	8002-058	73.8	J1	1	100004	
89	9018	7/6/1990 12:00	1018	8002-058	75	J3	1	100004	
89	9018	7/6/1990 12:00	1021	8002-058	82.9	J2	1	100004	
89	9018	7/6/1990 12:00	0852	8002-058	83.8	J1	1	100004	
89	9018	7/6/1990 12:00	1026	8002-058	85.3	J3	1	100004	
89	9018	7/6/1990 12:00	1031	8002-058	93	J2	1	100004	
89	9018	7/6/1990 12:00	0859	8002-058	93.9	J1	1	100004	
89	9018	7/6/1990 12:00	1033	8002-058	95.1	J3	1	100004	
89	9018	7/6/1990 12:00	1035	8002-058	97.5	J2	1	100004	
89	9018	7/6/1990 12:00	0902	8002-058	99.4	J1	1	100004	
89	9018	7/6/1990 12:00	1038	8002-058	99.4	J3	1	100004	
89	9018	7/6/1990 12:00	1041	8002-058	106.7	J2	1	100004	
89	9018	7/6/1990 12:00	0908	8002-058	109.1	J1	1	100004	
89	9018	7/6/1990 12:00	1044	8002-058	109.1	J3	1	100004	
89	9018	7/6/1990 12:00	1046	8002-058	116.7	J2	1	100004	
89	9018	7/6/1990 12:00	1050	8002-058	118.9	J3	1	100004	
89	9018	7/6/1990 12:00	0910	8002-058	119.2	J1	1	100004	
89	9018	7/6/1990 12:00	1052	8002-058	121.6	J2	1	100004	
89	9018	7/6/1990 12:00	1054	8002-058	123.7	J3	1	100004	
89	9018	7/6/1990 12:00	0912	8002-058	124.1	J1	1	100004	
89	9018	7/6/1990 12:00	1057	8002-058	131.7	J2	1	100004	
89	9018	7/6/1990 12:00	0914	8002-058	133.8	J1	1	100004	
89	9018	7/6/1990 12:00	1059	8002-058	134.4	J3	1	100004	

Record: 1 of 8752 No Filter Search

Datasheet View

Windows Taskbar: Start, Internet Explorer, Google Chrome, File Explorer, PowerPoint, Word, Access



Table Tools

File Home Create External Data Database Tools Fields Table

View Paste Copy Cut Copy Format Painter Filter Filter Ascending Descending Remove Sort Toggle Filter Selection Advanced Refresh All Delete More Records

Find Find Replace Go To Select

Calibri 11 Text Formatting

All Access Objects

MON_DEFL_LOC_INFO MON_PROFILE_DATA MON_PROFILE_MASTER

STATE_CODE	SHRP_ID	CONSTRUCTI	PROFILE_DA	PROFILE_TIM	RUN_NUMBI	SURFACE_CC	TEMPERATUI	IRI_LEFT_WF	IRI_RIGHT_WF
89	9018	1	5/20/1999 12:0	10:27:58	4	FAIR	13	2.456	2.978
89	9018	1	5/20/1999 12:0	10:25:20	3	FAIR	13	2.497	2.953
89	9018	1	5/20/1999 12:0	10:21:38	2	FAIR	13	2.567	2.968
42	1627	1	11/12/1989 12:0	09:44:03	2	GOOD	4.4	1.821	1.875
42	1627	1	11/12/1989 12:0	09:44:03	3	GOOD	4.4	1.887	1.91
42	1627	1	11/12/1989 12:0	09:44:03	1	GOOD	4.4	1.84	1.882
42	1627	1	8/11/1990 12:0	18:31:53	6	GOOD	22.2	1.969	1.854
42	1627	1	11/12/1989 12:0	09:44:03	5	GOOD	4.4	1.806	1.903
42	1627	1	8/11/1990 12:0	18:31:53	3	GOOD	22.2	1.962	1.88
42	1627	1	8/11/1990 12:0	18:31:53	5	GOOD	22.2	1.944	1.901
42	1627	1	10/3/1991 12:0	09:35:21	3	GOOD	18.3	1.785	1.863
42	1627	1	10/3/1991 12:0	09:35:21	4	GOOD	18.3	1.774	1.839
42	1627	1	10/3/1991 12:0	09:35:21	1	GOOD	18.3	1.815	1.859
42	1627	1	10/3/1991 12:0	09:35:21	2	GOOD	18.3	1.816	1.84
42	1627	1	10/25/1993 12:0	15:14:46	4	GOOD	22.2	1.801	1.623
42	1627	1	10/25/1993 12:0	15:14:46	6	GOOD	22.2	1.811	1.64
42	1627	1	10/25/1993 12:0	15:14:46	2	GOOD	22.2	1.825	1.611
42	1627	1	10/25/1993 12:0	15:14:46	3	GOOD	22.2	1.782	1.571
89	9018	1	5/20/1999 12:0	10:31:28	5	FAIR	13	2.491	2.994
89	9018	1	5/20/1999 12:0	10:15:36	1	FAIR	13	2.556	2.957
42	9027	2	4/15/1996 12:0	15:40:03	1	GOOD	14.4	2.532	3.061
42	9027	1	11/22/1989 12:0	12:15:35	5	POOR	-2.2	2.66	3.072
42	9027	2	5/17/1990 12:0	11:13:43	5	GOOD	23.9	2.759	2.766
42	9027	2	10/8/1991 12:0	11:13:36	1	FAIR	20	2.361	3.036

Record: 1 of 1228 No Filter Search

Datasheet View

Windows Taskbar: Internet Explorer, Google Chrome, File Explorer, PowerPoint, Word, Access



Table Tools

File Home Create External Data Database Tools Fields Table

View Paste Copy Format Painter Filter Filter Ascending Descending Remove Sort Toggle Filter Selection Advanced Refresh All Delete More

Clipboard Sort & Filter Records

Find Replace Go To Select

Calibri 11

Text Formatting

All Access Objects

- Field_Reference
- MON_DEFL_DROP_D...
- MON_DEFL_LOC_INFO
- MON_DEFL_MASTER
- MON_DIS_JPCC_FAULT
- MON_DIS_JPCC_FAU...
- MON_DIS_JPCC_REV
- MON_PROFILE_DATA
- MON_PROFILE_MAS...
- Table_Reference
- TRF_ESAL_AC_THICK
- TRF_ESAL_COMPUTED
- TRF_ESAL_DRAINAGE...
- TRF_ESAL_INPUTS_S...
- TRF_ESAL_PCC_COM...
- TST_L05B

STATE_CODE	SHRP_ID	YEAR	KESAL_YEAR
6	9048	1993	153
6	9048	1994	150
6	9048	1995	179
6	9048	1996	150
6	9048	1997	156
6	9048	1998	218
6	9048	1999	271
6	9048	2000	295
6	9048	2001	274
6	9048	2002	250
6	9048	2004	300
6	9048	2005	311
6	9048	2006	307
6	9048	2007	301
6	9048	2008	283
6	9048	2009	251
6	9049	2000	195
6	9049	2001	142
6	9049	2002	96
6	9049	2003	87
6	9049	2006	107
6	9107	2001	927
6	9107	2002	1118
6	9107	2003	1089

Record: 1 of 193 No Filter Search

Datasheet View



Example 3: Class Design Project

Goal: Utilize data to perform overlay design and new pavement design using mechanistic-empirical concepts.

Step 1: Select location (state)

Find Sections



Data Selection

Help?

Location

Selects sections by State/Province

Select All

United States

<input type="checkbox"/> Indiana	<input type="checkbox"/> Iowa
<input type="checkbox"/> Kansas	<input type="checkbox"/> Kentucky
<input type="checkbox"/> Louisiana	<input type="checkbox"/> Maine
<input type="checkbox"/> Maryland	<input type="checkbox"/> Massachusetts
<input type="checkbox"/> Michigan	<input type="checkbox"/> Minnesota
<input type="checkbox"/> Mississippi	<input type="checkbox"/> Missouri
<input type="checkbox"/> Montana	<input type="checkbox"/> Nebraska
<input type="checkbox"/> Nevada	<input type="checkbox"/> New Hampshire
<input type="checkbox"/> New Jersey	<input type="checkbox"/> New Mexico
<input type="checkbox"/> New York	<input type="checkbox"/> North Carolina
<input type="checkbox"/> North Dakota	<input type="checkbox"/> Ohio
<input type="checkbox"/> Oklahoma	<input type="checkbox"/> Oregon
<input checked="" type="checkbox"/> Pennsylvania	<input type="checkbox"/> Puerto Rico
<input type="checkbox"/> Rhode Island	<input type="checkbox"/> South Carolina
<input type="checkbox"/> South Dakota	<input type="checkbox"/> Tennessee
<input type="checkbox"/> Texas	<input type="checkbox"/> Utah
<input type="checkbox"/> Vermont	<input type="checkbox"/> Virginia
<input type="checkbox"/> Washington	<input type="checkbox"/> West Virginia
<input type="checkbox"/> Wisconsin	<input type="checkbox"/> Wyoming

Canada

<input type="checkbox"/> Alberta	<input type="checkbox"/> British Columbia
<input type="checkbox"/> Manitoba	<input type="checkbox"/> New Brunswick
<input type="checkbox"/> Newfoundland	<input type="checkbox"/> Nova Scotia
<input type="checkbox"/> Ontario	<input type="checkbox"/> Prince Edward Island
<input type="checkbox"/> Quebec	<input type="checkbox"/> Saskatchewan



Performance

- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting

- Surface Characteristics
- Longitudinal Profile (IRI)



Step 2: Select surface type

Find Sections ?

Data Selection Help?

General

There are 34 of 2509 sections currently selected.

+ Show Sections

- Age
- Experiment Type/Study
- Section

Find:

Surface Type

Selects sections by Surface Type (considering each known maintenance or rehabilitation event)

Please select options from the list below:

- Asphalt Concrete Pavement (ACP)
- Continuously Reinforced Concrete Pavement (CRCP)
- Jointed Plain Concrete Pavement (JPCP)
- Jointed Reinforced Concrete Pavement (JRCP)

Apply

Cancel

Avg. Annual Daily Traffic (AADT)

- CRCP
- Deflection
- Deflection Data

Step 3: Select data for download

HOME SEARCH MAP **DATA** MEDIA TOOLS LIBRARY HELP MY LTPP

Data

Data Bucket

Data Bucket (3)

Selected Data (3)

- Data (3)
- Ancillary Data (0)
- Library (0)
- SQL Query (0)



Clear Data Bucket

- Traffic ► Monitored Traffic Data-WIM and AVC (AADT, Truck, Class, Weight, Axle, ESAL) ► Estimated Data (AADT, Truck, ESAL): 34 Sections, 312 Records, 16 Attributes
- Traffic ► Monitored Traffic Data-WIM and AVC (AADT, Truck, Class, Weight, Axle, ESAL) ► WIM and AVC Data (Class, Weight, Axle): 33 Sections, 9092 Records, 67 Attributes
- Performance ► Deflection ► Deflection Data: 34 Sections, 117583 Records, 33 Attributes

Export File Format

Please select file format for data export and submit Data Bucket for extraction. You will receive an e-mail notification when your data bucket is ready for download or you can check the status of your Data Bucket from [My Data Extractions](#) page in My LTPP.

Export File Format:

Step 4: Compare the data in Access®

Table Tools Bucket_3209 : Database (Access 2007) - Microsoft Access

Home Create External Data Database Tools Datasheet

Colibri 11 Font Rich Text Refresh All Save Delete More Filter Selection Advanced Toggle Filter Find Replace Go To Select

All Access Objects Search MON_DEFL_DROP_DATA

STATE_CODE	SHRP_ID	TEST_DATE	TEST_TIME	DEFL_UNIT	POINT_LOC	LANE_NO	DROP_NO	RECORD_ST	CONSTRUCT	DROP_HEIG
42	1613	May/10/1990	1210	8002-058	102.7	J1	8	E	1	3
42	1613	May/10/1990	1210	8002-058	102.7	J1	9	E	1	4
42	1613	May/10/1990	1210	8002-058	102.7	J1	10	E	1	4
42	1613	May/10/1990	1210	8002-058	102.7	J1	11	E	1	4
42	1613	May/10/1990	1210	8002-058	102.7	J1	12	E	1	4
42	1613	May/10/1990	1212	8002-058	117	J1	1	E	1	2
42	1613	May/10/1990	1212	8002-058	117	J1	2	E	1	2
42	1613	May/10/1990	1212	8002-058	117	J1	3	E	1	2
42	1613	May/10/1990	1212	8002-058	117	J1	4	E	1	2
42	1613	May/10/1990	1212	8002-058	117	J1	5	E	1	3
42	1613	May/10/1990	1212	8002-058	117	J1	6	E	1	3
42	1613	May/10/1990	1212	8002-058	117	J1	7	E	1	3
42	1613	May/10/1990	1212	8002-058	117	J1	8	E	1	3
42	1613	May/10/1990	1212	8002-058	117	J1	9	E	1	4
42	1613	May/10/1990	1212	8002-058	117	J1	10	E	1	4
42	1613	May/10/1990	1212	8002-058	117	J1	11	E	1	4
42	1613	May/10/1990	1212	8002-058	117	J1	12	E	1	4
42	1613	May/10/1990	1216	8002-058	132.3	J1	1	E	1	2
42	1613	May/10/1990	1216	8002-058	132.3	J1	2	E	1	2
42	1613	May/10/1990	1216	8002-058	132.3	J1	3	E	1	2
42	1613	May/10/1990	1216	8002-058	132.3	J1	4	E	1	2
42	1613	May/10/1990	1216	8002-058	132.3	J1	5	E	1	3
42	1613	May/10/1990	1216	8002-058	132.3	J1	6	E	1	3
42	1613	May/10/1990	1216	8002-058	132.3	J1	7	E	1	3
42	1613	May/10/1990	1216	8002-058	132.3	J1	8	E	1	3
42	1613	May/10/1990	1216	8002-058	132.3	J1	9	E	1	4
42	1613	May/10/1990	1216	8002-058	132.3	J1	10	E	1	4
42	1613	May/10/1990	1216	8002-058	132.3	J1	11	E	1	4
42	1613	May/10/1990	1216	8002-058	132.3	J1	12	E	1	4
42	1613	May/10/1990	1327	8002-058	139.6	J2	1	E	1	2
42	1613	May/10/1990	1327	8002-058	139.6	J2	2	E	1	2
42	1613	May/10/1990	1327	8002-058	139.6	J2	3	E	1	2
42	1613	May/10/1990	1327	8002-058	139.6	J2	4	E	1	2
42	1613	May/10/1990	1327	8002-058	139.6	J2	5	E	1	3
42	1613	May/10/1990	1327	8002-058	139.6	J2	6	E	1	3
42	1613	May/10/1990	1327	8002-058	139.6	J2	7	E	1	3
42	1613	May/10/1990	1327	8002-058	139.6	J2	8	E	1	3

Record: 2 of 117503

Datasheet View

Find Sections ?

General

- Age
- Experiment Type/Study
- Section (1)
- Location
- Maintenance and Rehabilitation
- Roadway Functional Class

Structure

- Surface Type (1)
- Base Type
- Subgrade Type

Climate

- Climatic Region
- Freezing Index (Annual)
- Precipitation (Annual)
- Temperature (Annual)

Traffic

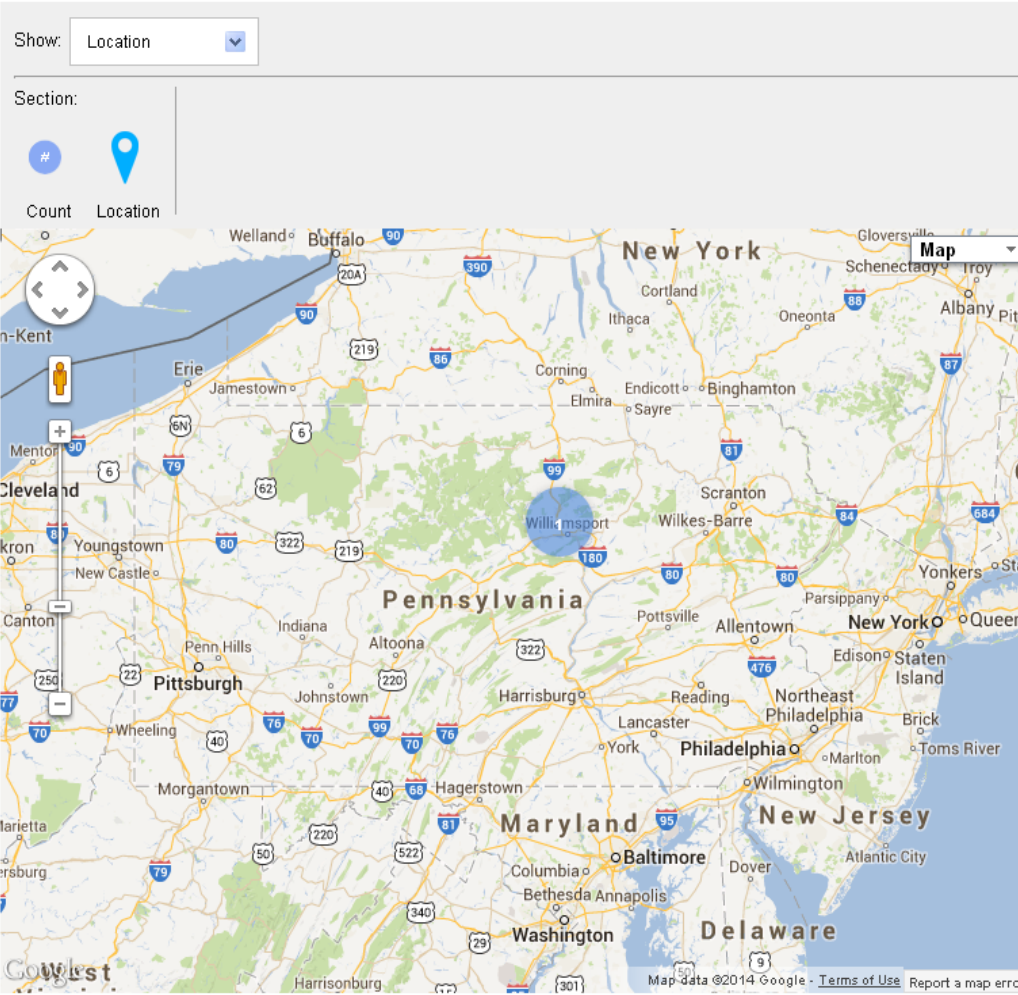
- Avg. Annual Daily Traffic (AADT)
- Avg. Annual Daily Truck Traffic (AADTT)

Performance

- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

View LTPP Sections by Location Help?

There are 1 of 2509 sections currently selected. + Show Sections



Step 5: Check the section summary report

HOME SEARCH MAP DATA MEDIA TOOLS LIBRARY HELP MY LTPP

Find Sections ?

General

Age

Experiment Type/Study

Section (1) ✖

Location

Maintenance and Rehabilitation

Roadway Functional Class

Structure

Surface Type (1) ✖

Base Type

Subgrade Type

Climate

Climatic Region

Freezing Index (Annual)

Precipitation (Annual)

Temperature (Annual)

Traffic

Avg. Annual Daily Traffic (AADT)

Avg. Annual Daily Truck Traffic (AADTT)

Performance

Deflection (9-kip, wheel path)

Fatigue Cracking

Faulting

Longitudinal Cracking

Longitudinal Profile (IRI)

Transverse Cracking

Transverse Profile

Section Summary Report Help?

There are 1 of 2509 sections currently selected. 🗑️ [+ Show Sections](#)

State/Province: Section: [View Section Timeline](#)

Basic Section Overview (42-1597)

State/Province	Pennsylvania	GPS- Lat., Long. (Degrees)	41.97236, -77.2385	Date of Construction	01-Sep-1980
County	TIOGA	Functional Class	Rural Minor Arterial	Date Start of LTPP Section	01-Aug-1988
Route, Direction	State-49, East Bound	No. of Lanes	1	LTPP Monitoring Status	ACTIVE
Mile Post	53	Climatic Zone	Wet, Freeze	Region (Code and Description)	1- North Atlantic

LTPP Section History and Pavement Structure

LTPP Section M&R History				Layer Information			Strength or Stiffness Measures (Multiple)		
Experiment Number	Construction Number (CN) and Max Layer Number	CN Event (M&R) Date	CN Event (Code and Description)	Layer Number	Layer Type	Thickness (in.)	Material Code Description	Test Results (Abbr. Unit)	Other (Abbr. Unit)
GPS-1	CN1 (Layer Max =4)	Aug-1988		1	Subgrade (untreated)		111-Fine-Grained Soils: Gravelly Lean Clay		
GPS-1	CN2 (Layer Max =4)	Jun-1990	1-Crack Sealing (linear ft.)	2	Unbound (granular) base	16.4	302-Gravel (Uncrushed)		
GPS-1	CN3 (Layer Max =4)	Jun-1996	1-Crack Sealing (linear ft.)	3	Asphalt concrete layer	4.9	1-Hot Mixed, Hot Laid AC, Dense Graded		
GPS-1	CN4 (Layer Max =4)	Aug-1997	25-Patch Pot Holes - Hand Spread, Compacted with Truck (no. of holes)	4	Asphalt concrete layer	0	1-Hot Mixed, Hot Laid AC, Dense Graded		
GPS-1	CN5 (Layer Max =4)	May-1999	1-Crack Sealing (linear ft.)	5	Asphalt concrete layer	2.1	1-Hot Mixed, Hot Laid AC, Dense Graded	.73, .92 (IDT, MPa)	
GPS-6S	CN6 (Layer Max =7)	Jul-2000	10-AC Shoulder Restoration (sq. yards), 51-Mill Off AC and Overlay with AC (sq.	6	Asphalt concrete layer	2.4	1-Hot Mixed, Hot Laid AC, Dense Graded	.55, .74 (IDT, MPa)	



Step 6: Check the section timeline

Find Sections ?

General

- Age
- Experiment Type/Study
- Section (1) ✖
- Location
- Maintenance and Rehabilitation
- Roadway Functional Class

Structure

- Surface Type (1) ✖
- Base Type
- Subgrade Type

Climate

- Climatic Region
- Freezing Index (Annual)
- Precipitation (Annual)
- Temperature (Annual)

Traffic

- Avg. Annual Daily Traffic (AADT)
- Avg. Annual Daily Truck Traffic (AADTT)

Performance

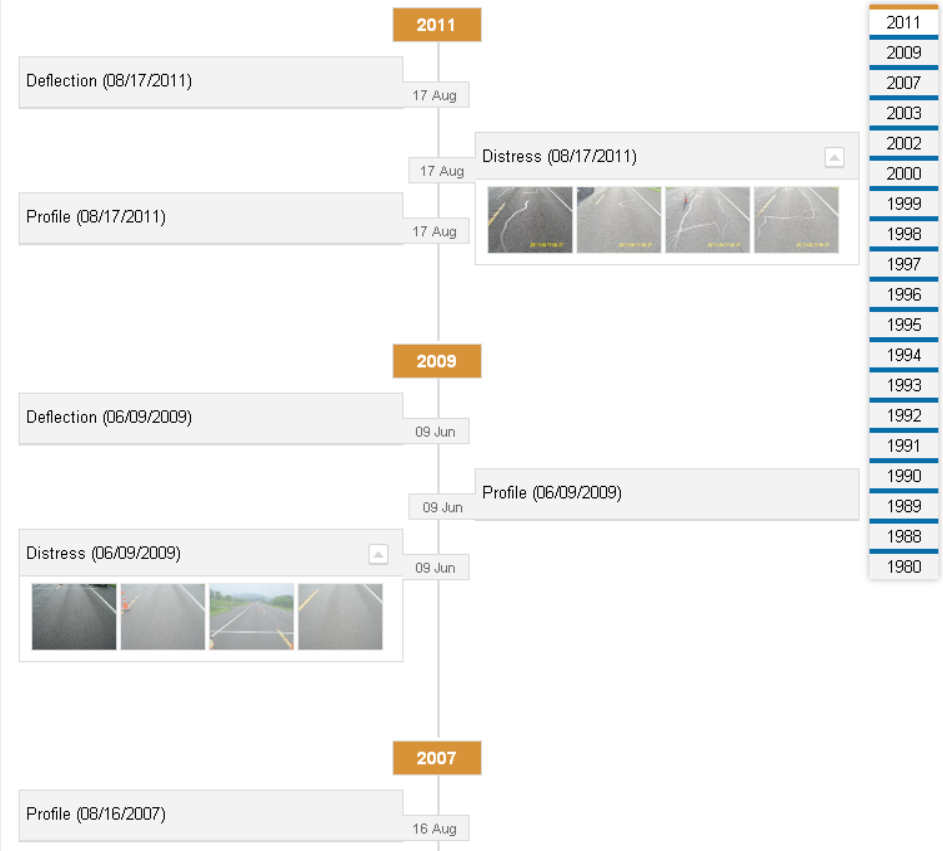
- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

Section Timeline Help?

There are 1 of 2509 sections currently selected. + Show Sections

State/Province: Pennsylvania Section: 42-1597 Locate Section

Section Timeline



Step 7: Select and download data

Find Sections ?

General

- Age
- Experiment Type/Study
- Section (1) ×
- Location
- Maintenance and Rehabilitation
- Roadway Functional Class

Structure

- Surface Type (1) ×
- Base Type
- Subgrade Type

Climate

- Climatic Region
- Freezing Index (Annual)
- Precipitation (Annual)
- Temperature (Annual)

Traffic

- Avg. Annual Daily Traffic (AADT)
- Avg. Annual Daily Truck Traffic (AADTT)

Performance

- Deflection (9-kip, wheel path)
- Fatigue Cracking
- Faulting
- Longitudinal Cracking
- Longitudinal Profile (IRI)
- Transverse Cracking
- Transverse Profile

Data Selection Help?

There are 1 of 2509 sections currently selected.

[+ Show Sections](#)

Find:

- Primary Data Classification
- Advanced Data Classification
- Primary Data
- Advanced Data
- Ancillary Data

Structure Show Advanced Data Classification

Collapse All

- General Section Information
 - Section Experiment Type and Improvement (M&R) History
 - Compiled Section Data (Layout and Structure History)
 - GPS Coordinates
 - Age (Inventory)
- Pavement Structure (Representative Structure and Related Data Sources)
 - Representative Pavement Structure (Section Level)
- Material - Layer Properties and Field Sampling (Test, M&R, Inventory)
 - AC
 - PCC
 - Bound Base/Subbase
 - Unbound Base/Subbase
 - Unbound Base/Subbase and Subgrade (Applied To Both)
 - Subgrade
 - Surface Treatments
- Feature - Drainage, Joints, Shoulder, Reinforcement (Monitored, M&R, Experiment Specific, Inventory)
 - Joints
- Maintenance and Rehabilitation (M&R)
 - Improvement (M&R) Details
 - AC Treatments
 - PCC Treatments
 - Joint Seal
 - Patching
 - Grinding, Milling, Grooving

Final Thoughts

- Not all features were used in these examples; for example, pivot tables could be very useful in assessing and selecting sections for analysis
- InfoPave provides an interface that makes the LTPP data more easily accessible to new users

