



Addressing Transportation System Resiliency at PennDOT

DVRPC Climate Adaptation Forum

December 7, 2018

Impetus for Resiliency Efforts

Recent Emphasis
by PennDOT

FHWA Order
5520 and Pilot
Studies

Emphasis from
DEP / Climate
Change Advisory
Committee

Asset
Management
Requirements

FAST Act

CEQ Final
Guidance
(Rescinded)

Federal Flood Risk
Management
Standard

AASHTO

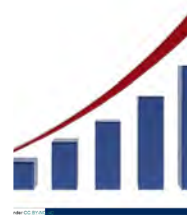
Emergency Funds Obligated:
**\$140 million spent on Federal
Aid System since 2006**



Current Focus Areas



Better understand the **risks** associated with historic flooding



Develop a process to **monitor** historic flooding risks



Assess the **future impact** of flooding due to higher precipitation events





Evaluate adaptation **strategies** and **cost-effectiveness**


PennDOT's Recent & Ongoing Studies

MARCH 2017

PHASE 1
**PENNDOT
EXTREME WEATHER
VULNERABILITY STUDY**

EXECUTIVE SUMMARY



 **pennsylvania**
DEPARTMENT OF TRANSPORTATION

FHWA Call for Pilot Projects:

2018-2019 Pilot Program: Resilience and Durability to Extreme Weather



Development of Site-Specific Hydrologic and Hydraulic Analyses for Assessing Transportation Infrastructure Vulnerability and Risks to Climate Change

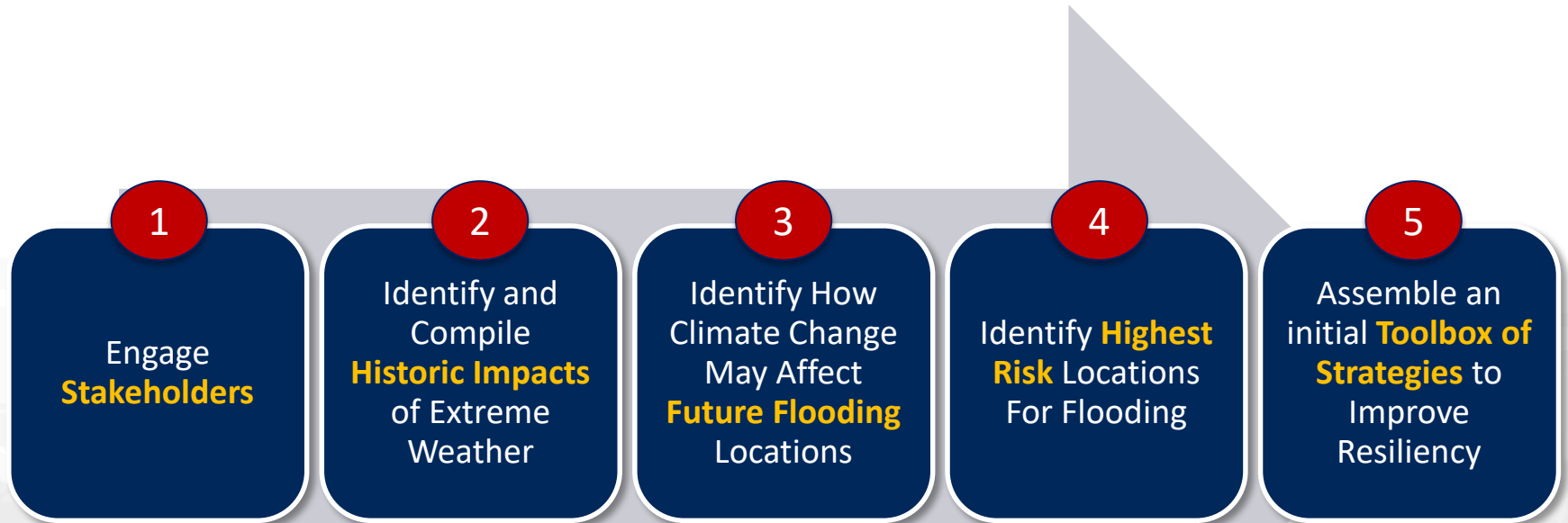
Submitted by:
Pennsylvania Department of Transportation

Submitted to:
Federal Highway Administration Pennsylvania Division

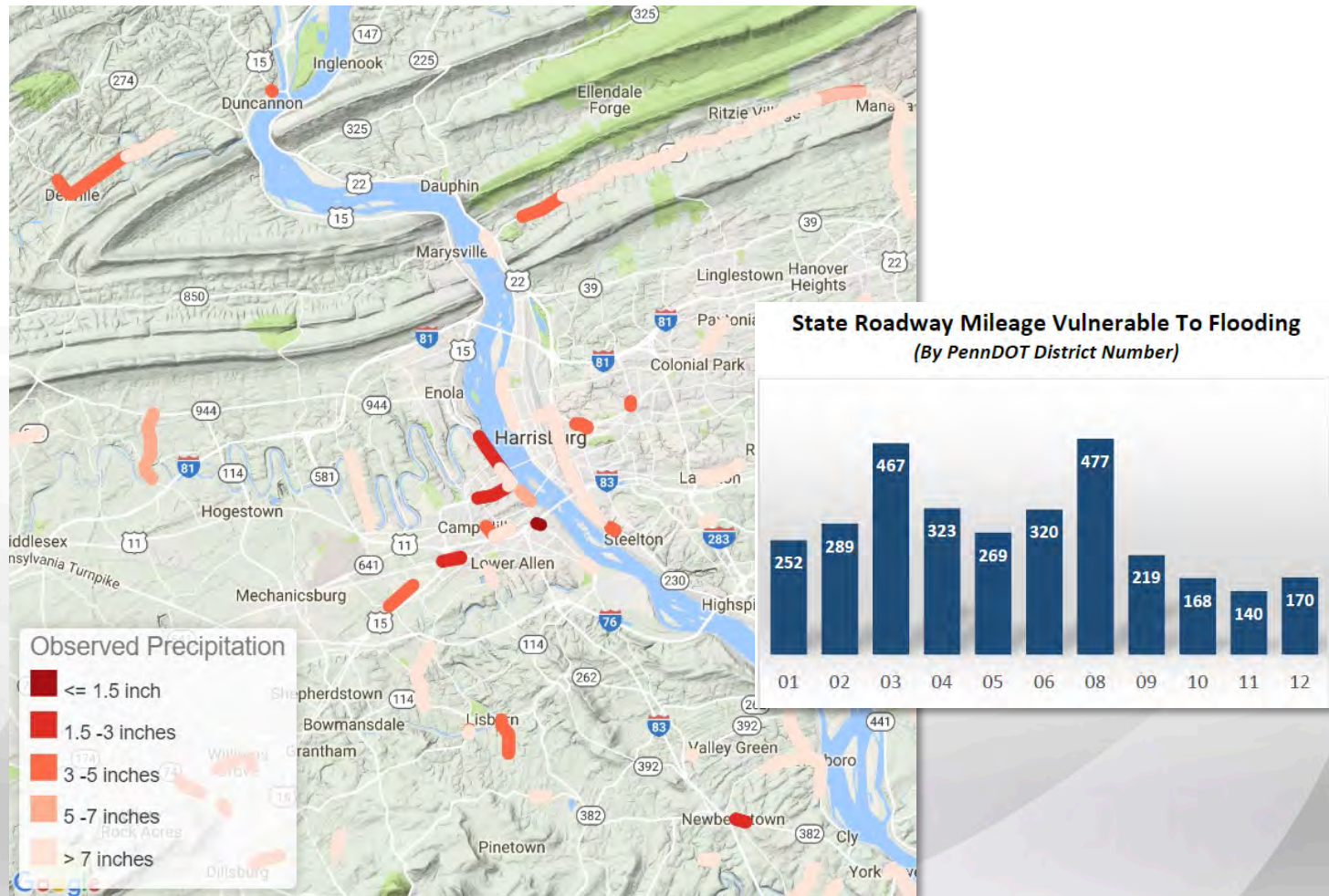
February 9, 2018



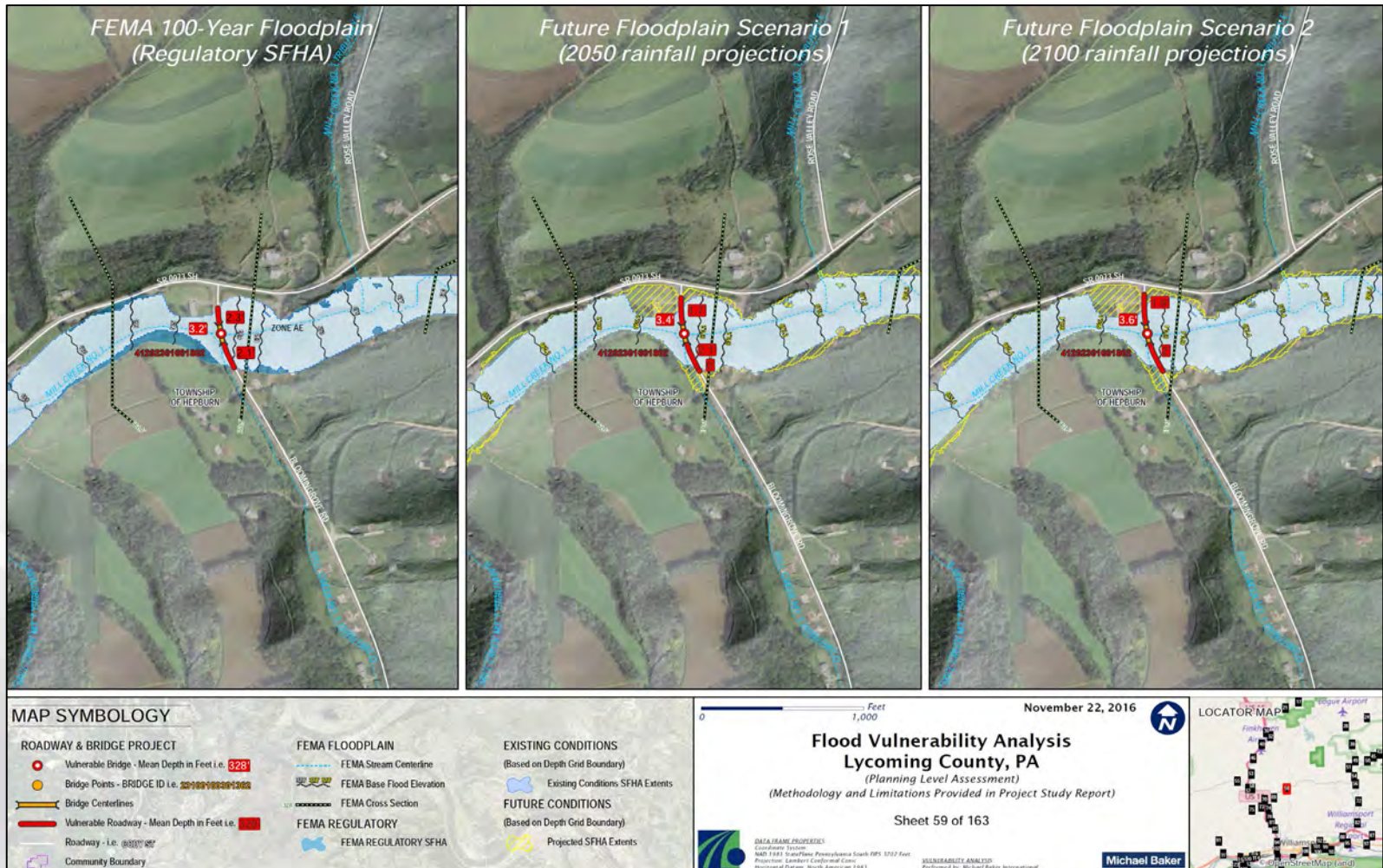
Extreme Weather Vulnerability Study



Historic Flooding Vulnerabilities



Forecast Analyses



Risk Assessment Criteria

Exposure

Flooding
Frequency

In FEMA
Floodplain

Precipitation
Amount

Sensitivity

Bridge Condition
(Scour)

Pavement
Condition (OPI)

Deficient Pipes

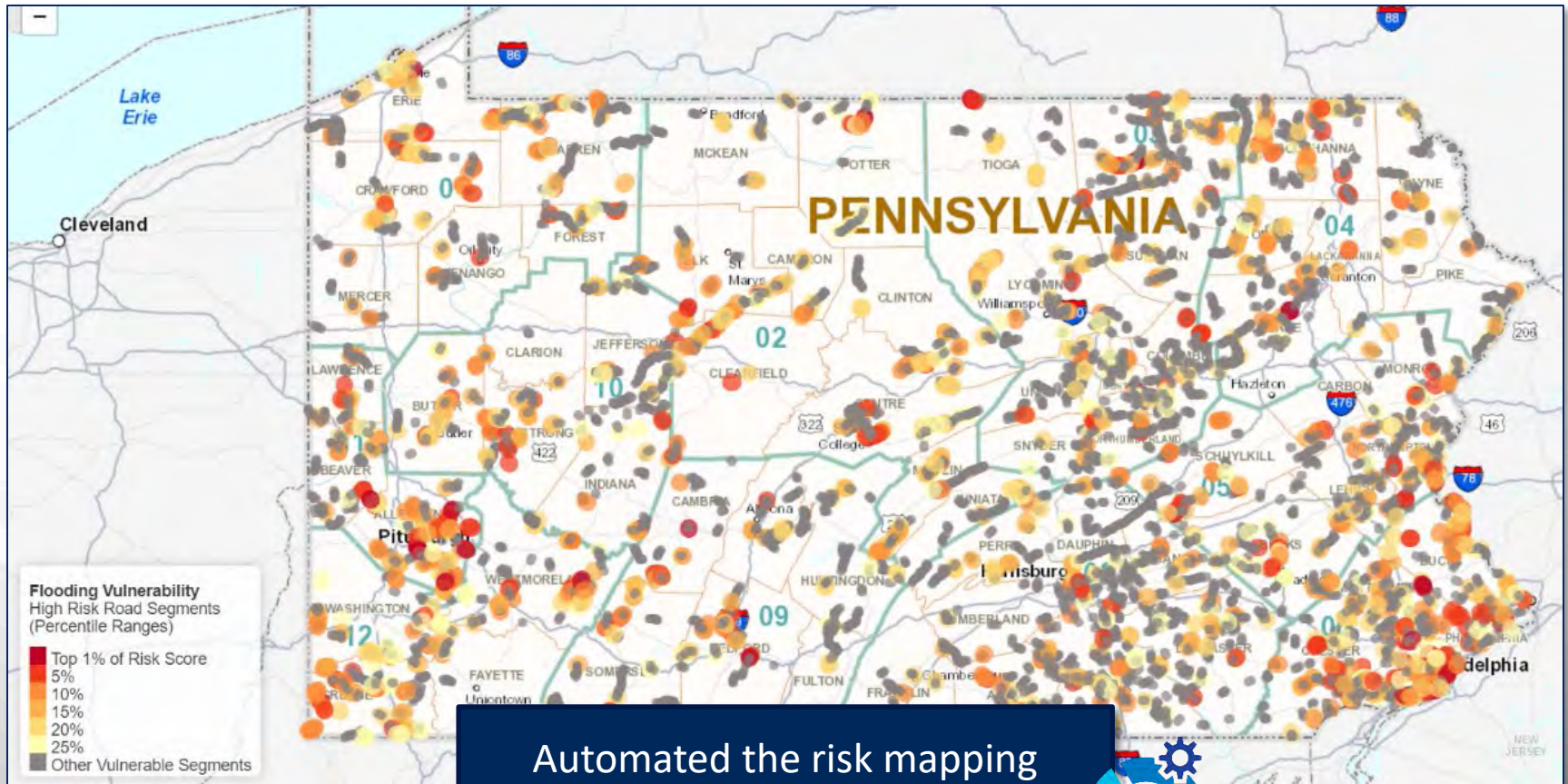
Consequence

Traffic and Truck
Volume

Functional Class

Detour Route

Flood Risk Mapping



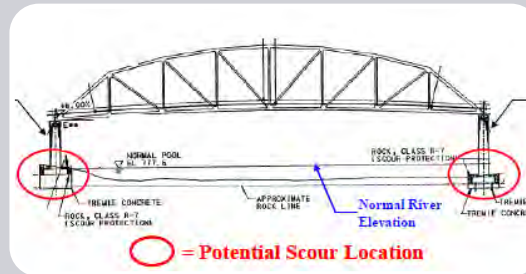
Automated the risk mapping
process to support on-going
monitoring



Integration of Study Results



FHWA Pilot Study Underway



Provide a detailed template for conducting H&H studies that include climate change impacts

Case study in evaluation of adaptation strategies and cost-effectiveness

Evaluating planning-level climate flooding forecasts from PennDOT's Extreme Weather Vulnerability Study

Where Does PennDOT Go From Here?





Questions?

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