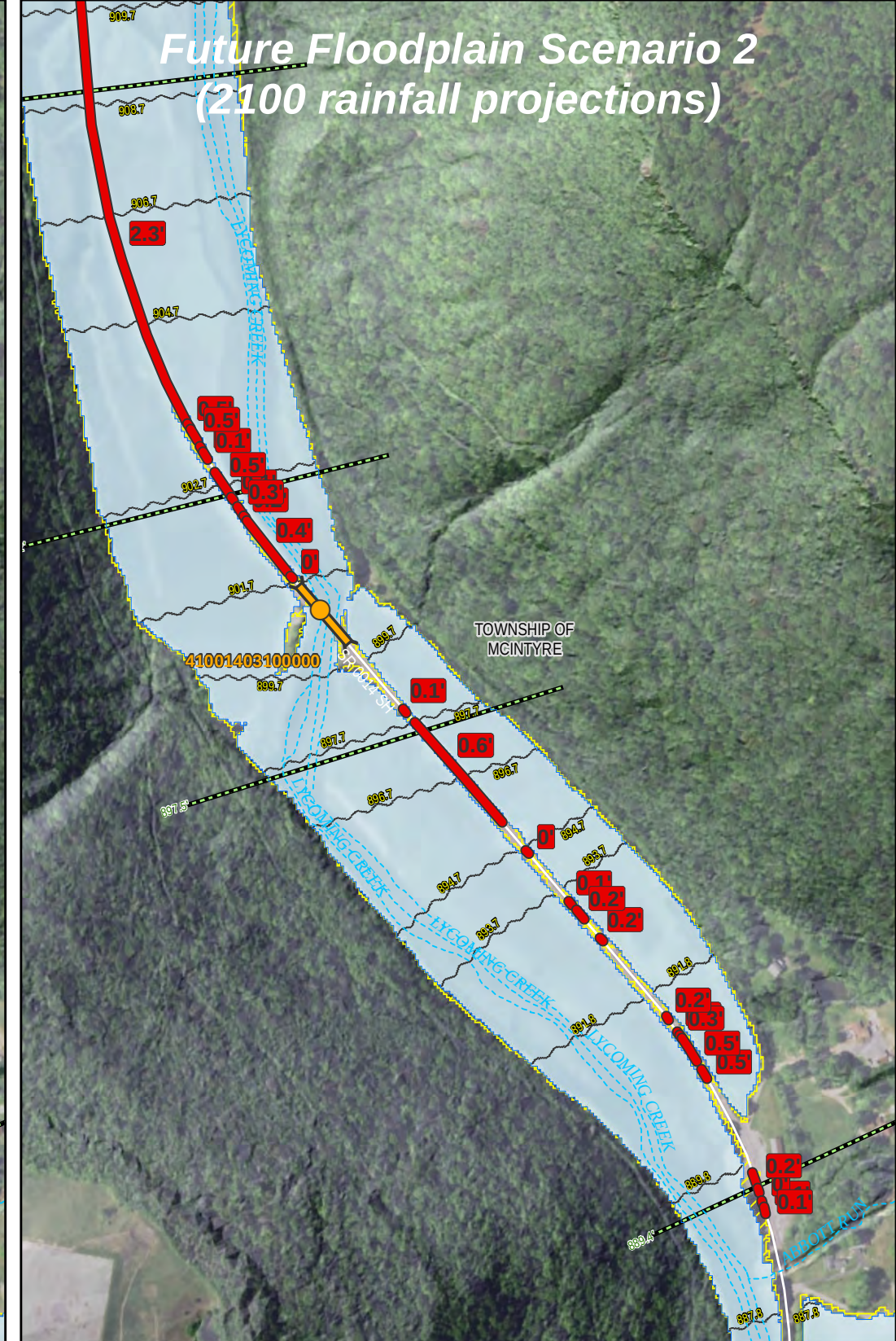
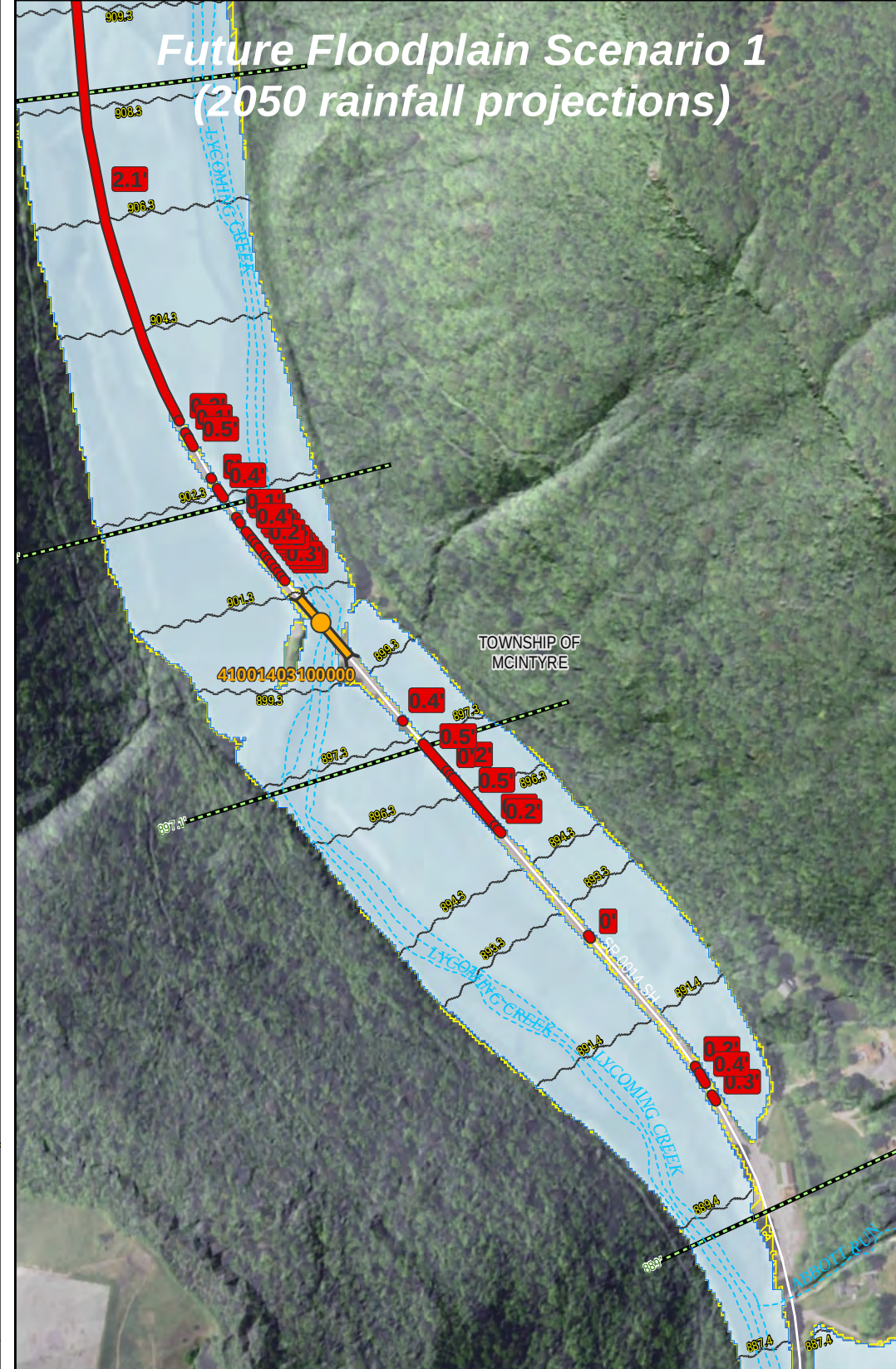
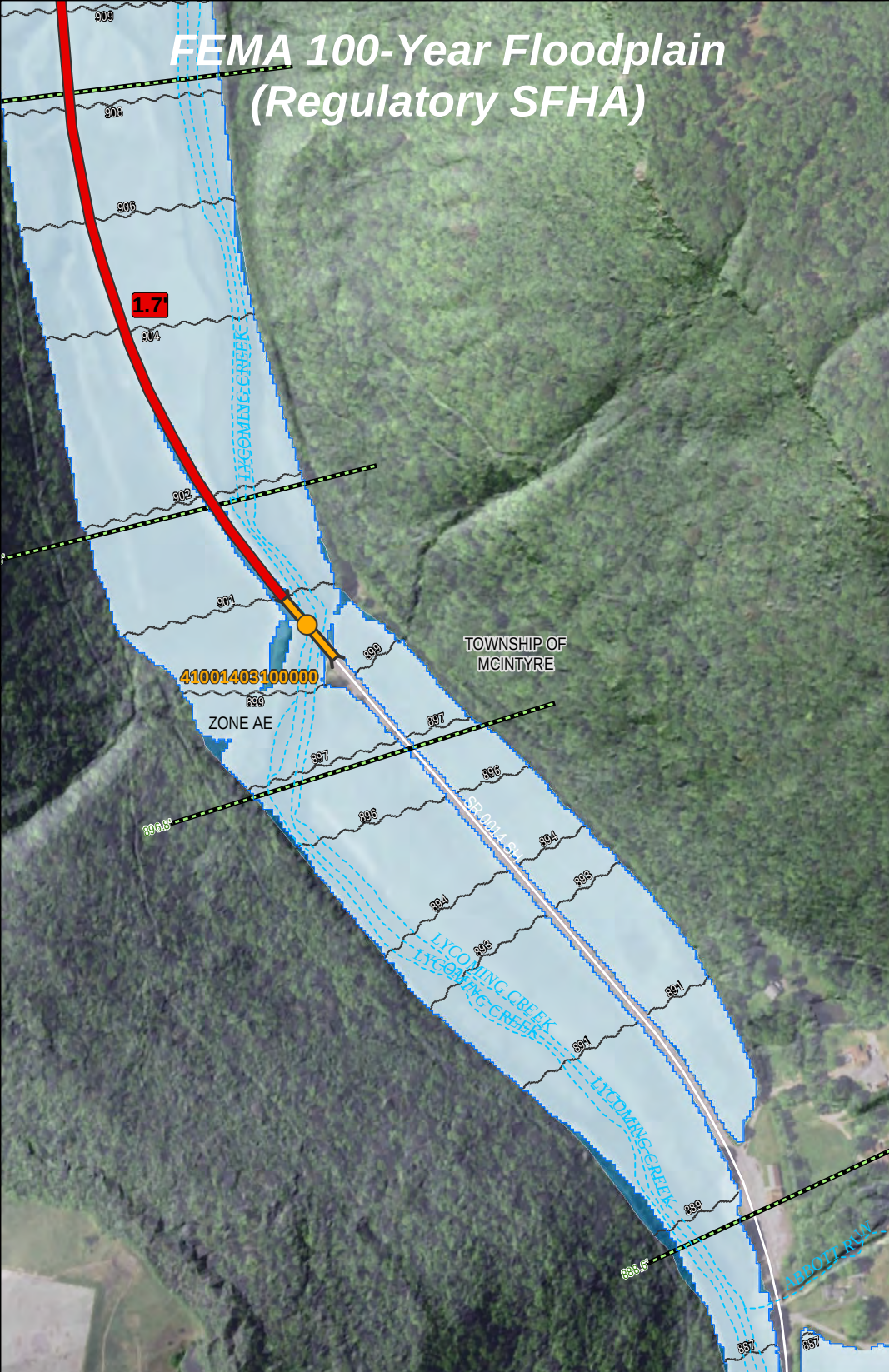




MAP SYMBOLOGY

- ### ROADWAY & BRIDGE PROJECT
- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
 - Bridge Points - BRIDGE ID i.e. **23100100301362**
 - Bridge Centerlines
 - Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
 - Roadway - i.e. **CODY ST**
 - Community Boundary

- ### FEMA FLOODPLAIN
- FEMA Stream Centerline
 - FEMA Base Flood Elevation
 - FEMA Cross Section
- ### FEMA REGULATORY
- FEMA REGULATORY SFHA

- ### EXISTING CONDITIONS
- (Based on Depth Grid Boundary)
- Existing Conditions SFHA Extents
- ### FUTURE CONDITIONS
- (Based on Depth Grid Boundary)
- Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis

Lycoming County, PA

(Planning Level Assessment)

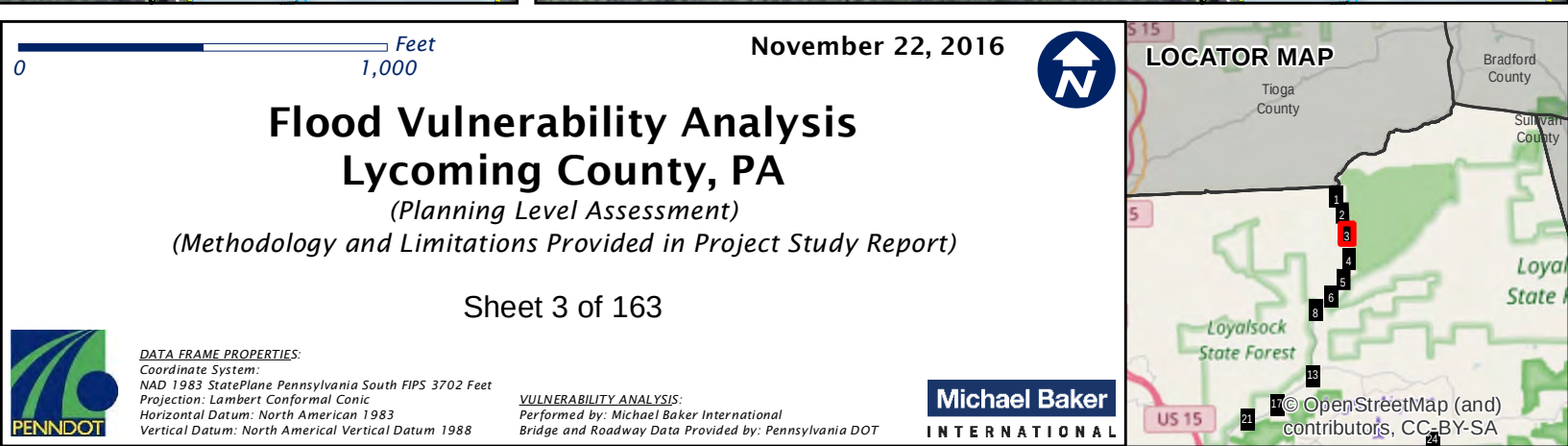
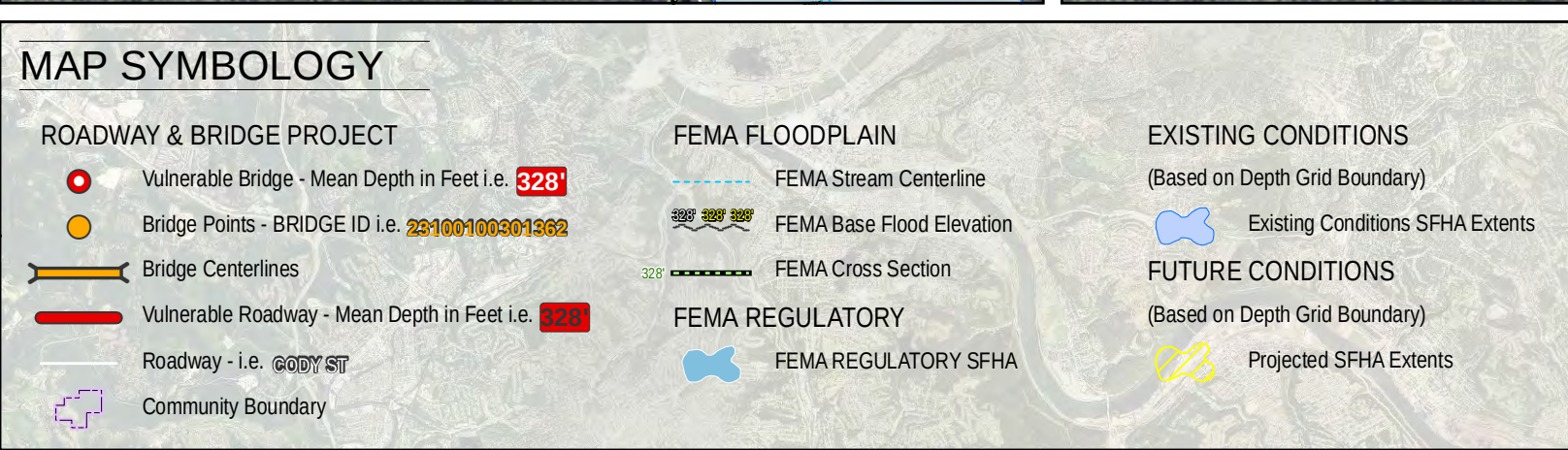
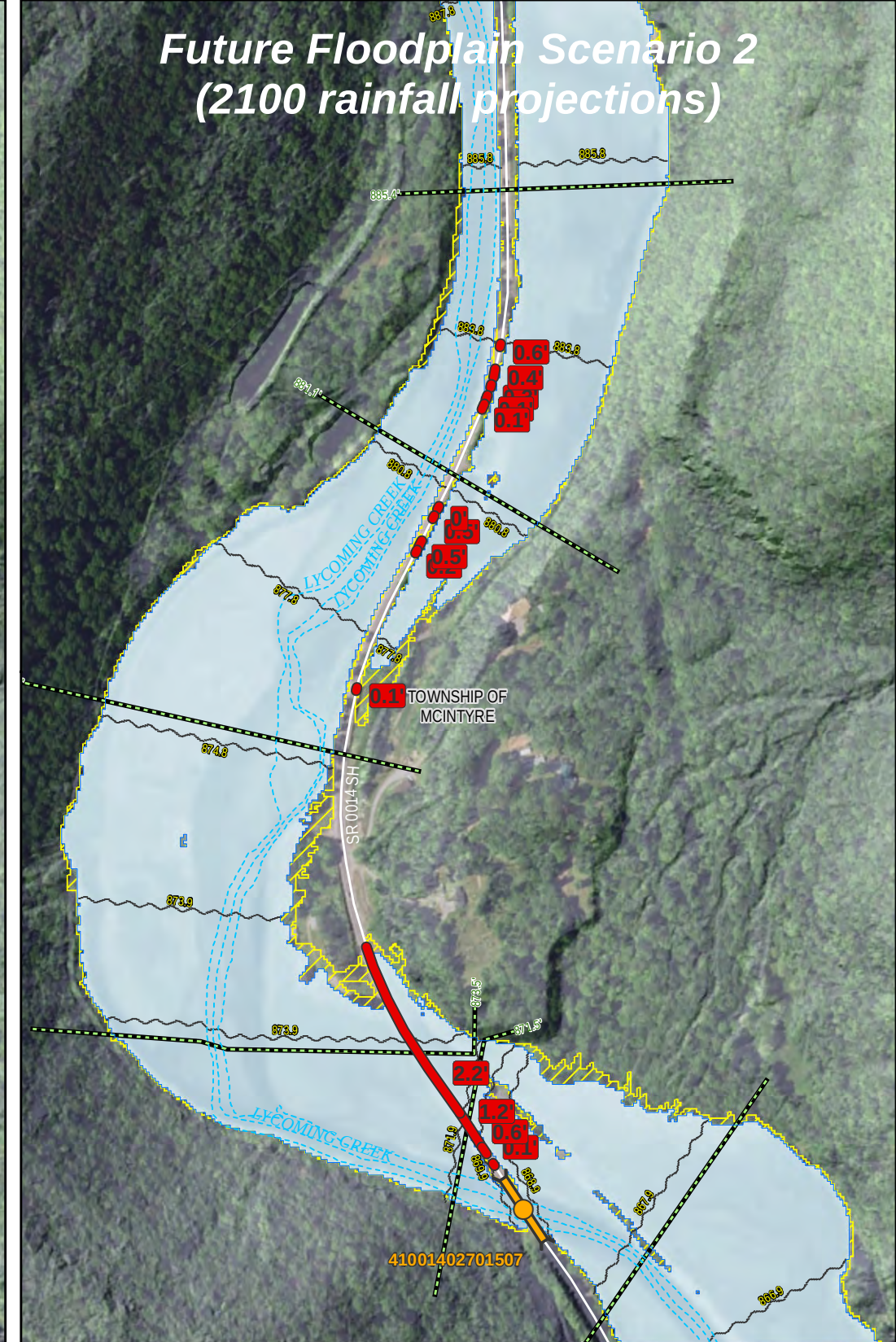
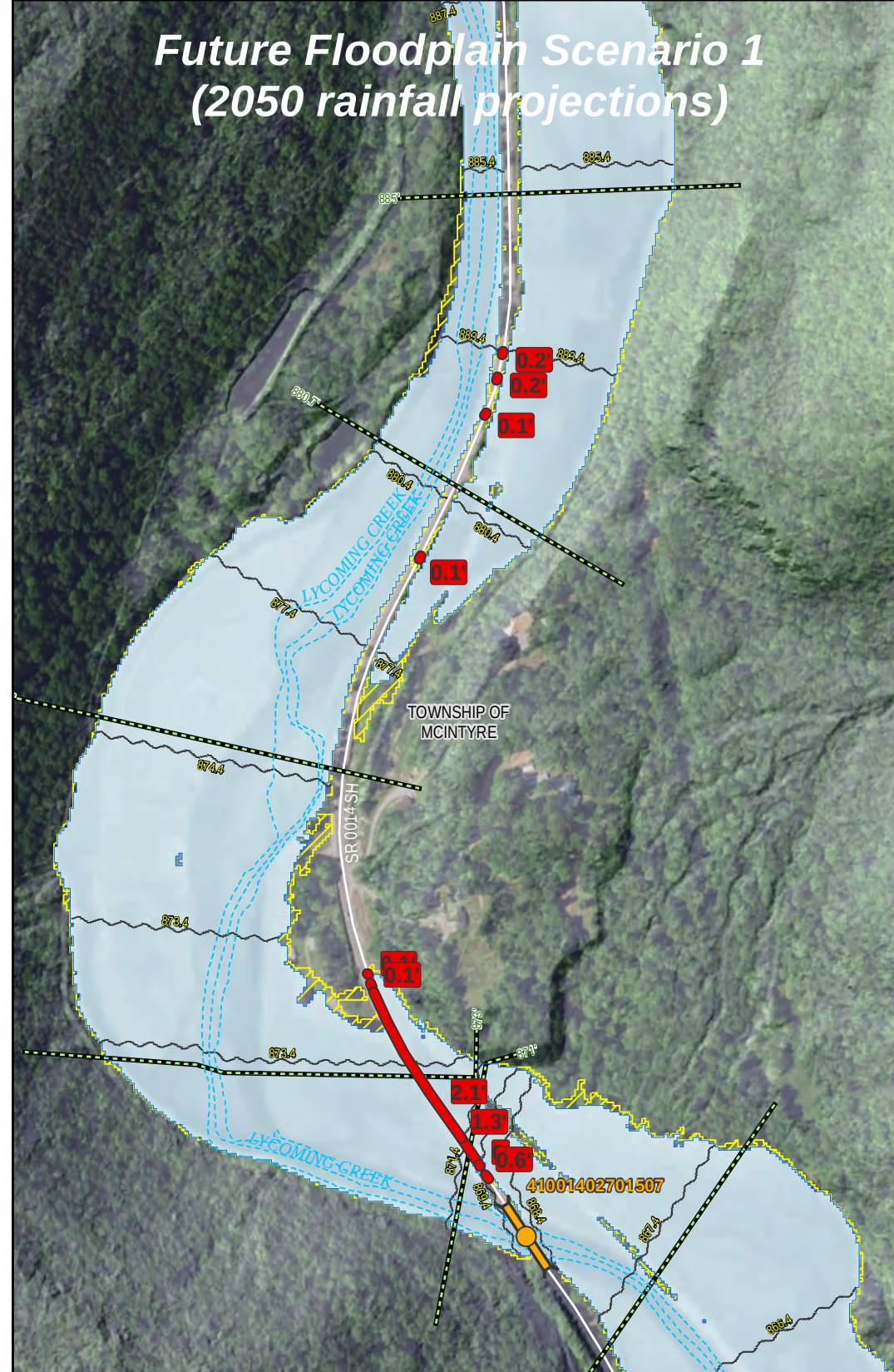
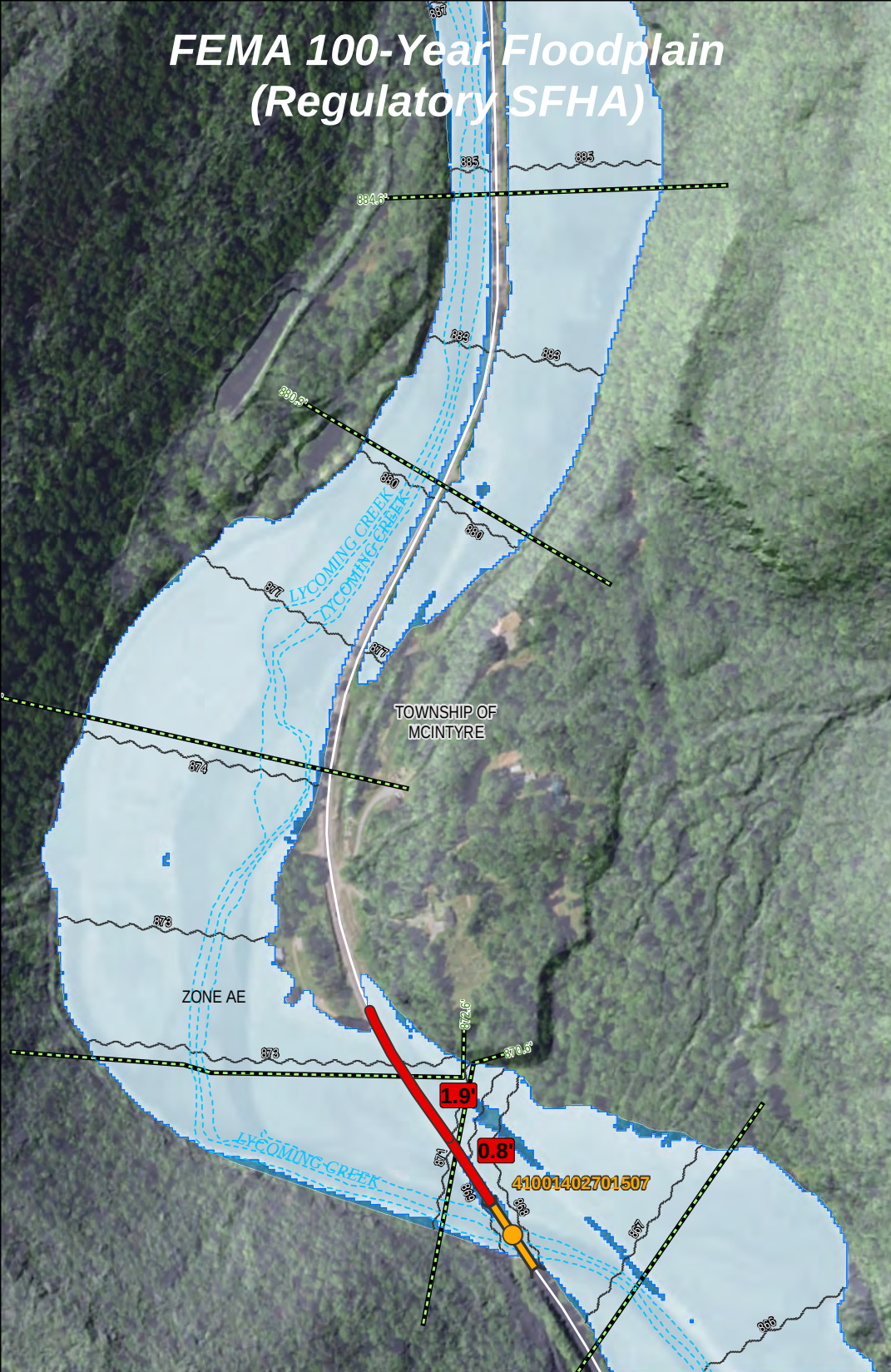
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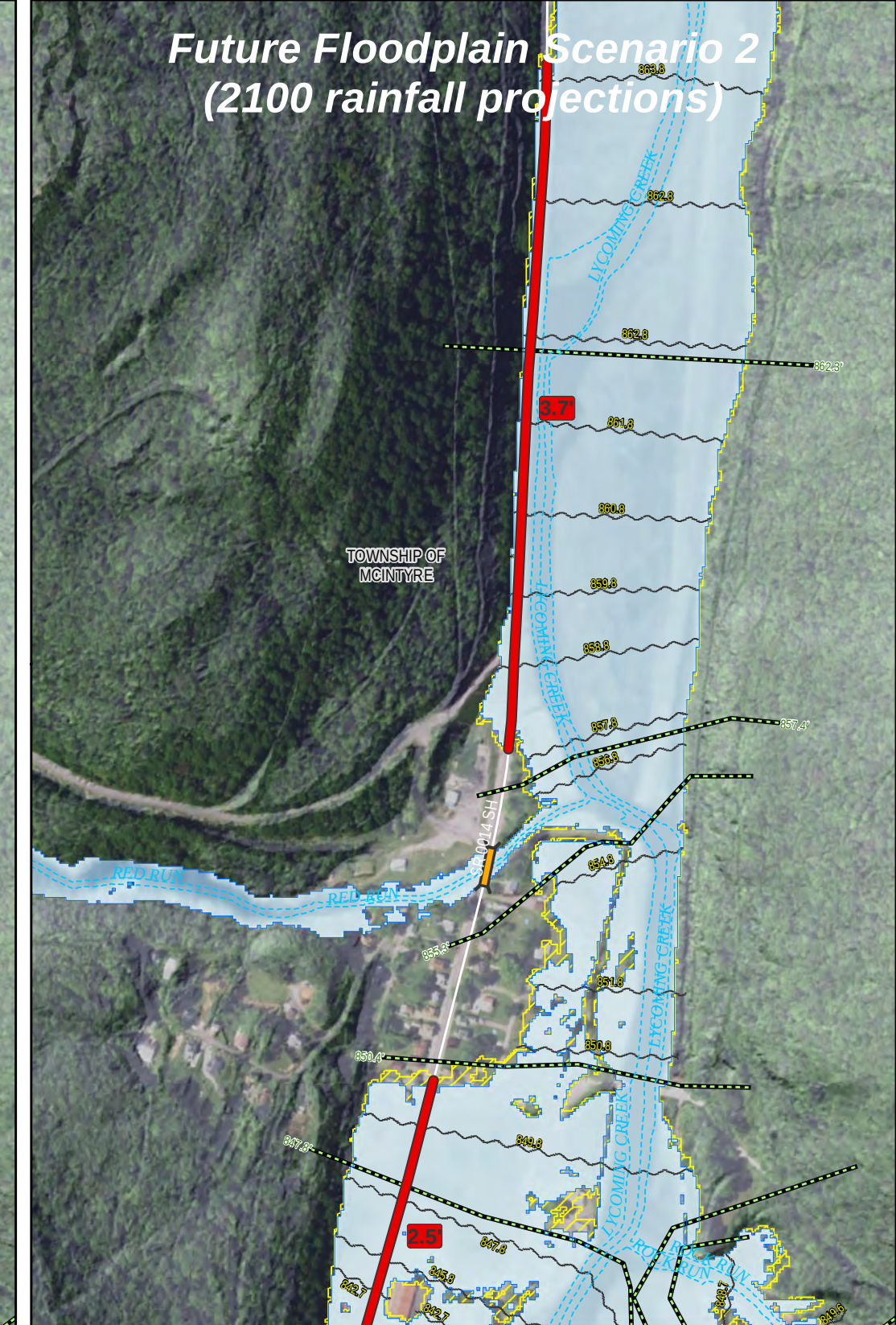
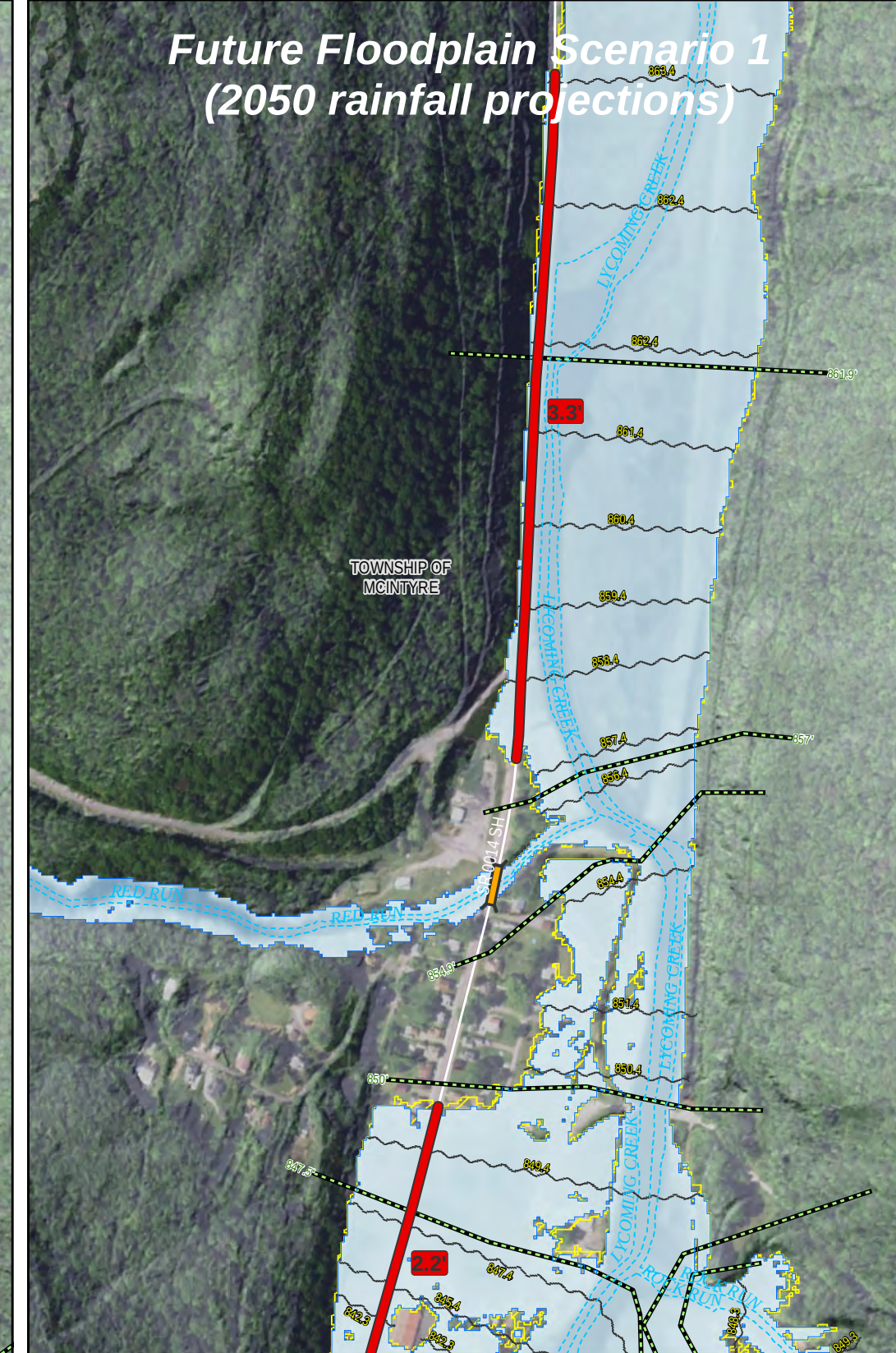
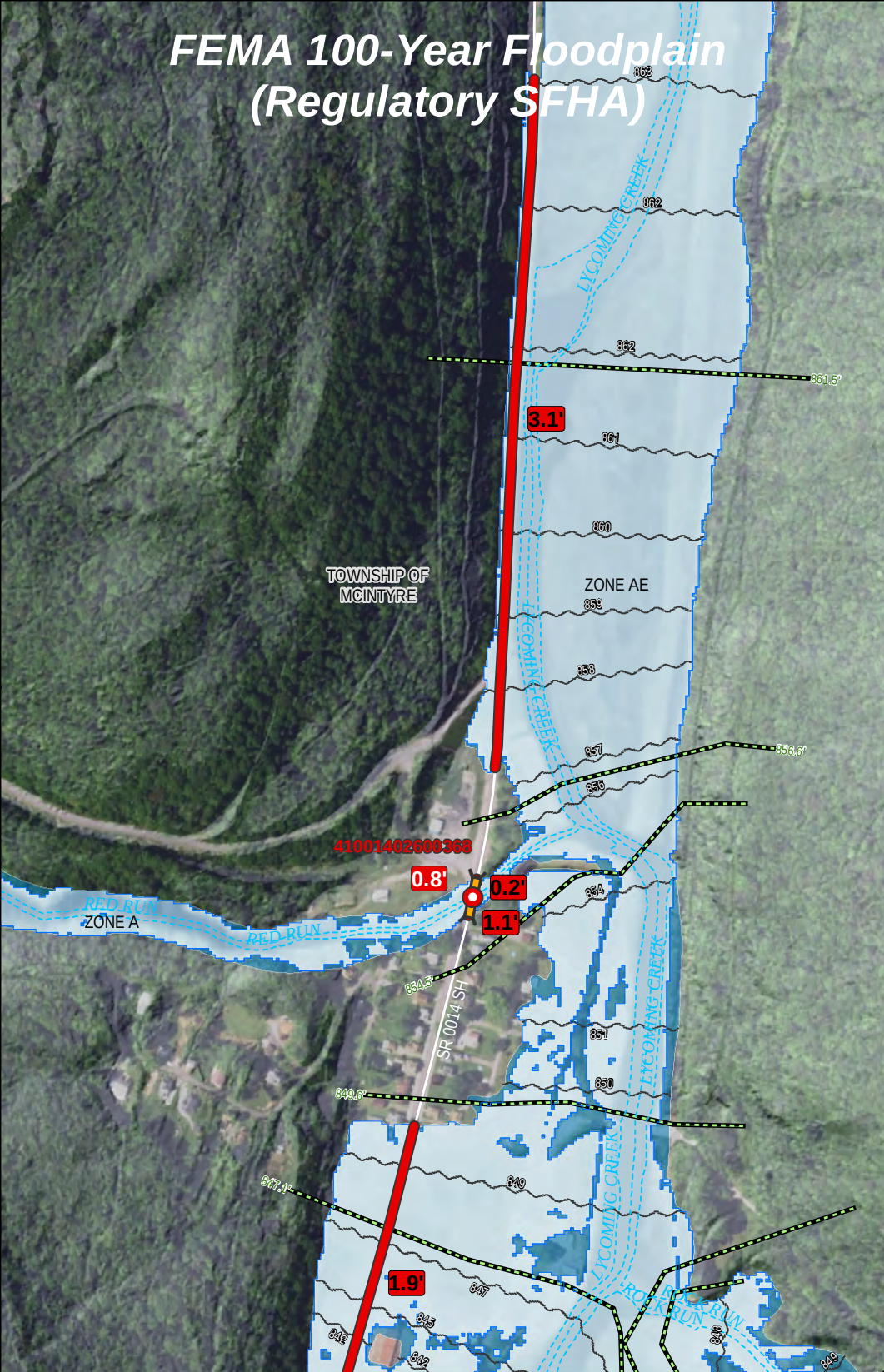
Sheet 2 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 3.1	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 3.1	FEMA REGULATORY	
Roadway - i.e. 600Y ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

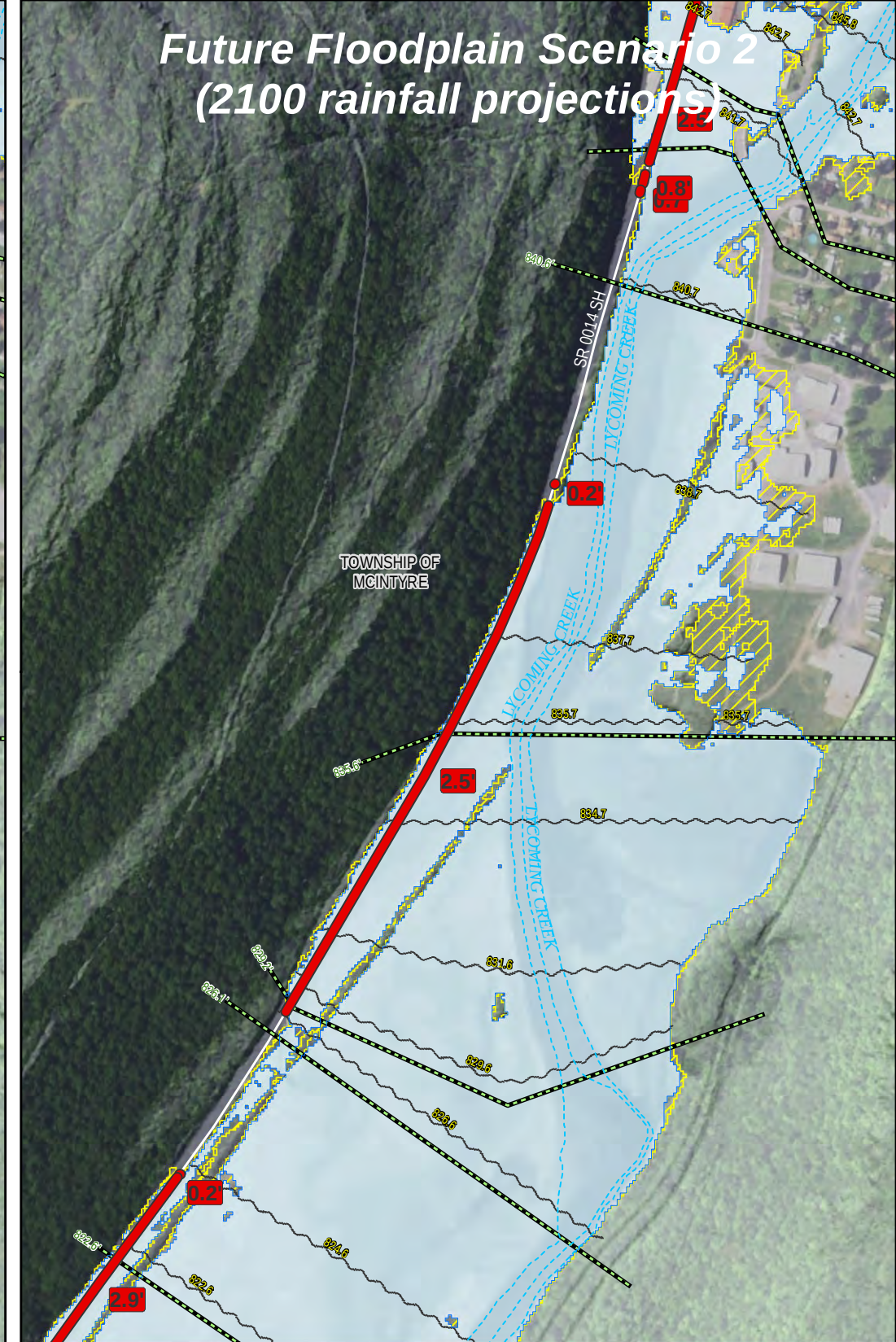
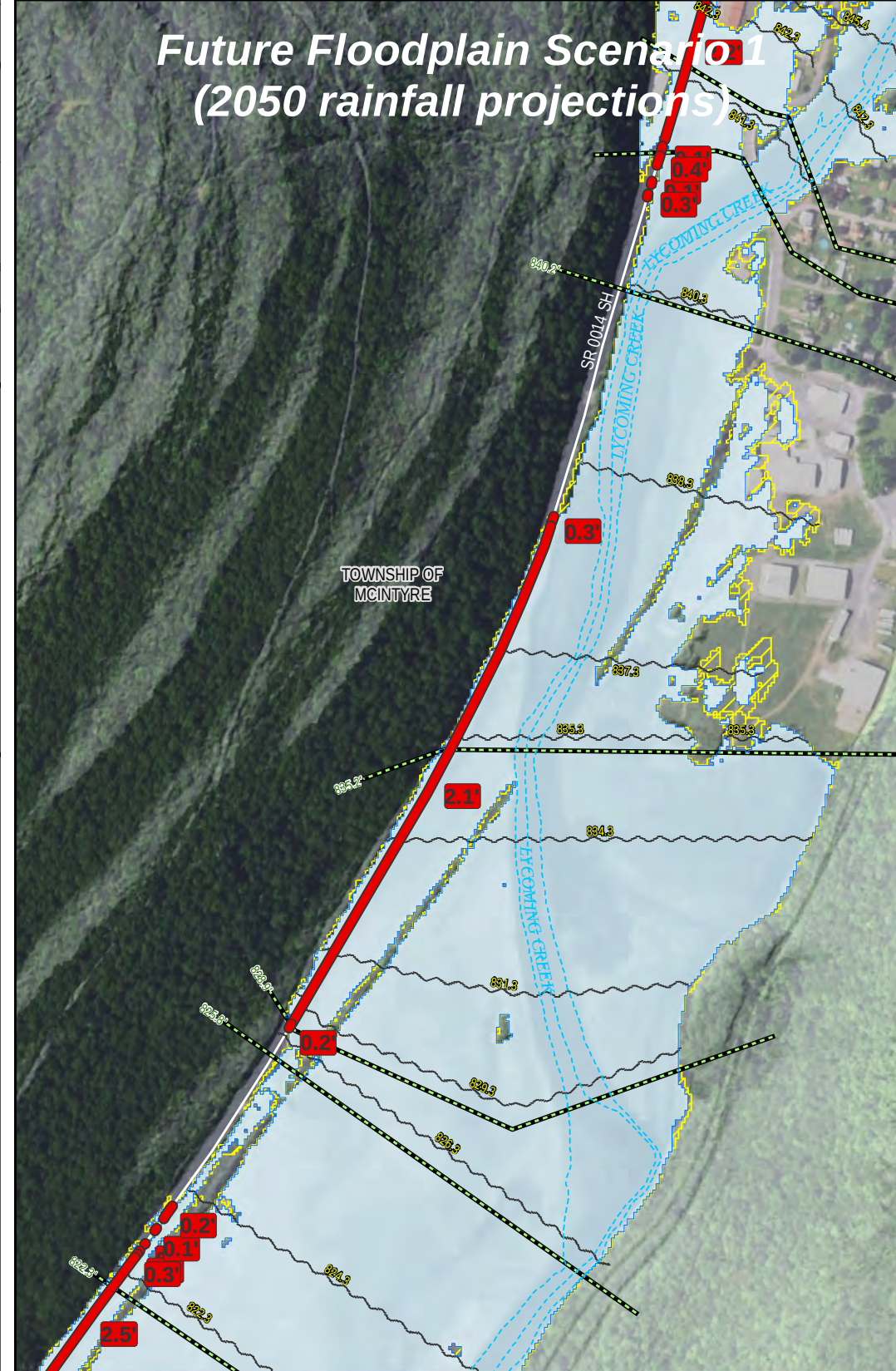
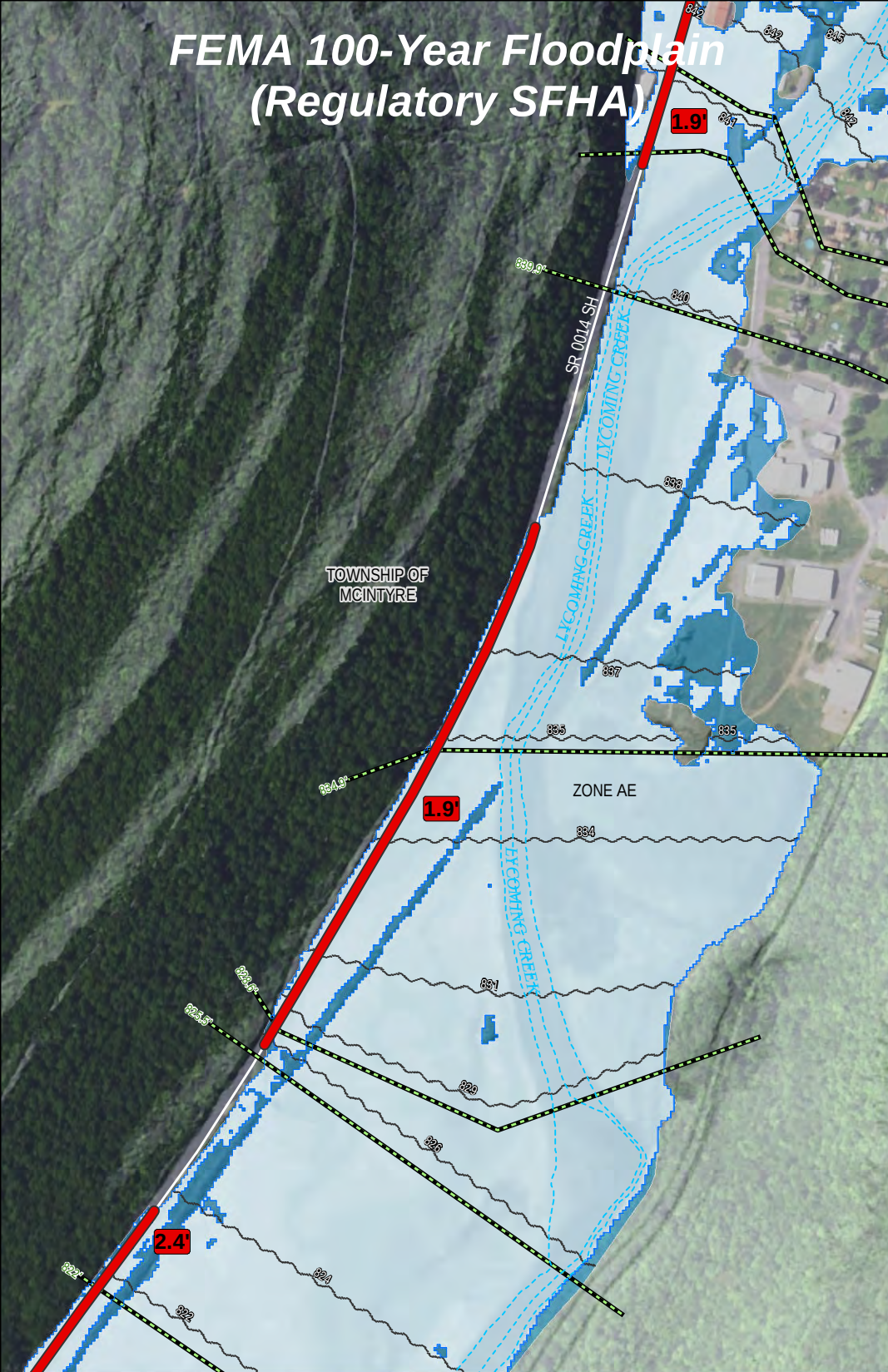
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

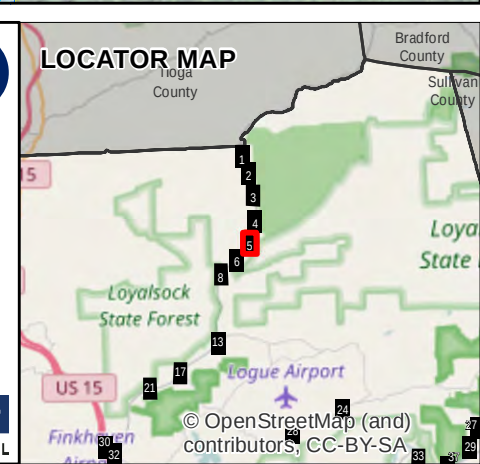
Sheet 5 of 163



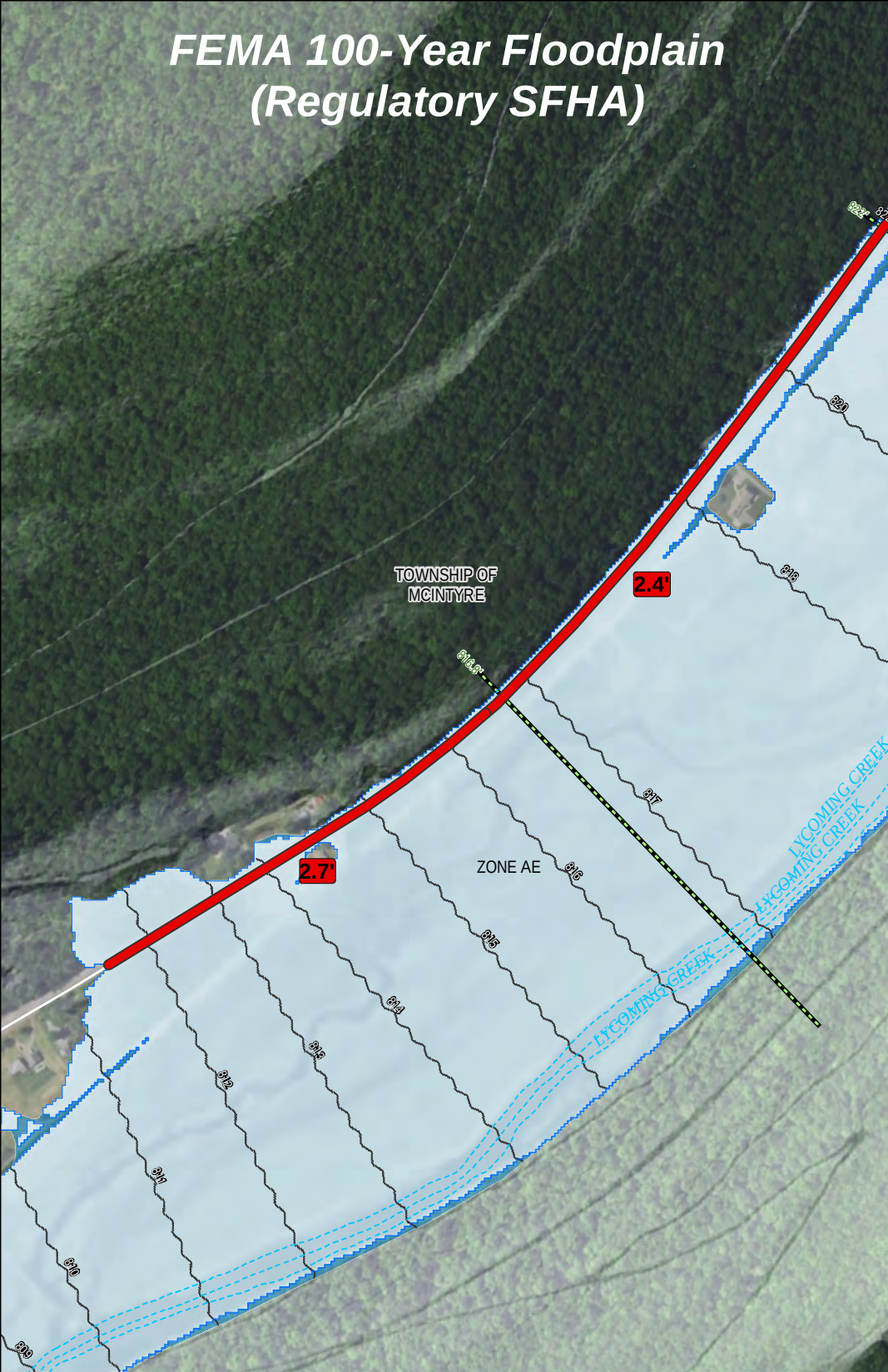
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Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

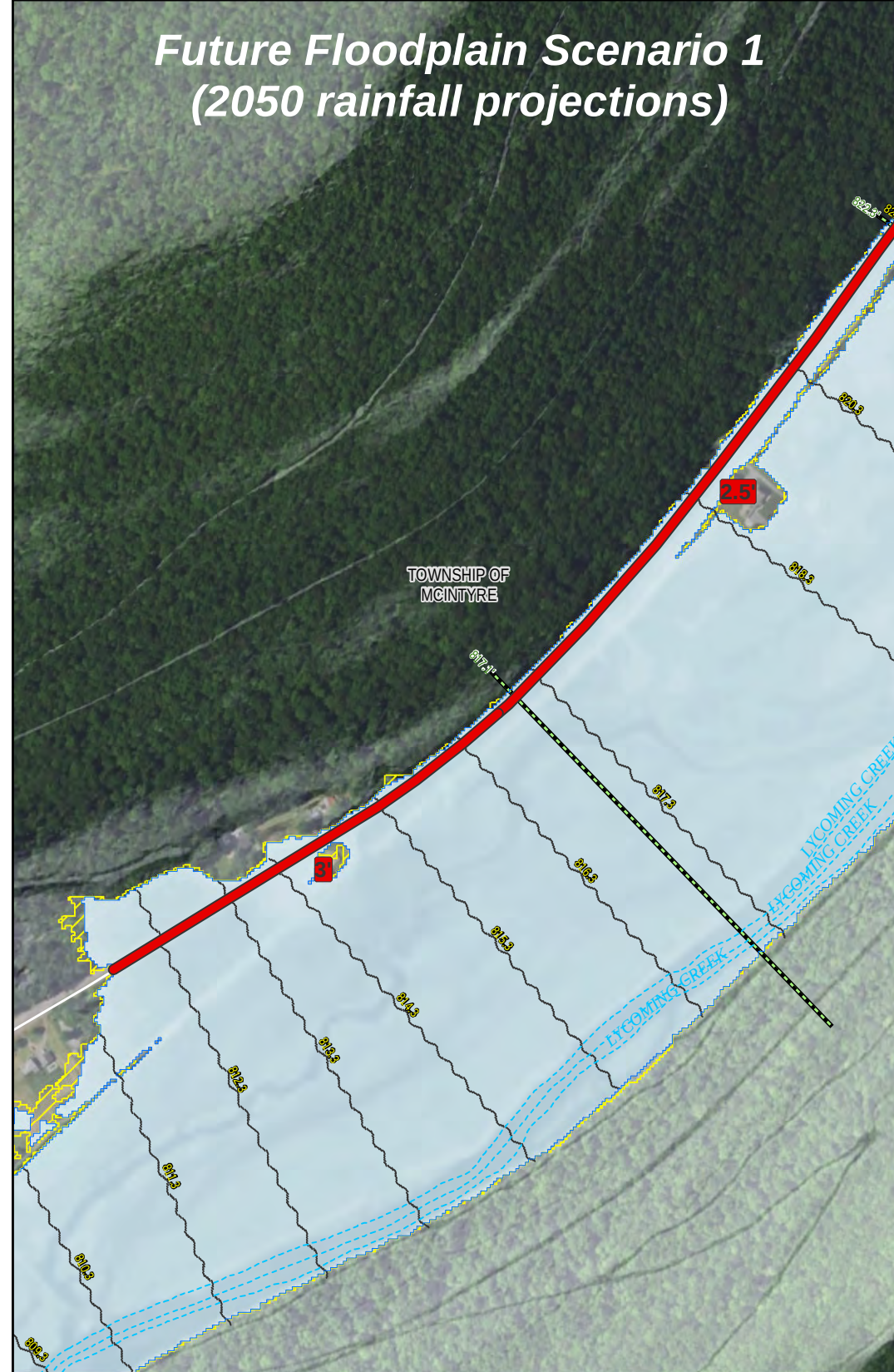
**Michael Baker
INTERNATIONAL**



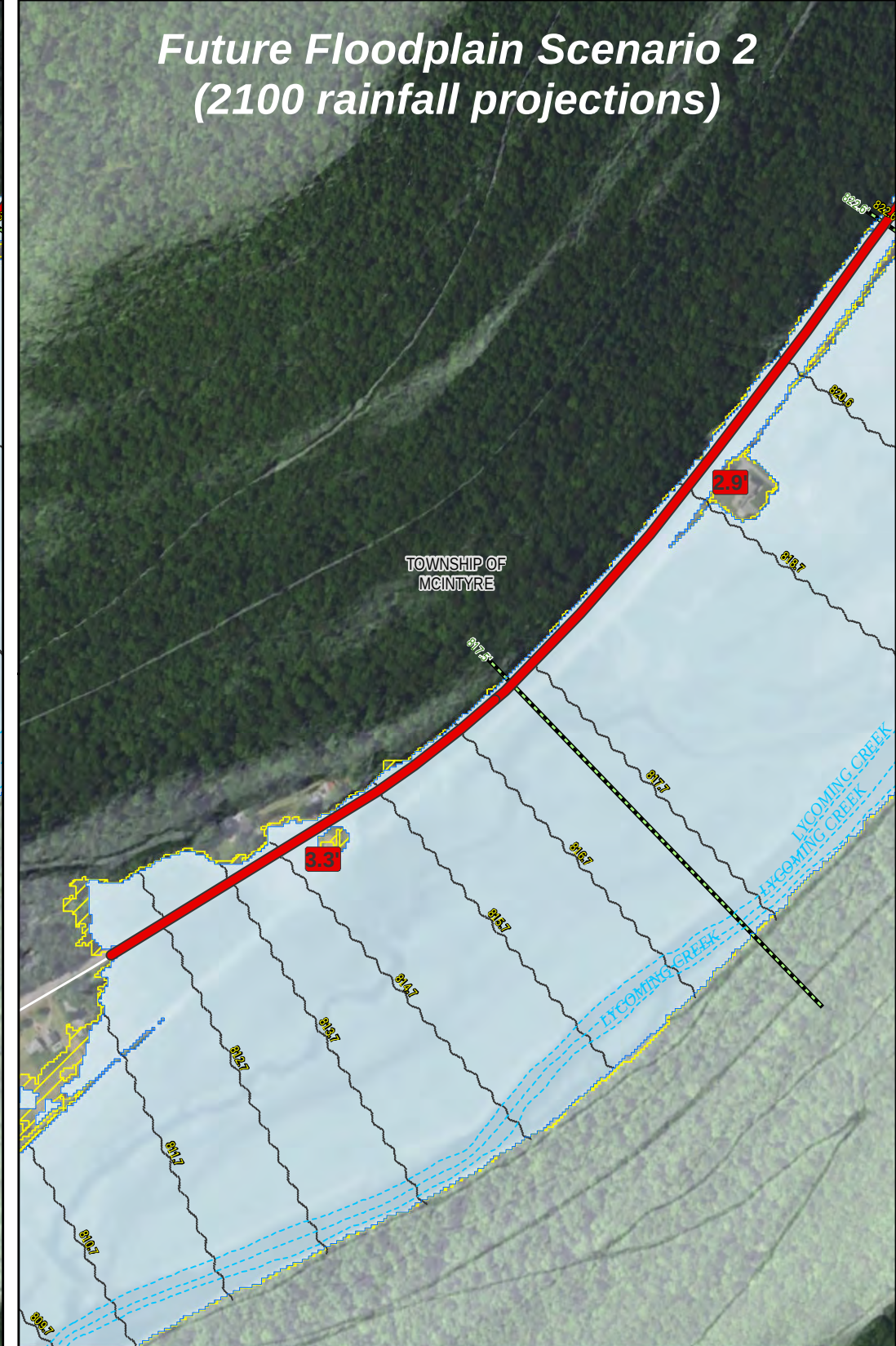
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

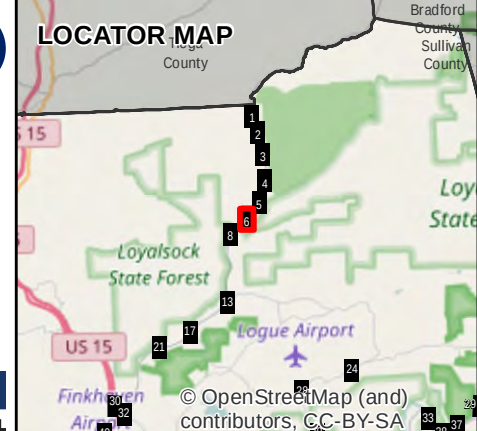
Sheet 6 of 163



DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

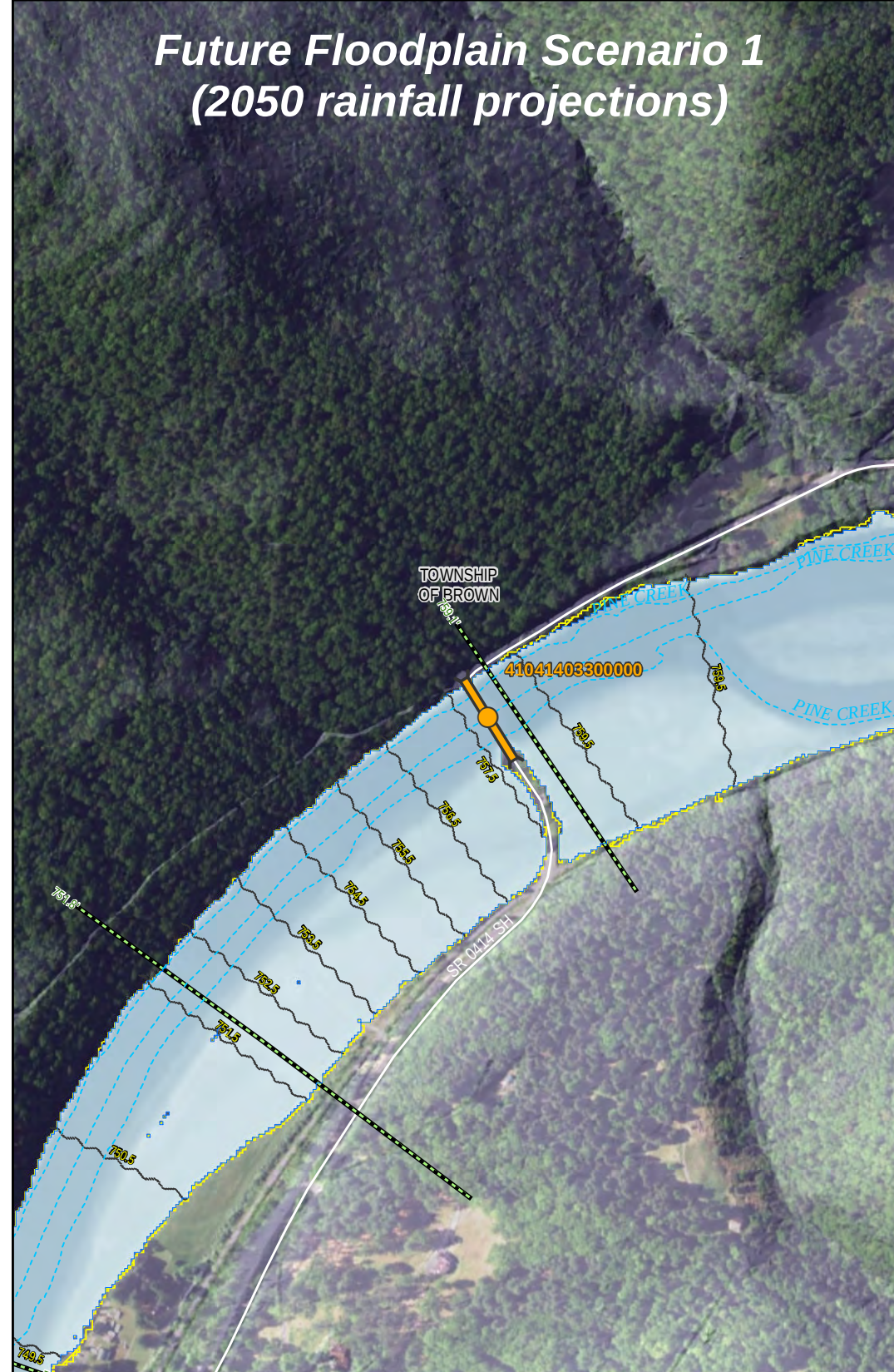
**Michael Baker
INTERNATIONAL**



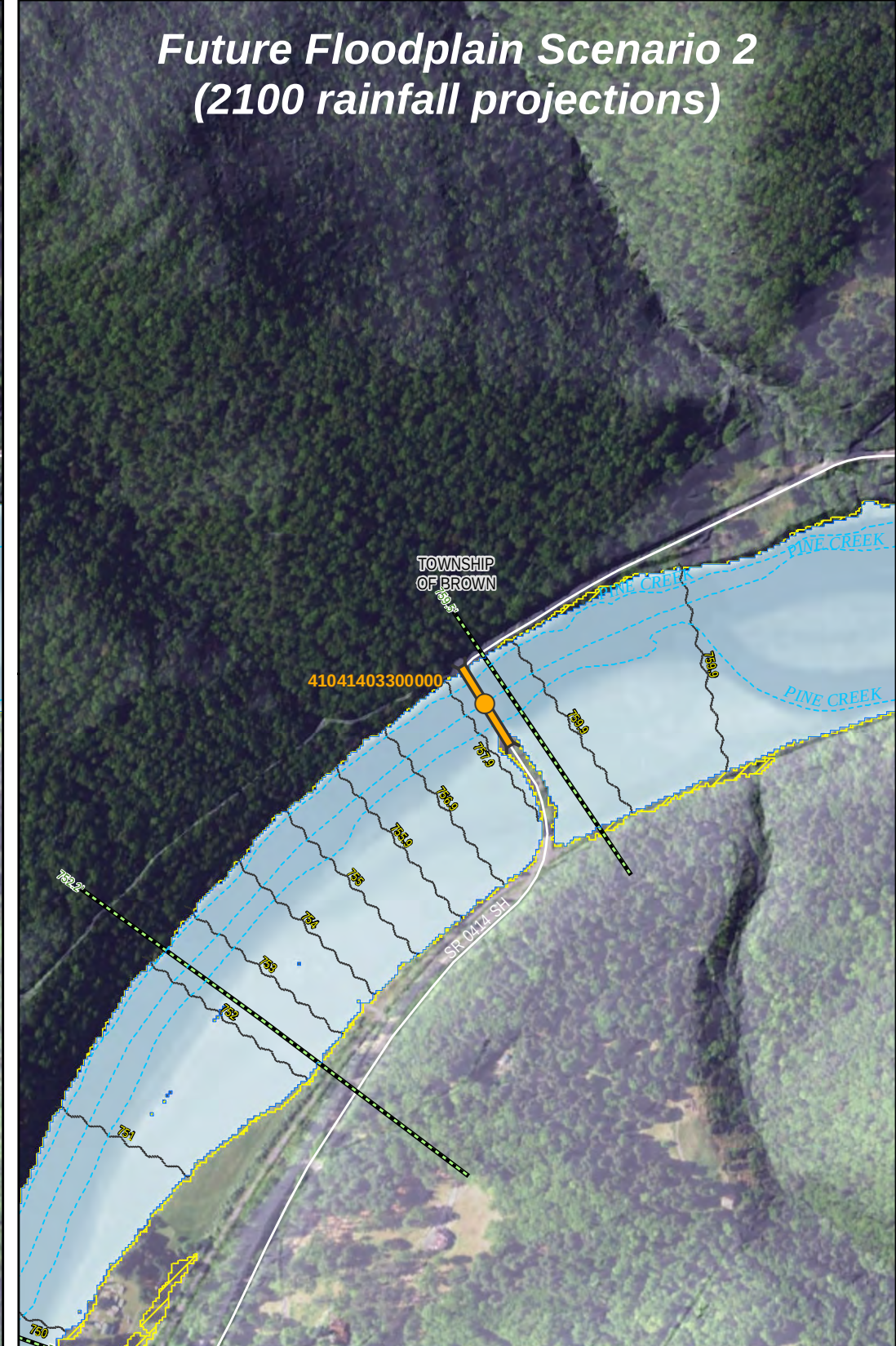
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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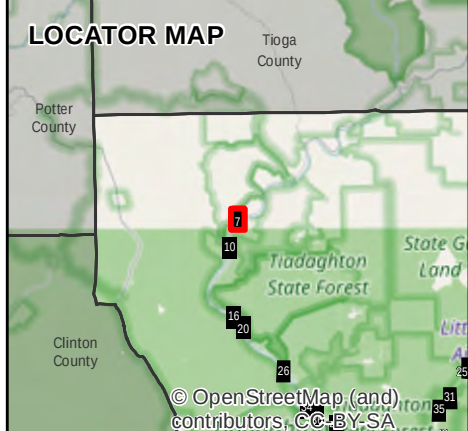


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

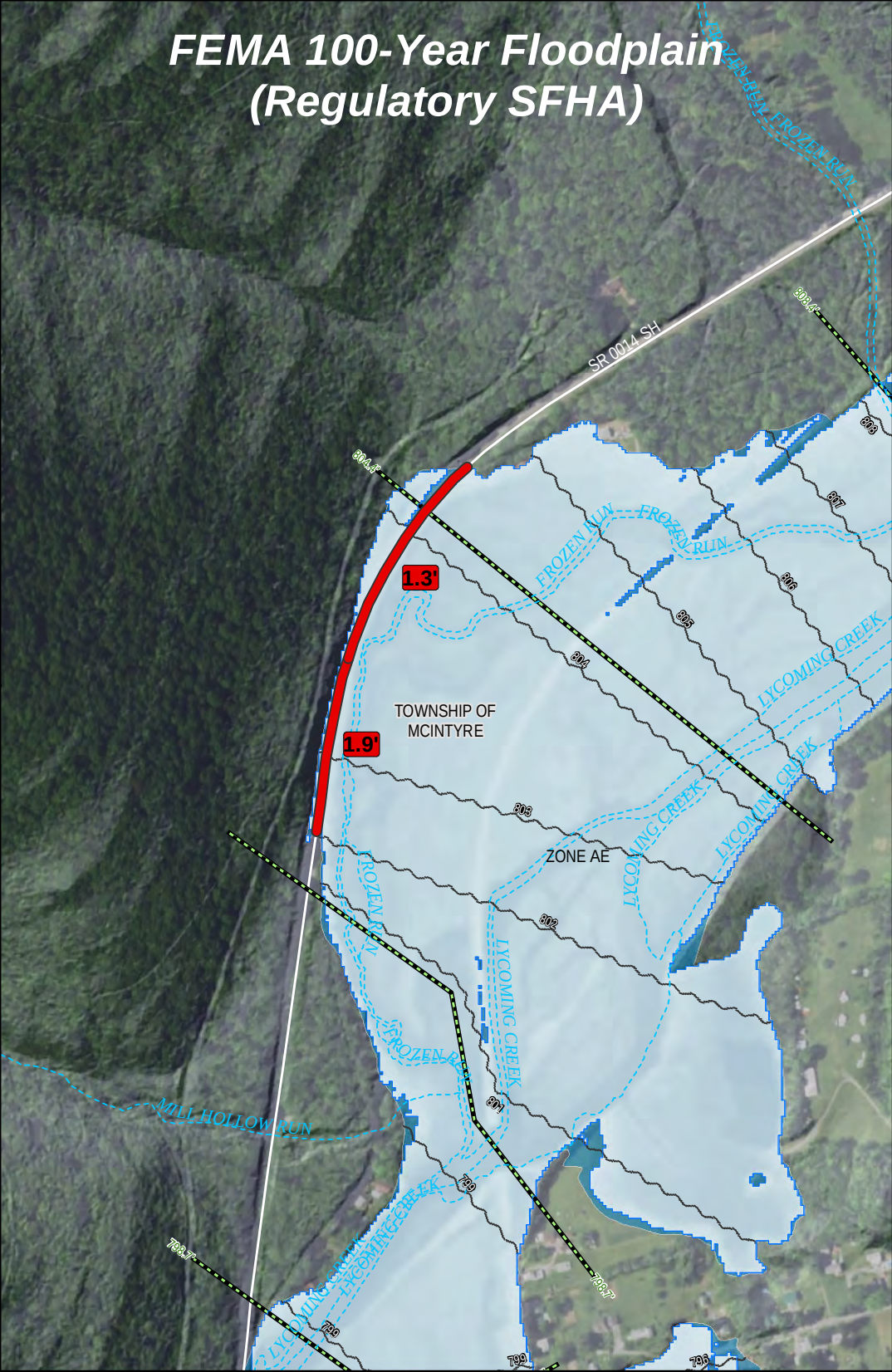
**Michael Baker
INTERNATIONAL**

LOCATOR MAP

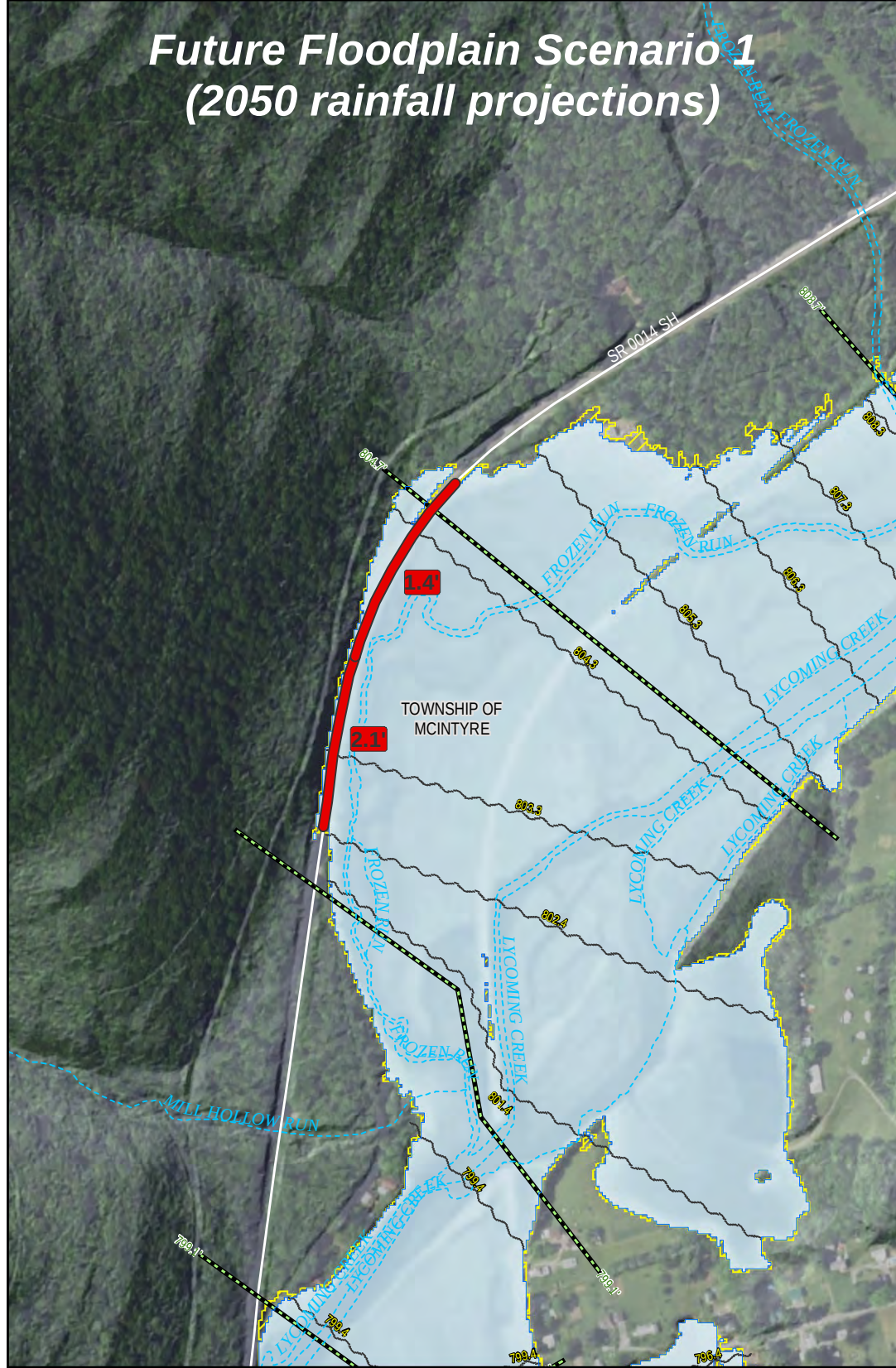


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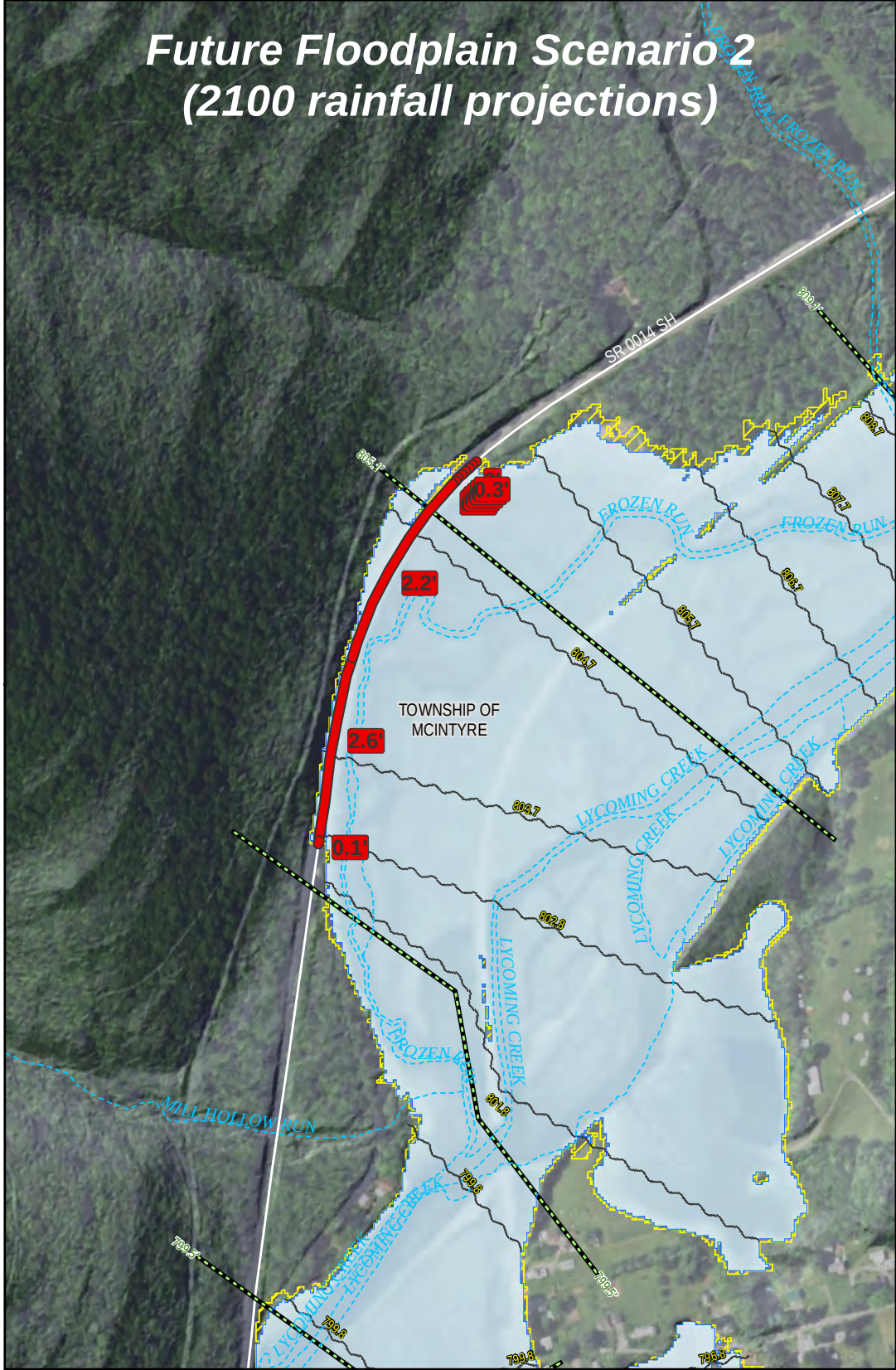
FEMA 100-Year Floodplain
(Regulatory SFHA)



Future Floodplain Scenario 1
(2050 rainfall projections)



Future Floodplain Scenario 2
(2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis
Lycoming County, PA
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

Sheet 8 of 163

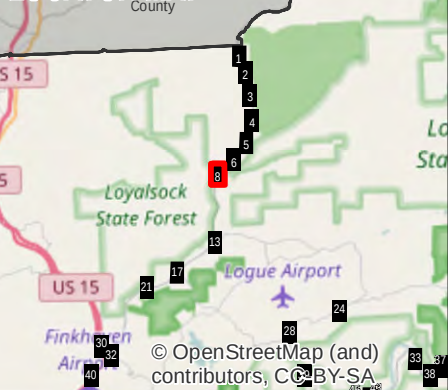


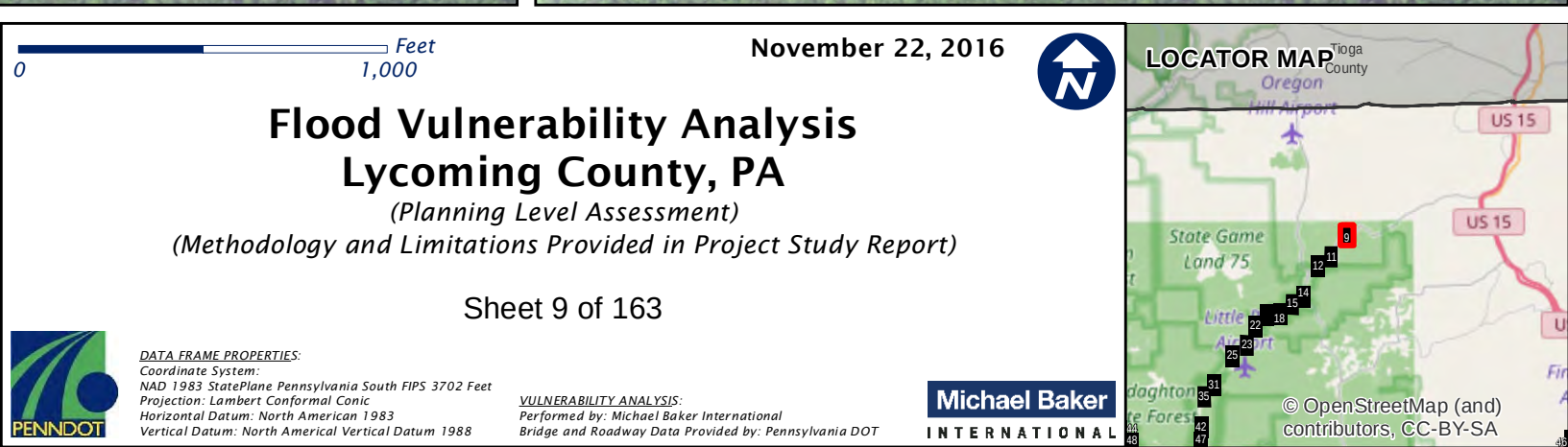
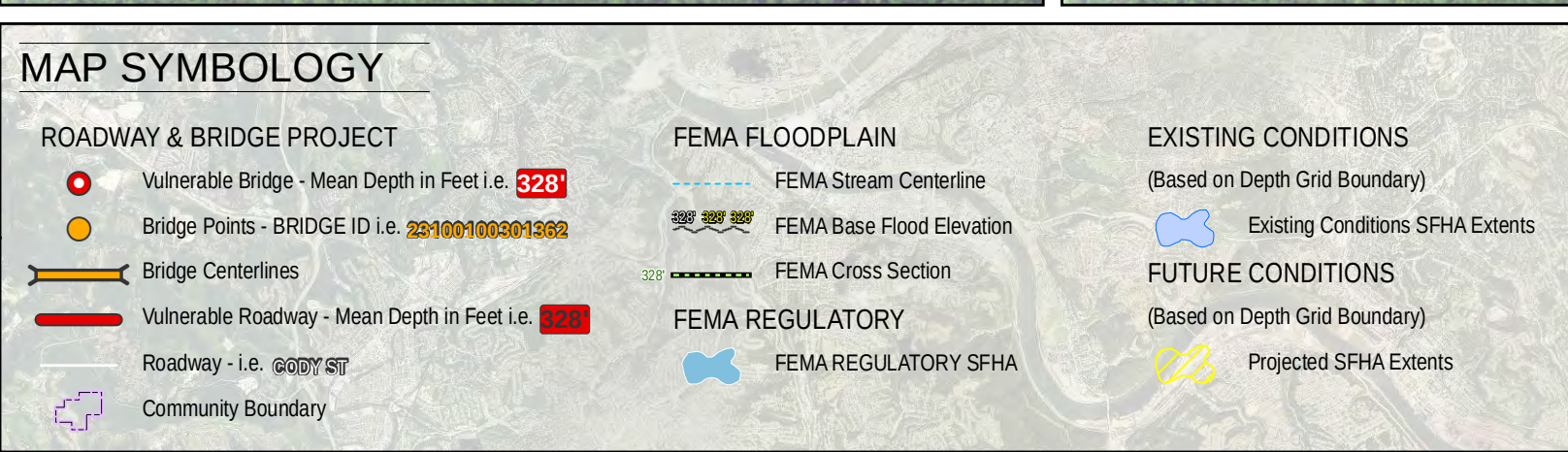
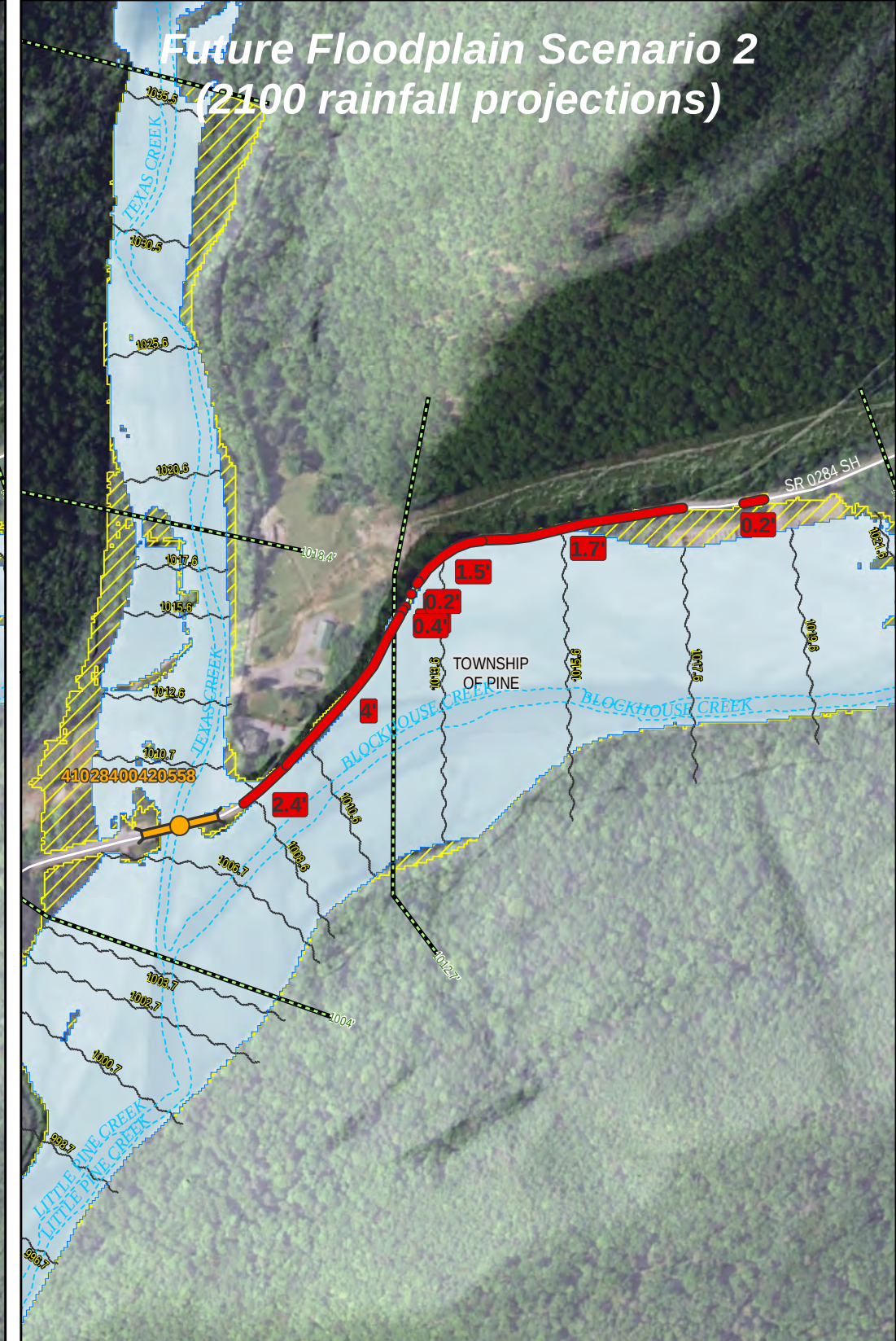
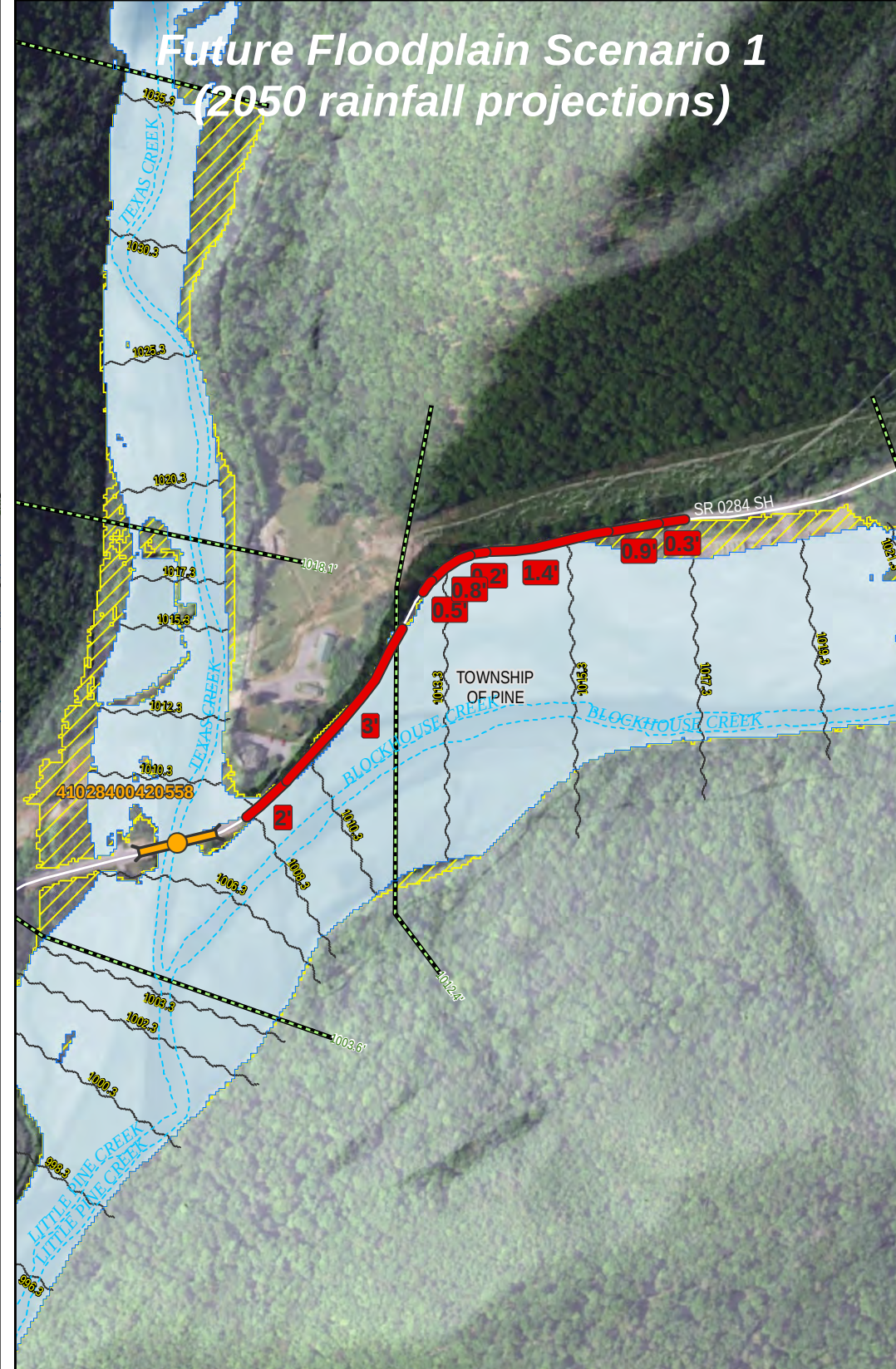
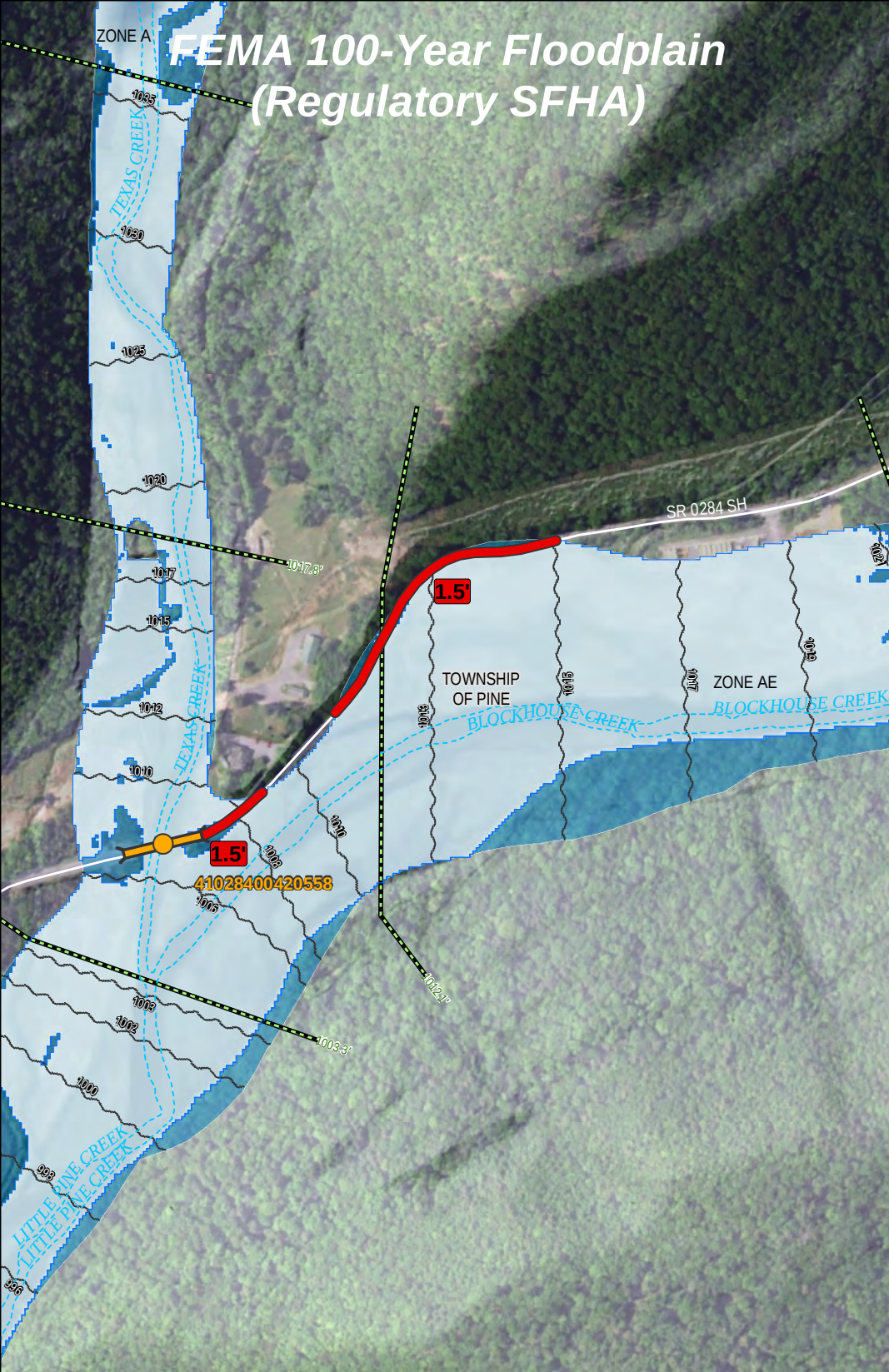
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

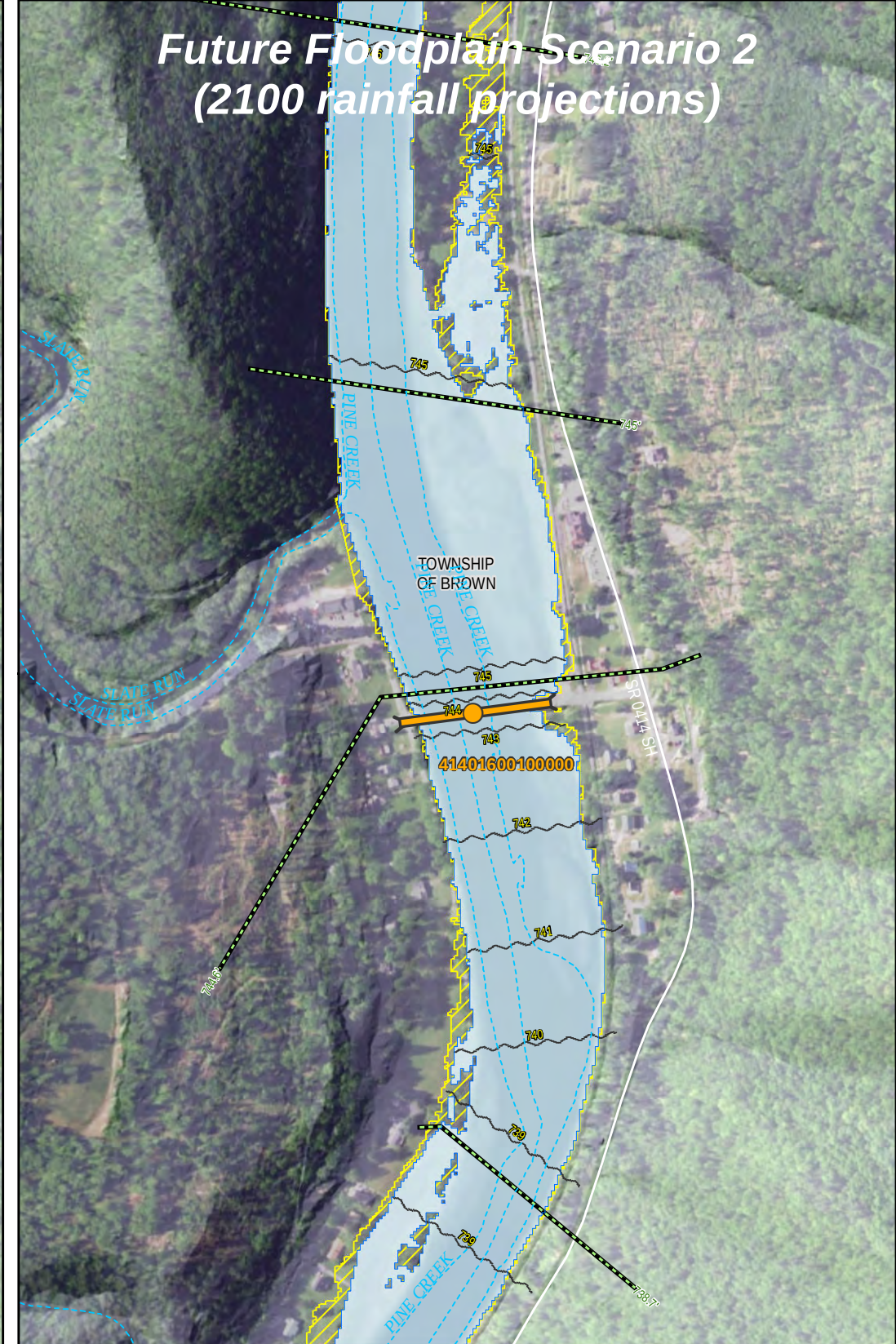
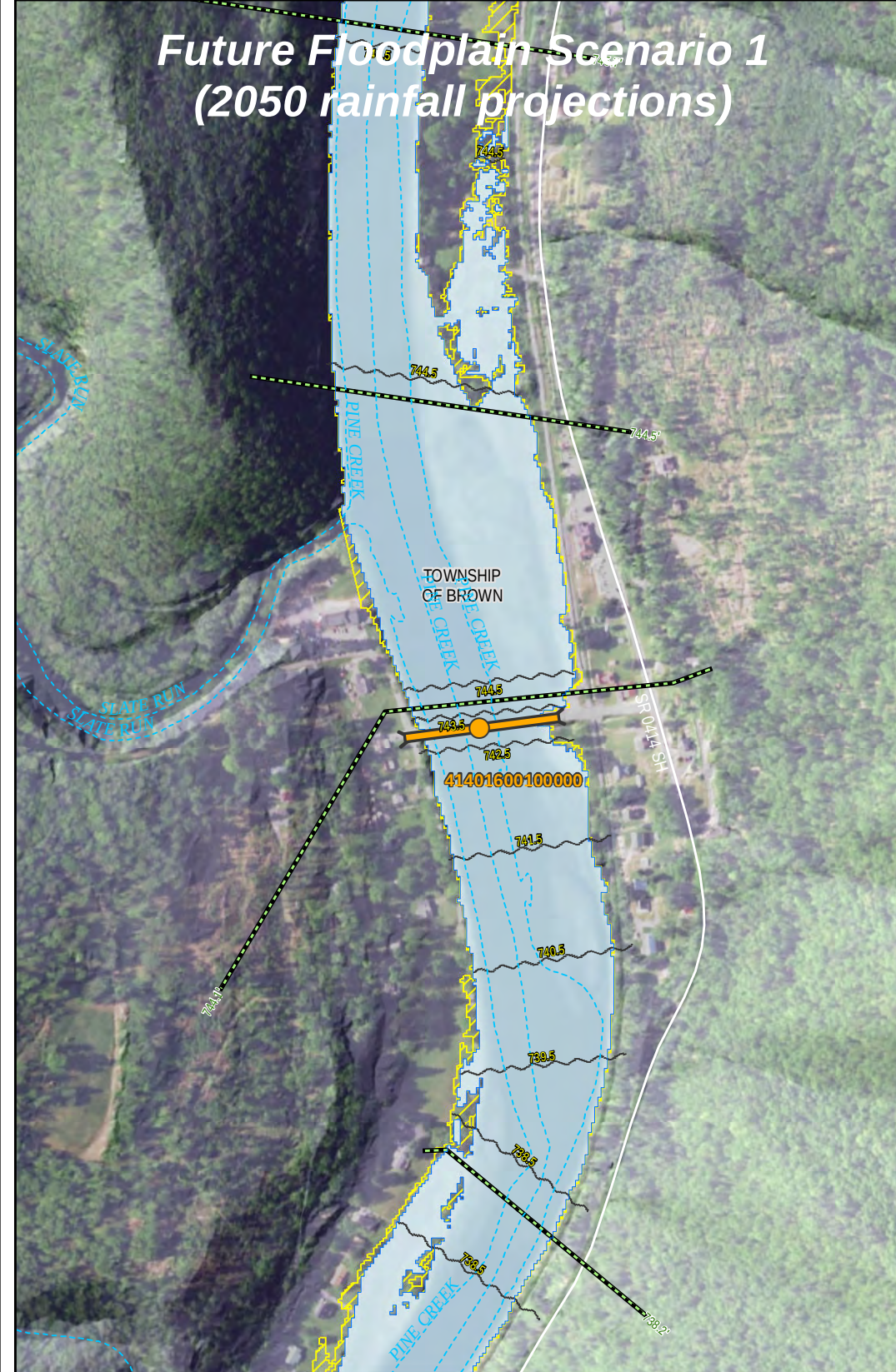
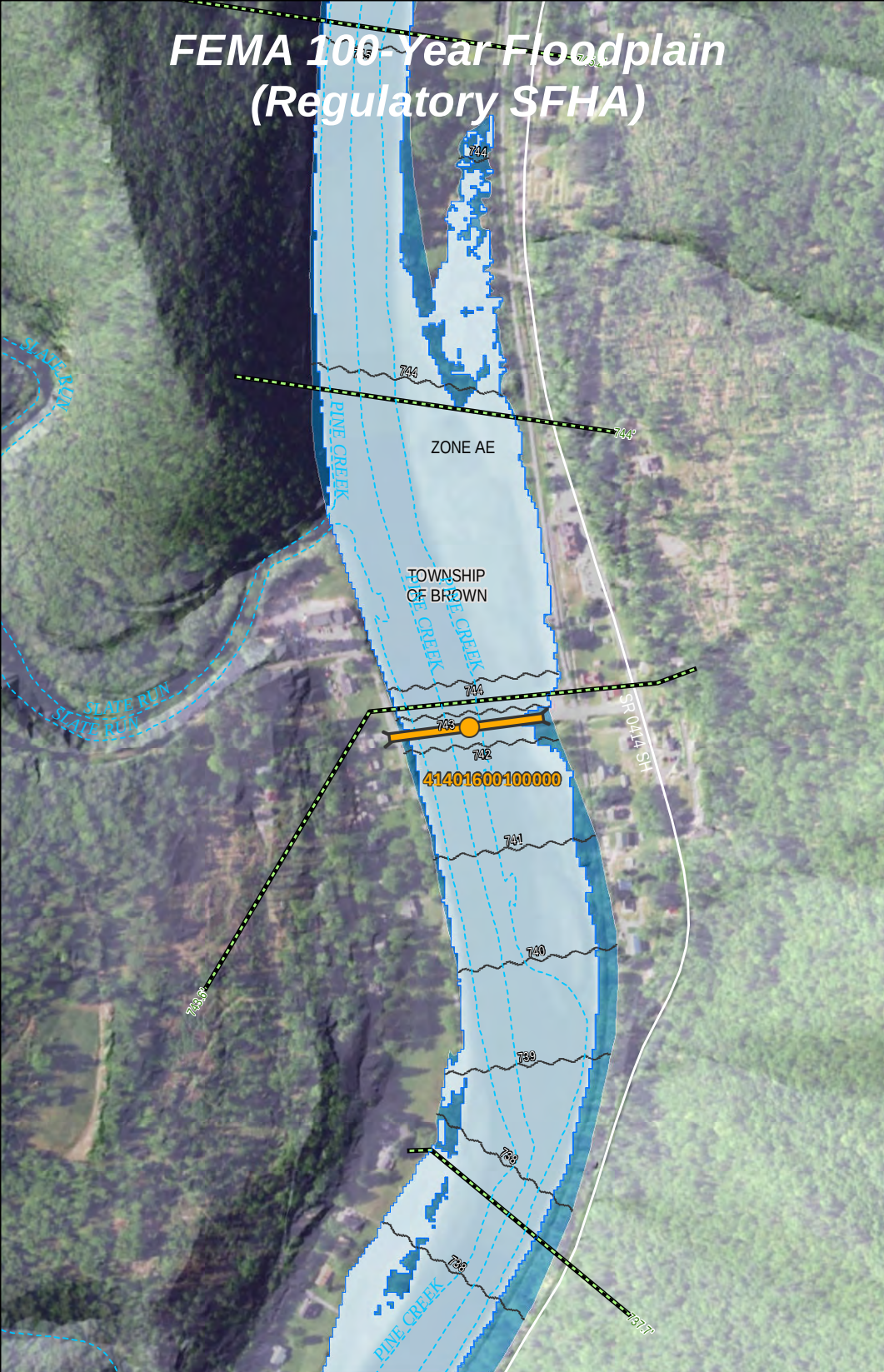
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



LOCATOR MAP







MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. 60DY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

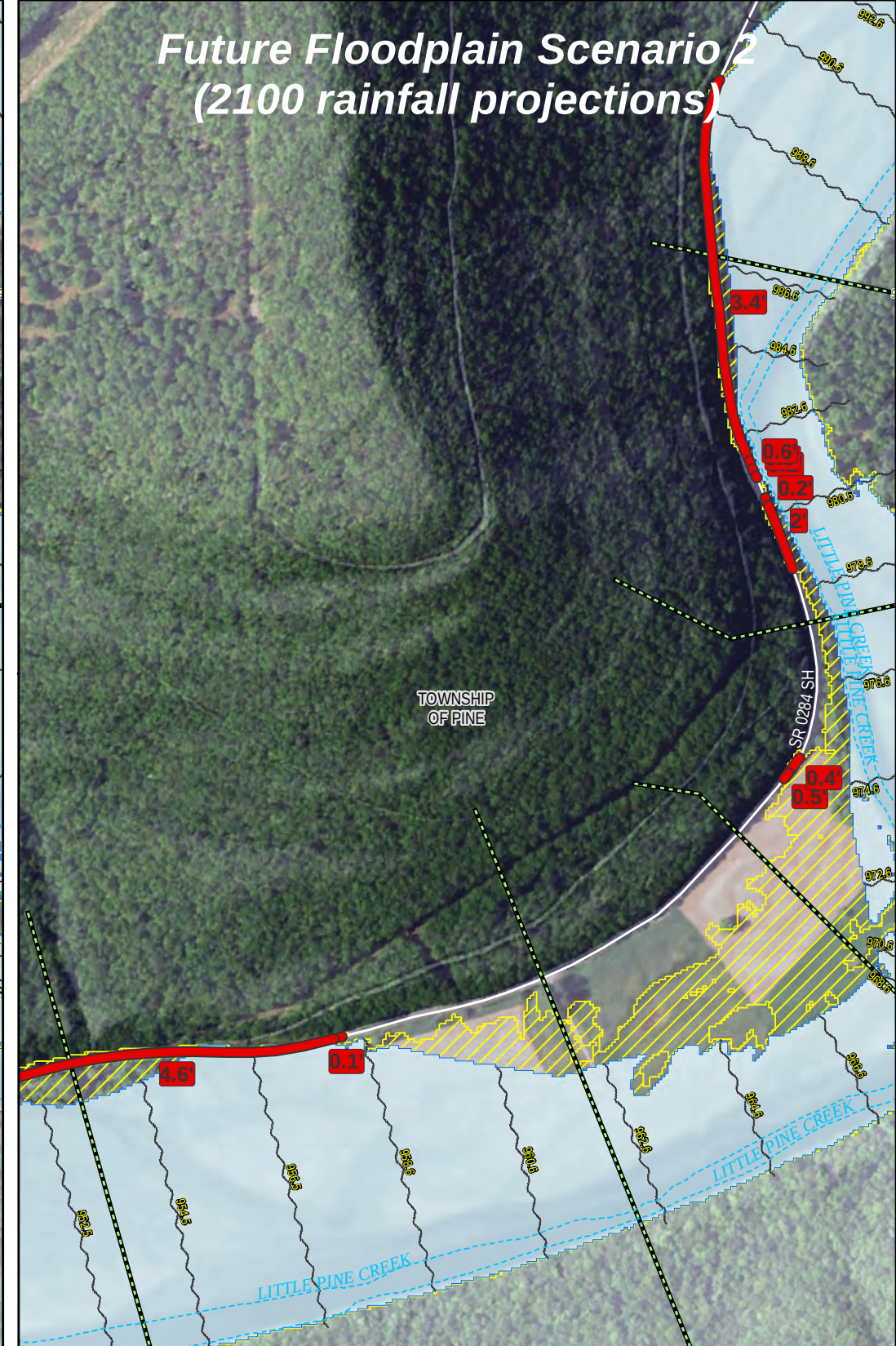
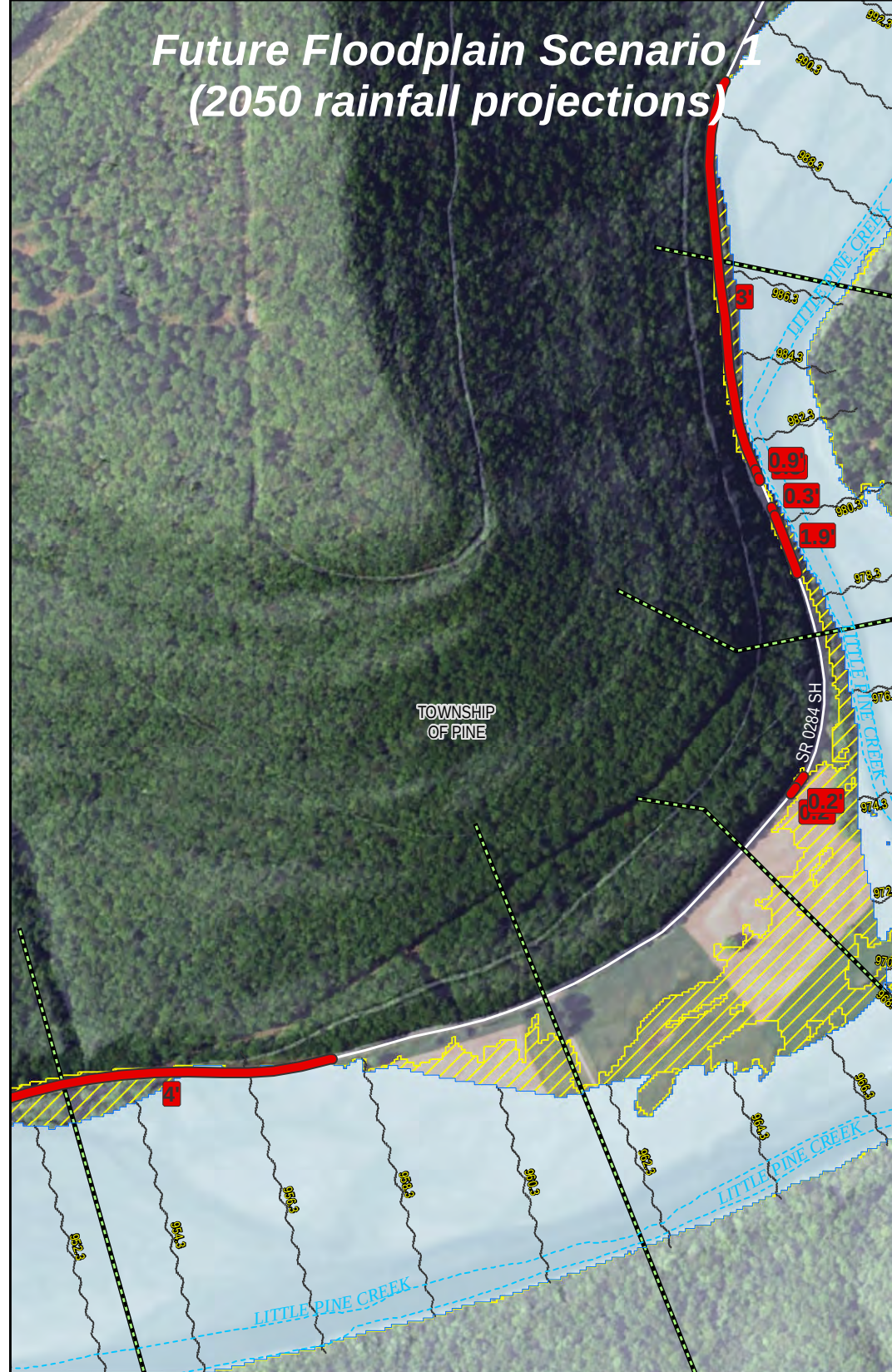
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

Sheet 10 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

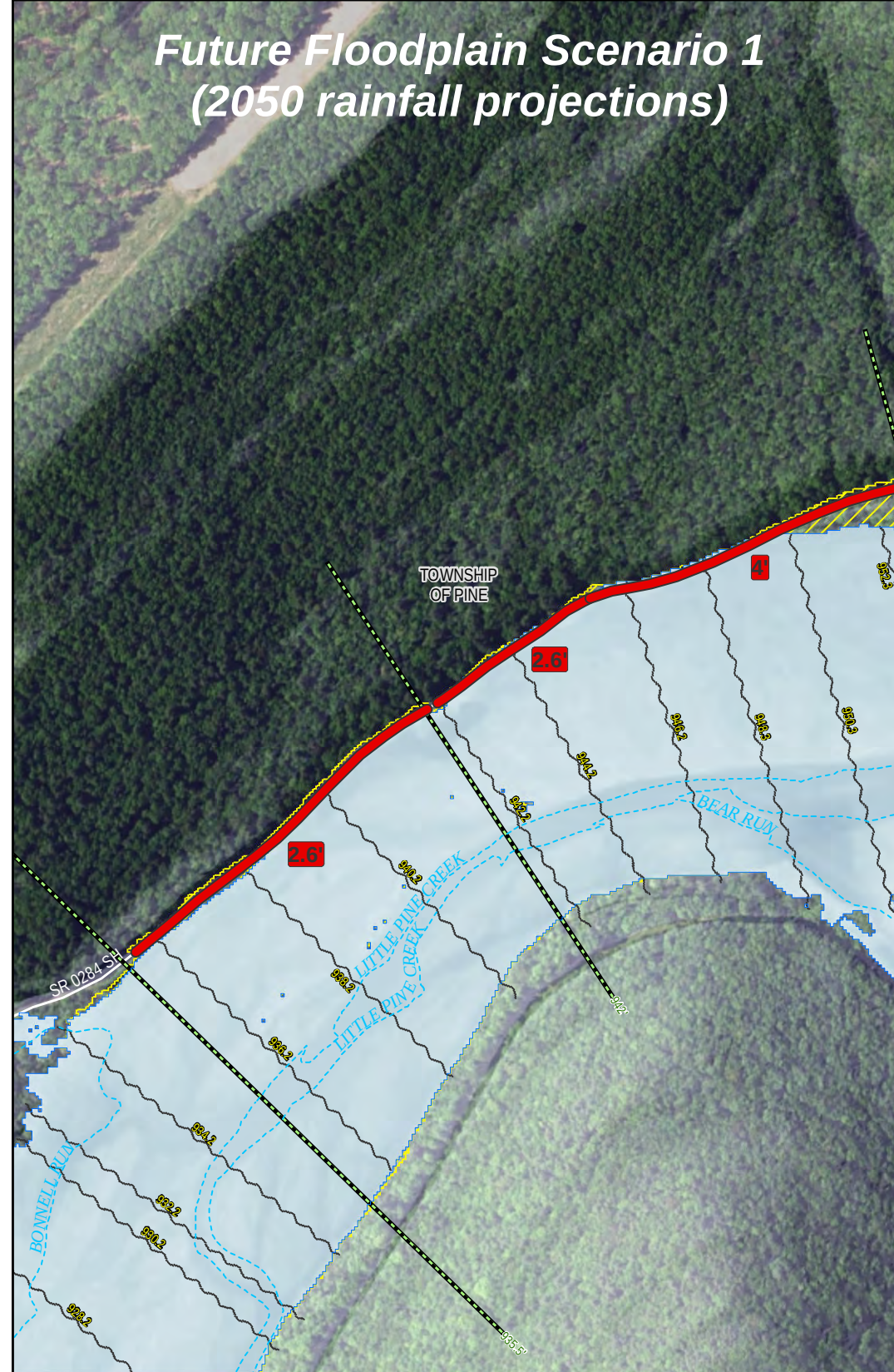
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LOCATOR MAP

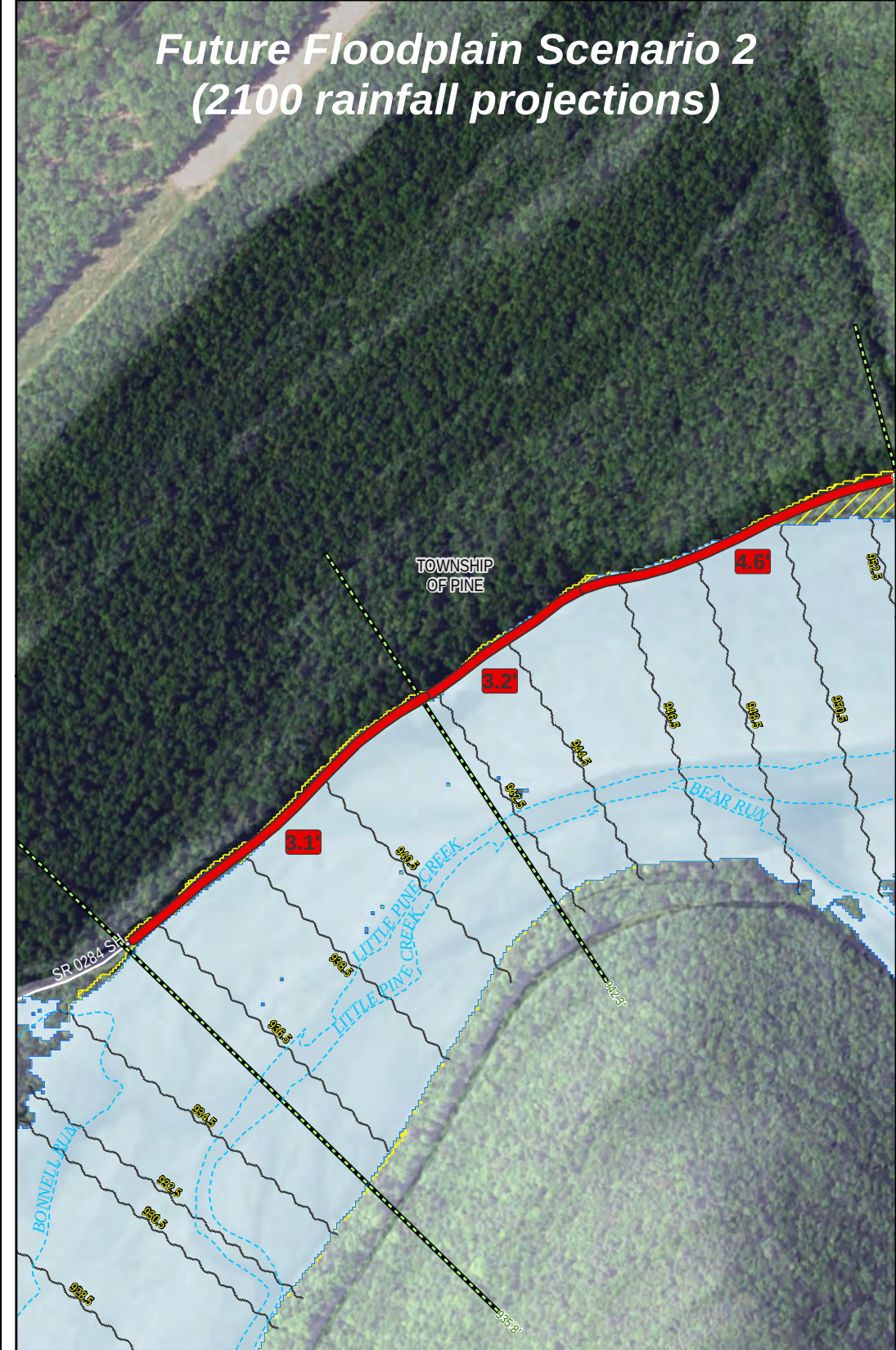
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

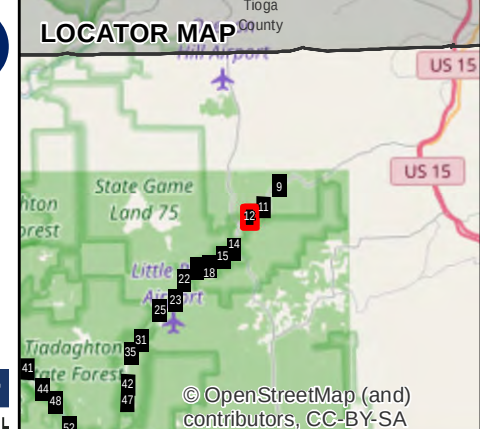
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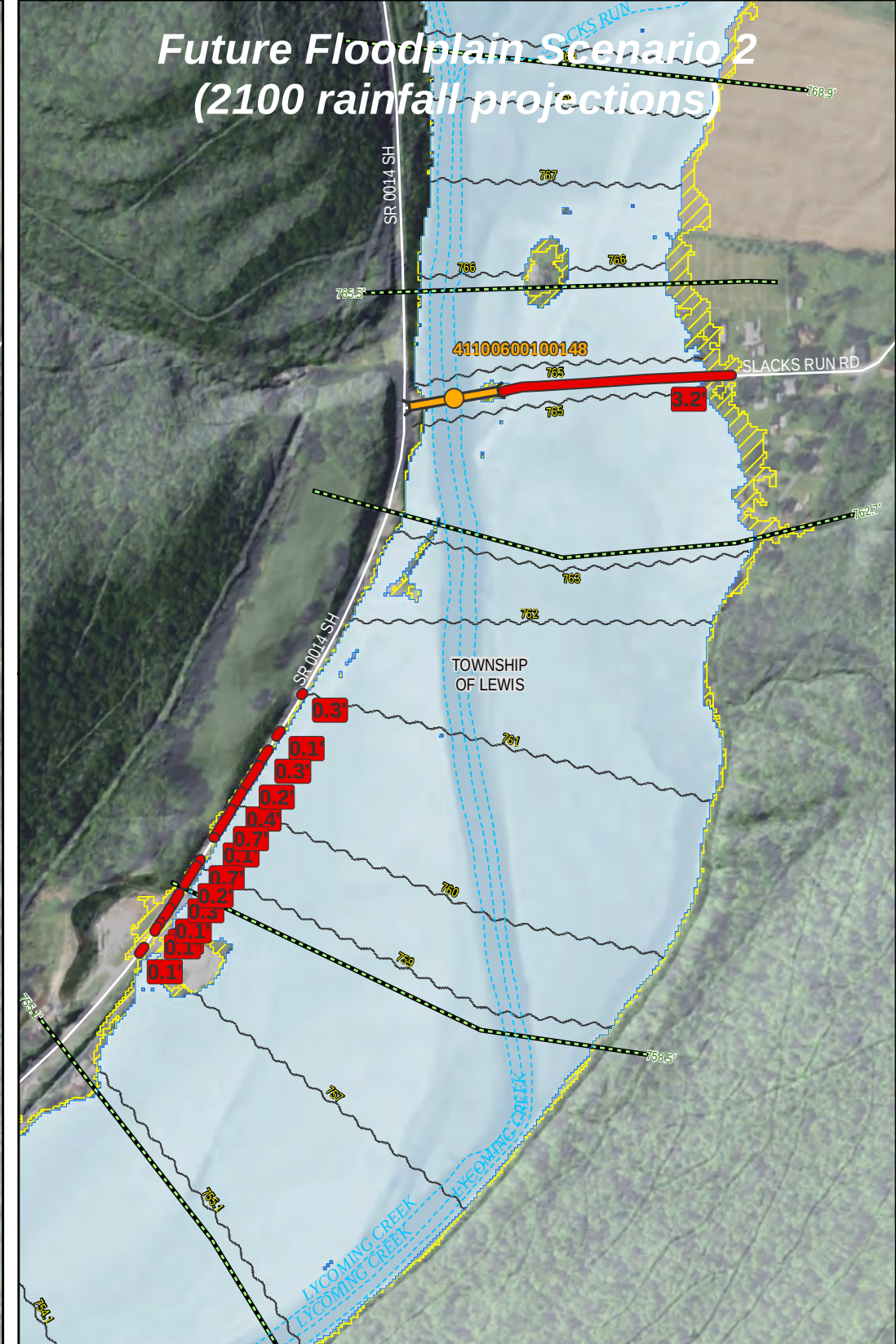
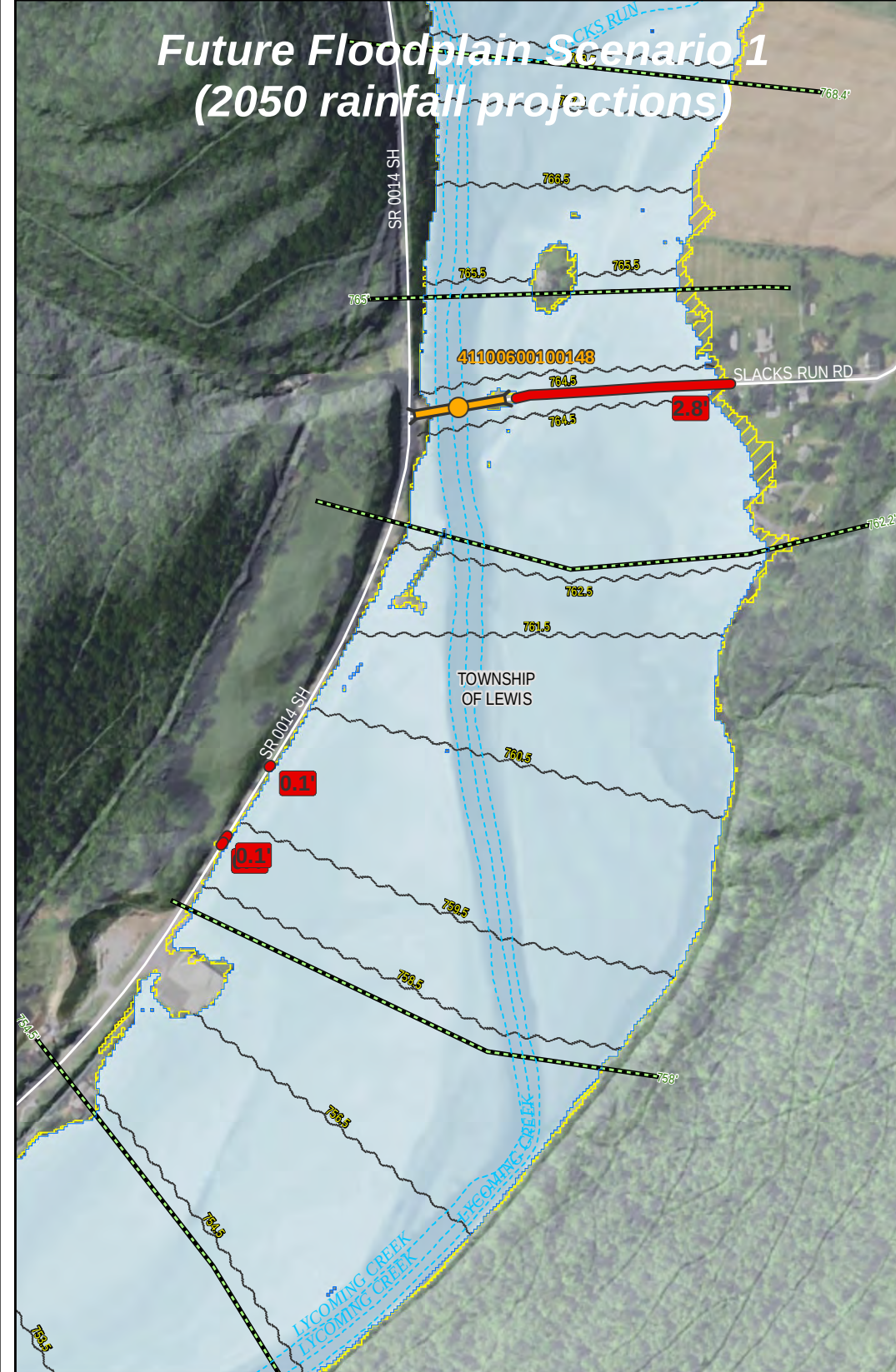
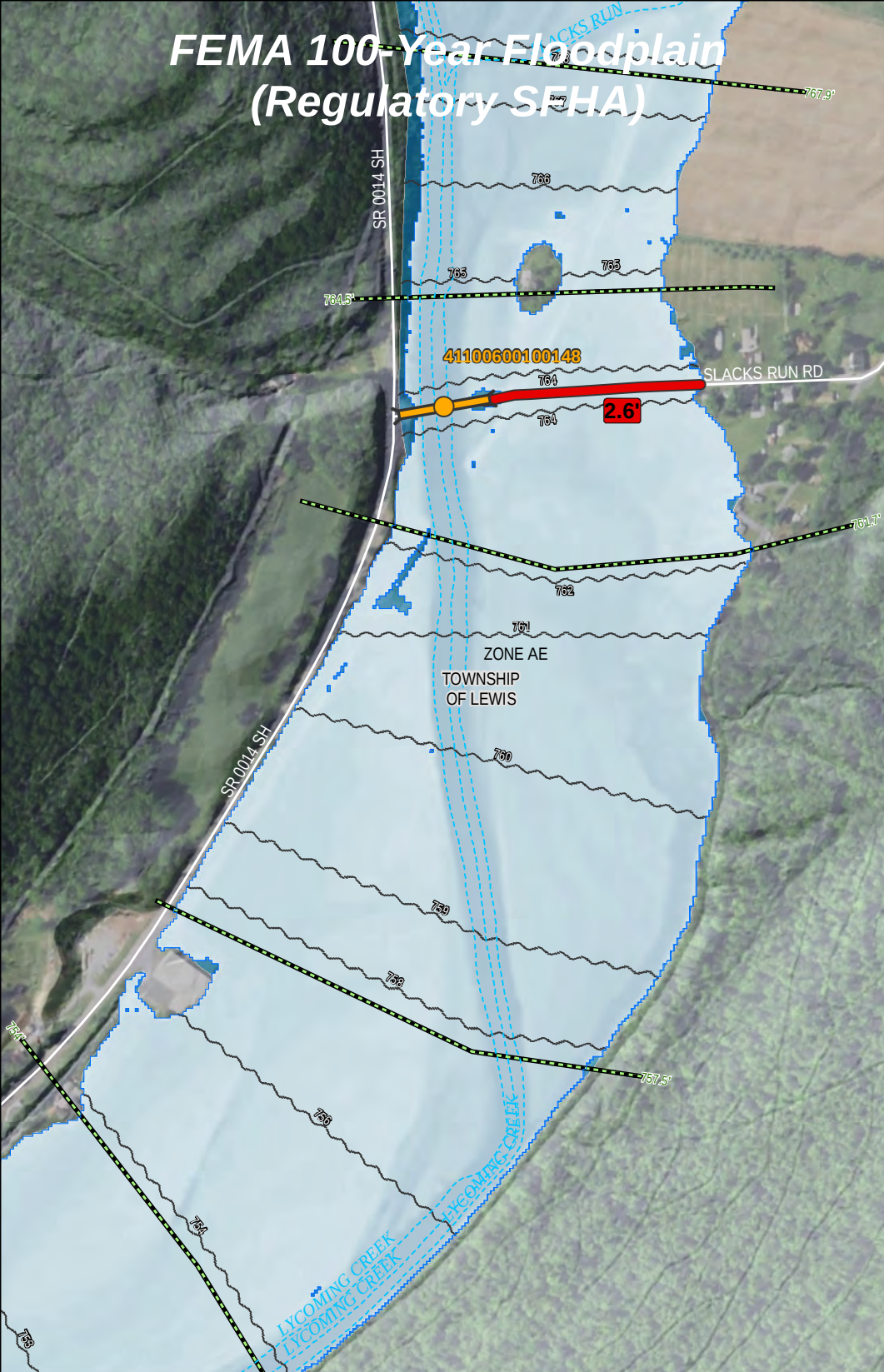


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
INTERNATIONAL**





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
 Vulnerable Bridge - Mean Depth in Feet i.e. 328'	 FEMA Stream Centerline	 Existing Conditions SFHA Extents
 Bridge Points - BRIDGE ID i.e. 23100100301362	 FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
 Bridge Centerlines	 FEMA Cross Section	 Projected SFHA Extents
 Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
 Roadway - i.e. CODY ST	 FEMA REGULATORY SFHA	
 Community Boundary		



November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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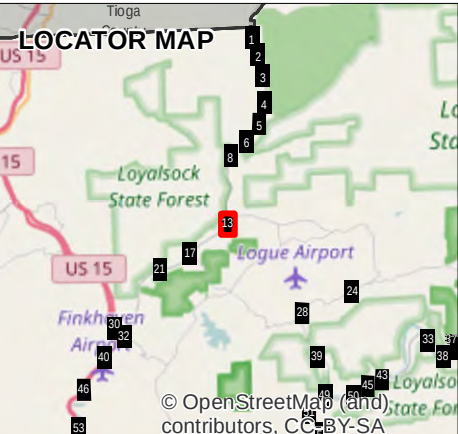


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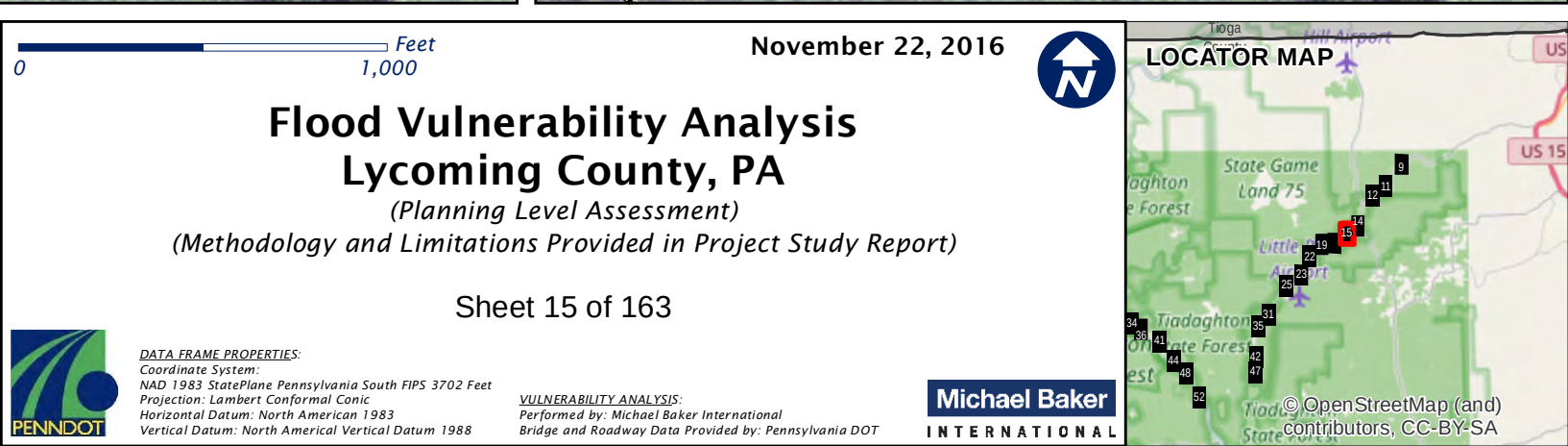
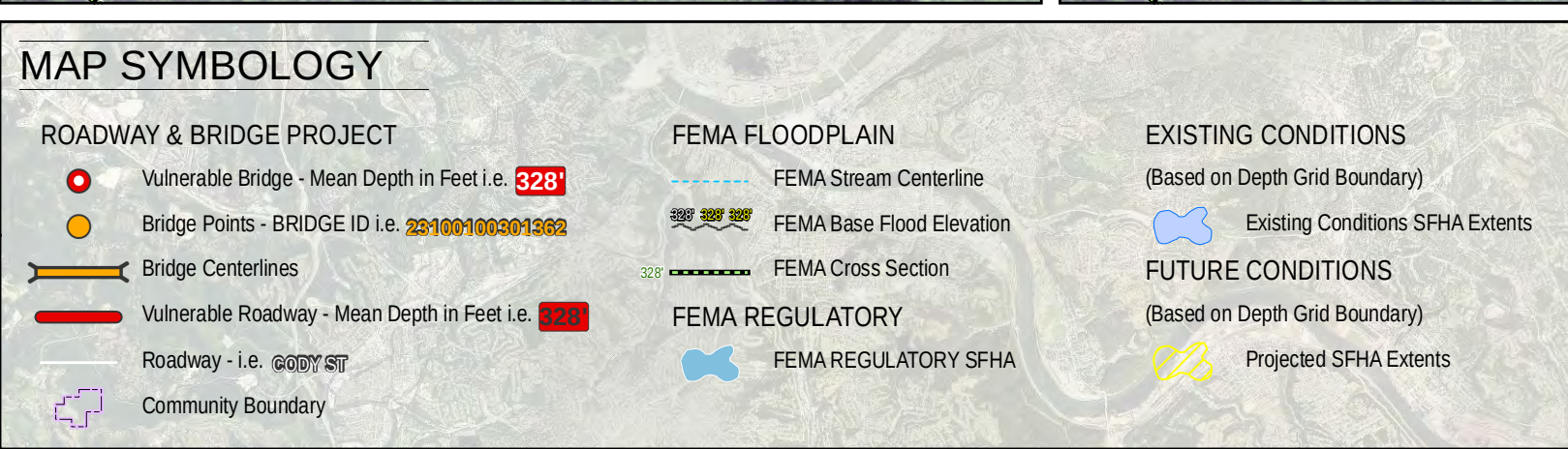
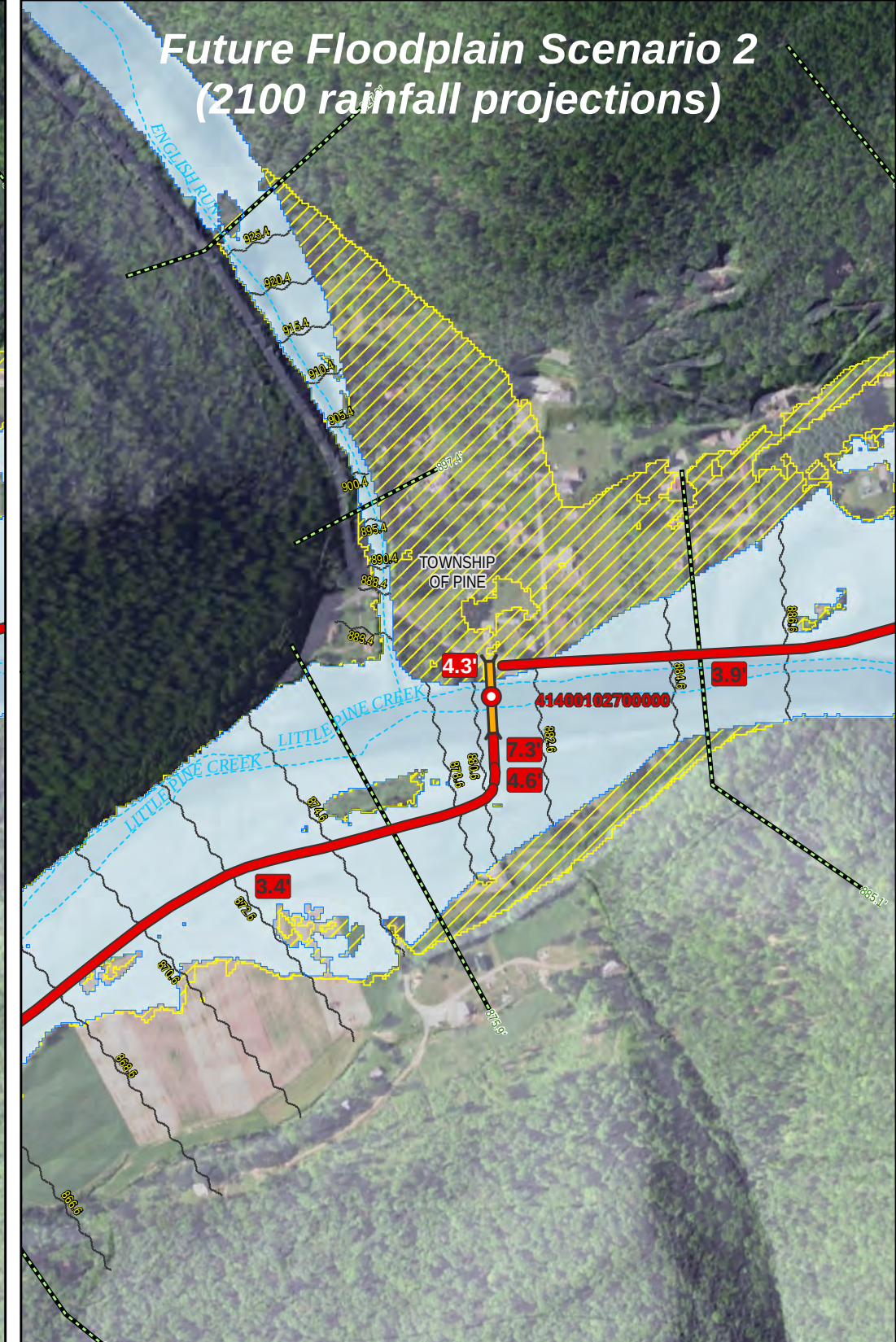
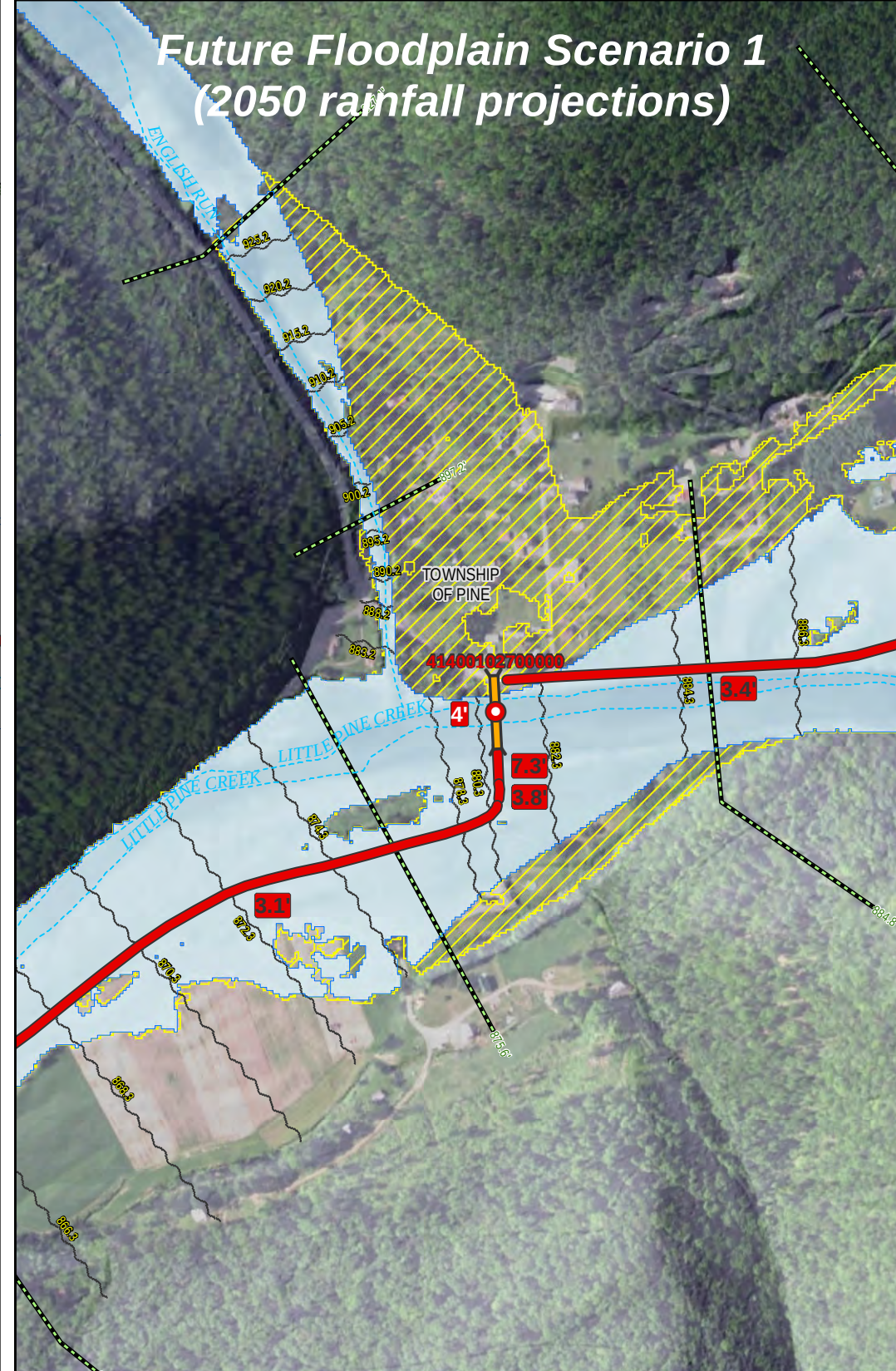
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

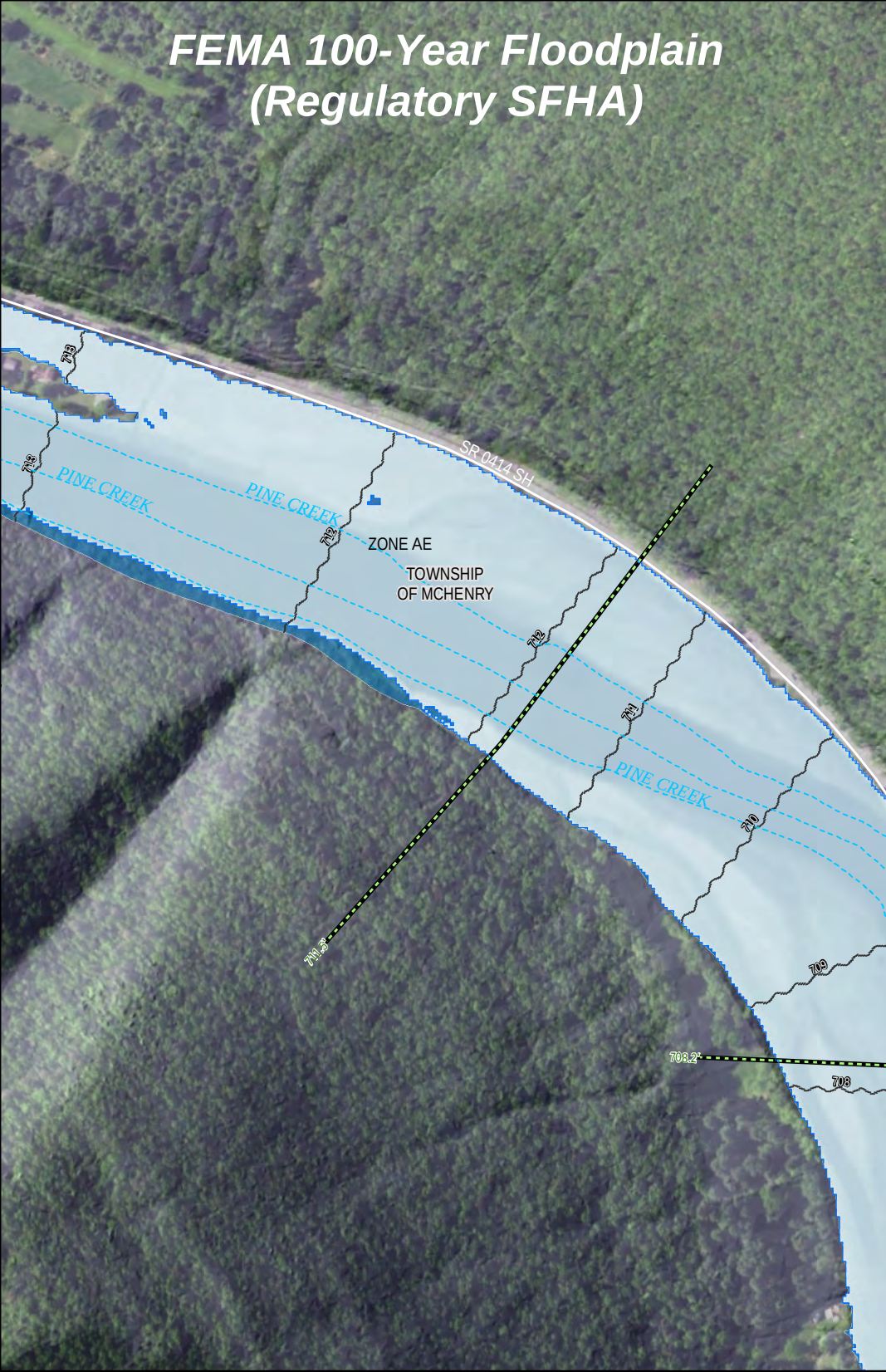
LOCATOR MAP



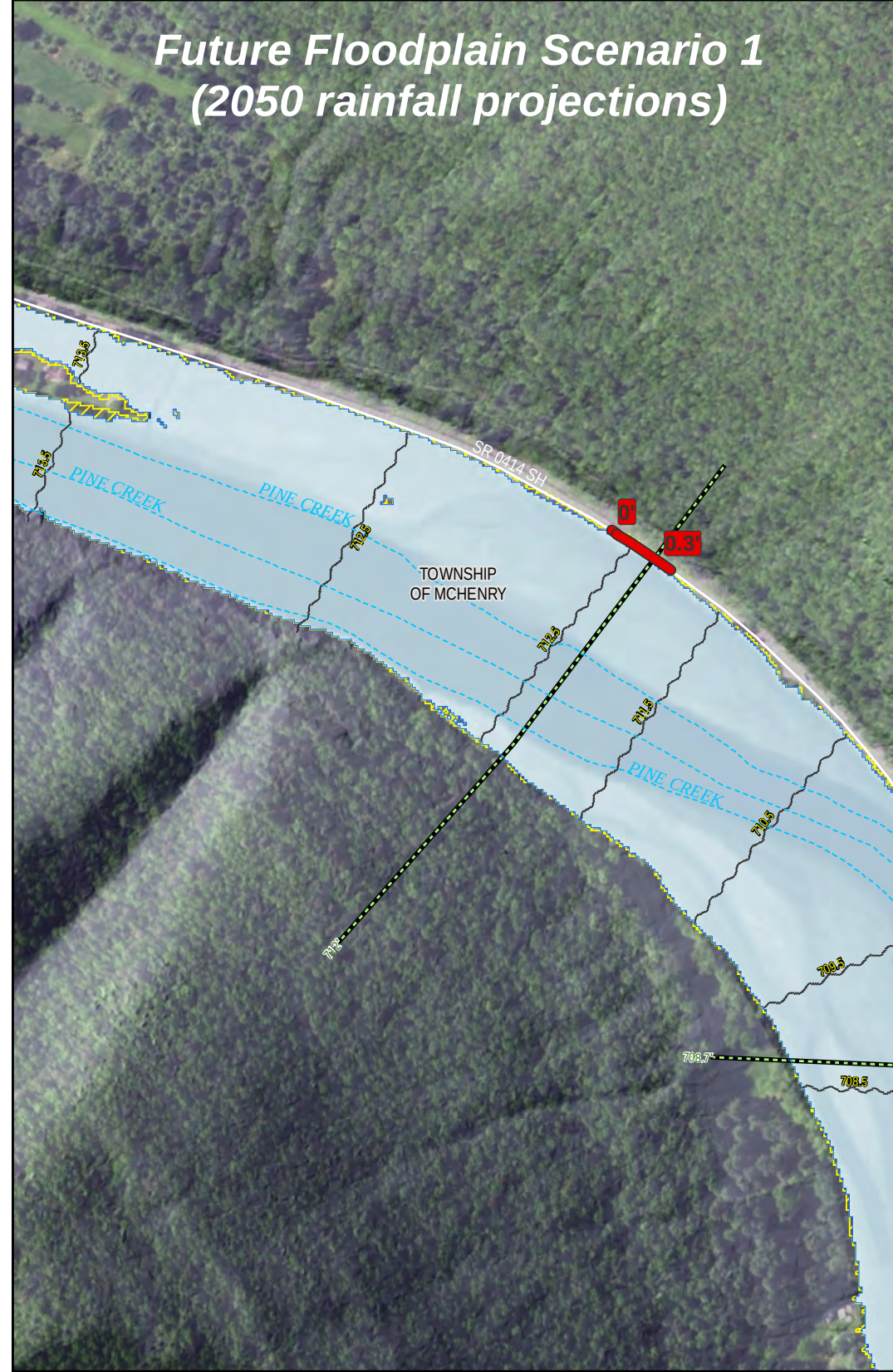
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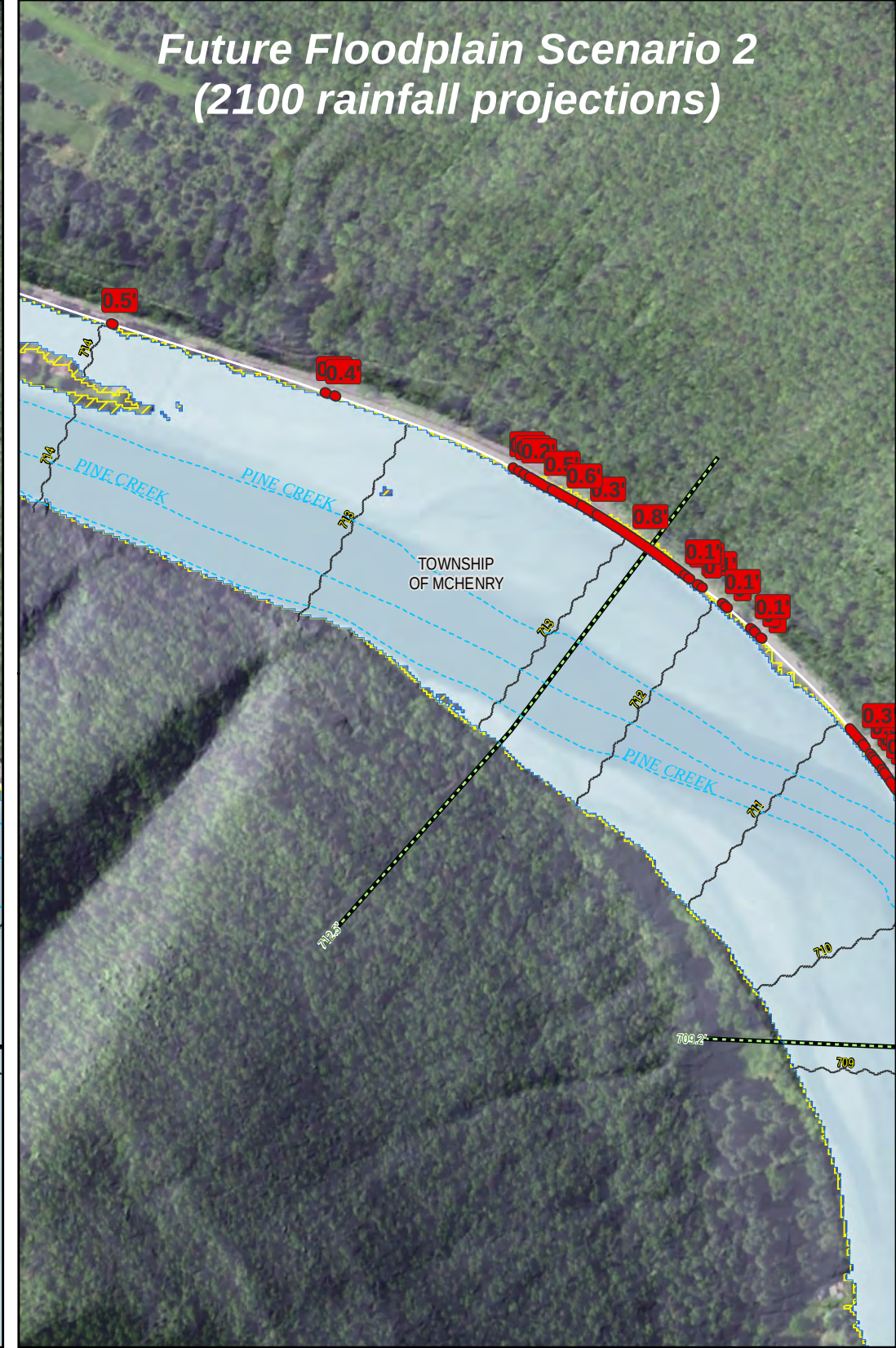
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

-  Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
-  Bridge Points - BRIDGE ID i.e. **23100100301362**
-  Bridge Centerlines
-  Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
-  Roadway - i.e. **60DY ST**
-  Community Boundary

FEMA FLOODPLAIN

-  FEMA Stream Centerline
-  FEMA Base Flood Elevation
-  FEMA Cross Section

FEMA REGULATORY

-  FEMA REGULATORY SFHA

EXISTING CONDITIONS

- (Based on Depth Grid Boundary)
-  Existing Conditions SFHA Extents

FUTURE CONDITIONS

- (Based on Depth Grid Boundary)
-  Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

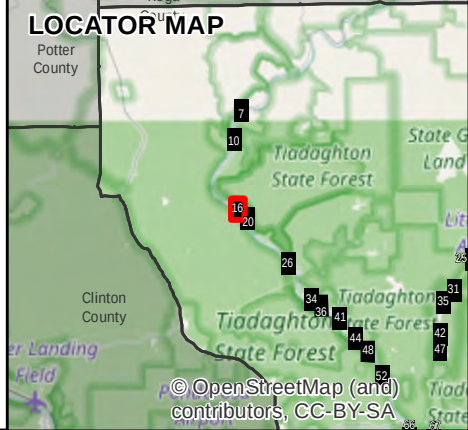
Sheet 16 of 163



DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

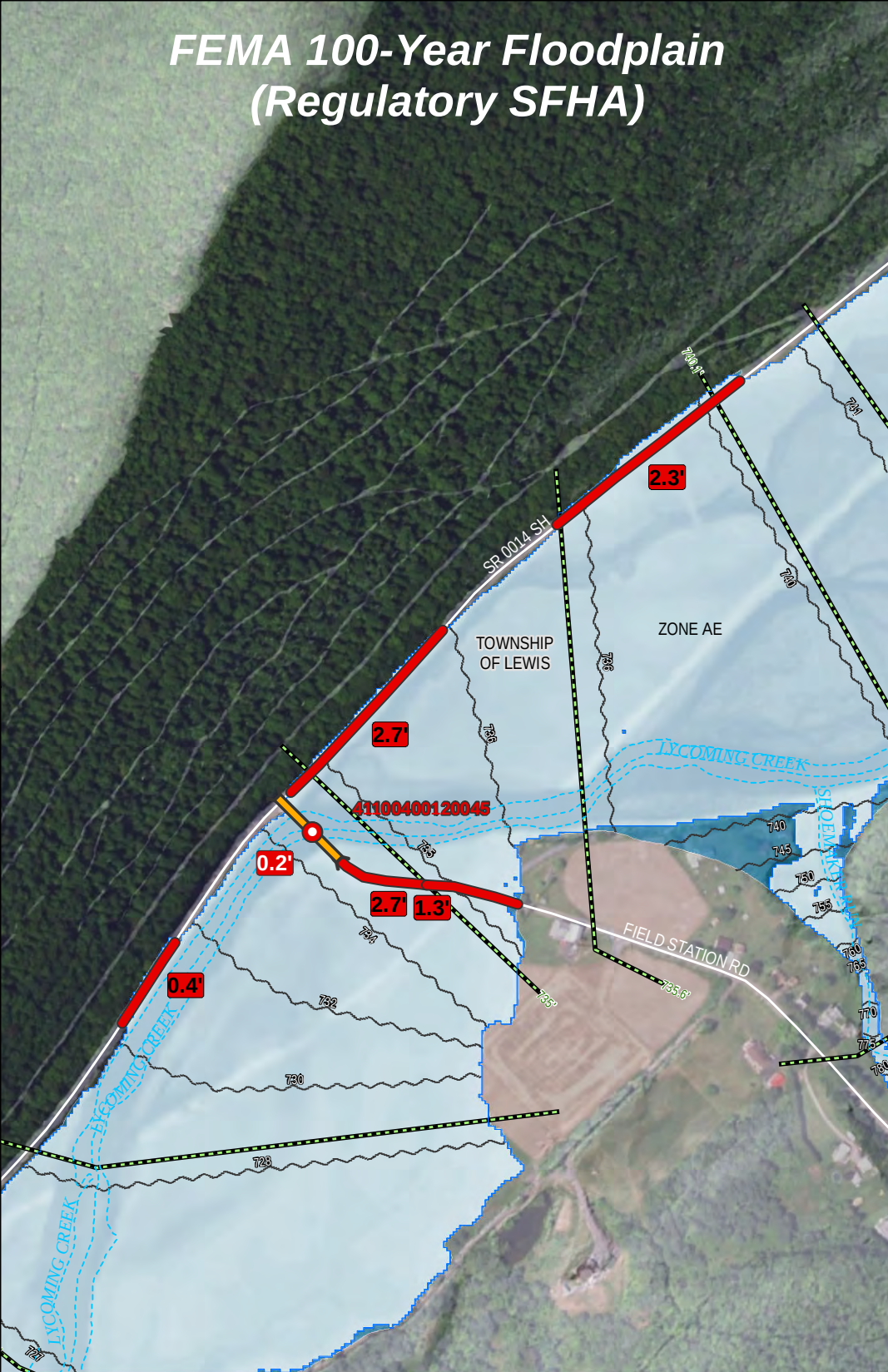
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
INTERNATIONAL**

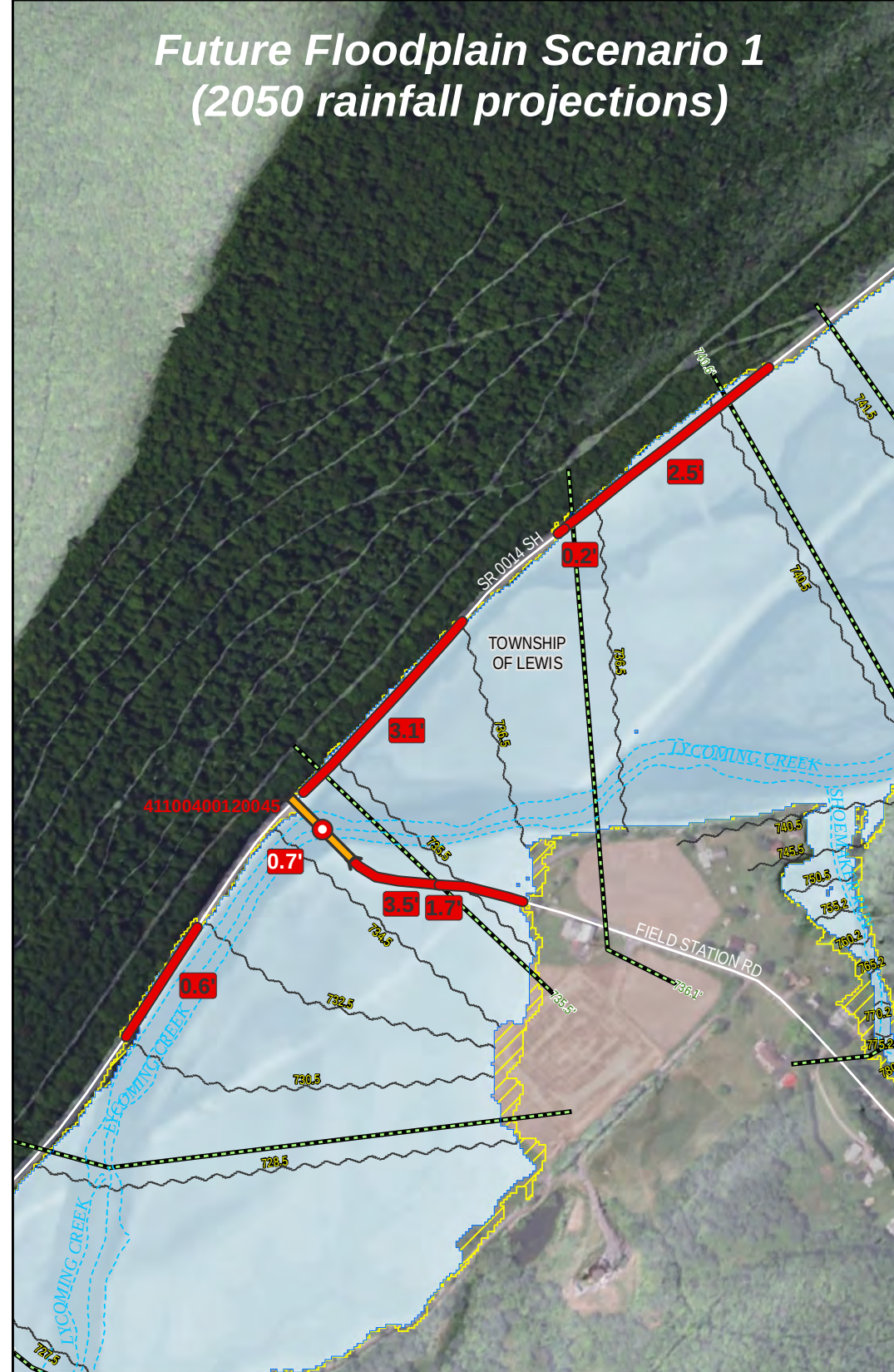


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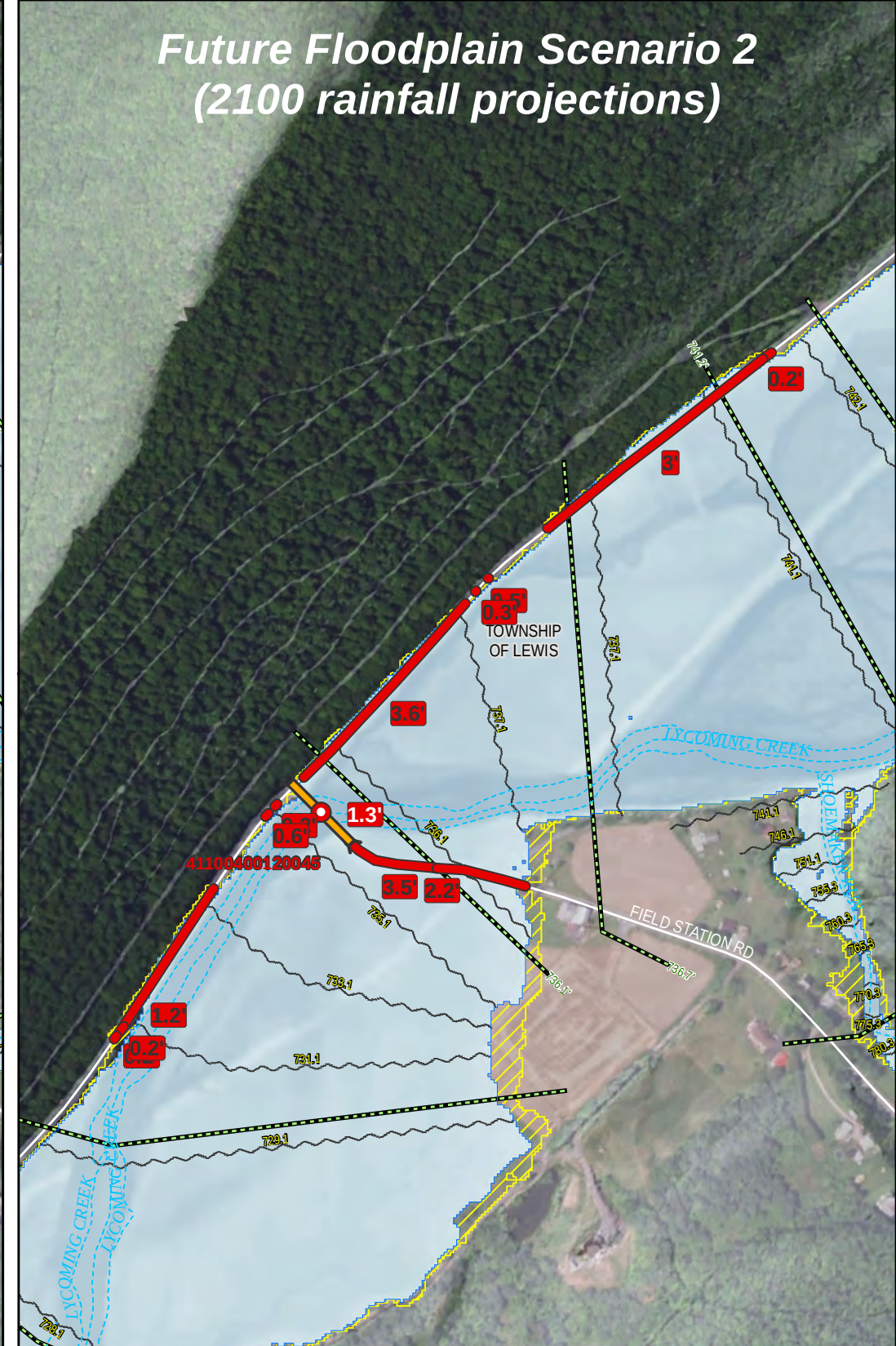
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

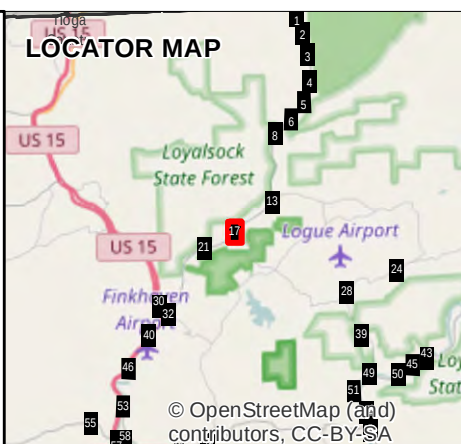
Sheet 17 of 163



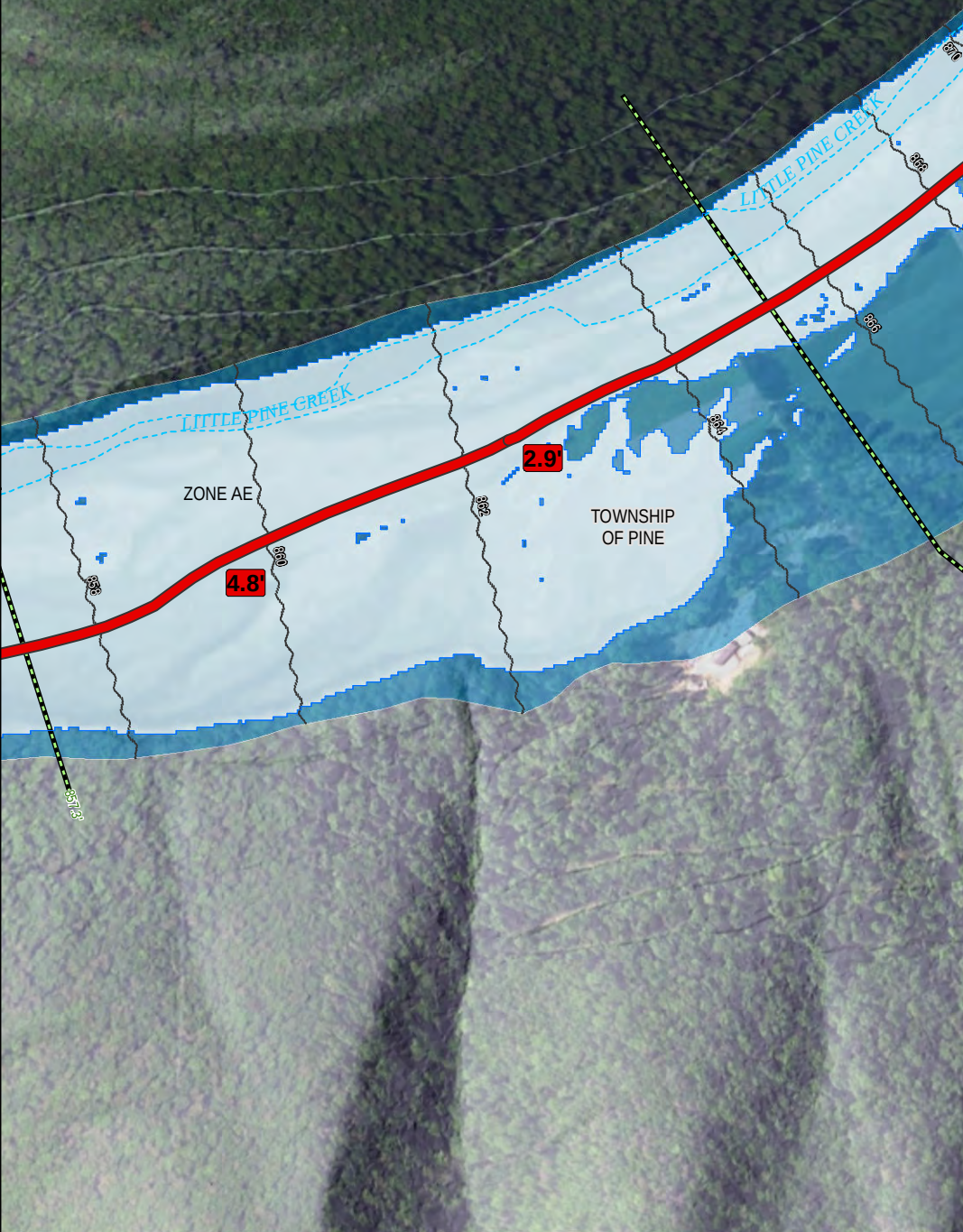
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Projection: Lambert Conformal Conic
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Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

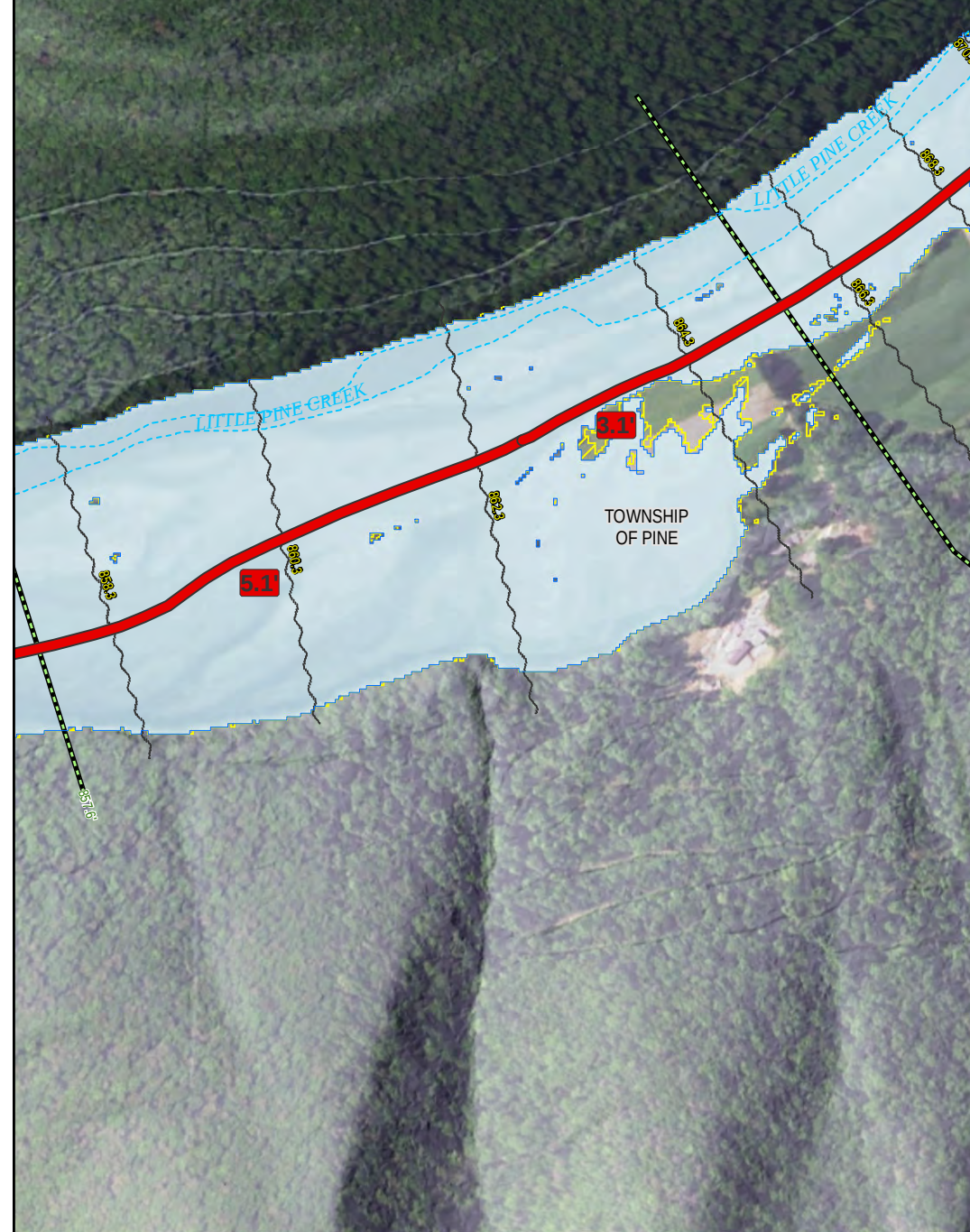
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INTERNATIONAL**



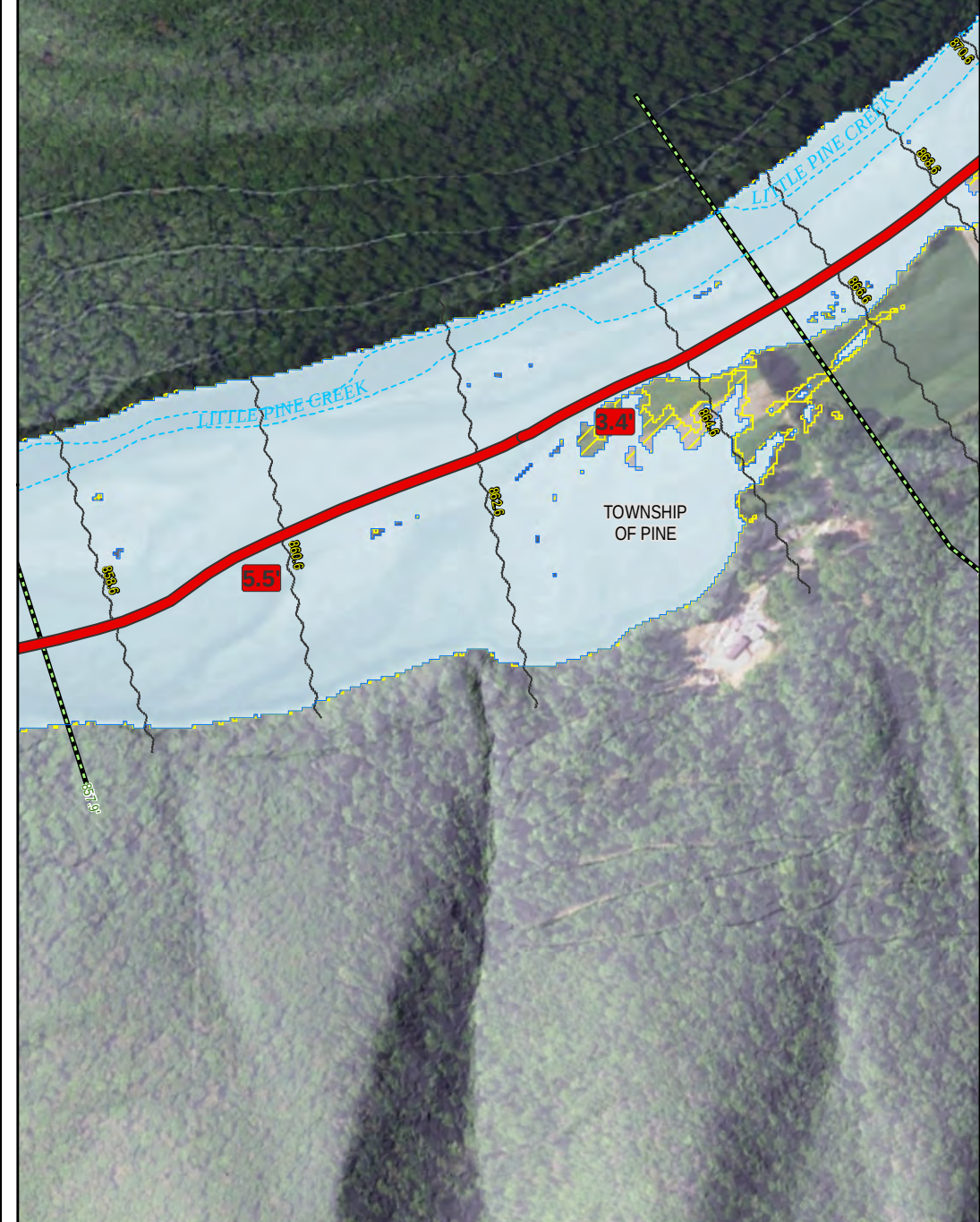
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)

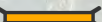
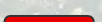


Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

-  Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
-  Bridge Points - BRIDGE ID i.e. **23100100301362**
-  Bridge Centerlines
-  Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
-  Roadway - i.e. **CODY ST**
-  Community Boundary

FEMA FLOODPLAIN

-  FEMA Stream Centerline
-  FEMA Base Flood Elevation
-  FEMA Cross Section

FEMA REGULATORY

-  FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

-  Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

-  Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

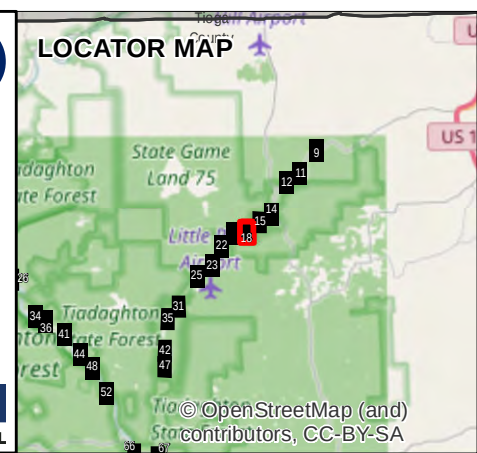
Sheet 18 of 163



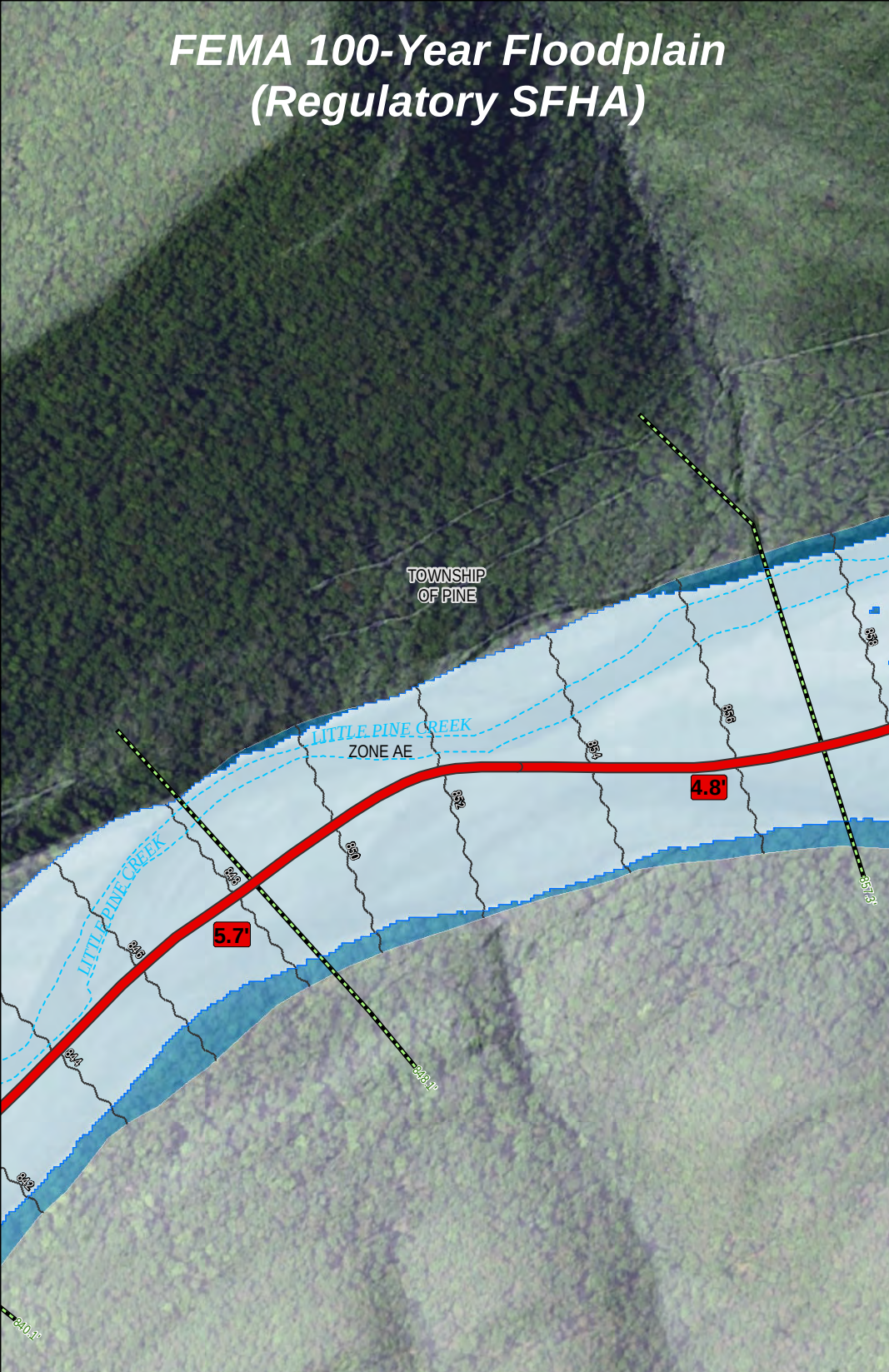
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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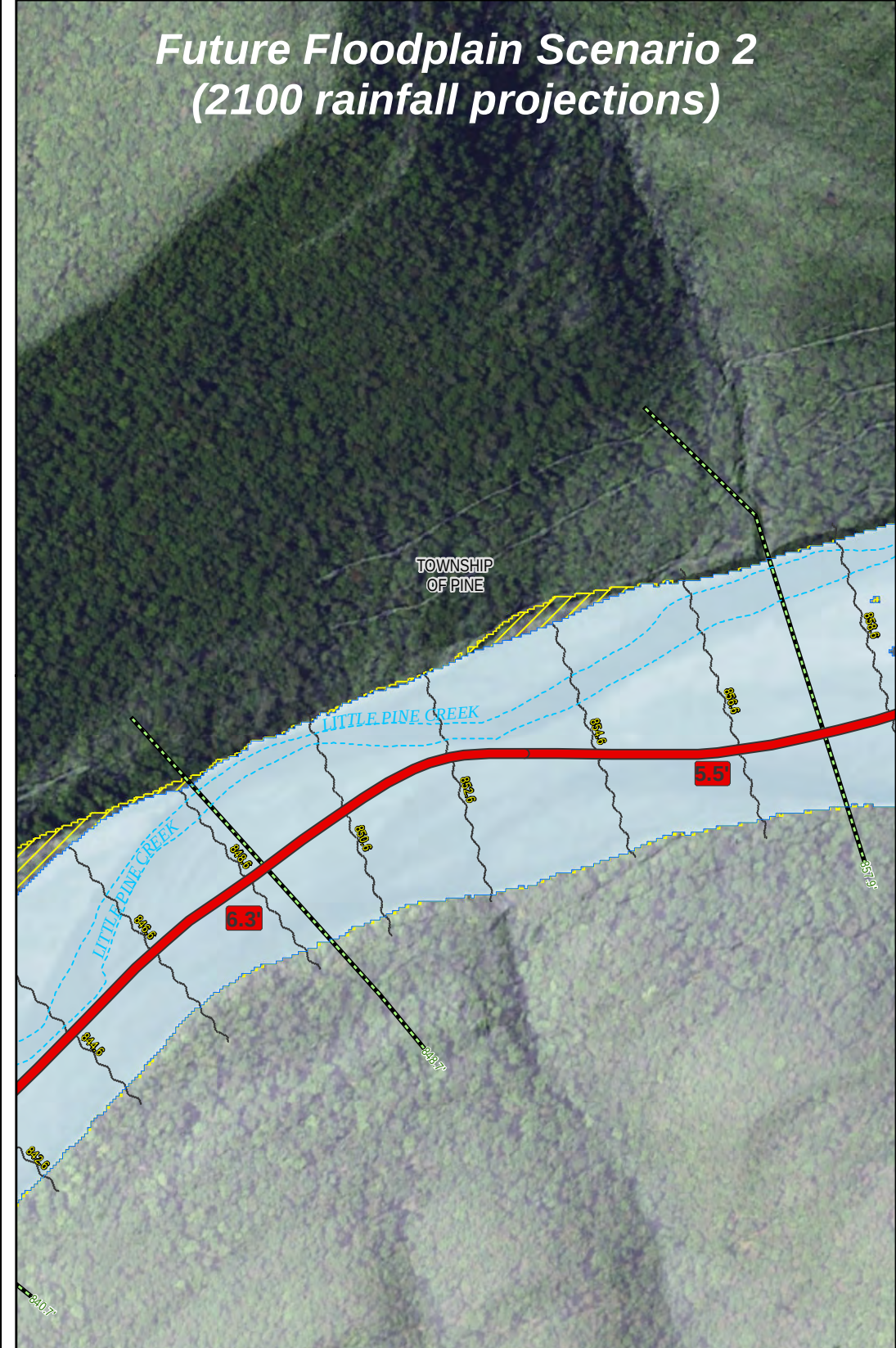
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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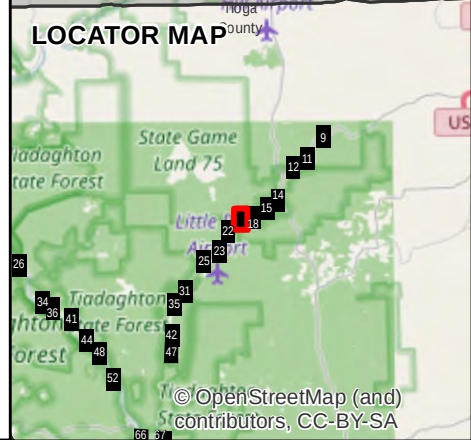


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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

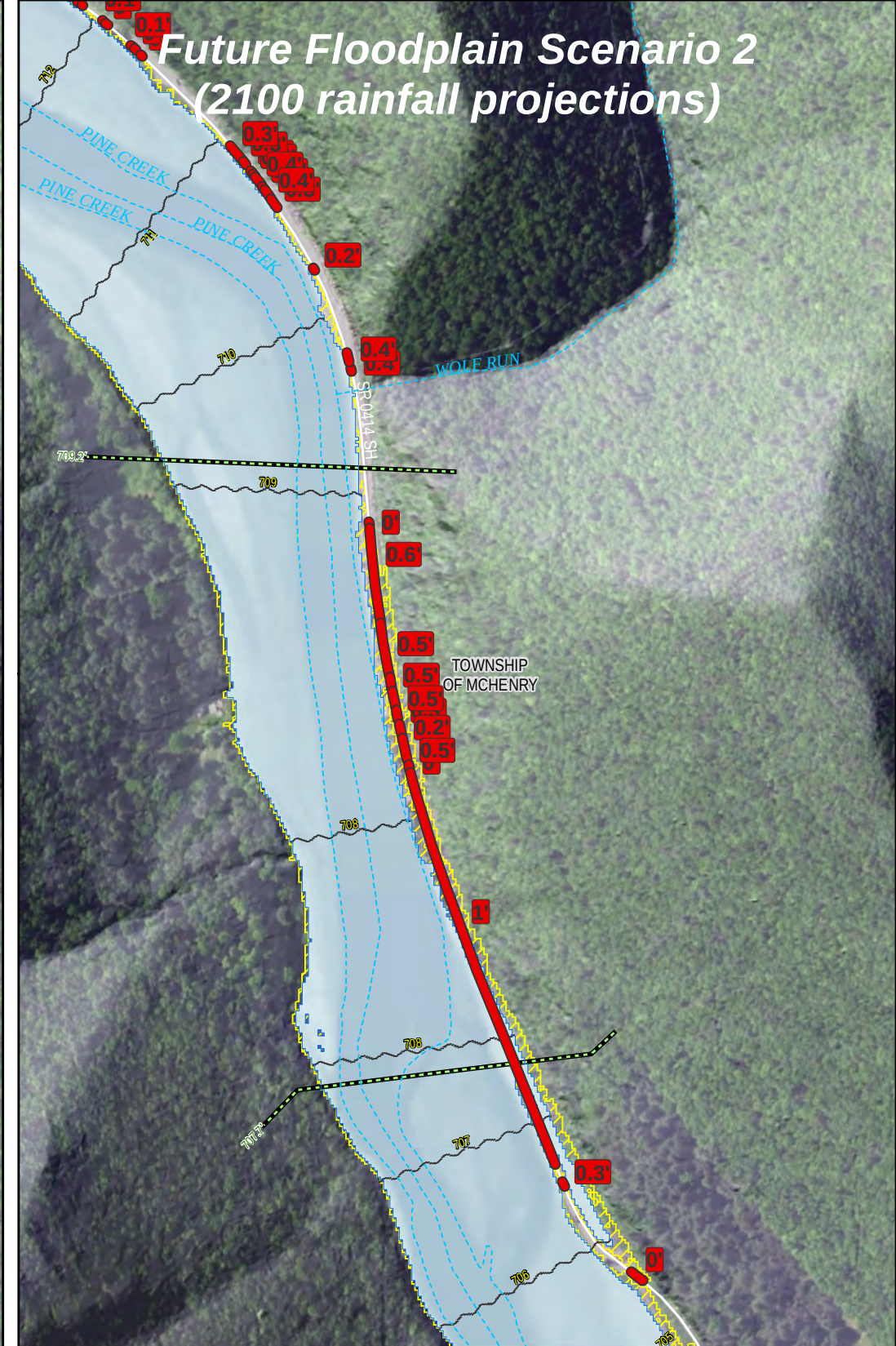
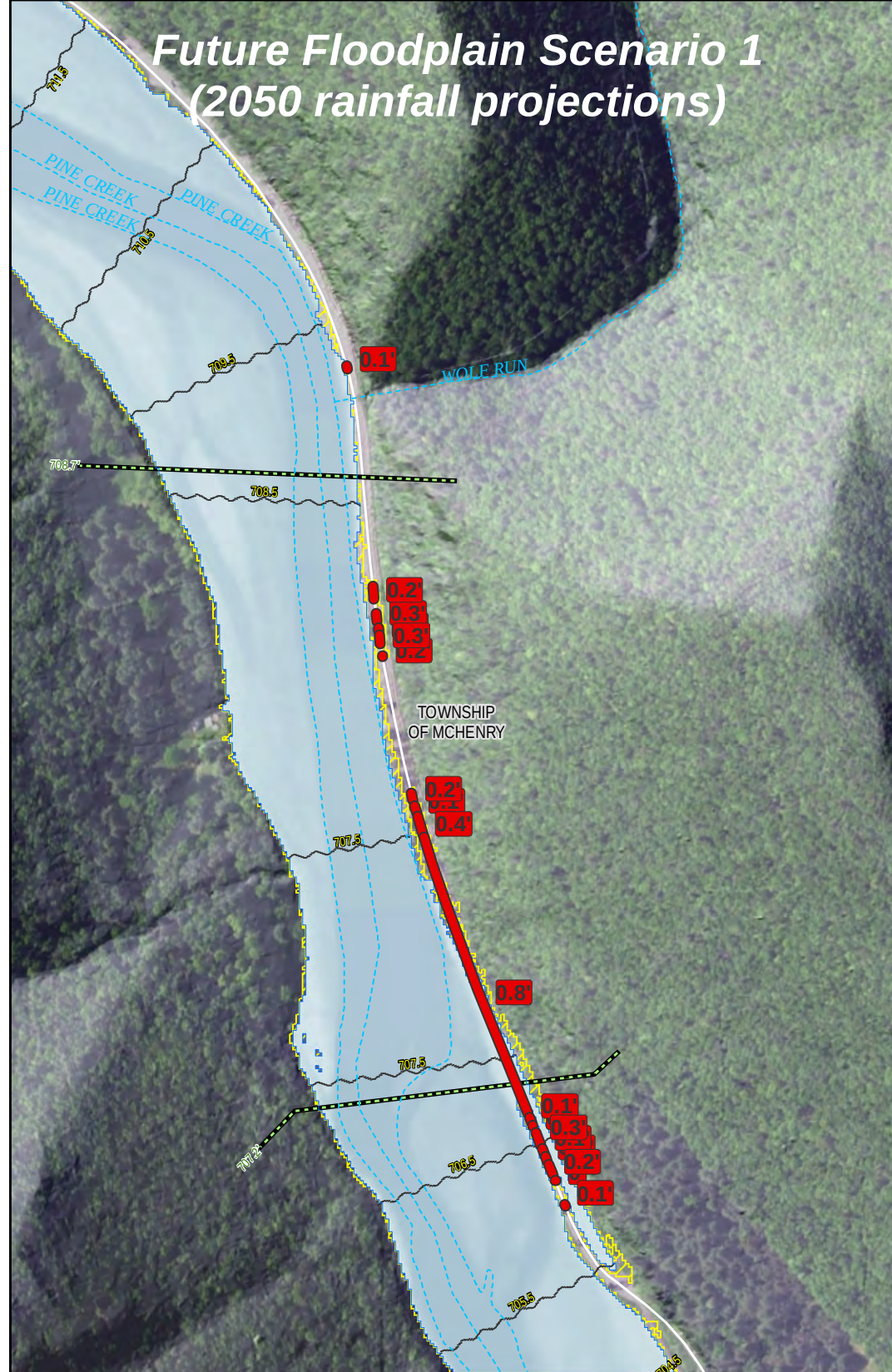
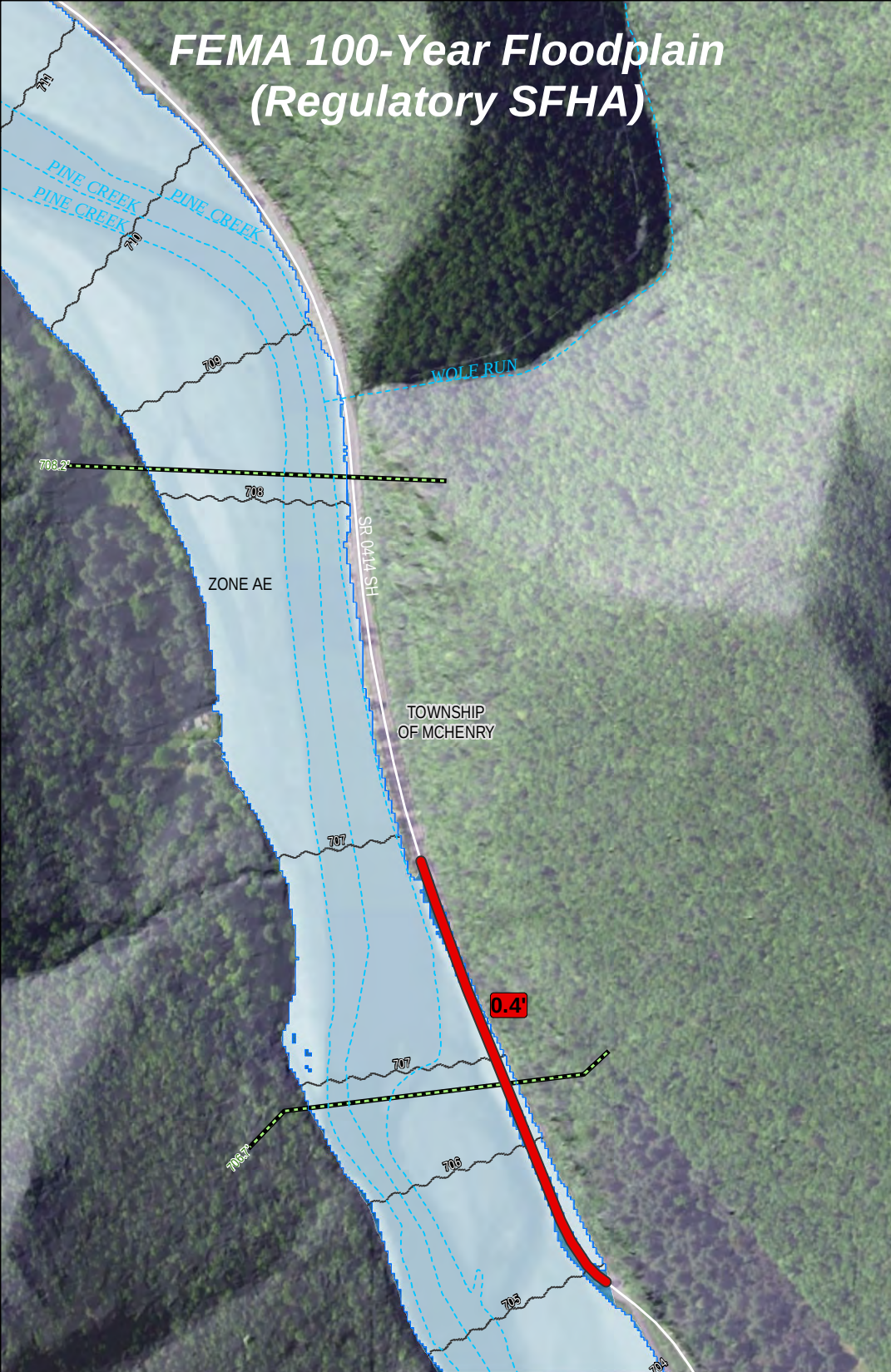
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
INTERNATIONAL**

LOCATOR MAP



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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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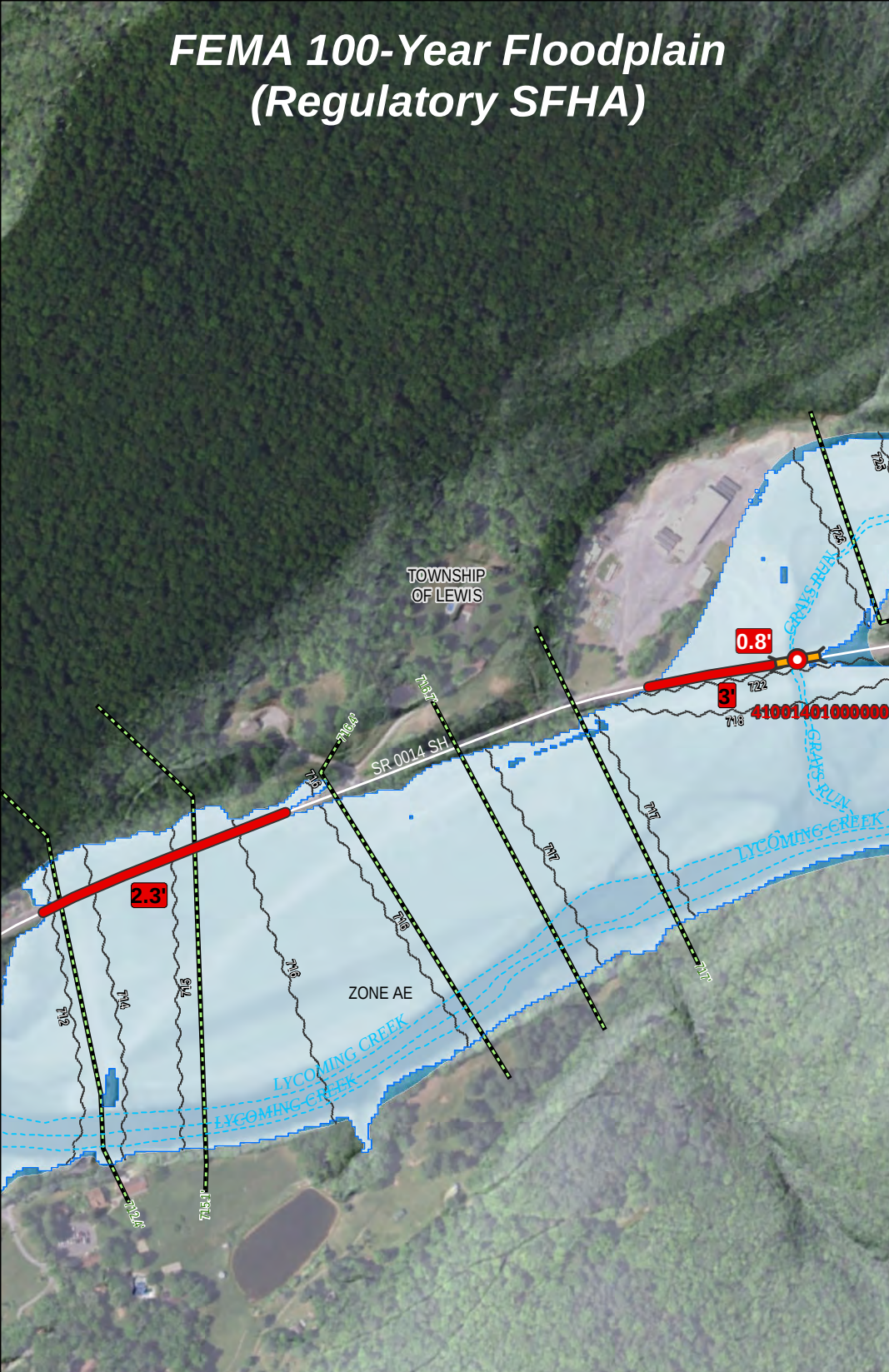
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Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

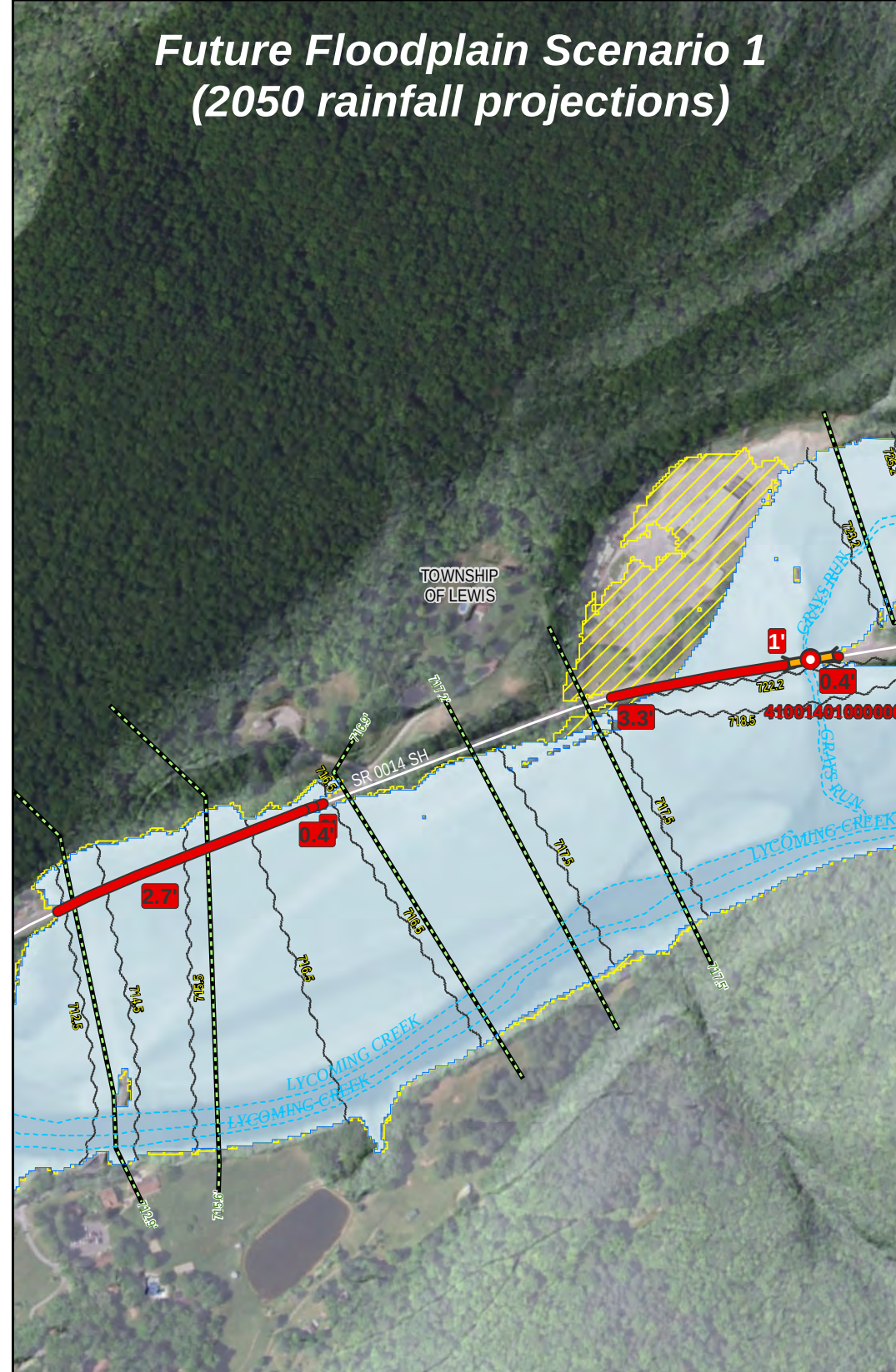
**Michael Baker
INTERNATIONAL**

LOCATOR MAP

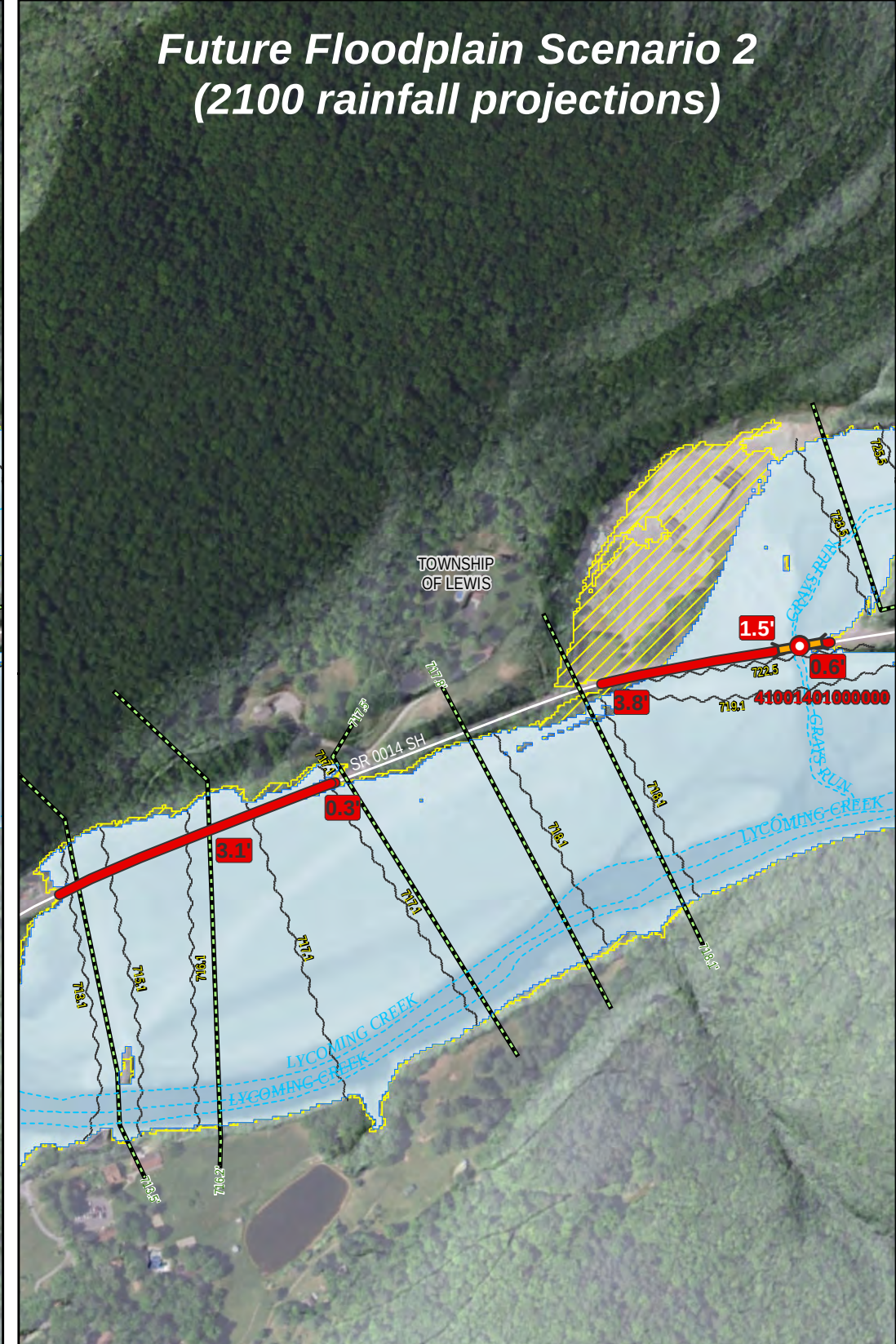
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

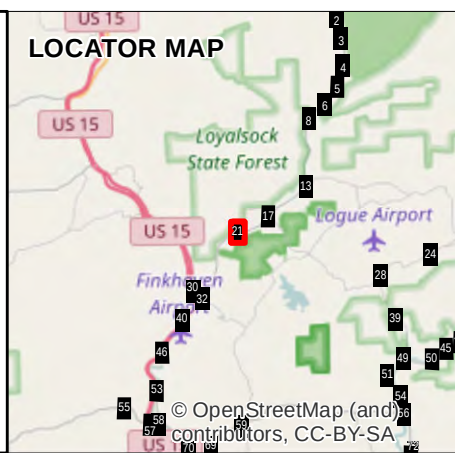
Sheet 21 of 163



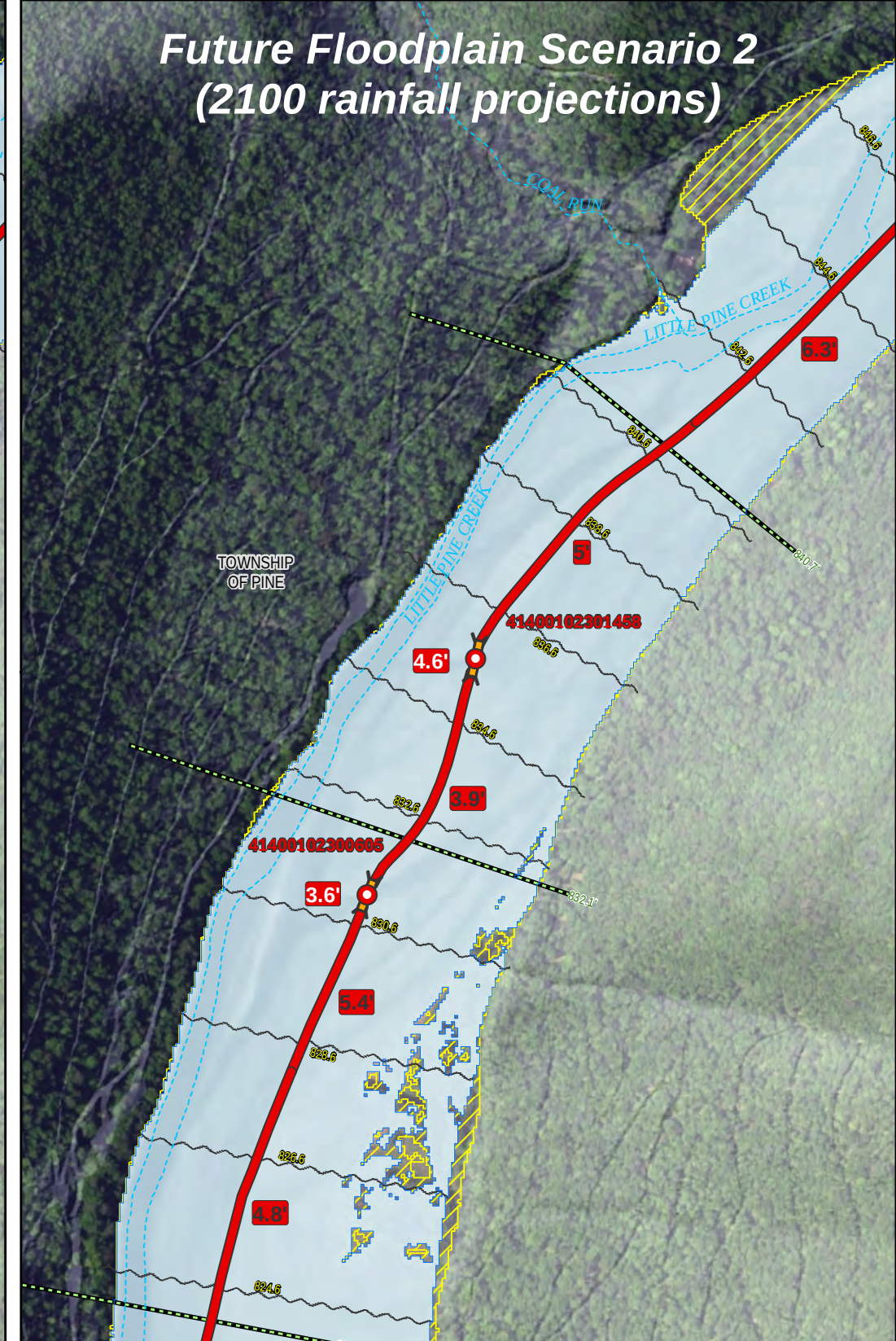
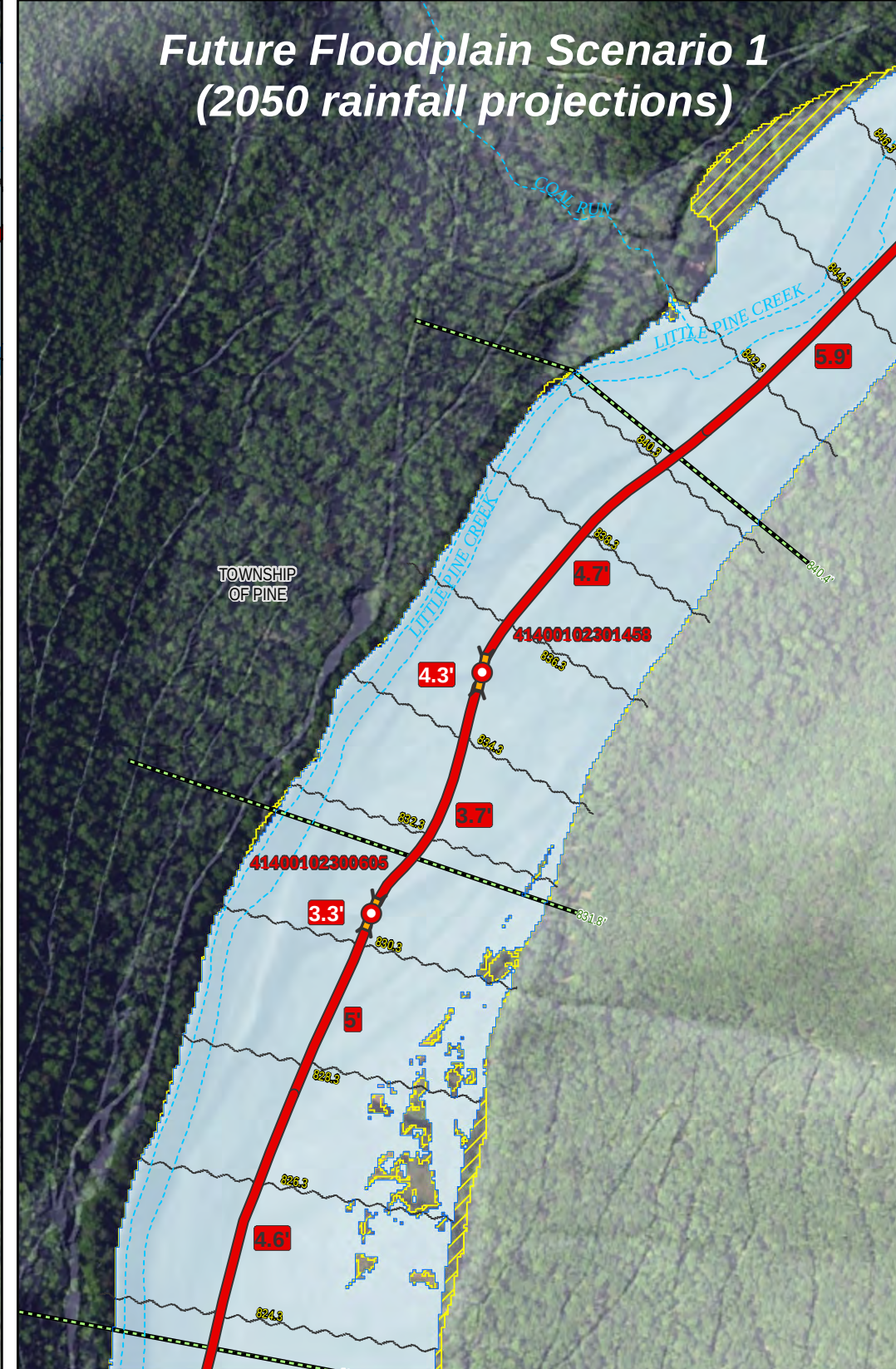
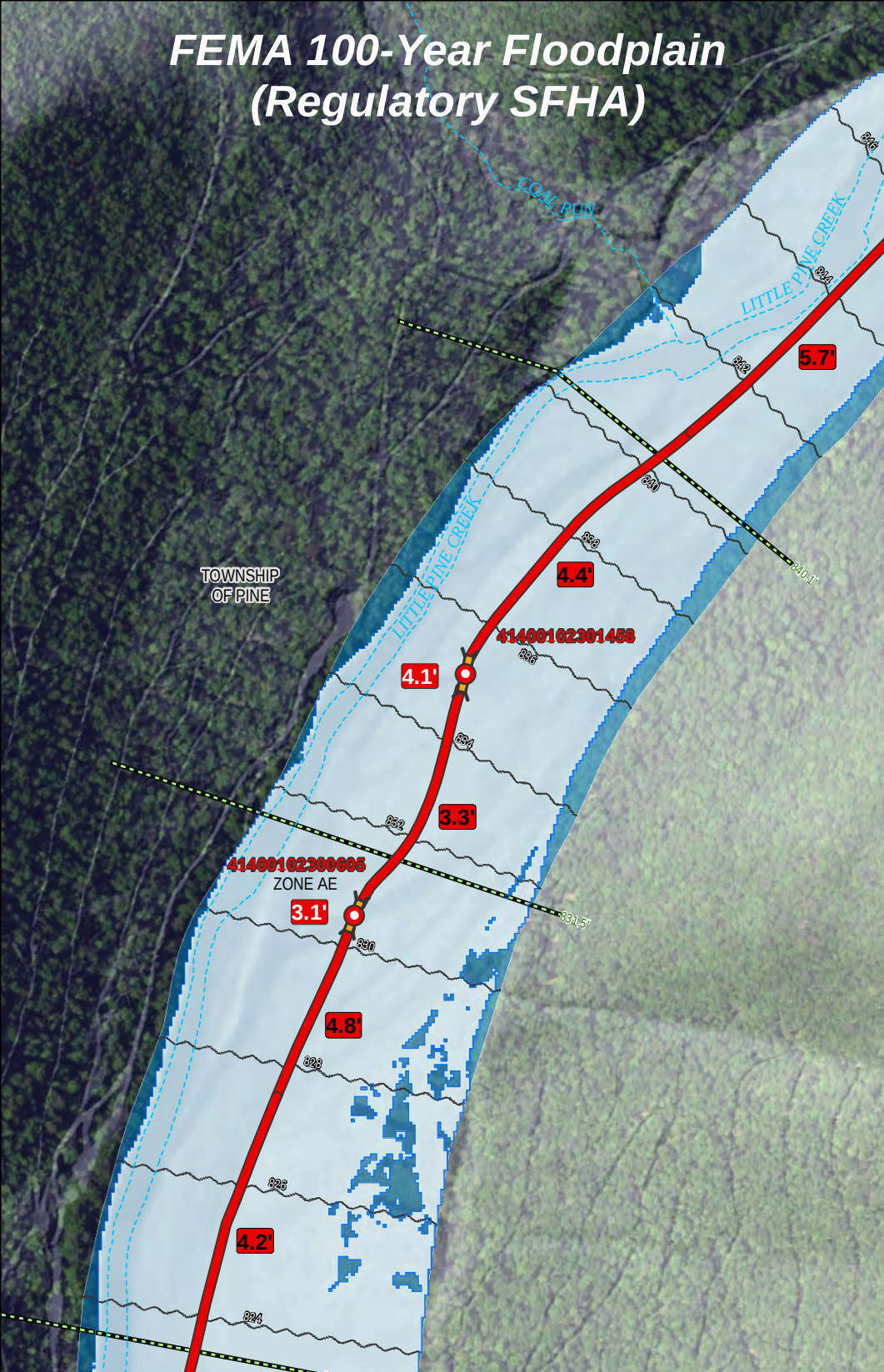
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Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. 60D ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

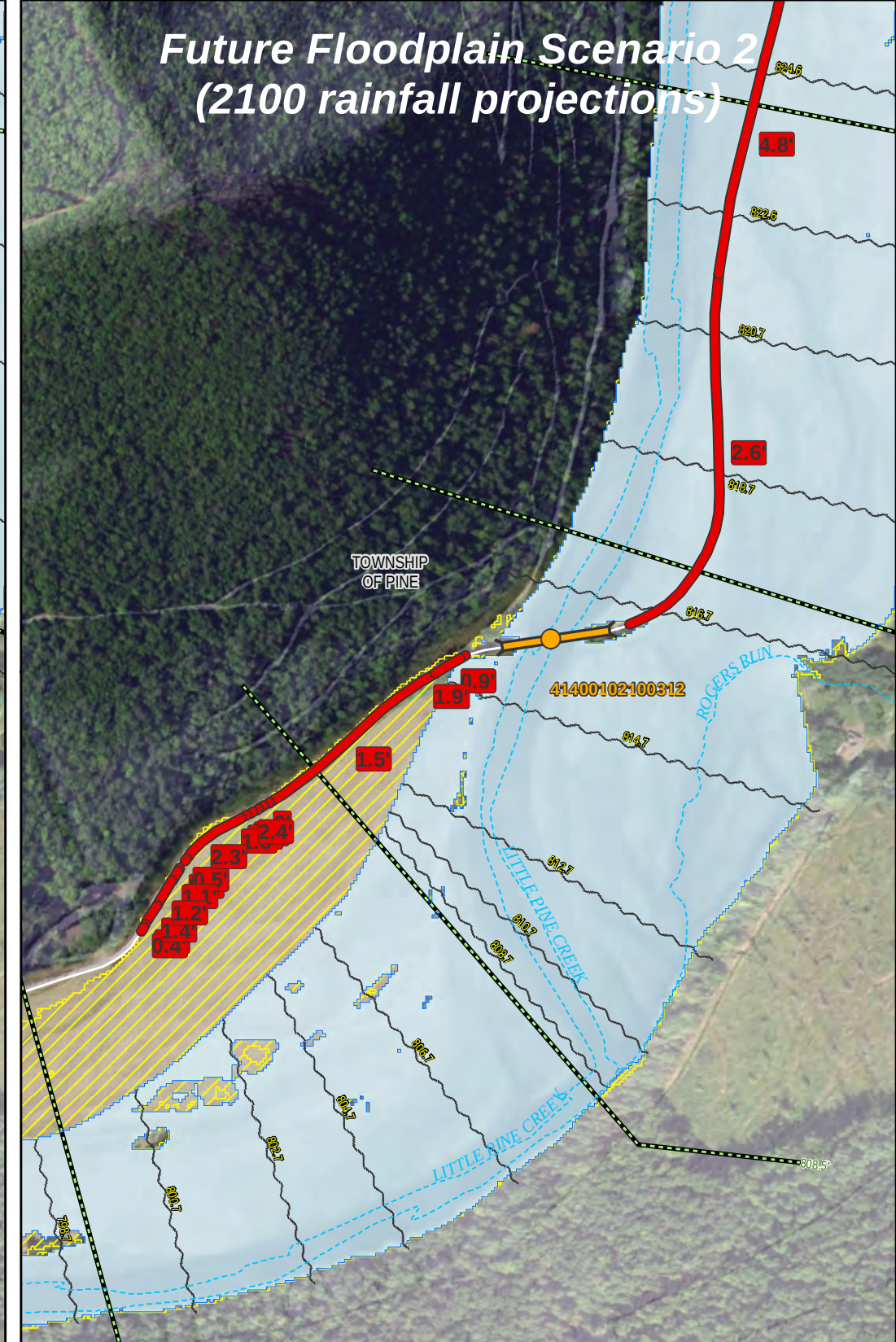
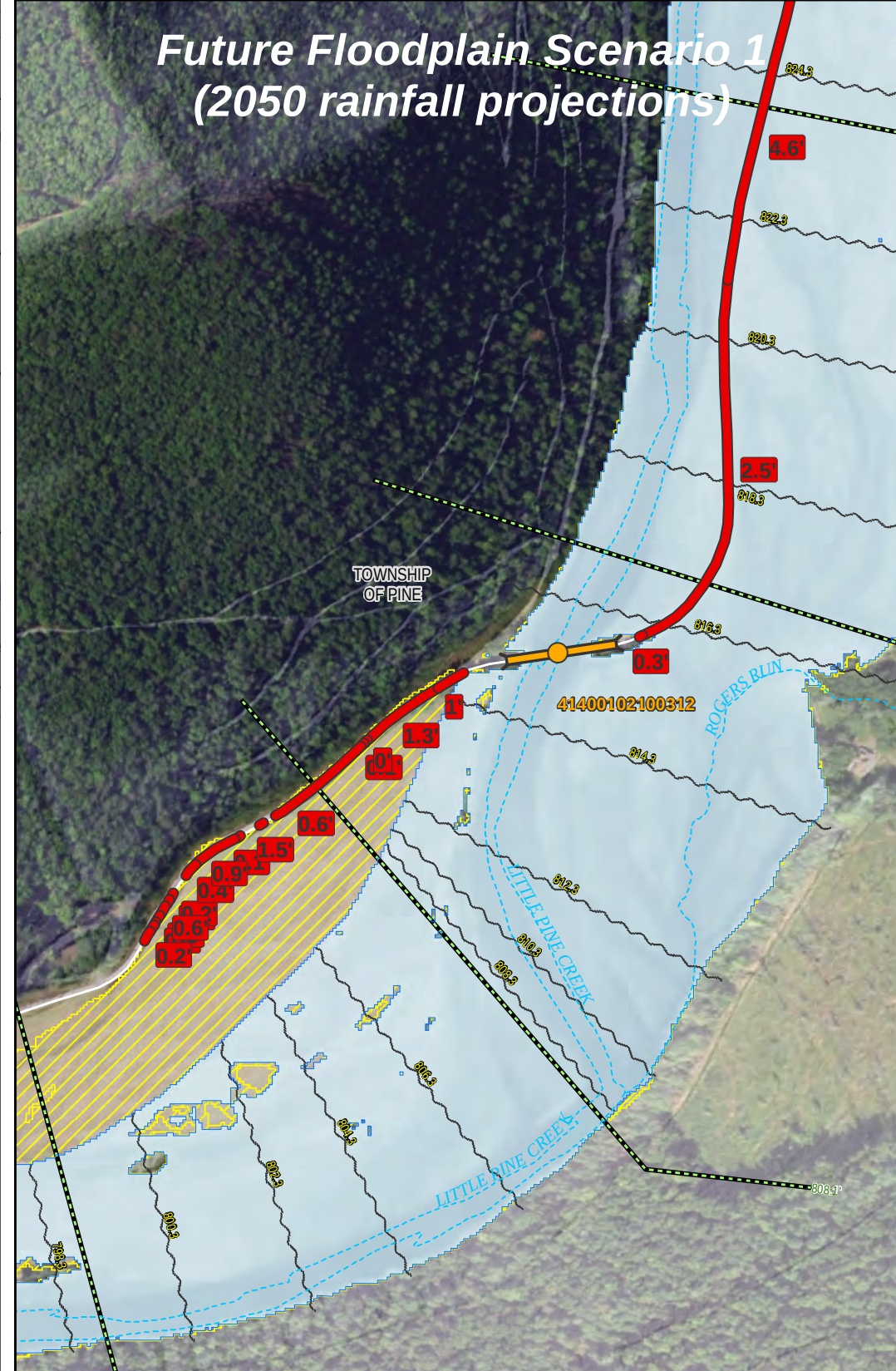
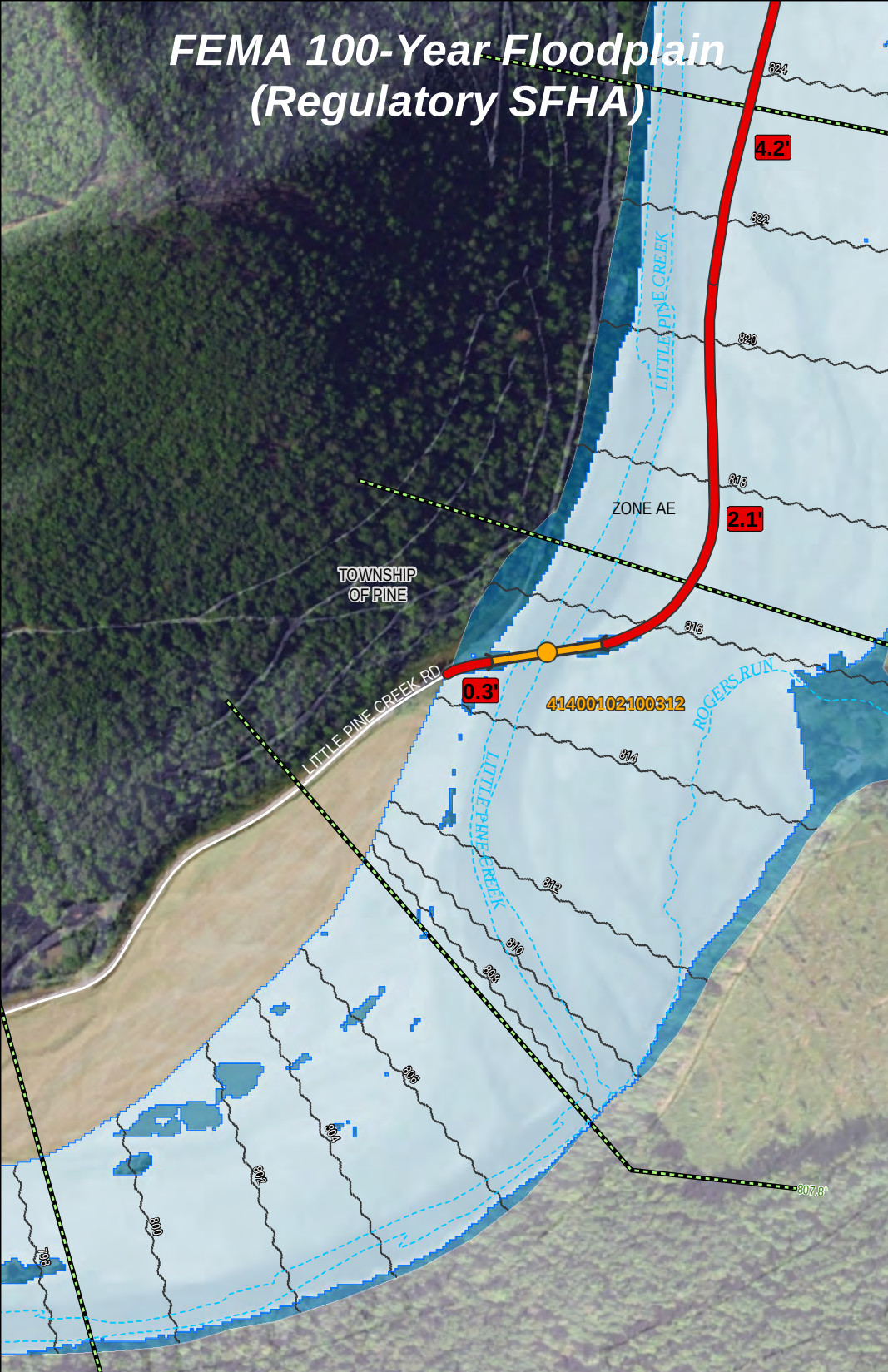
Sheet 22 of 163

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LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

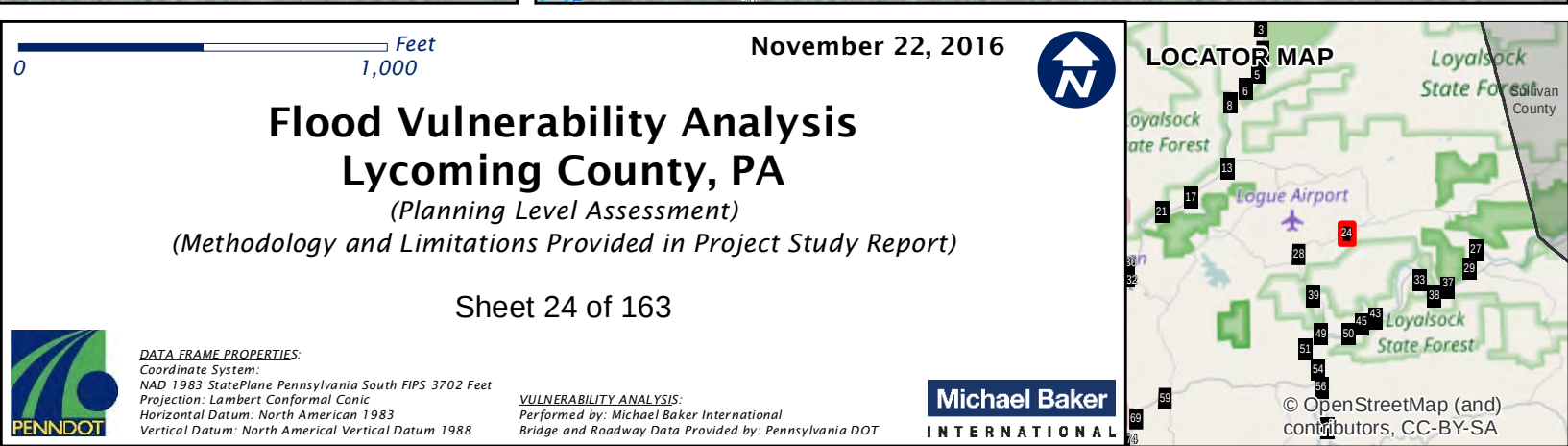
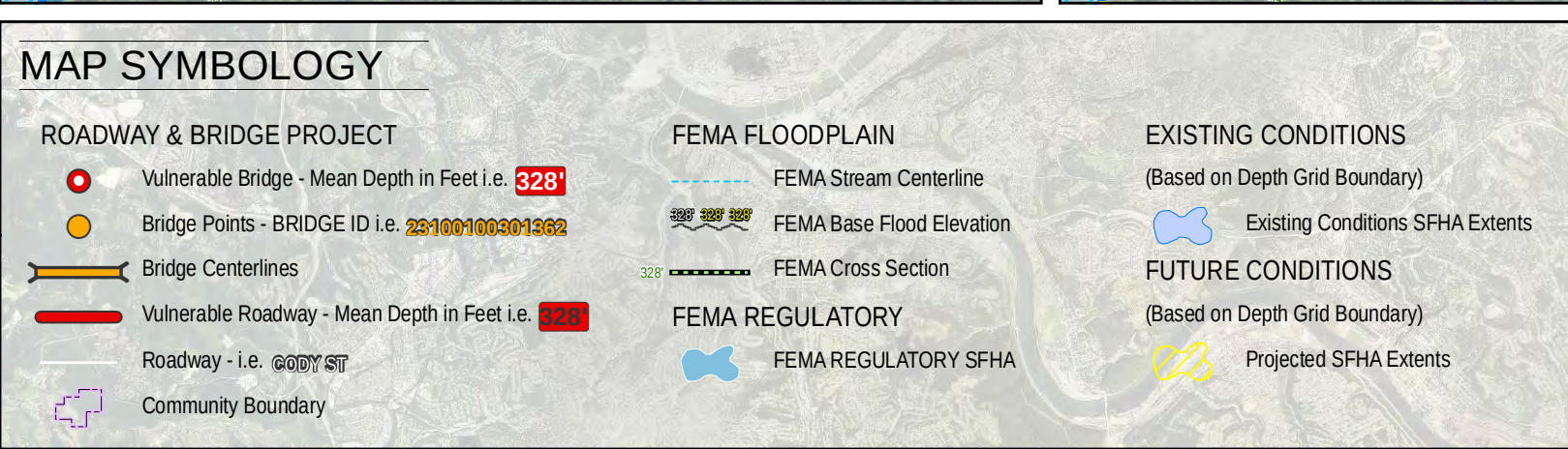
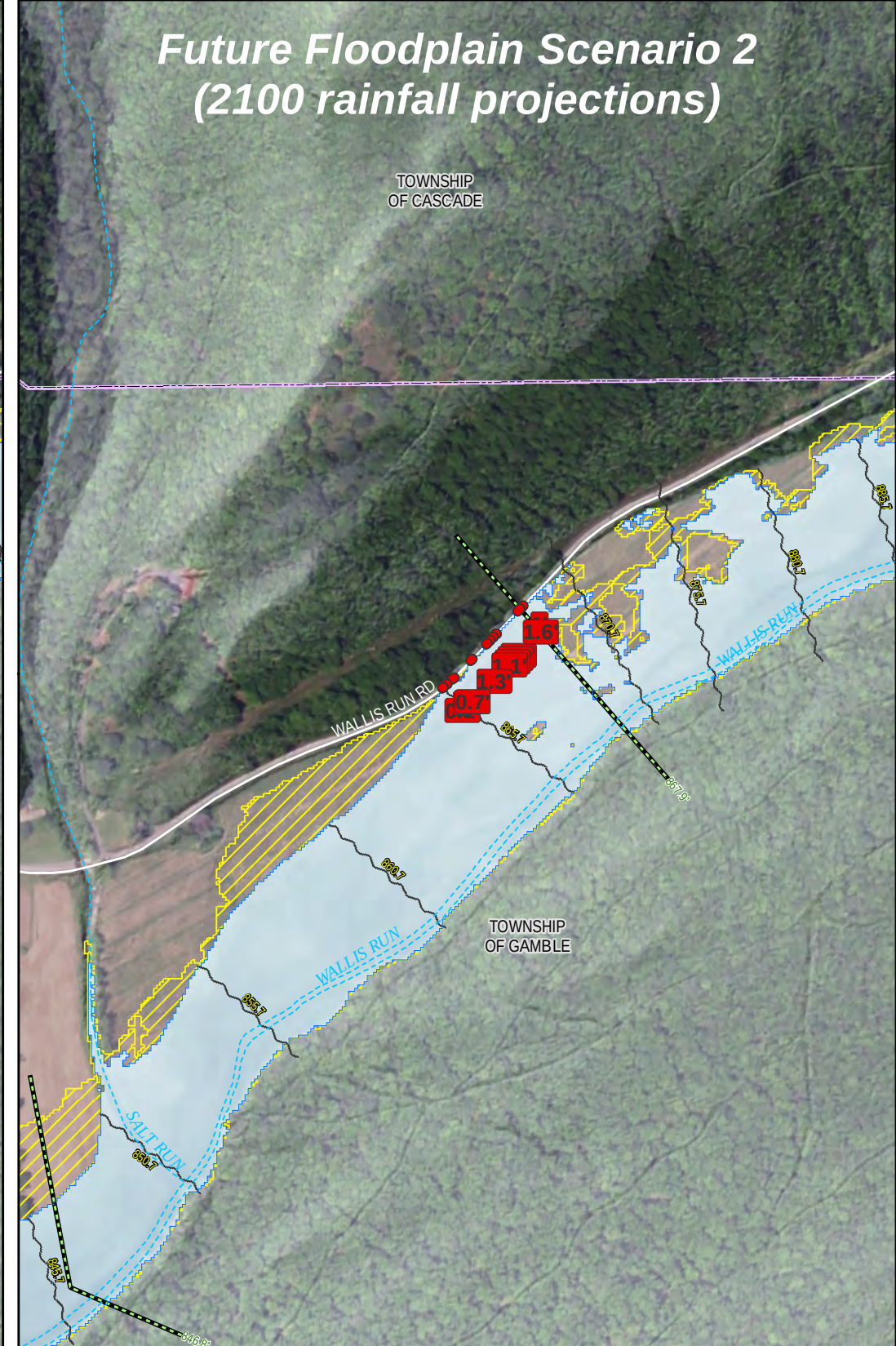
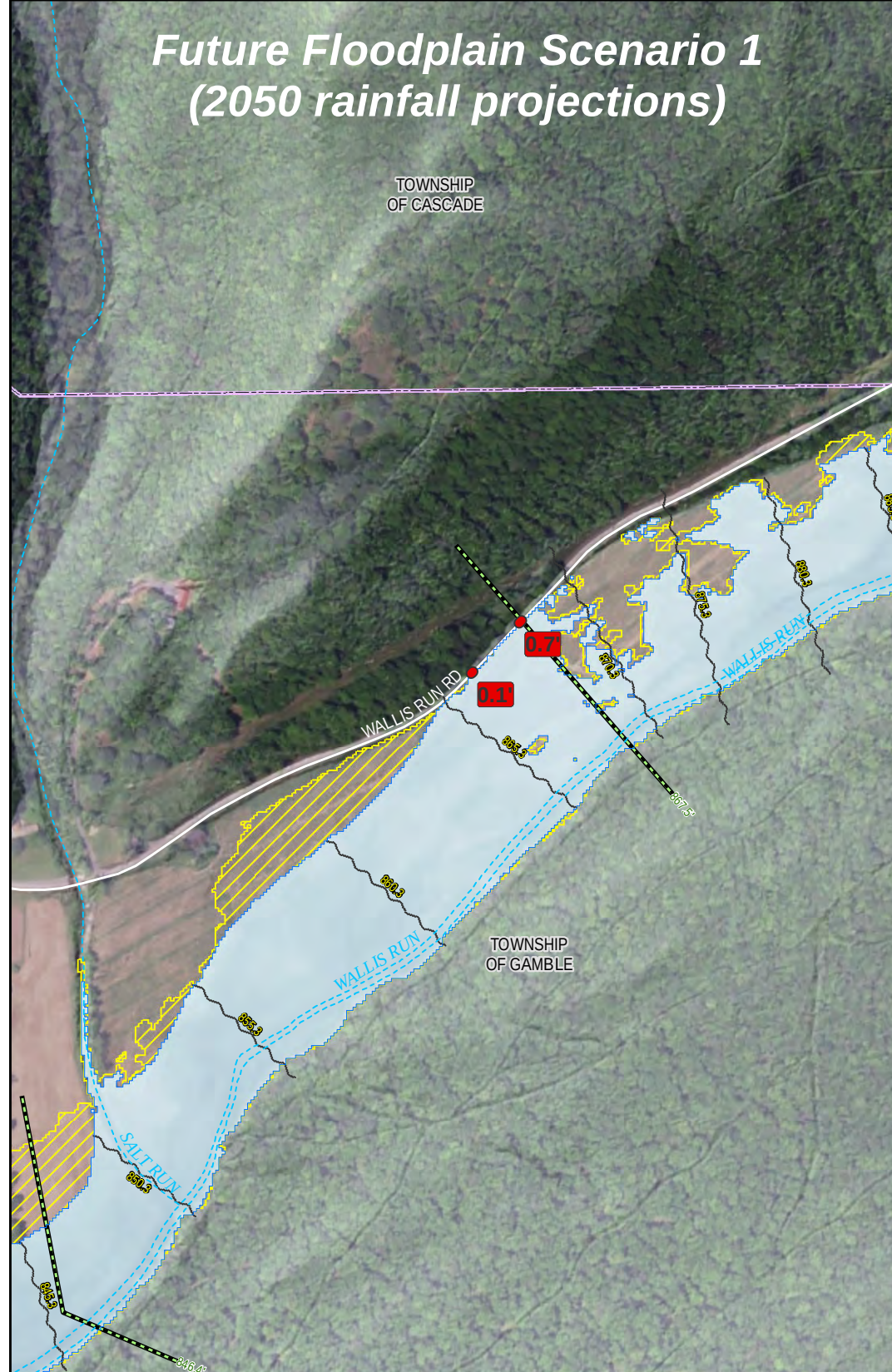
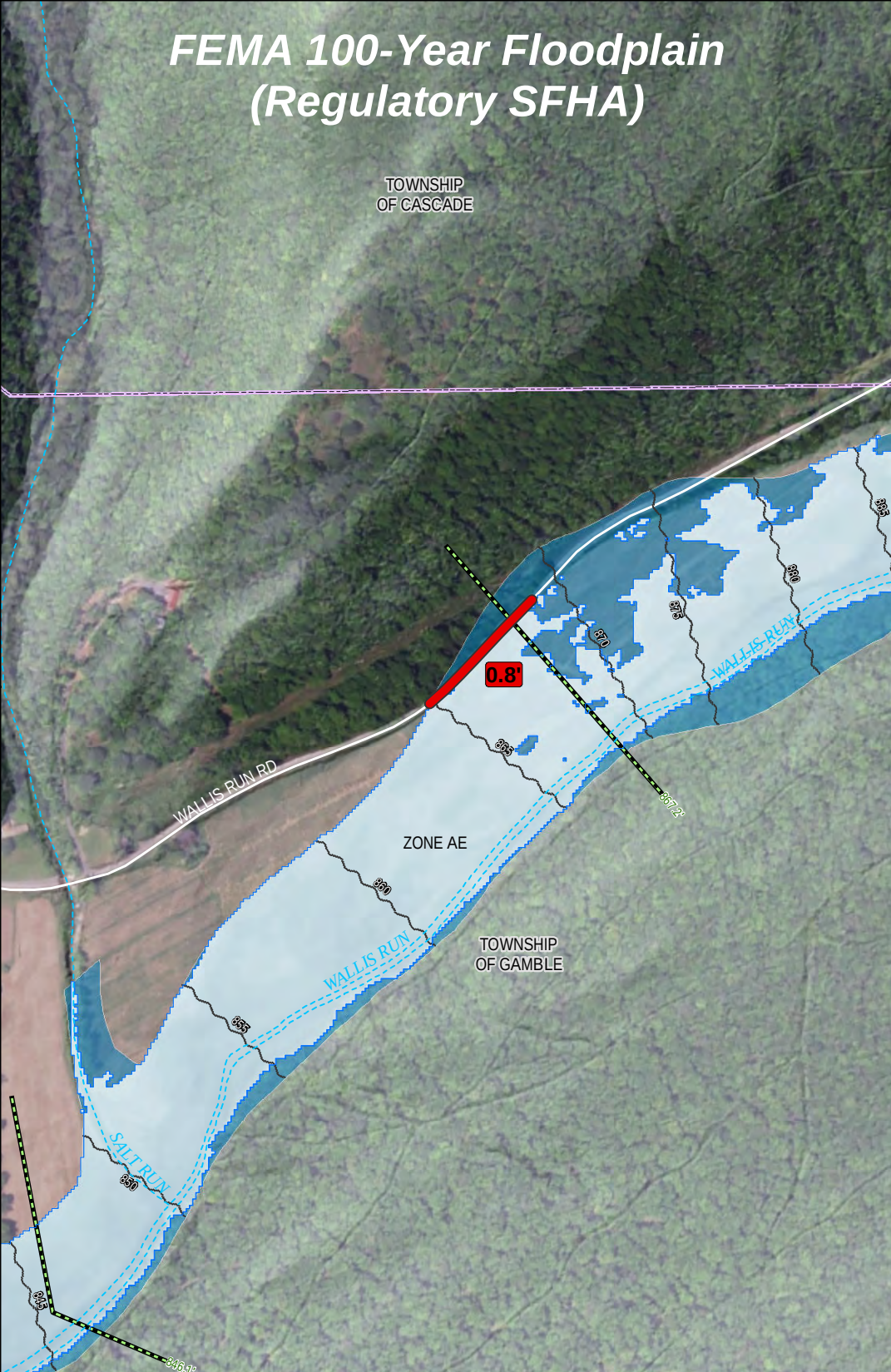
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

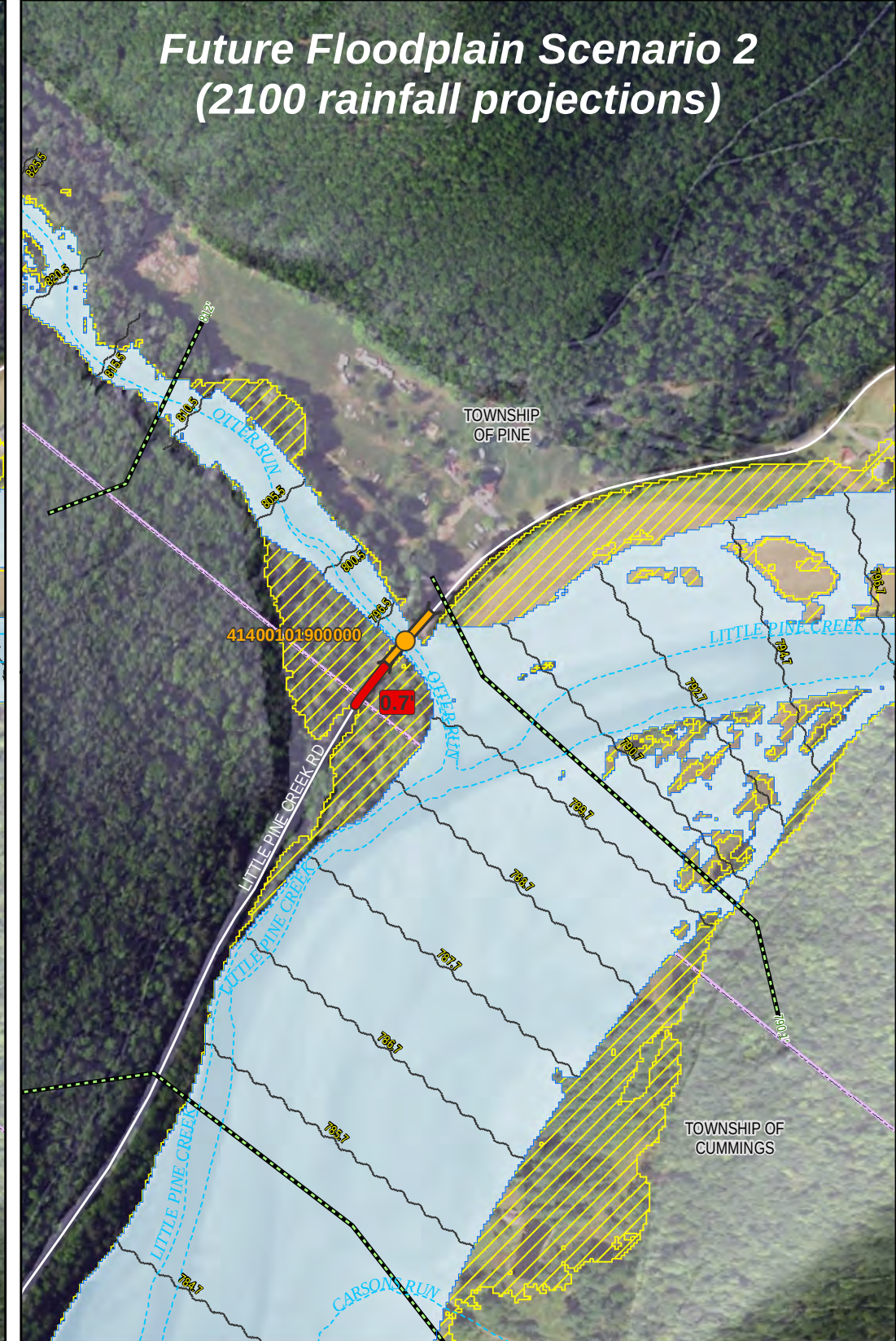
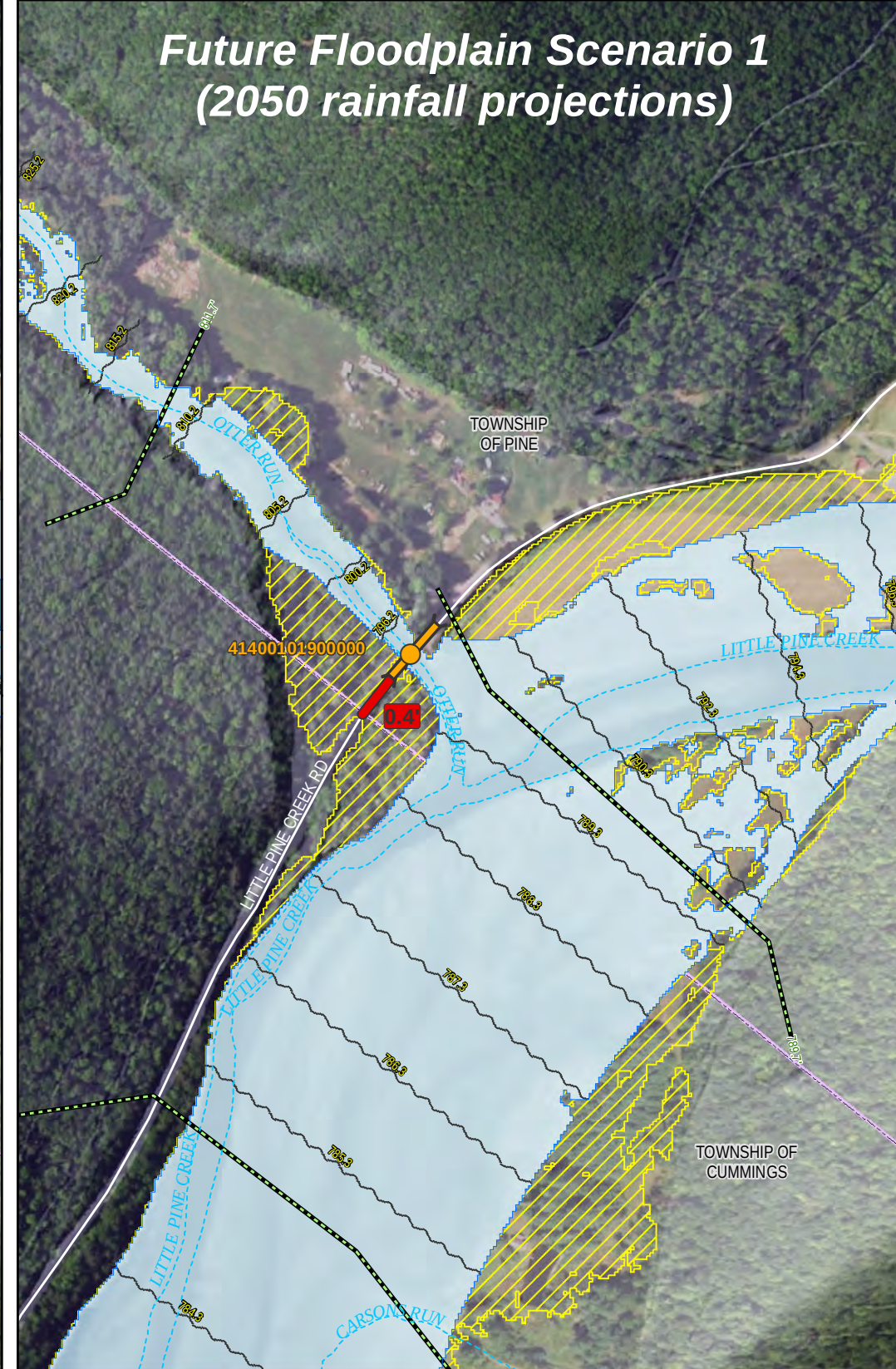
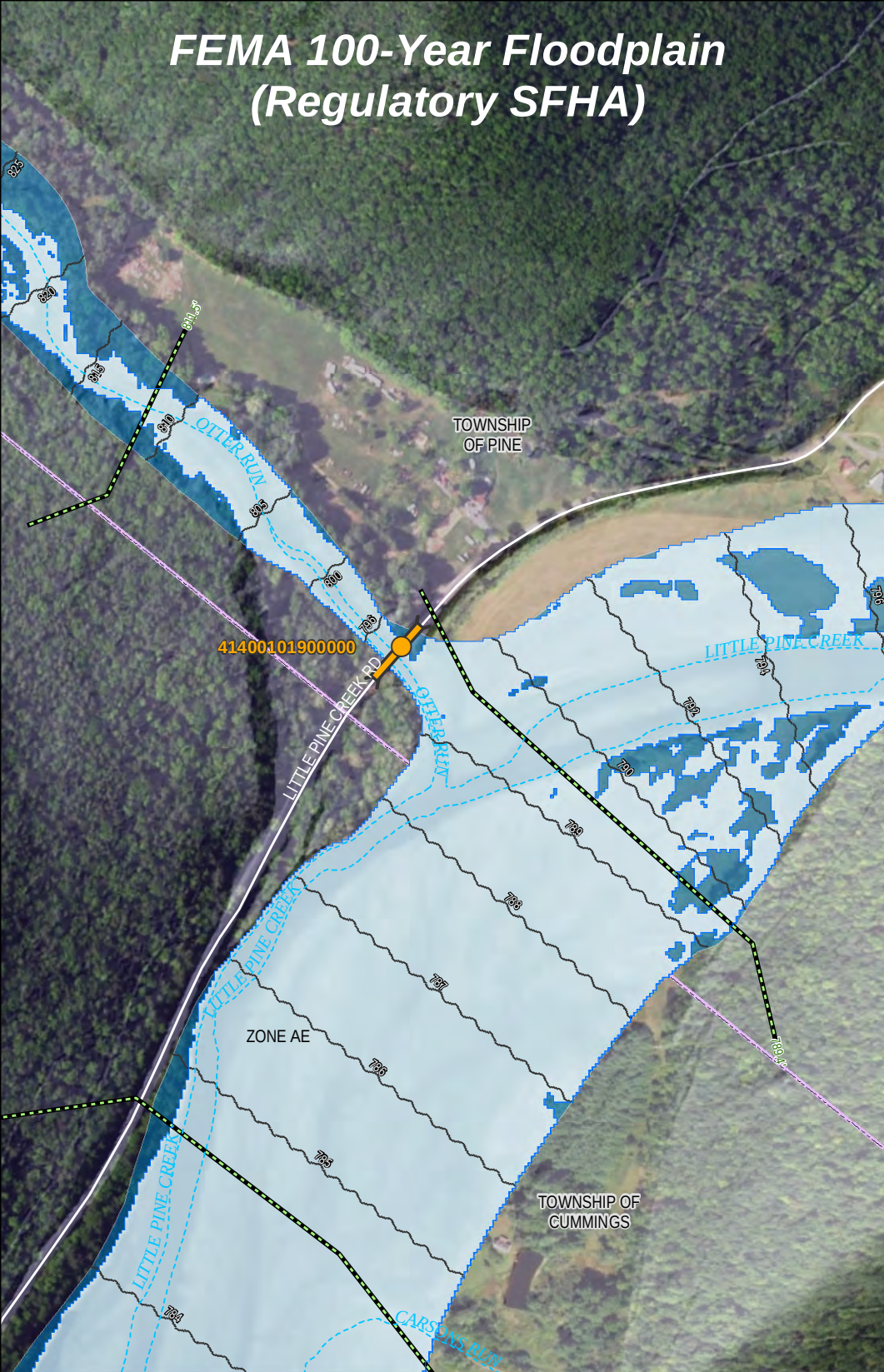
Sheet 23 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

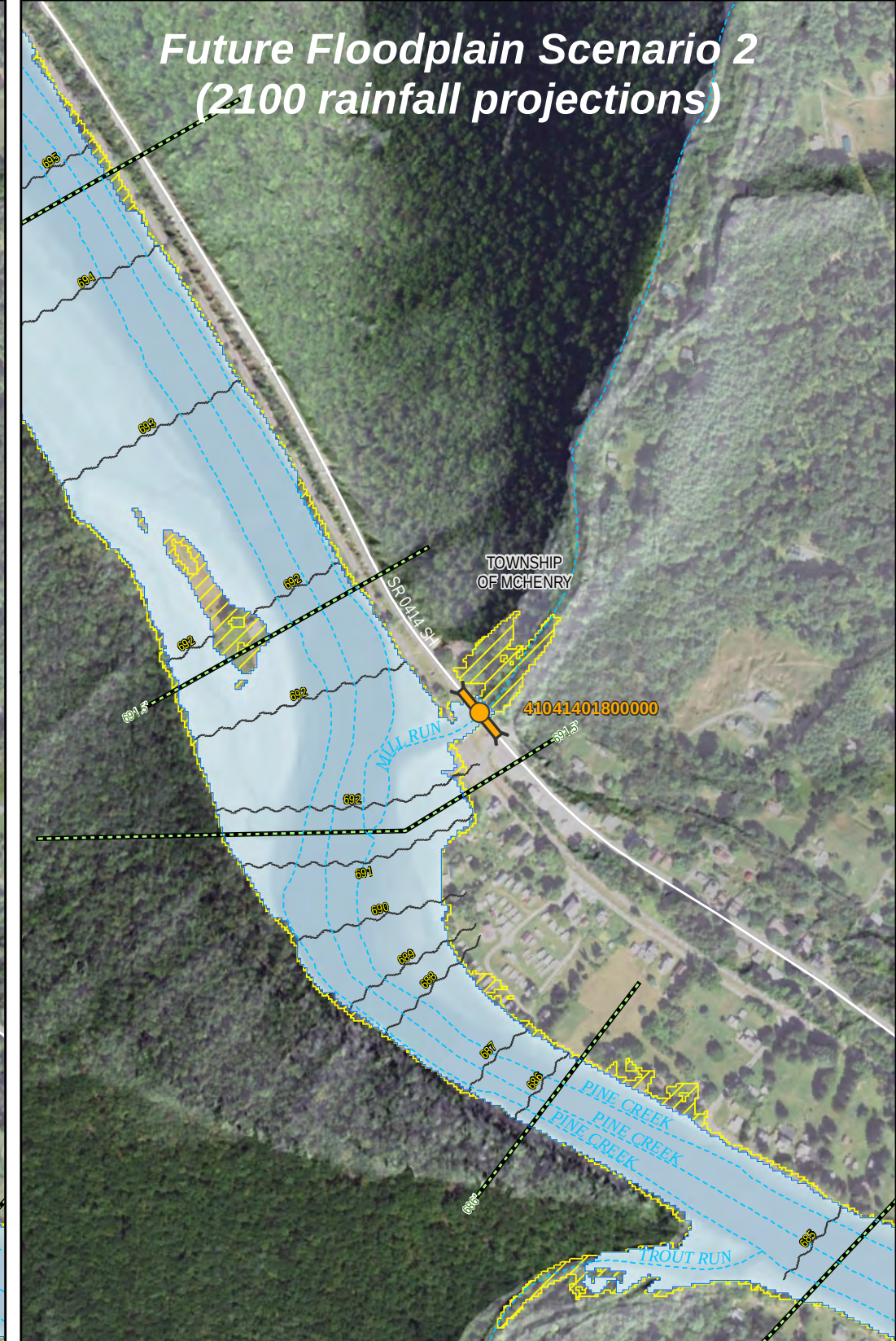
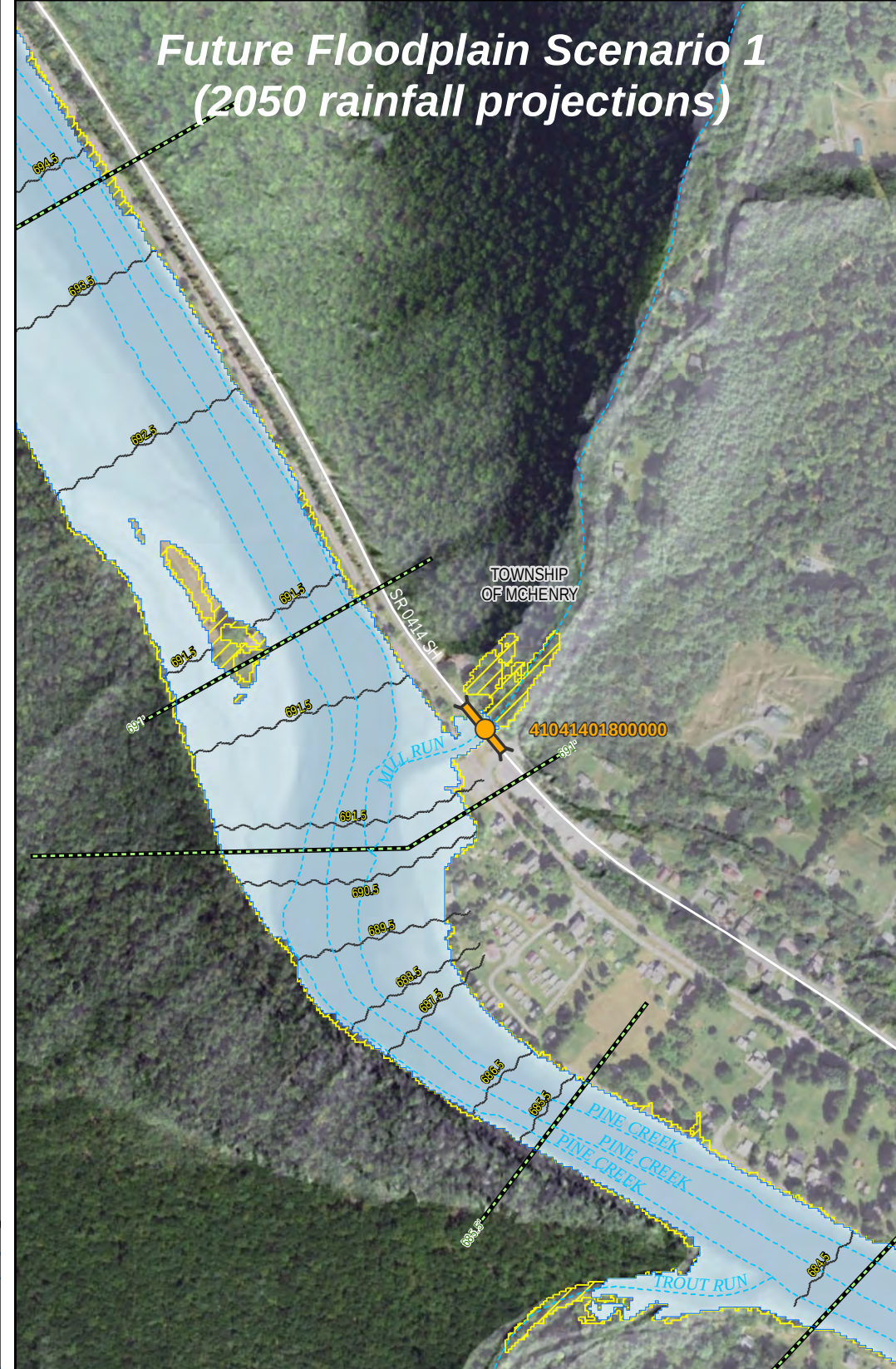
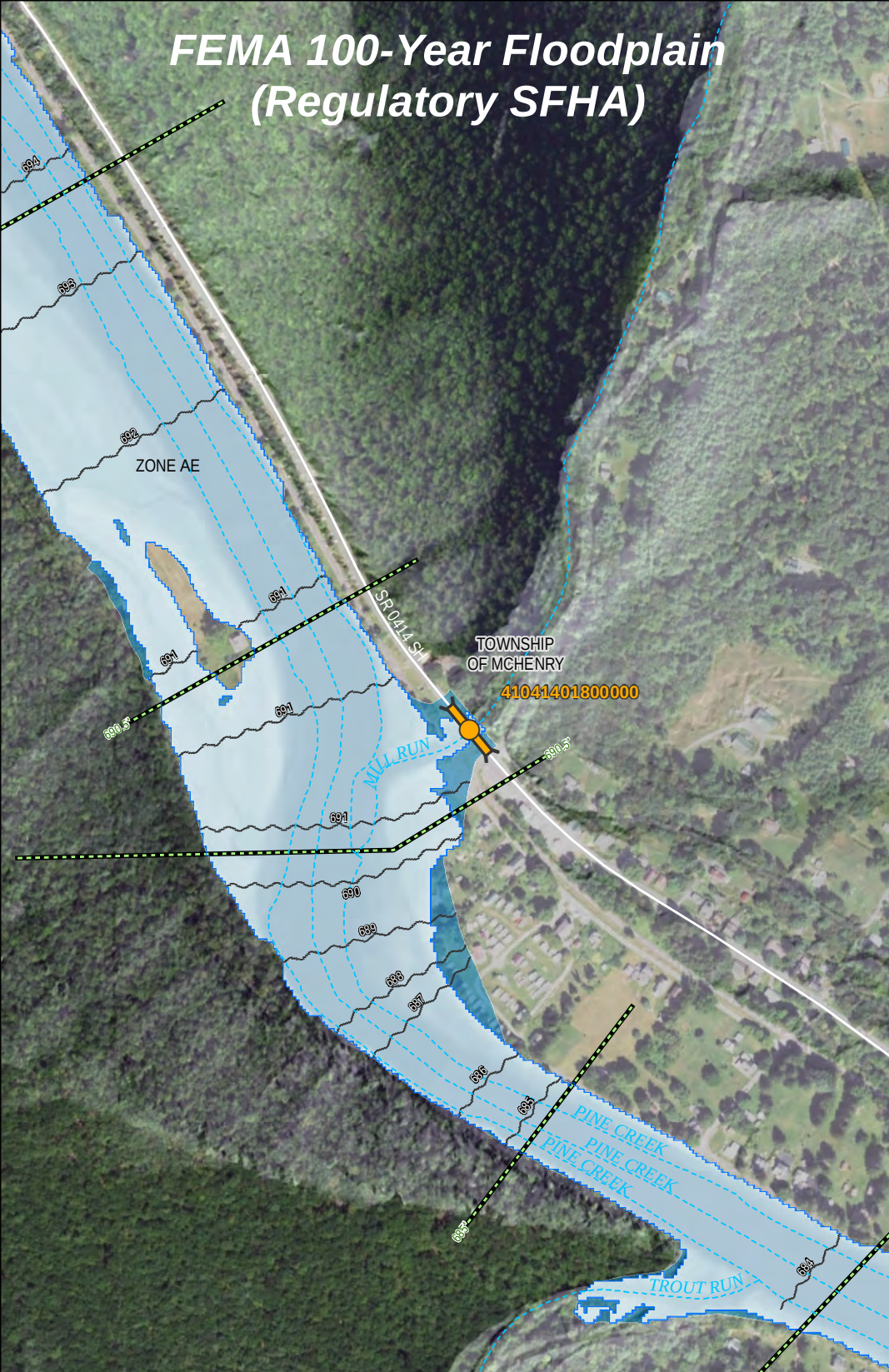
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(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

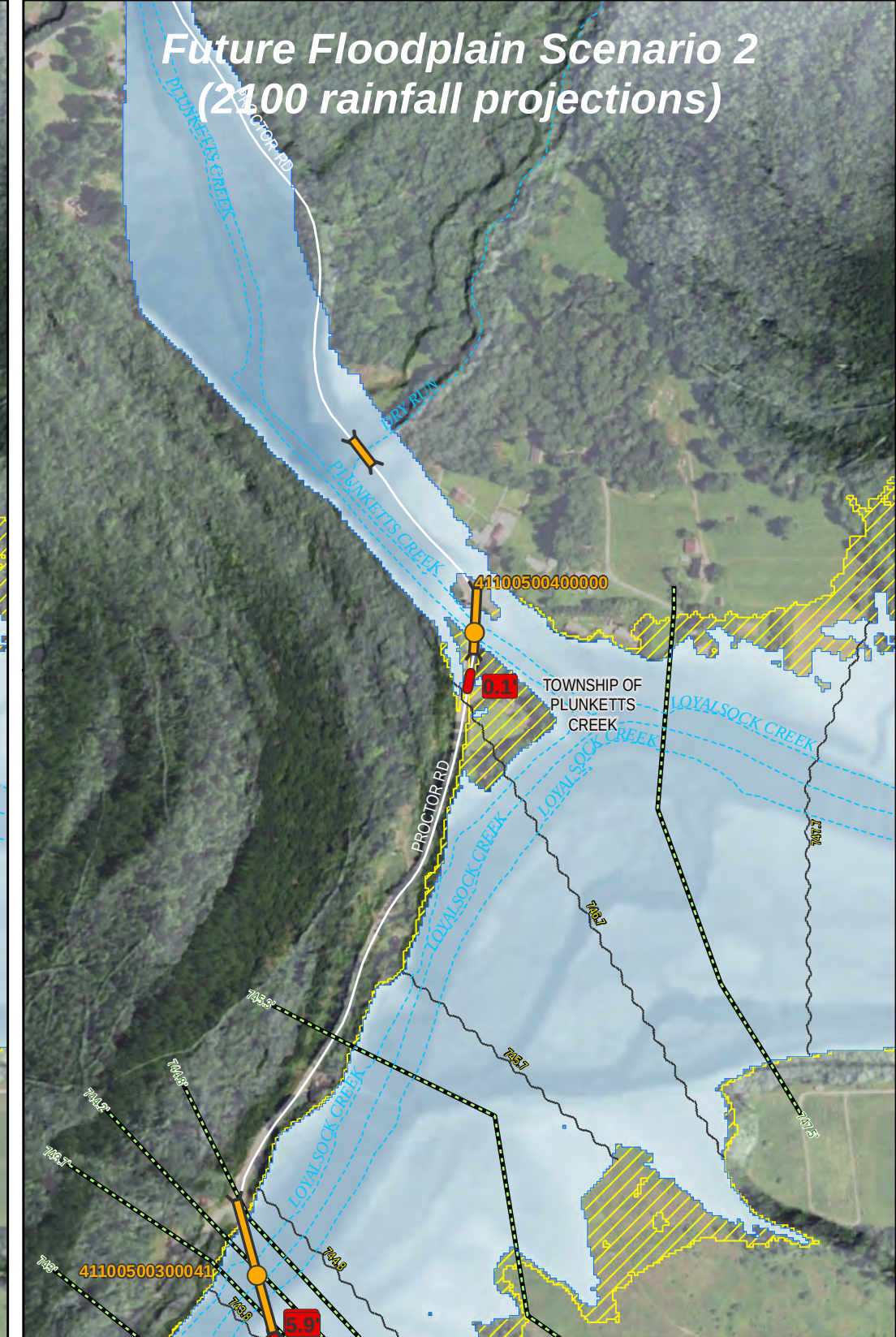
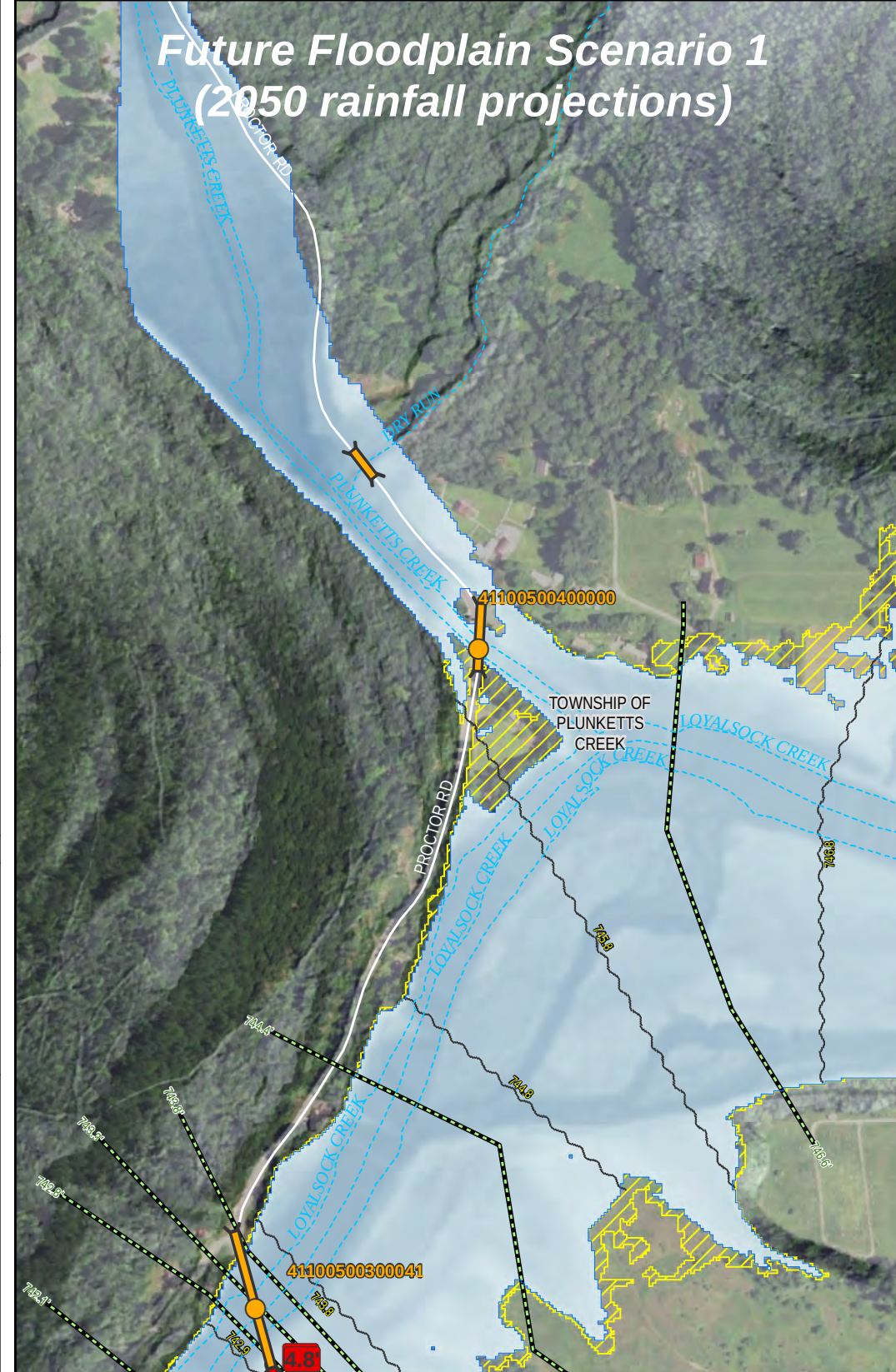
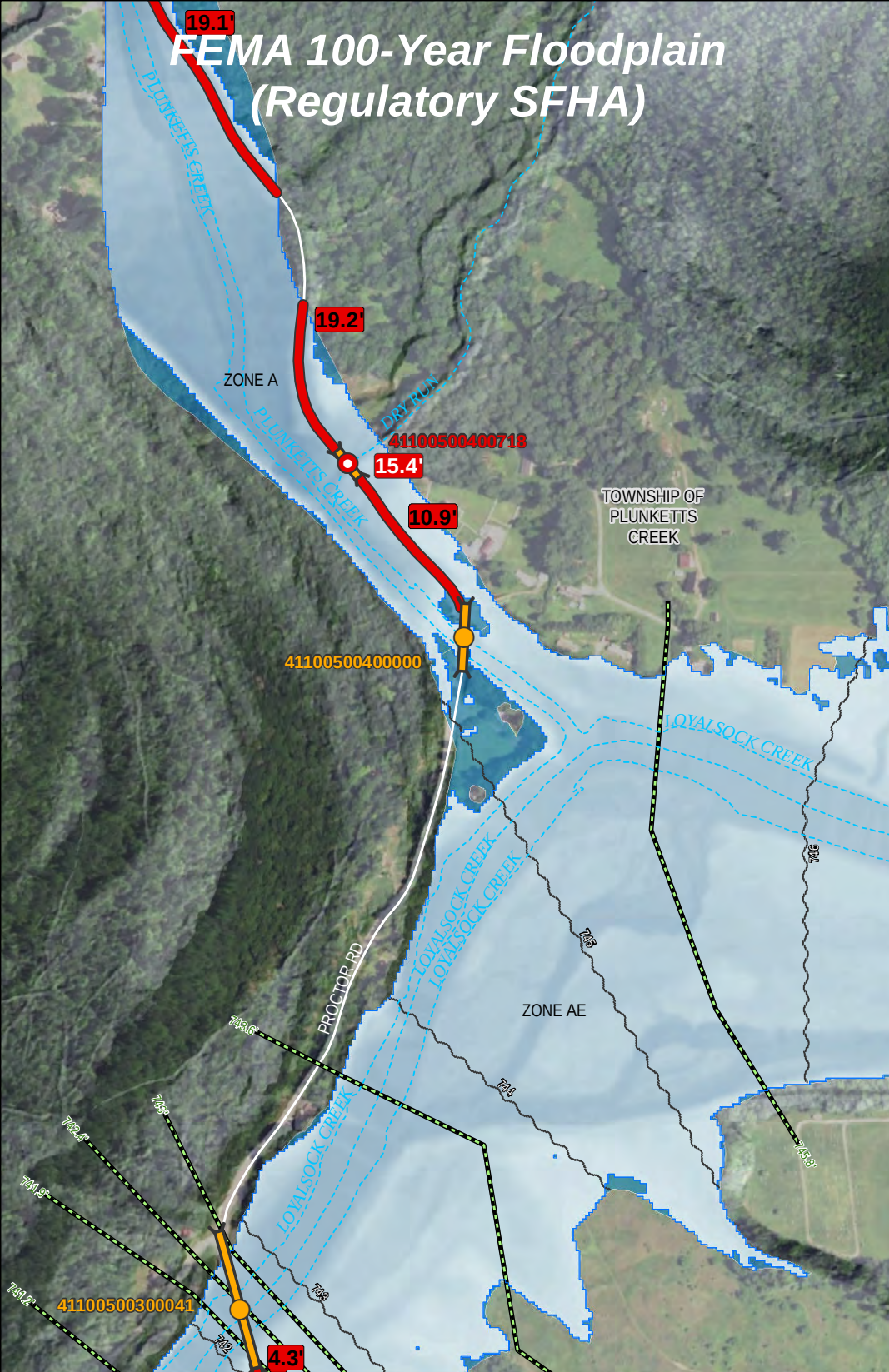
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(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. 60DY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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November 22, 2016

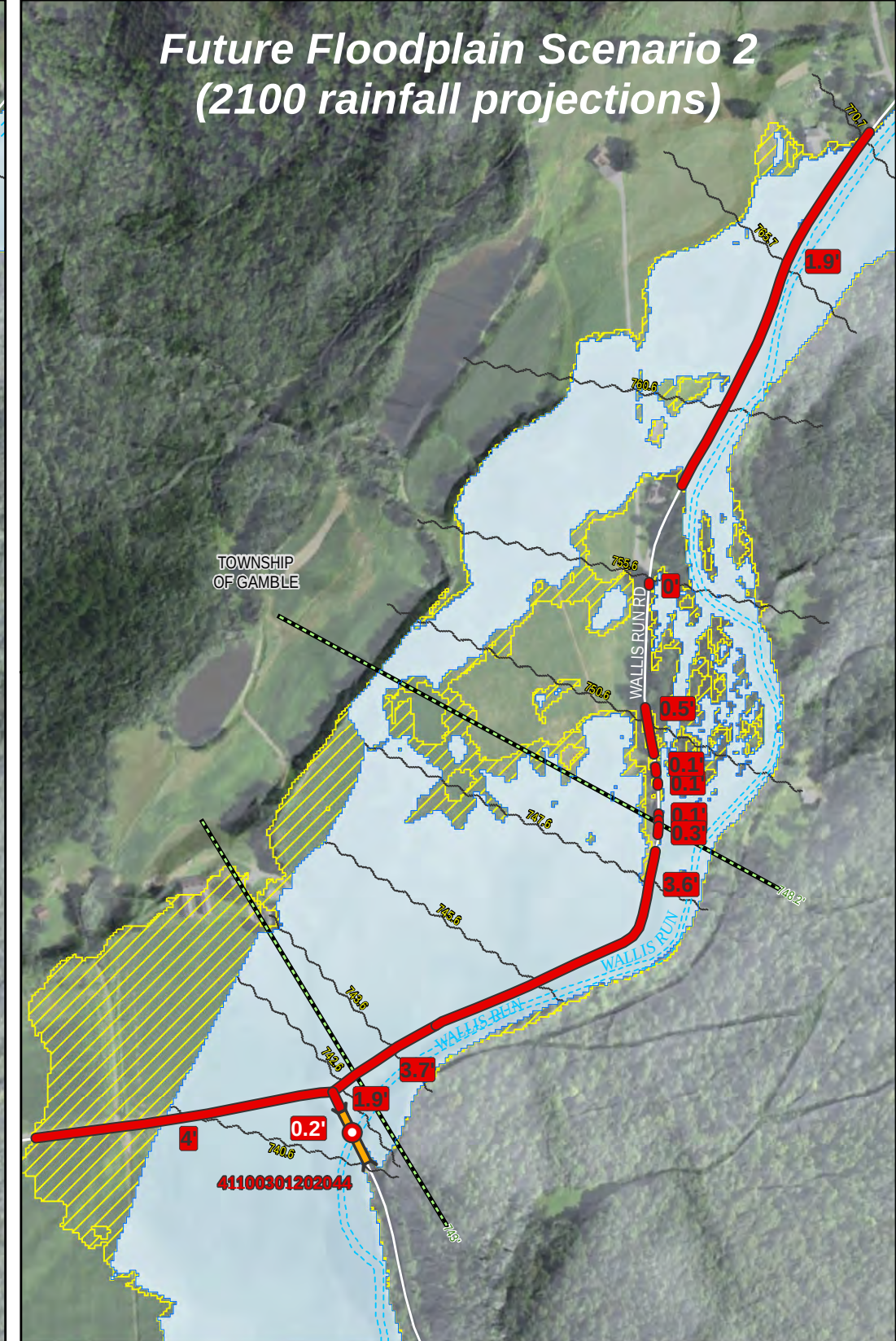
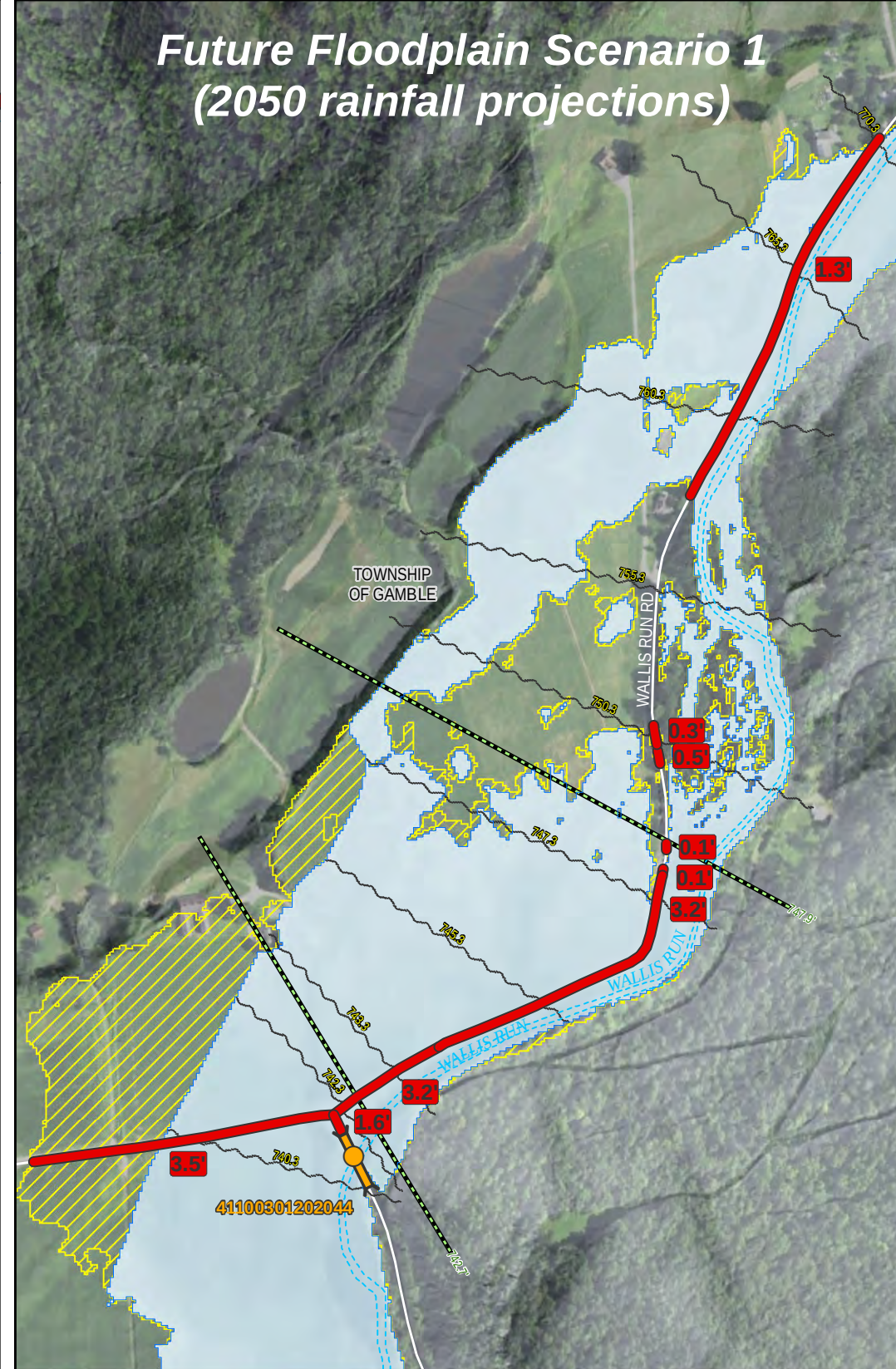
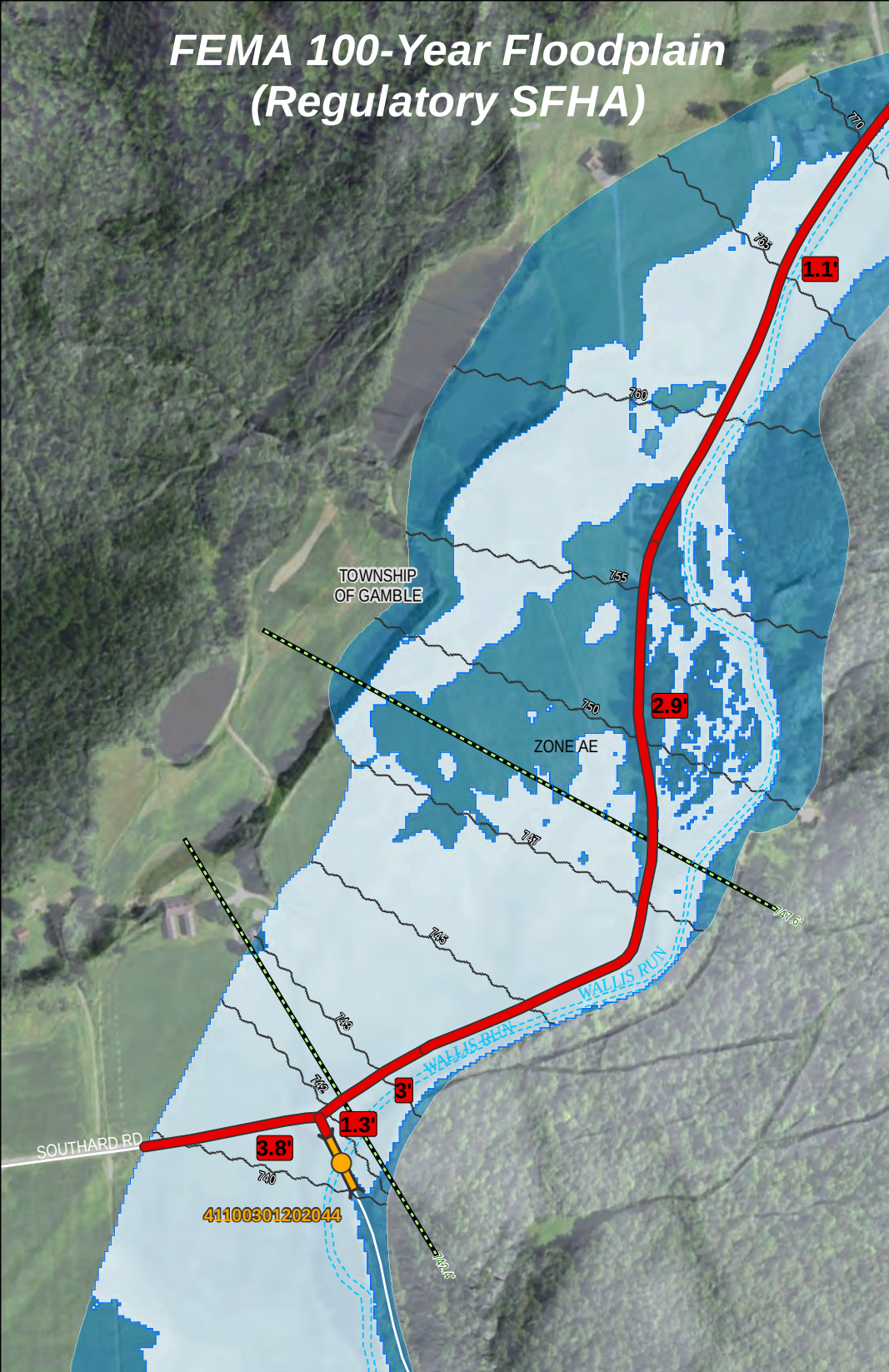
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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **3.28'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **3.28'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis

Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

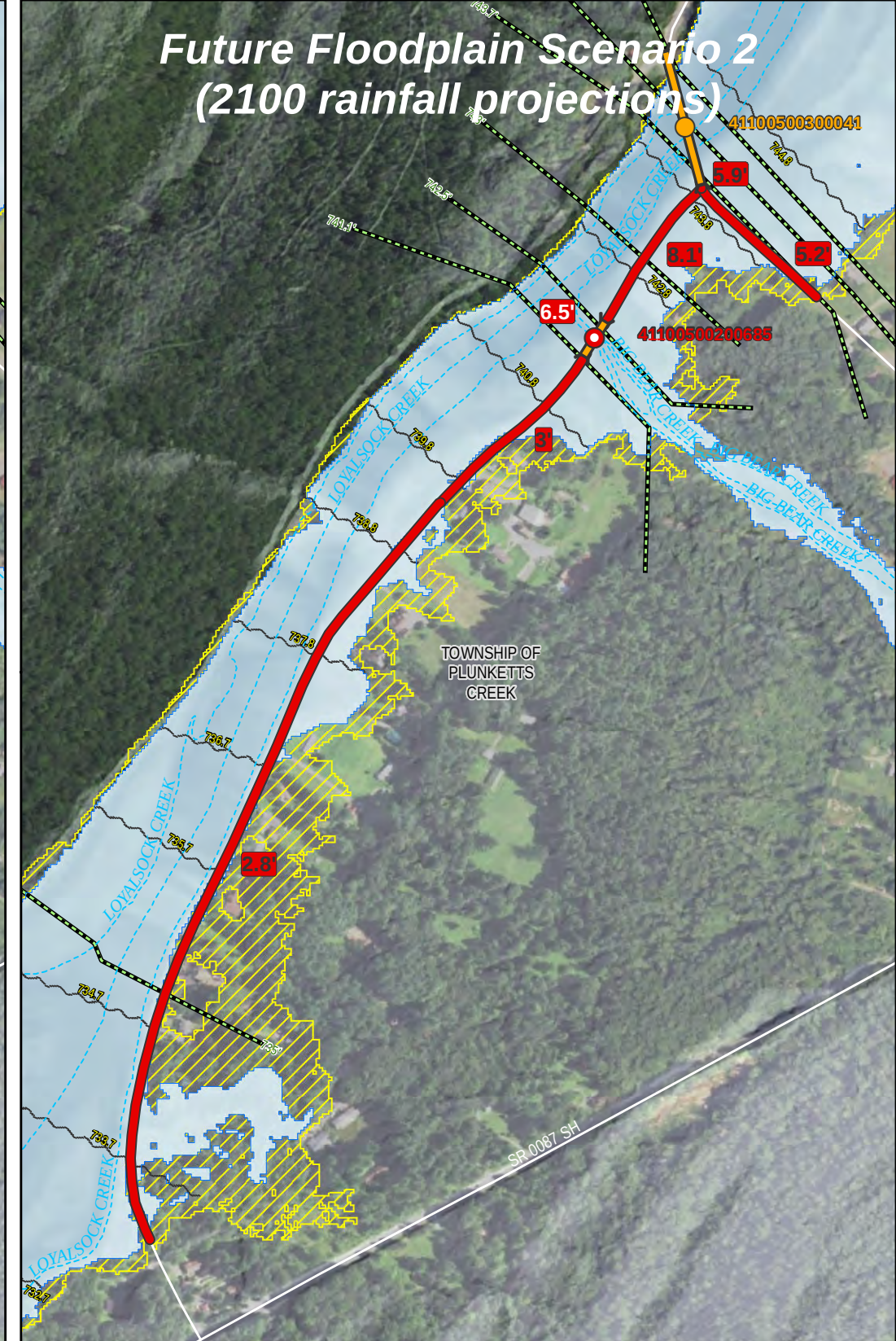
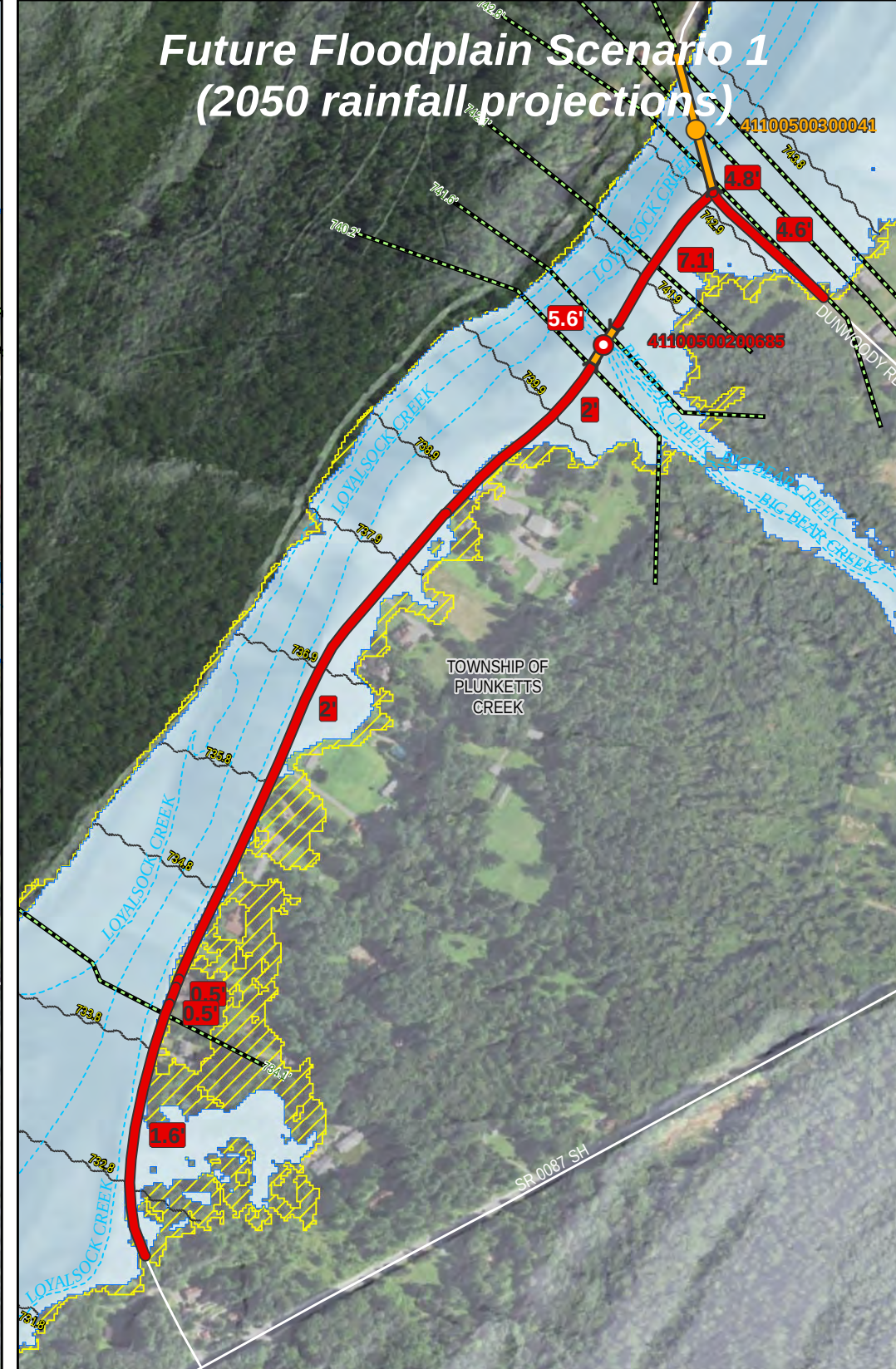
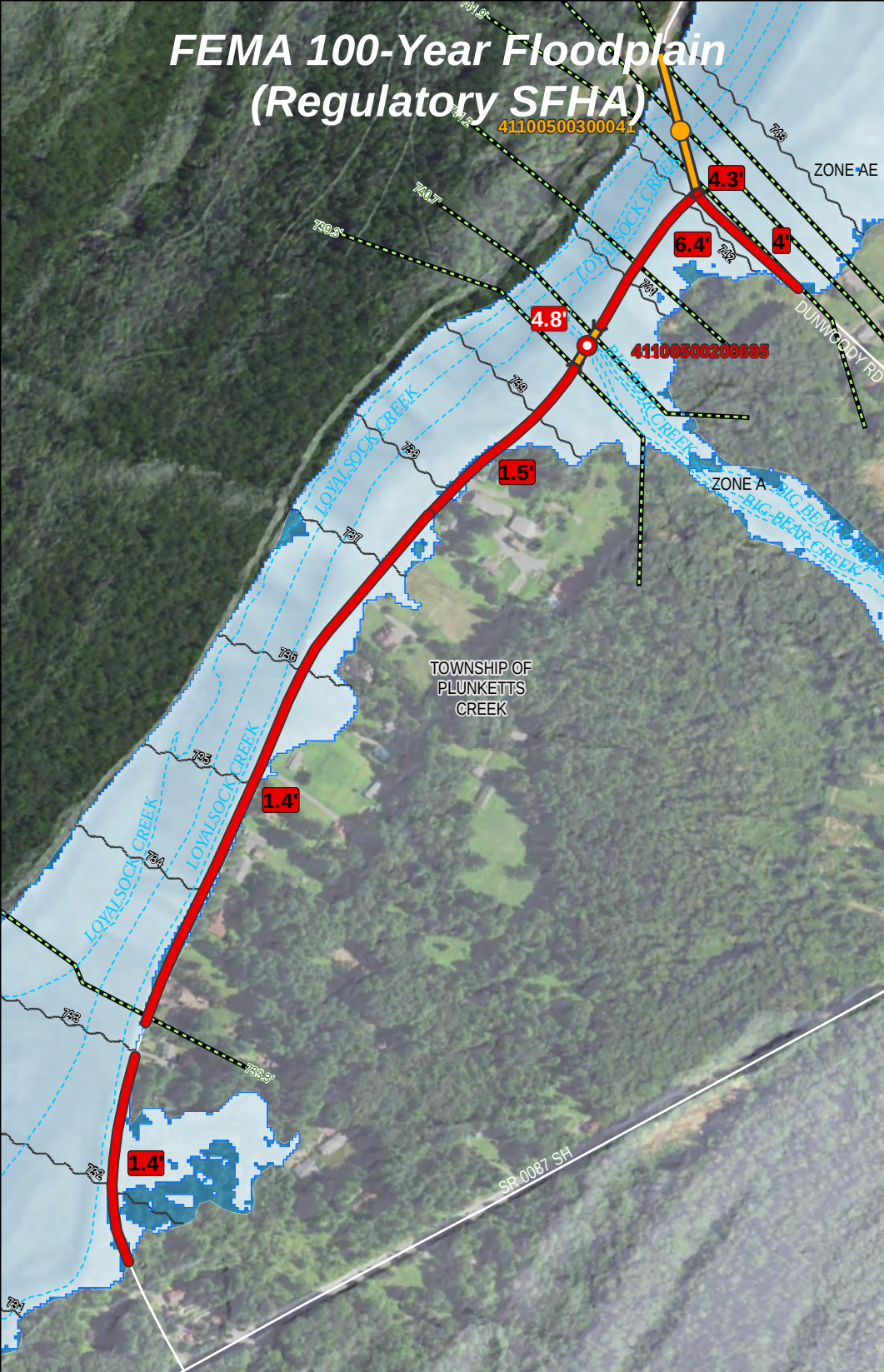
Sheet 28 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	Projected SFHA Extents
Bridge Centerlines	FEMA Cross Section	
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

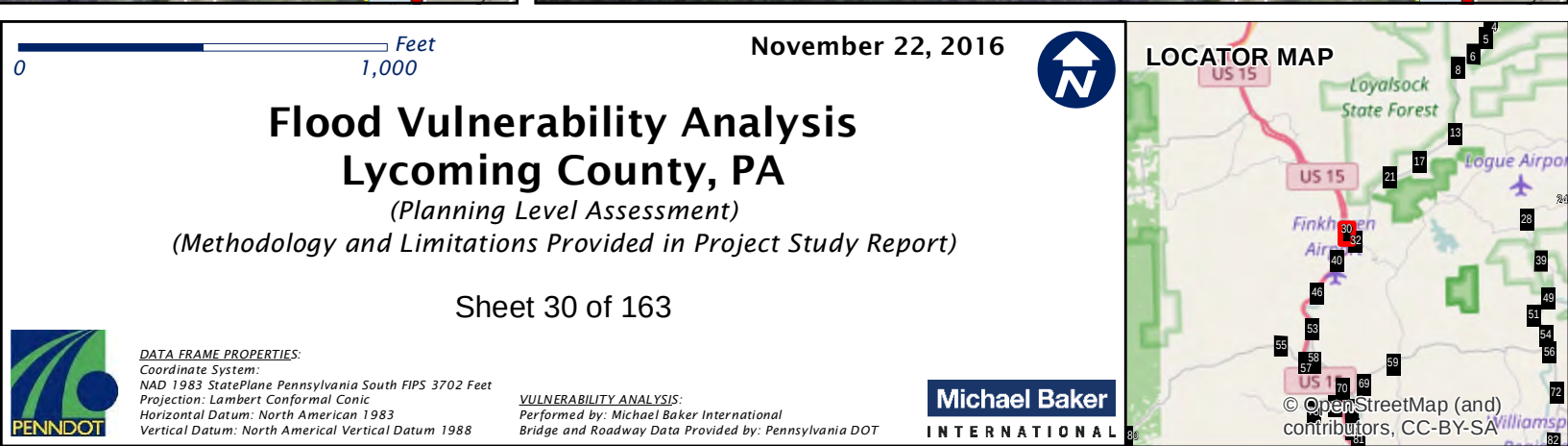
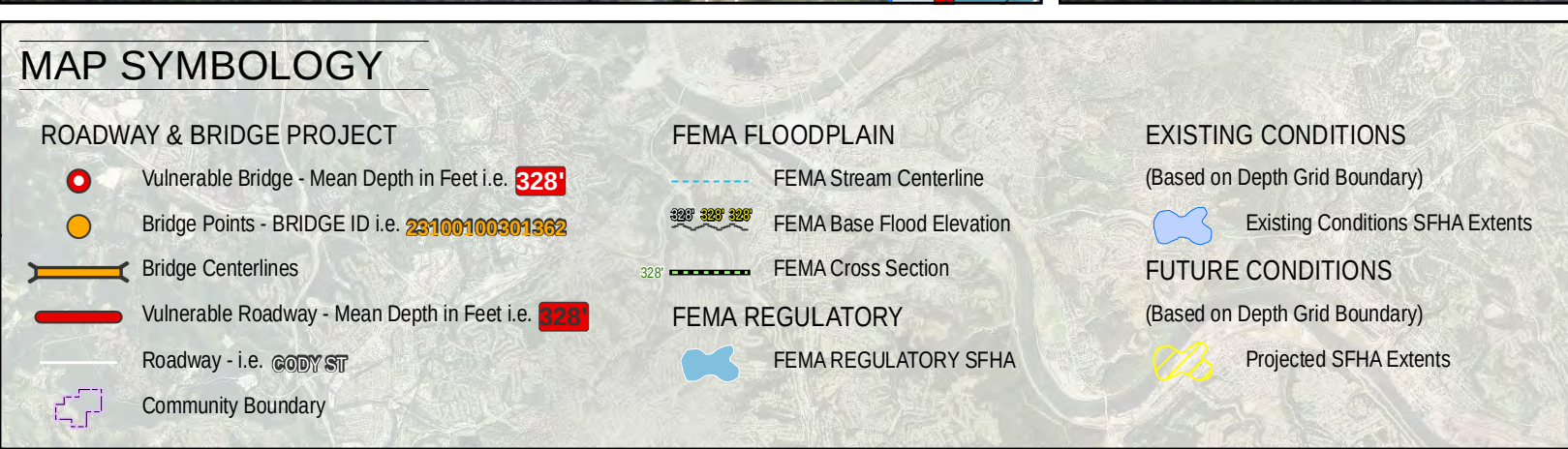
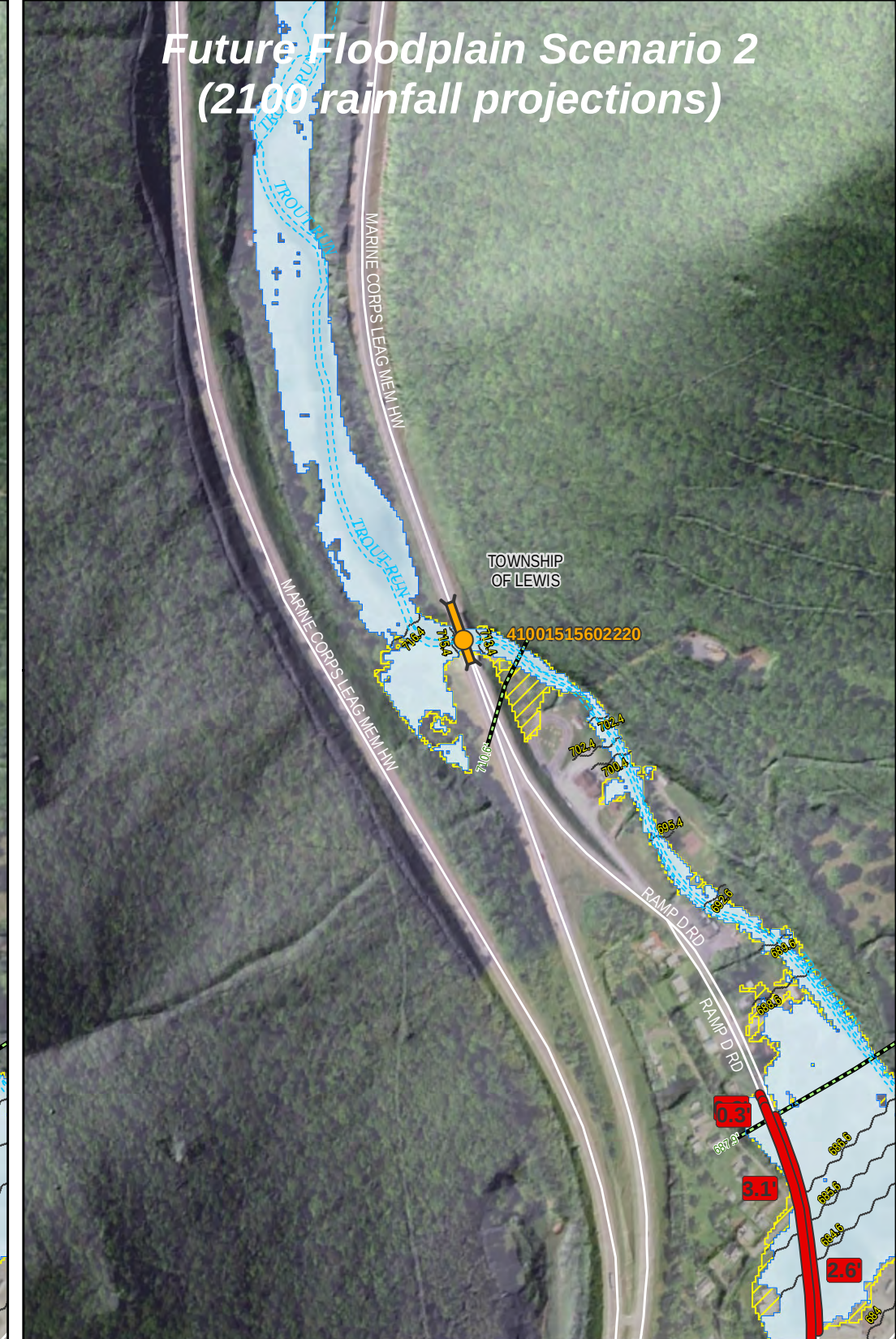
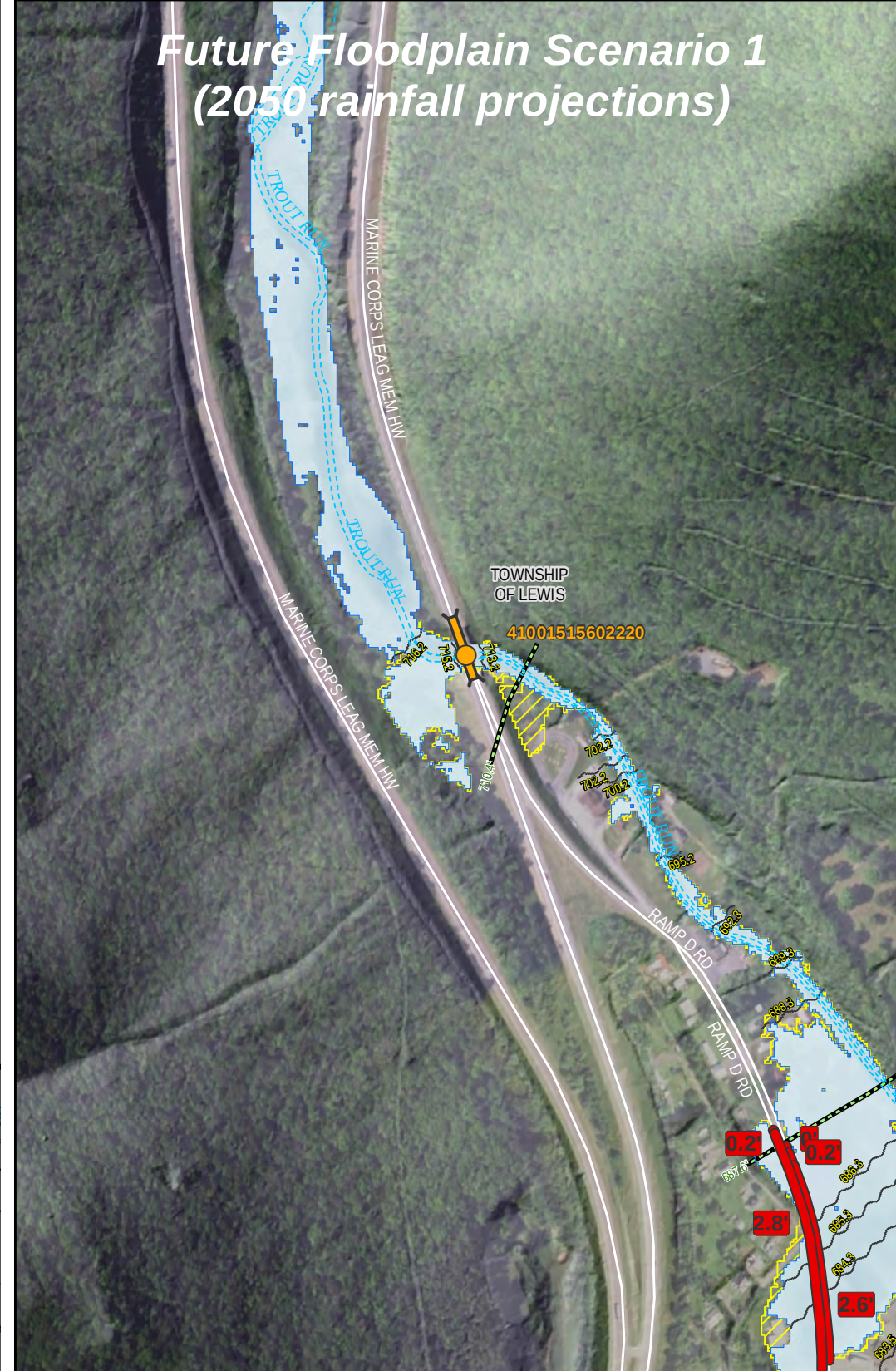
Flood Vulnerability Analysis Lycoming County, PA

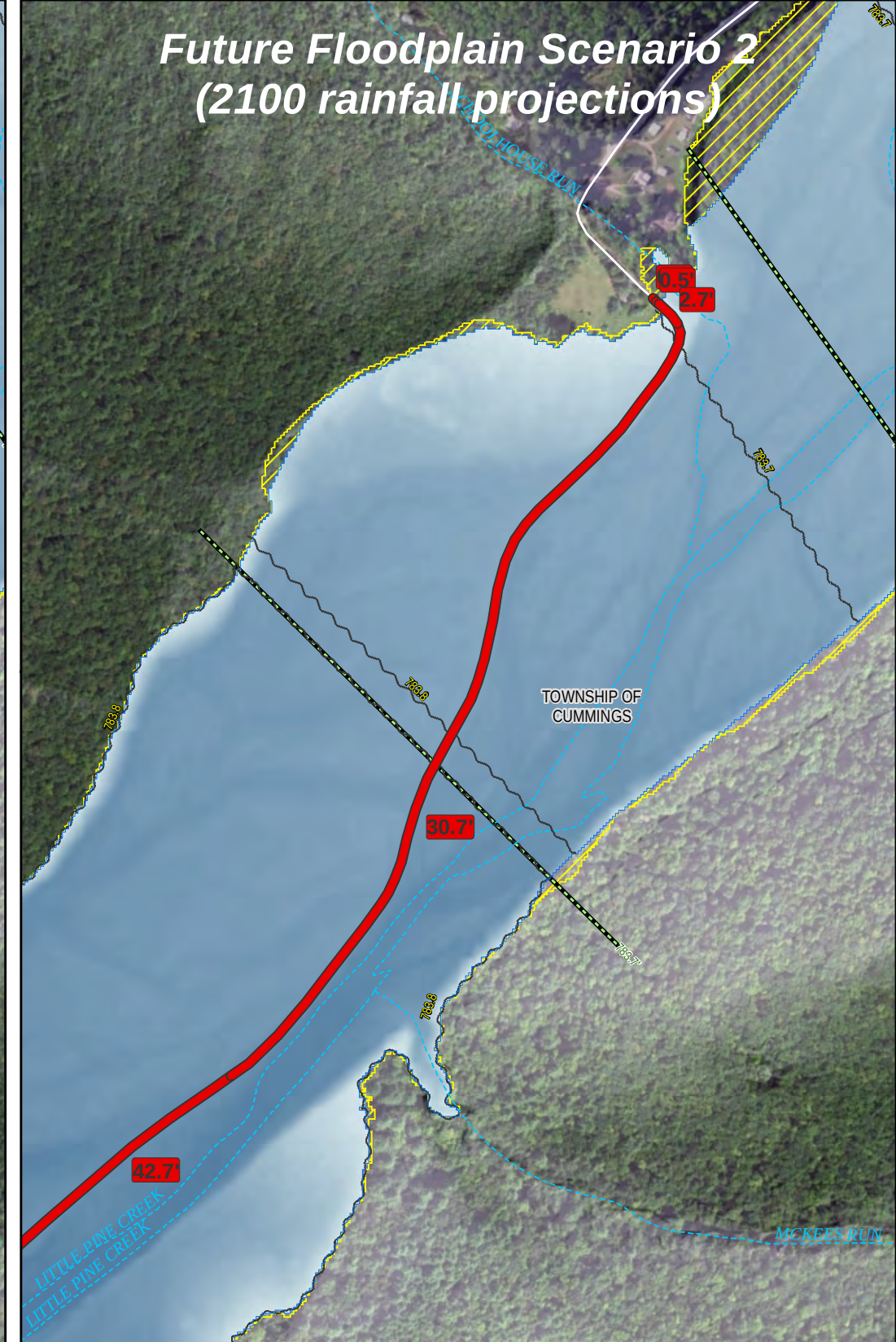
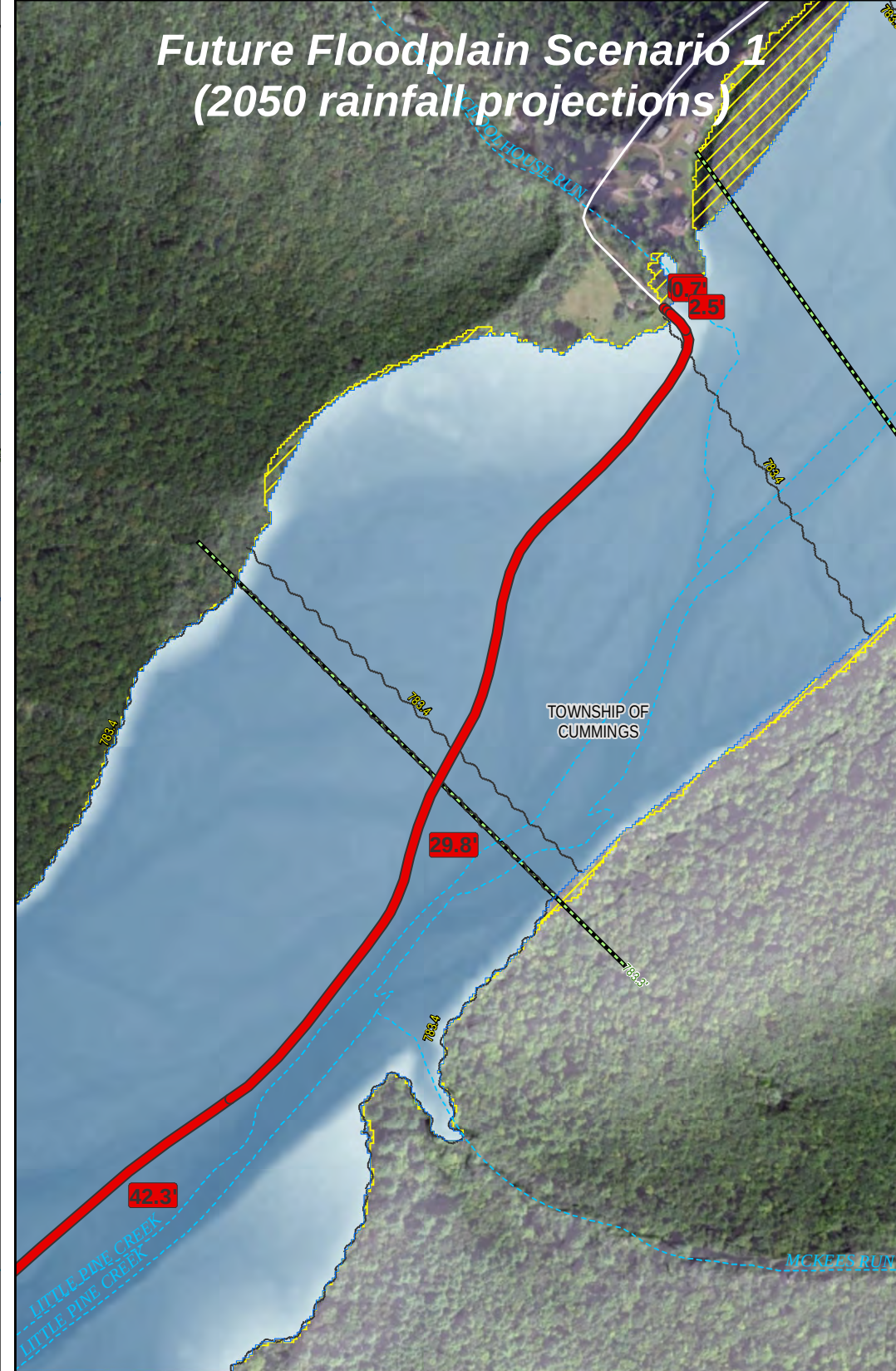
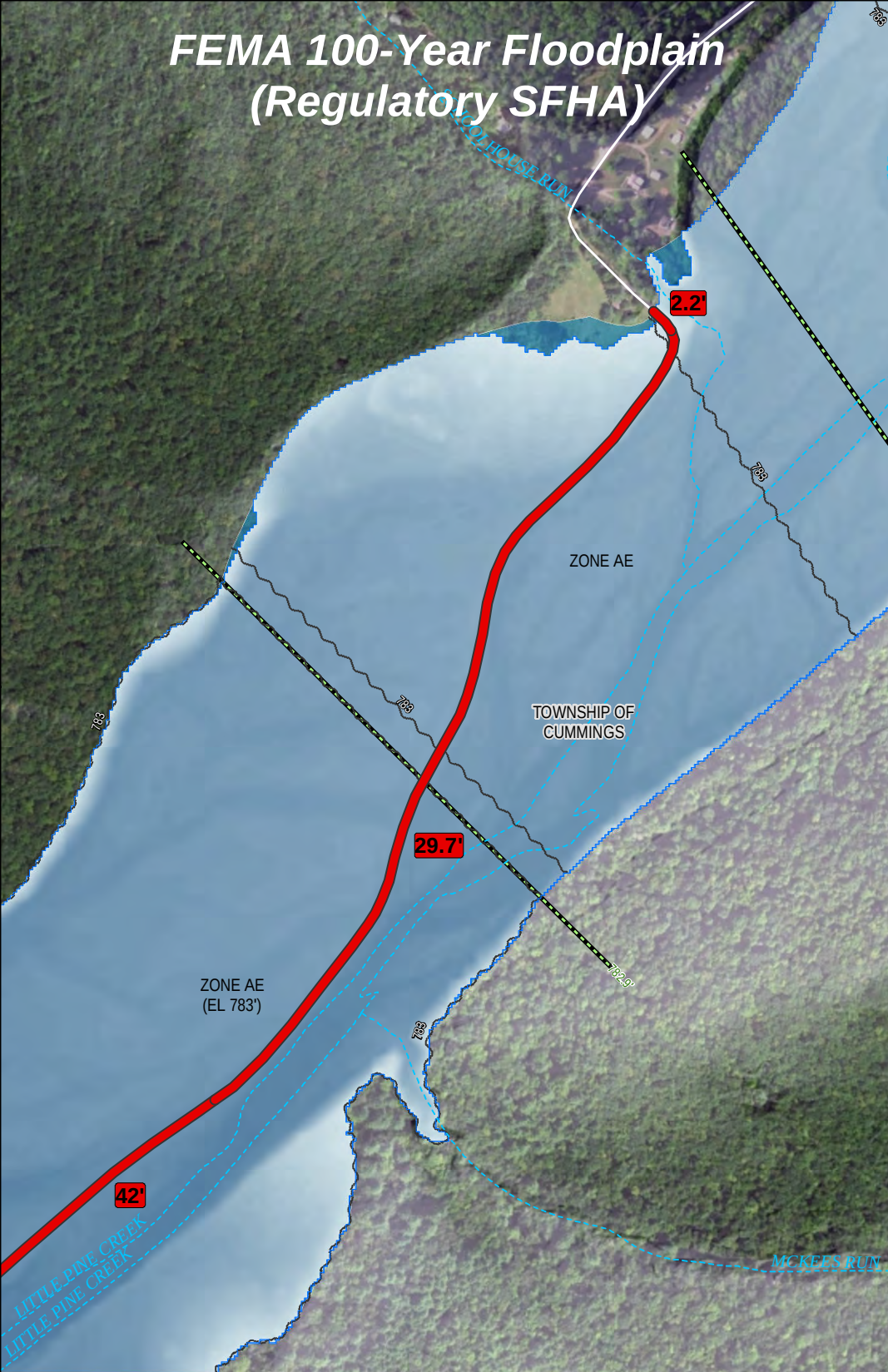
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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LOCATOR MAP





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

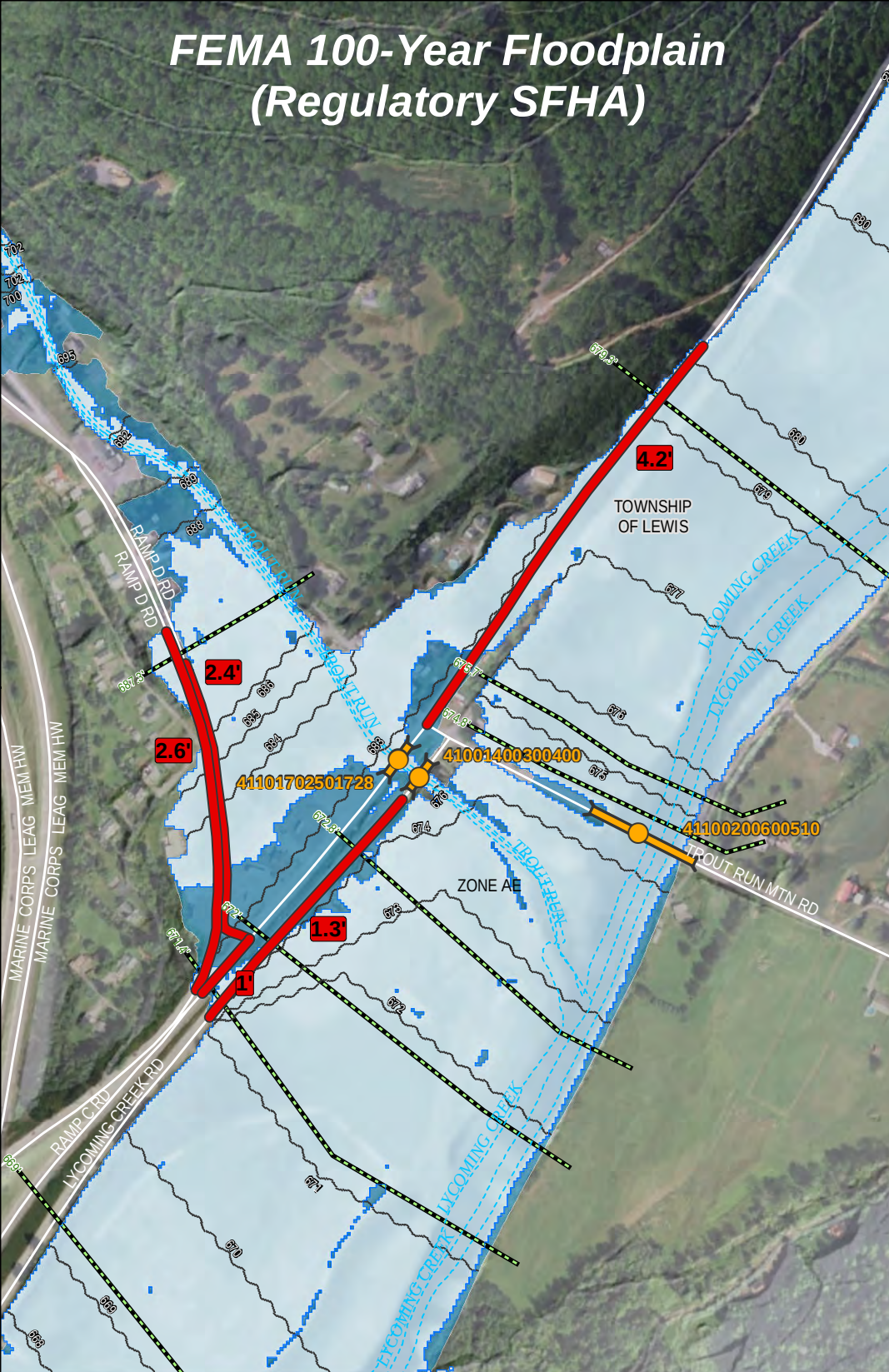
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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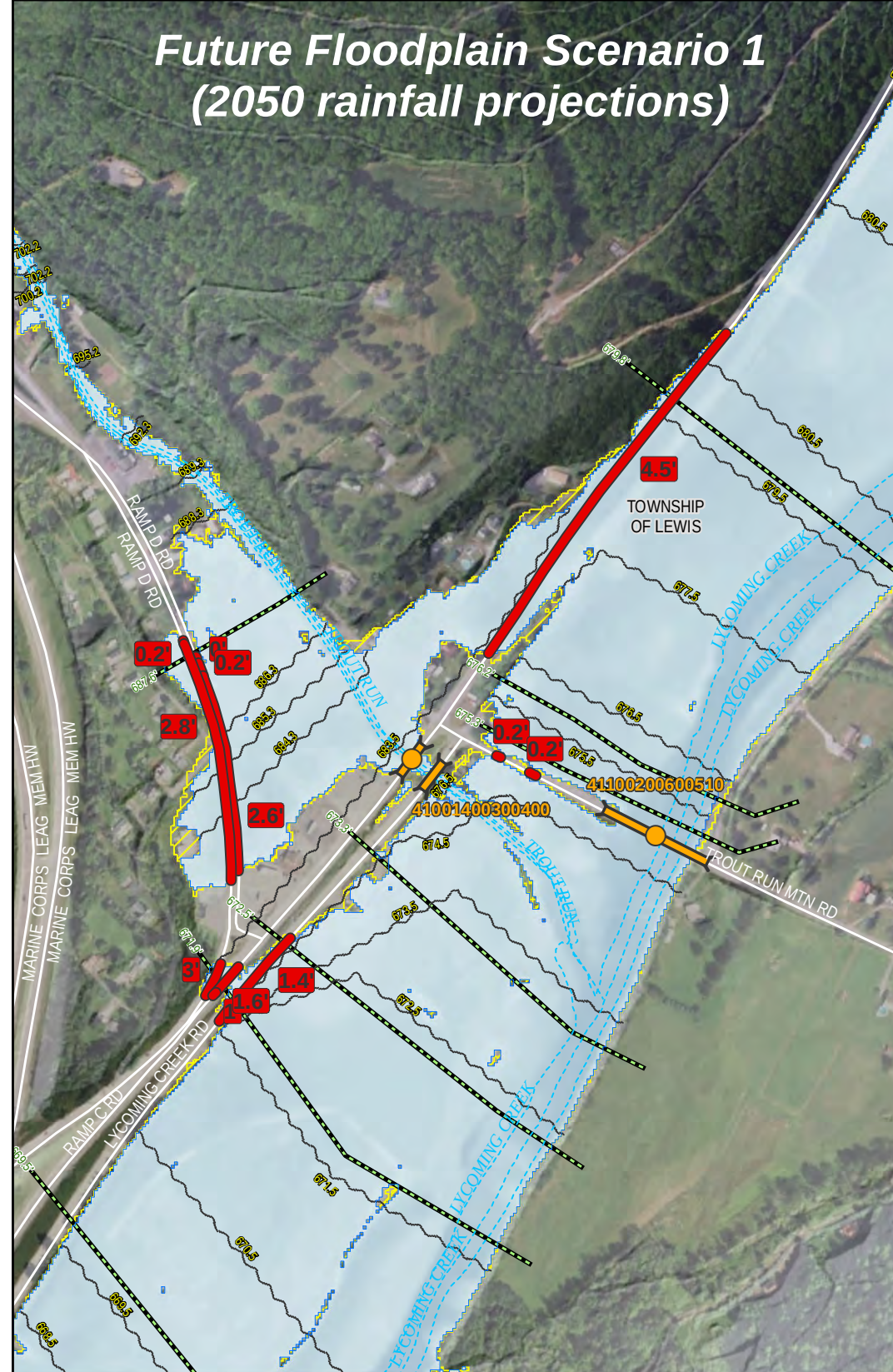
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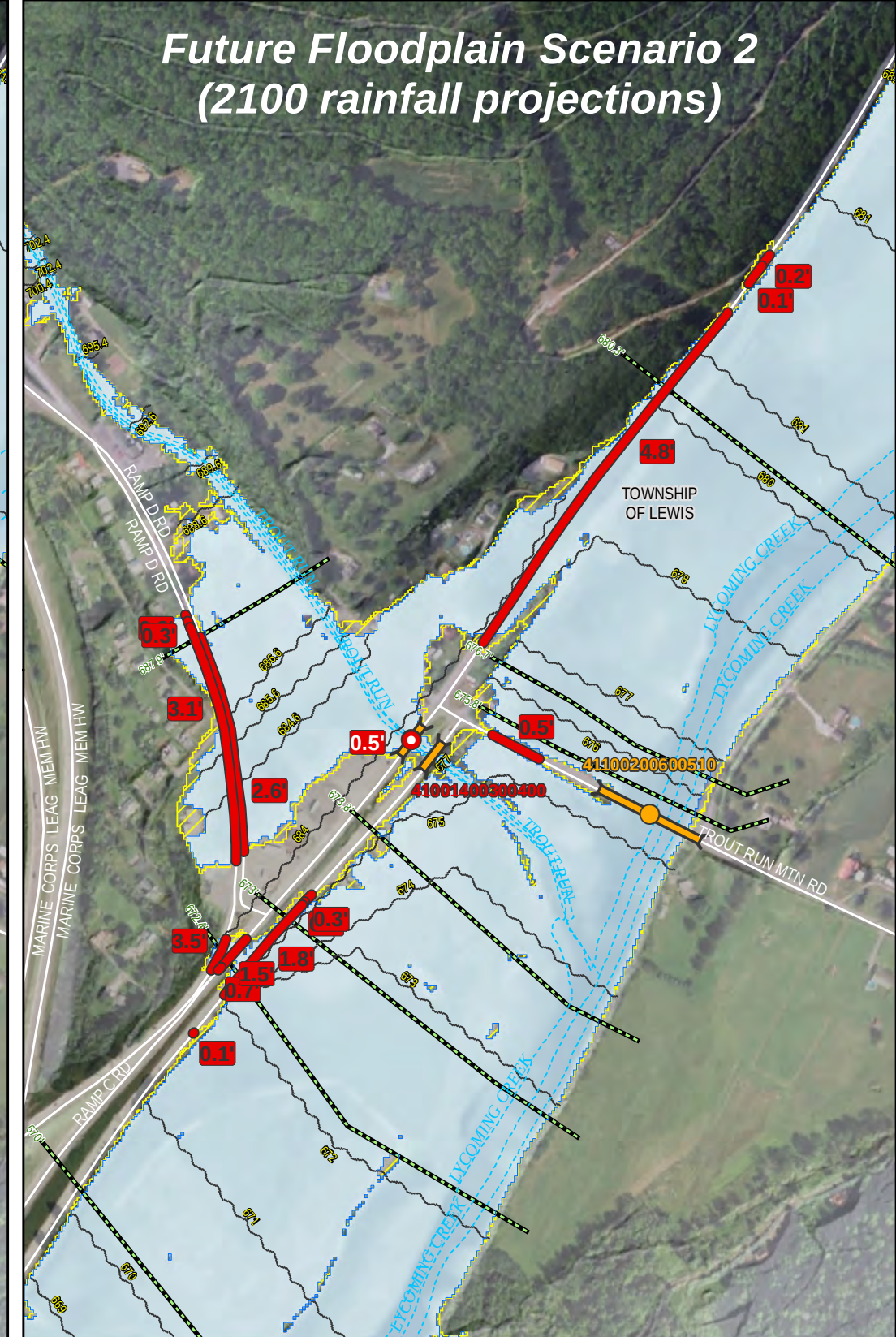
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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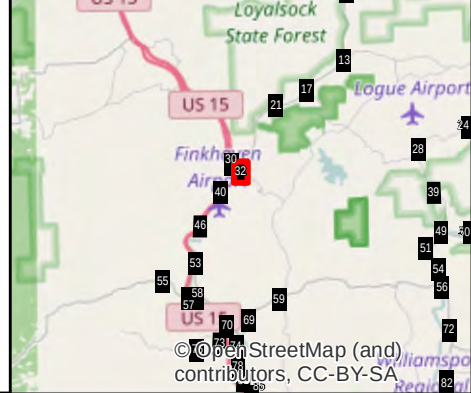


DATA FRAME PROPERTIES:
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Vertical Datum: North American Vertical Datum 1988

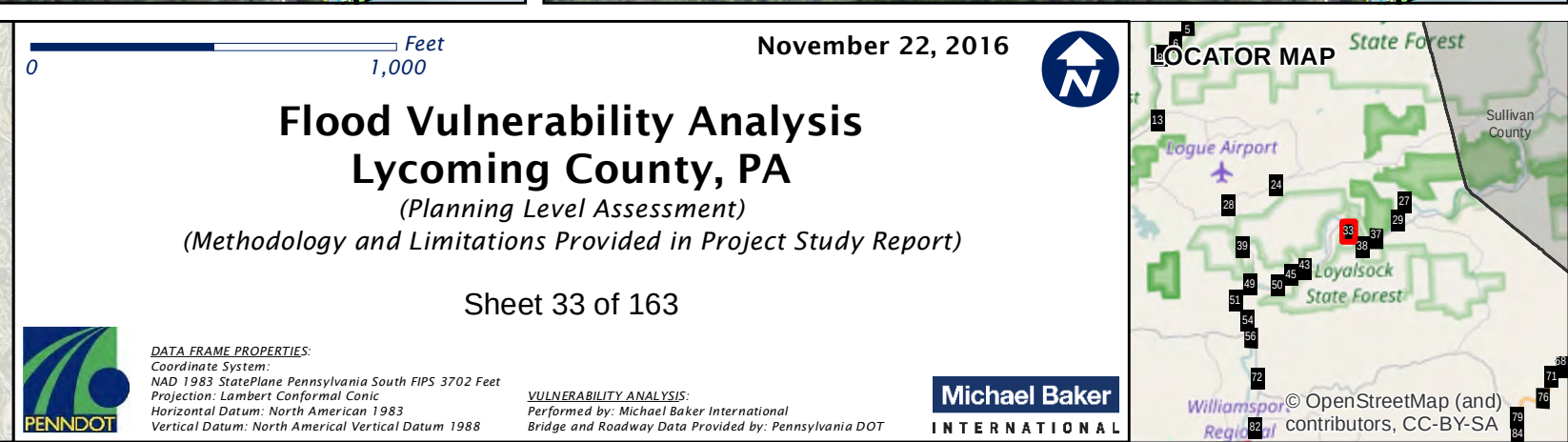
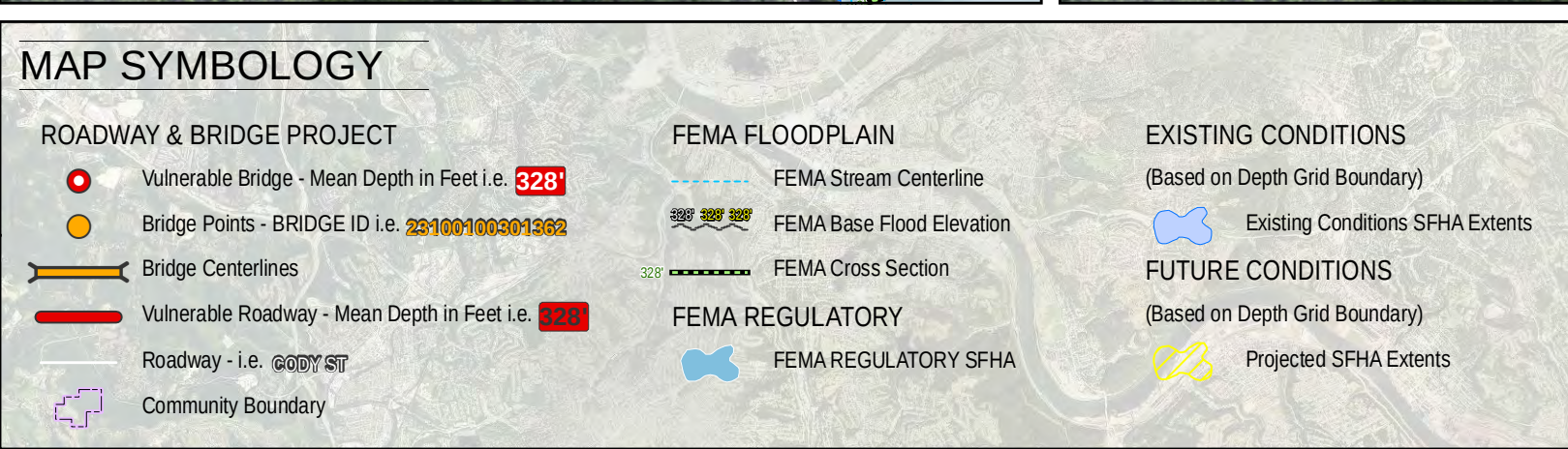
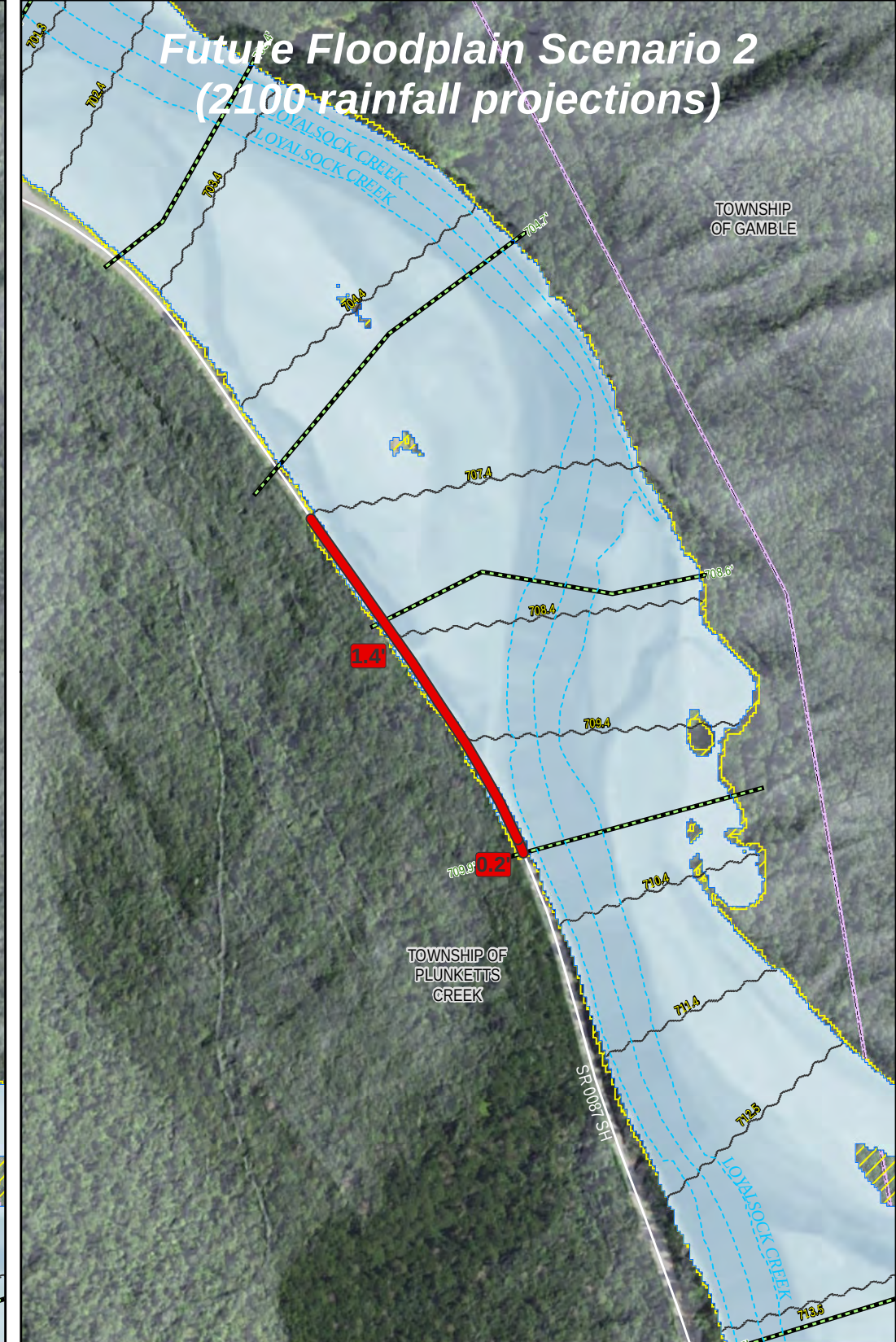
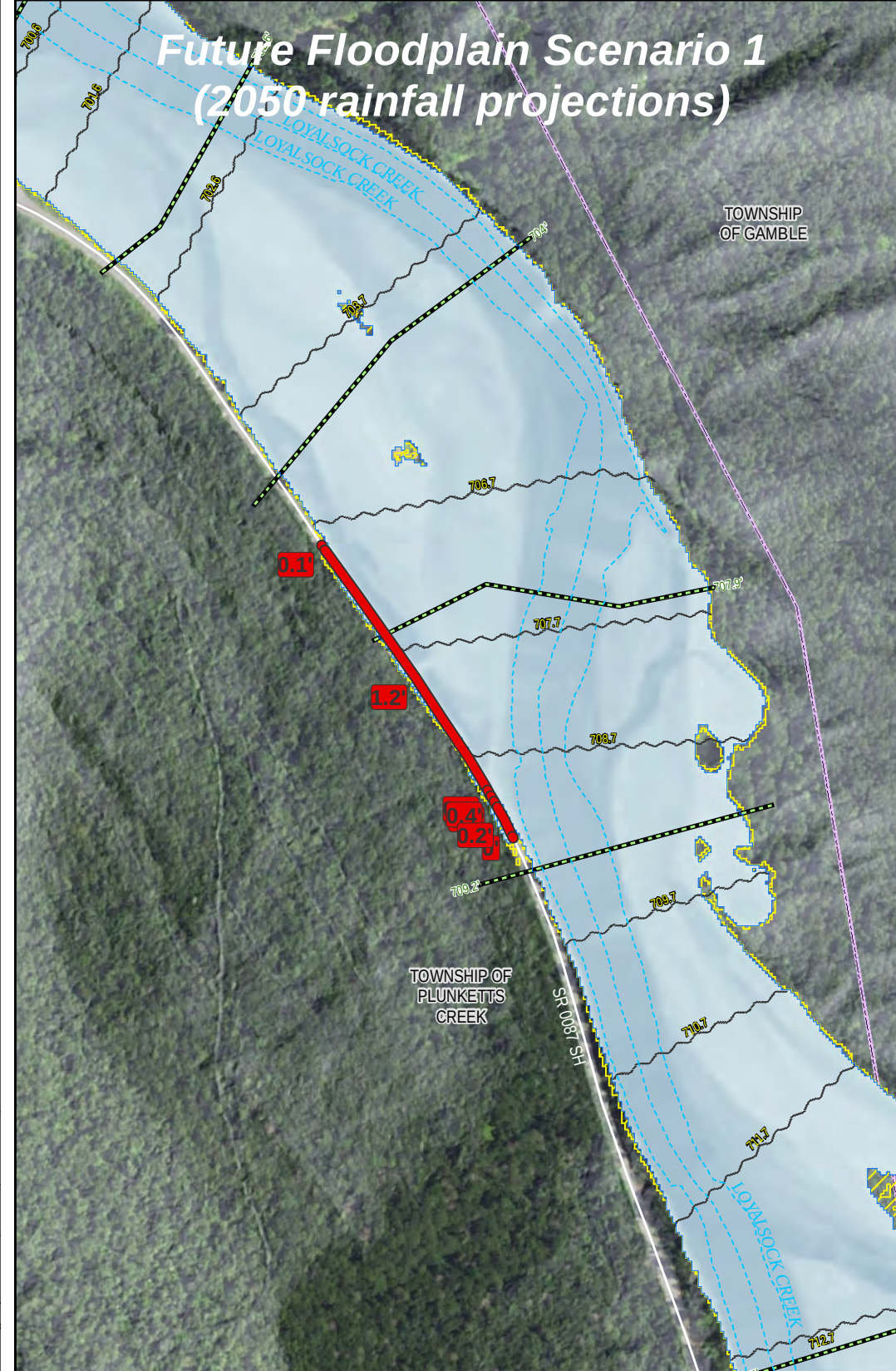
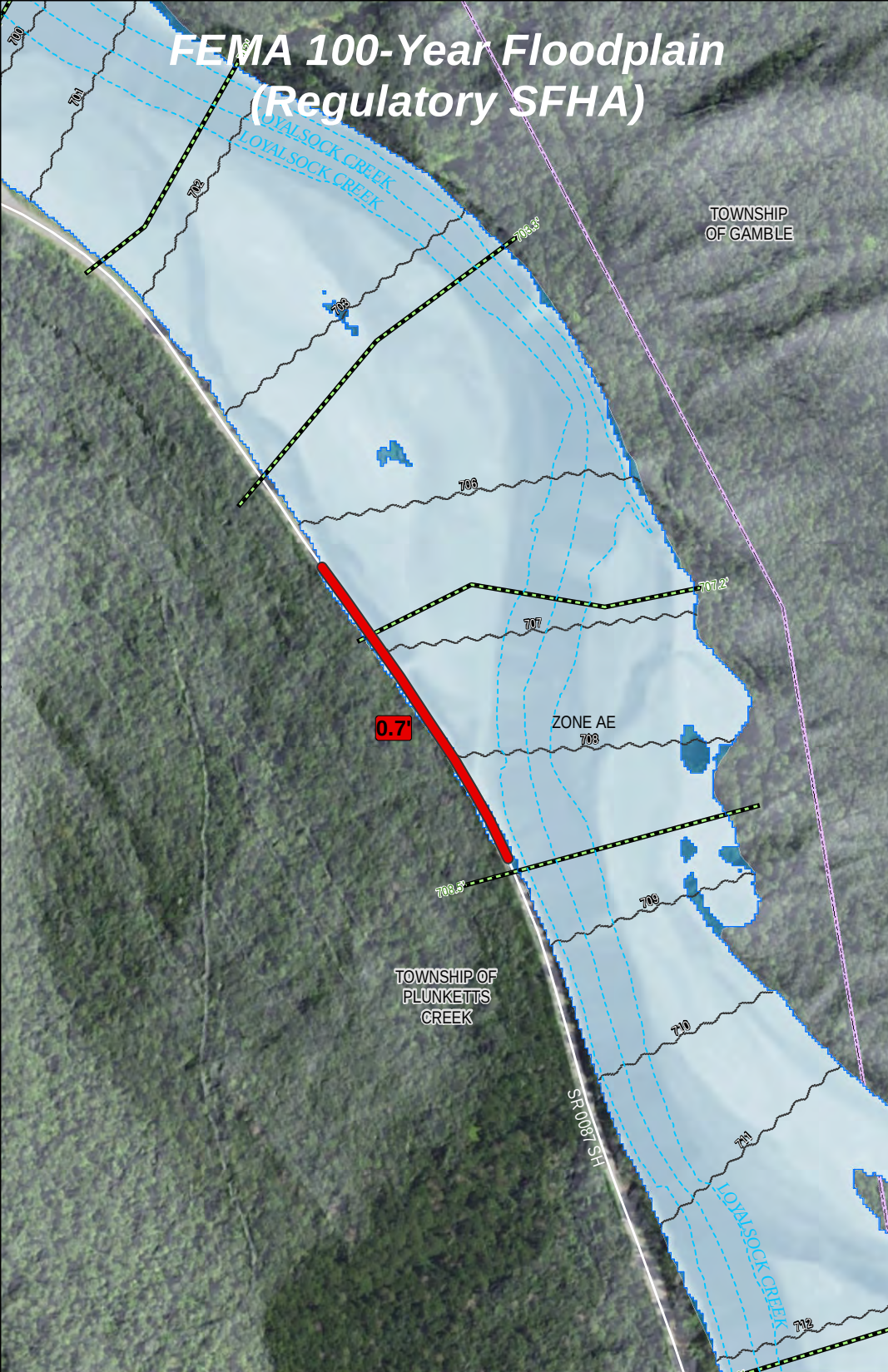
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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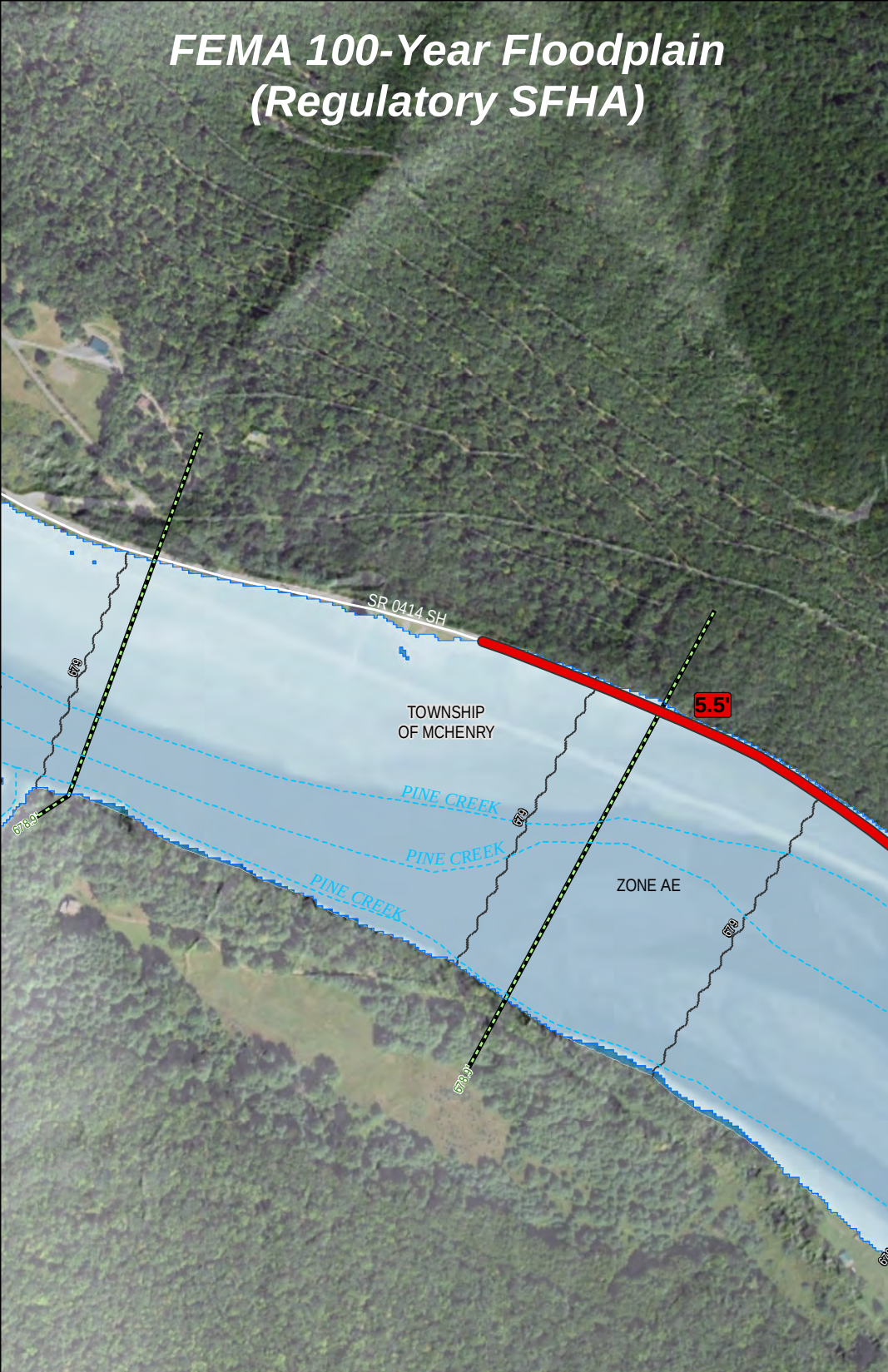
LOCATOR MAP



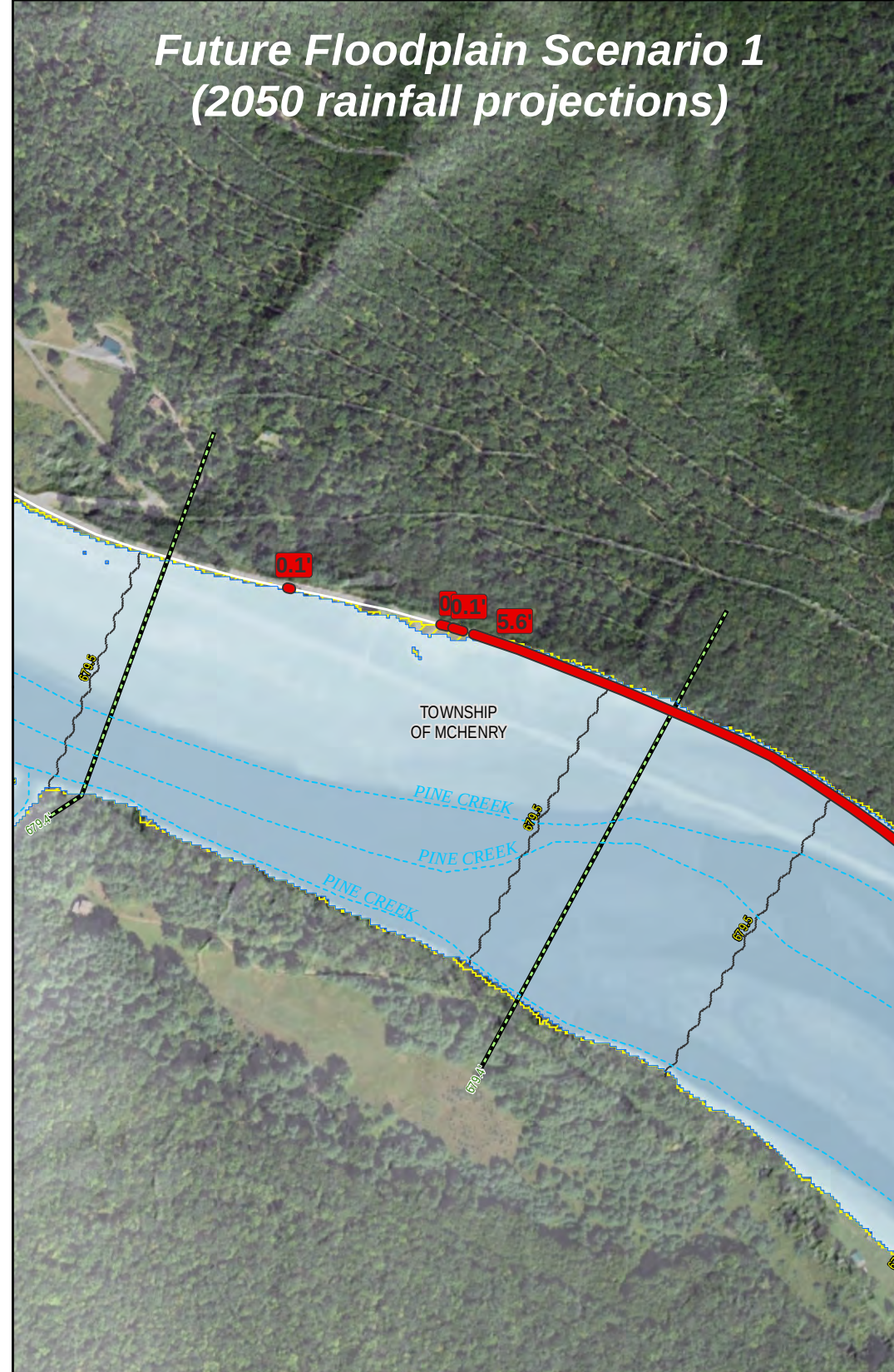
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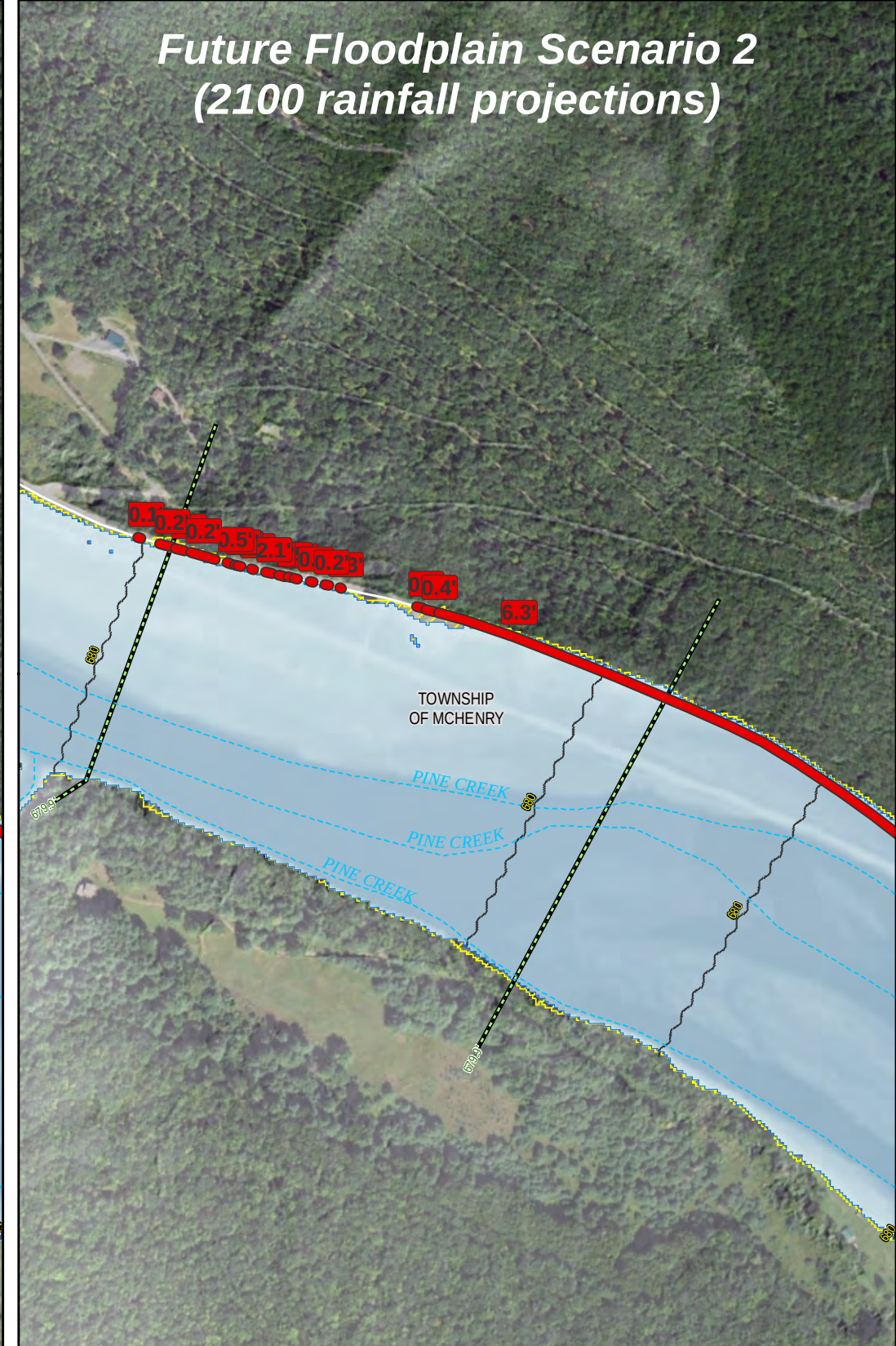
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY
- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents
- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

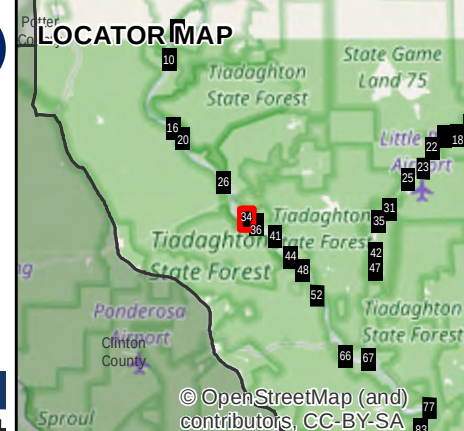
Sheet 34 of 163

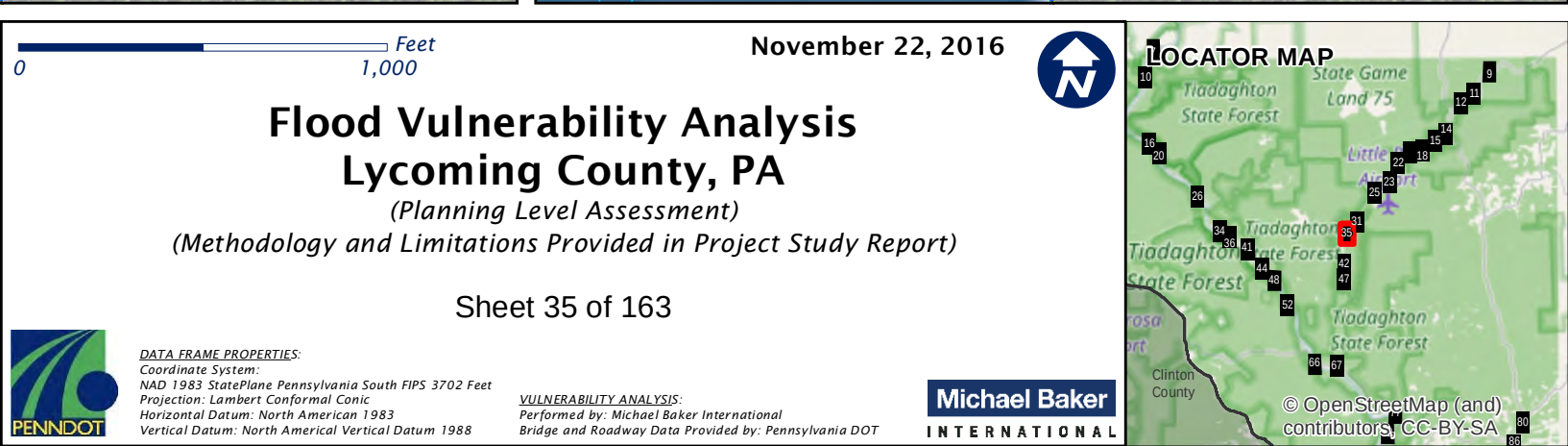
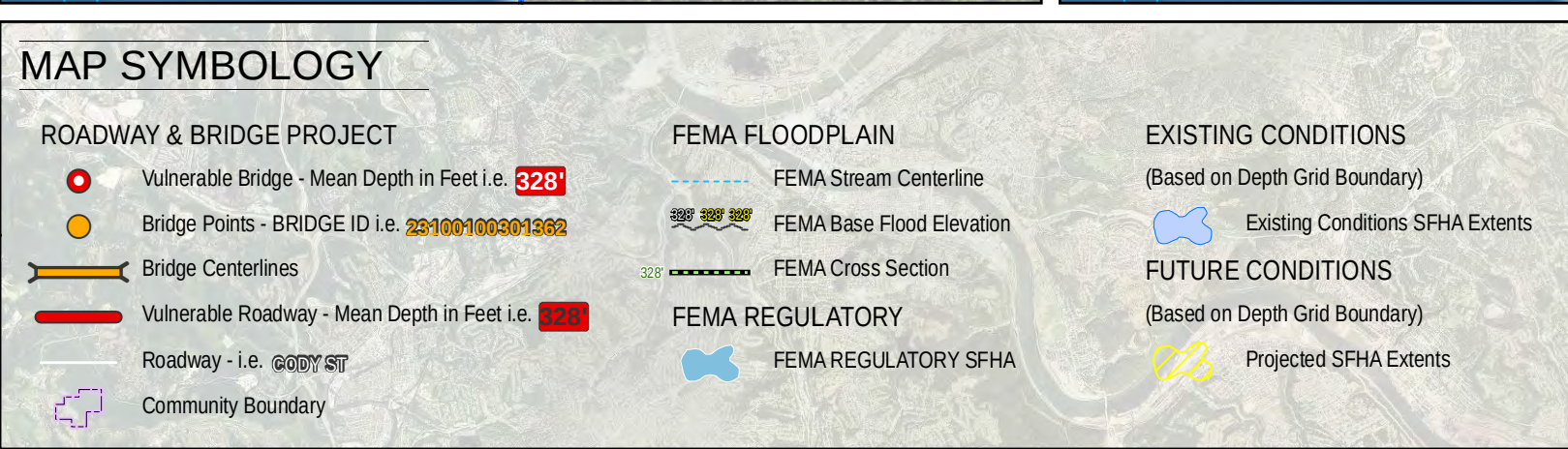
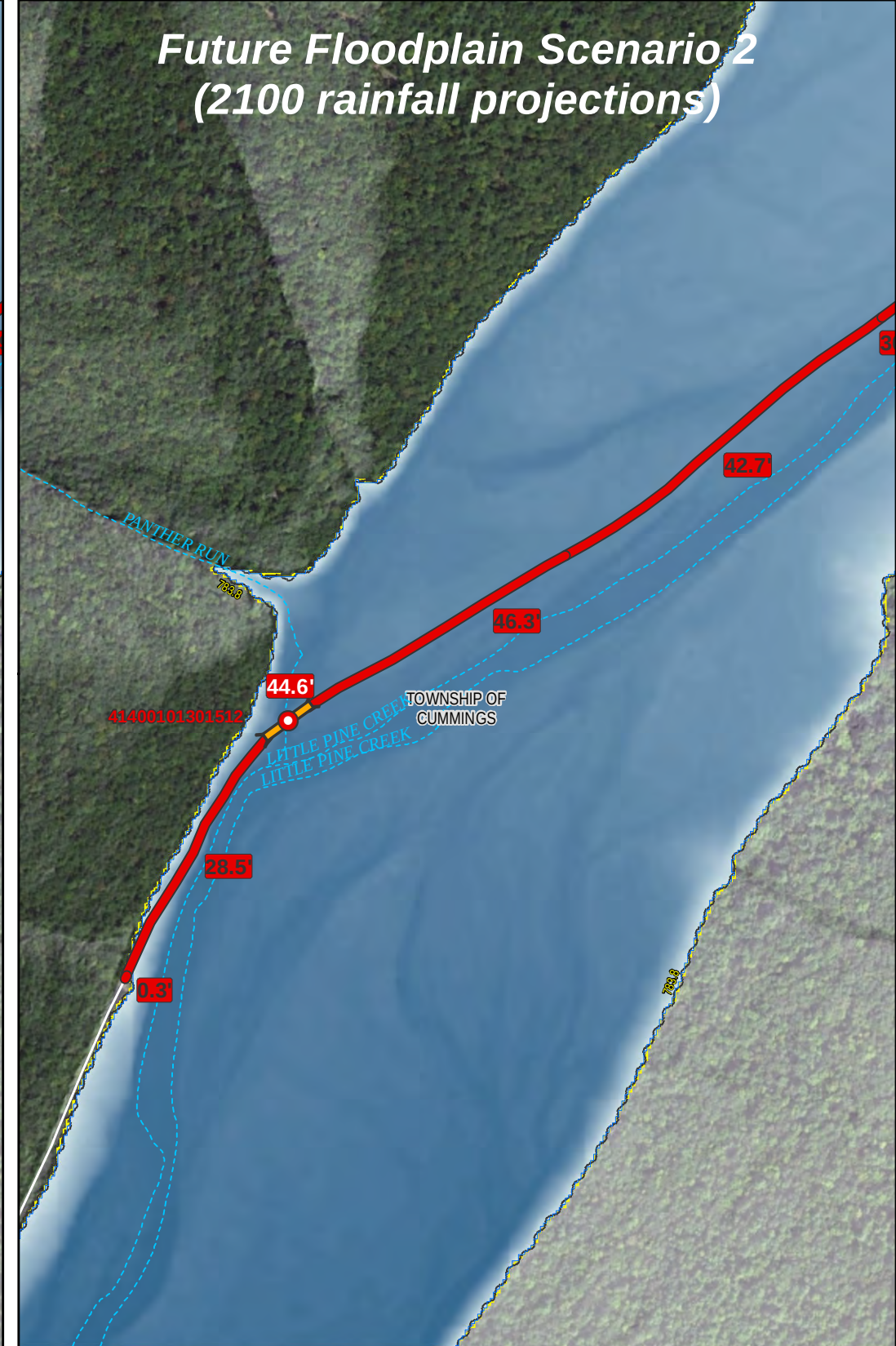
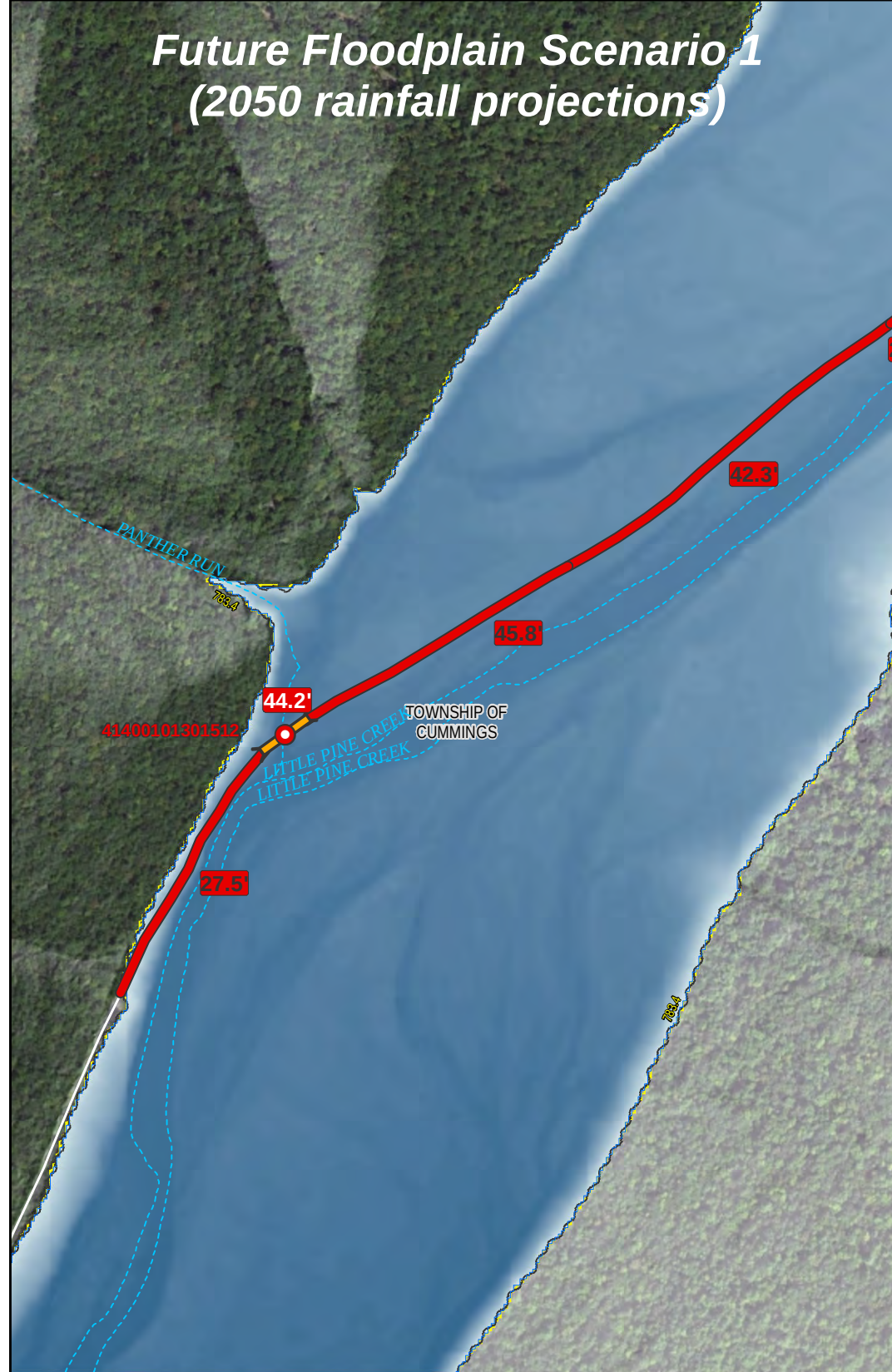


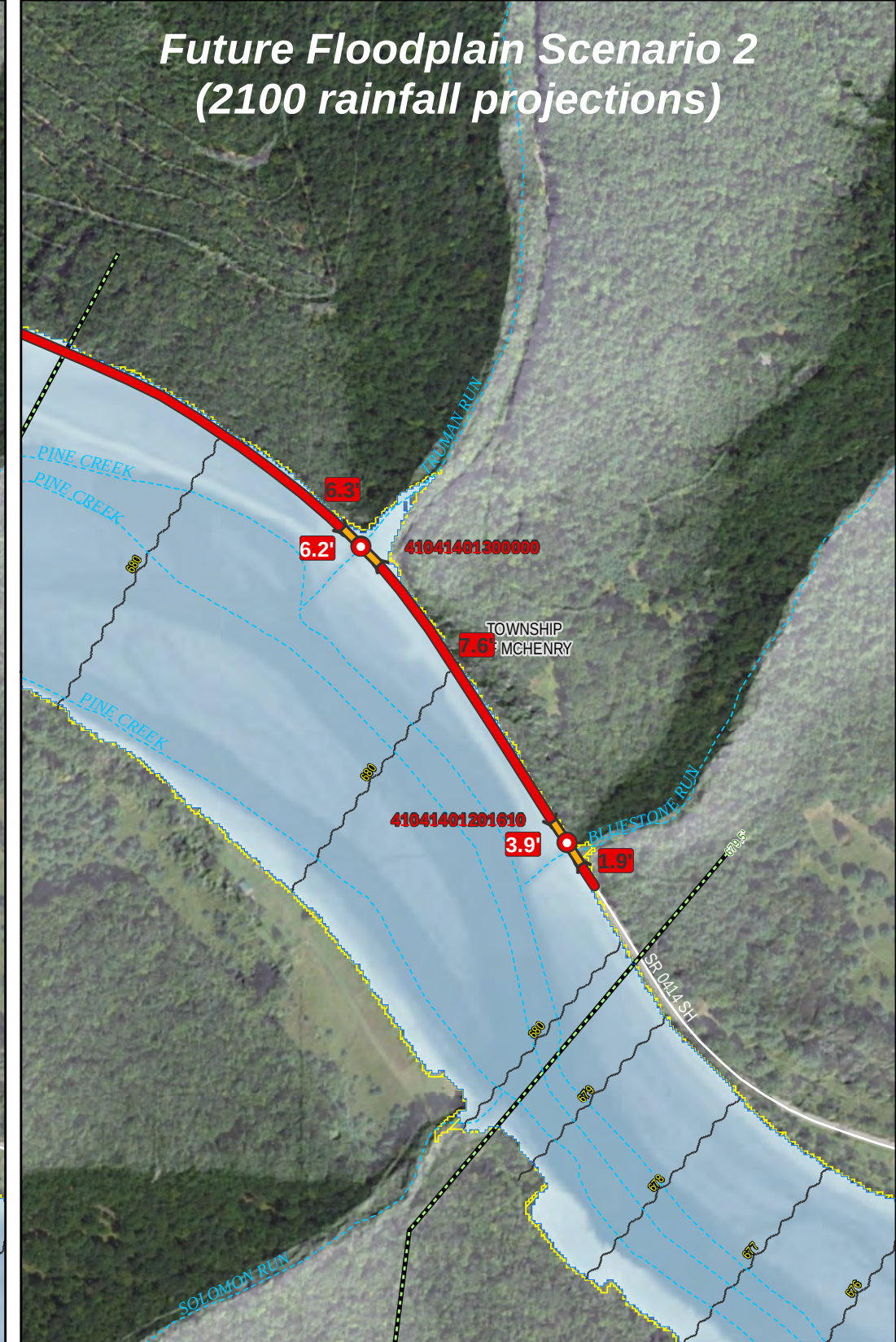
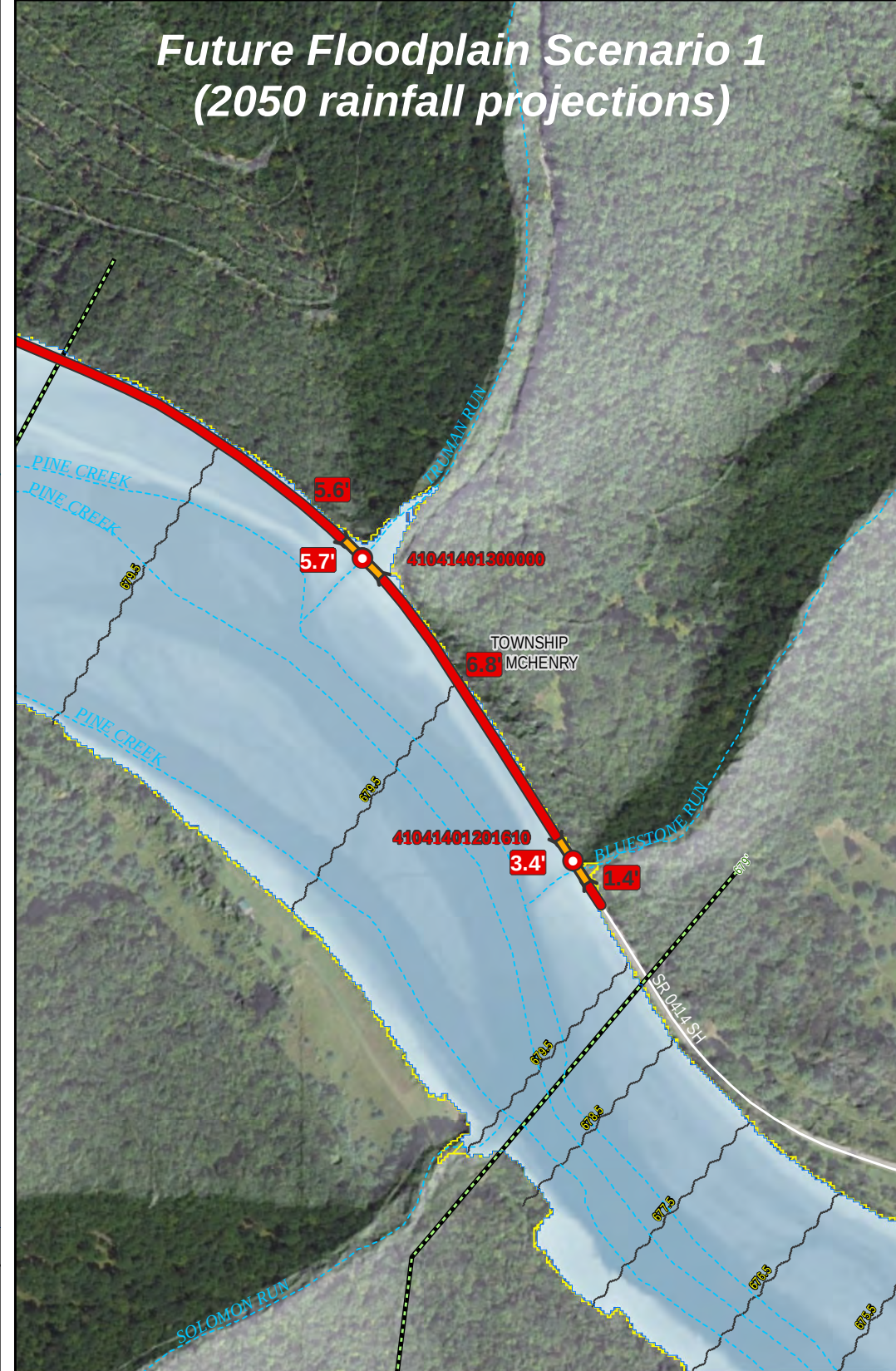
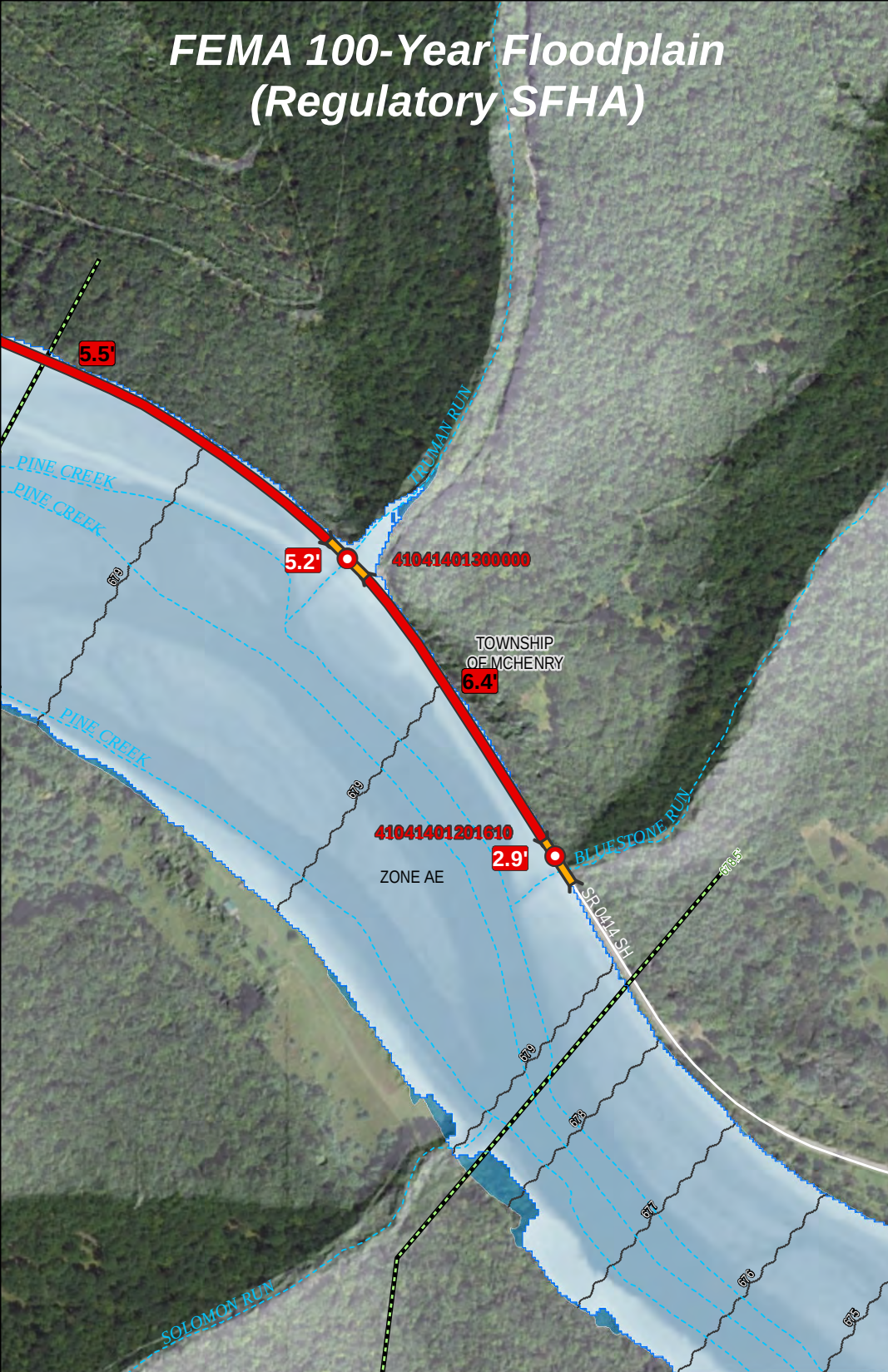
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. 328'
- Bridge Points - BRIDGE ID i.e. 23100100301362
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 328'
- Roadway - i.e. GODY ST
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

Feet
0 1,000

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

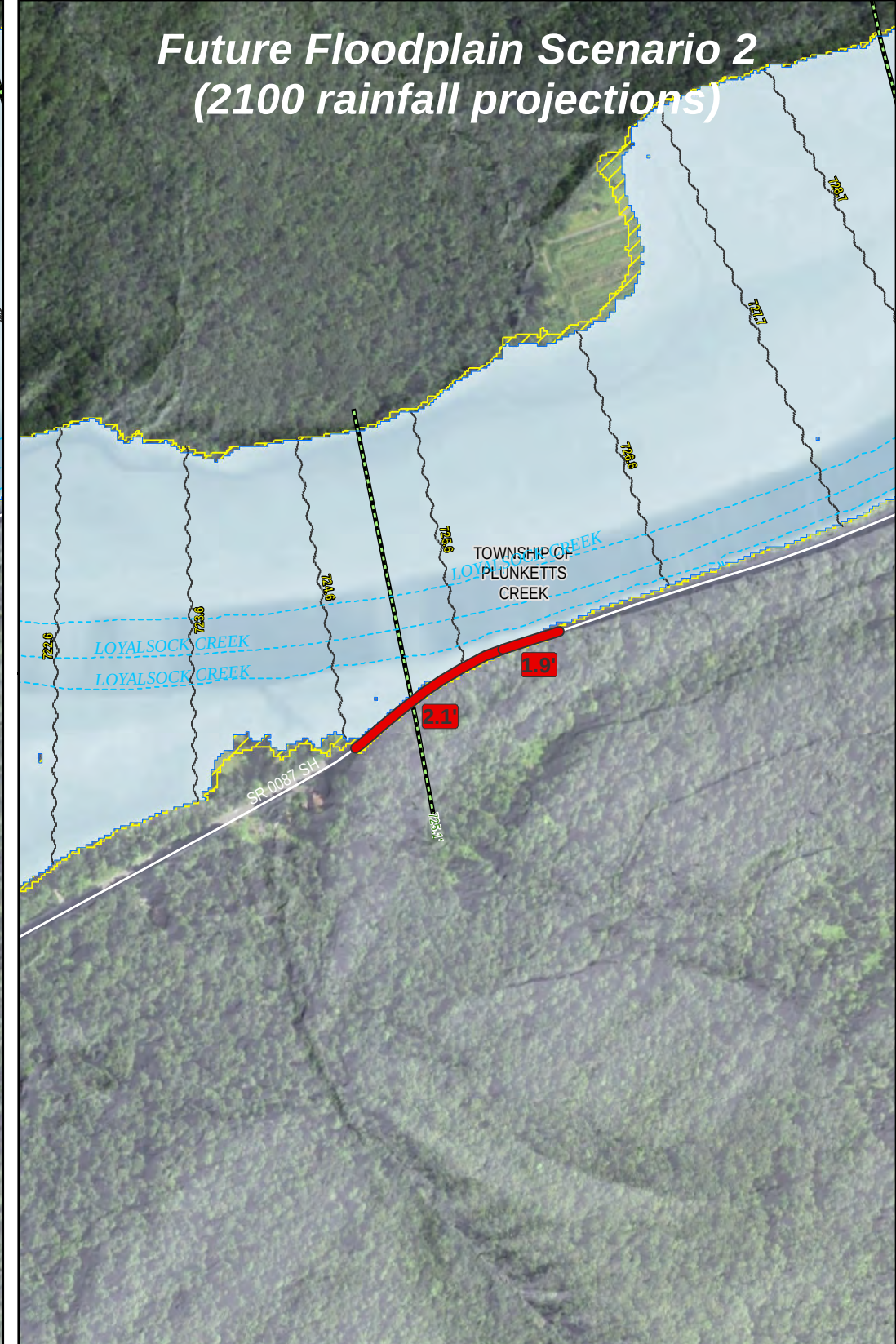
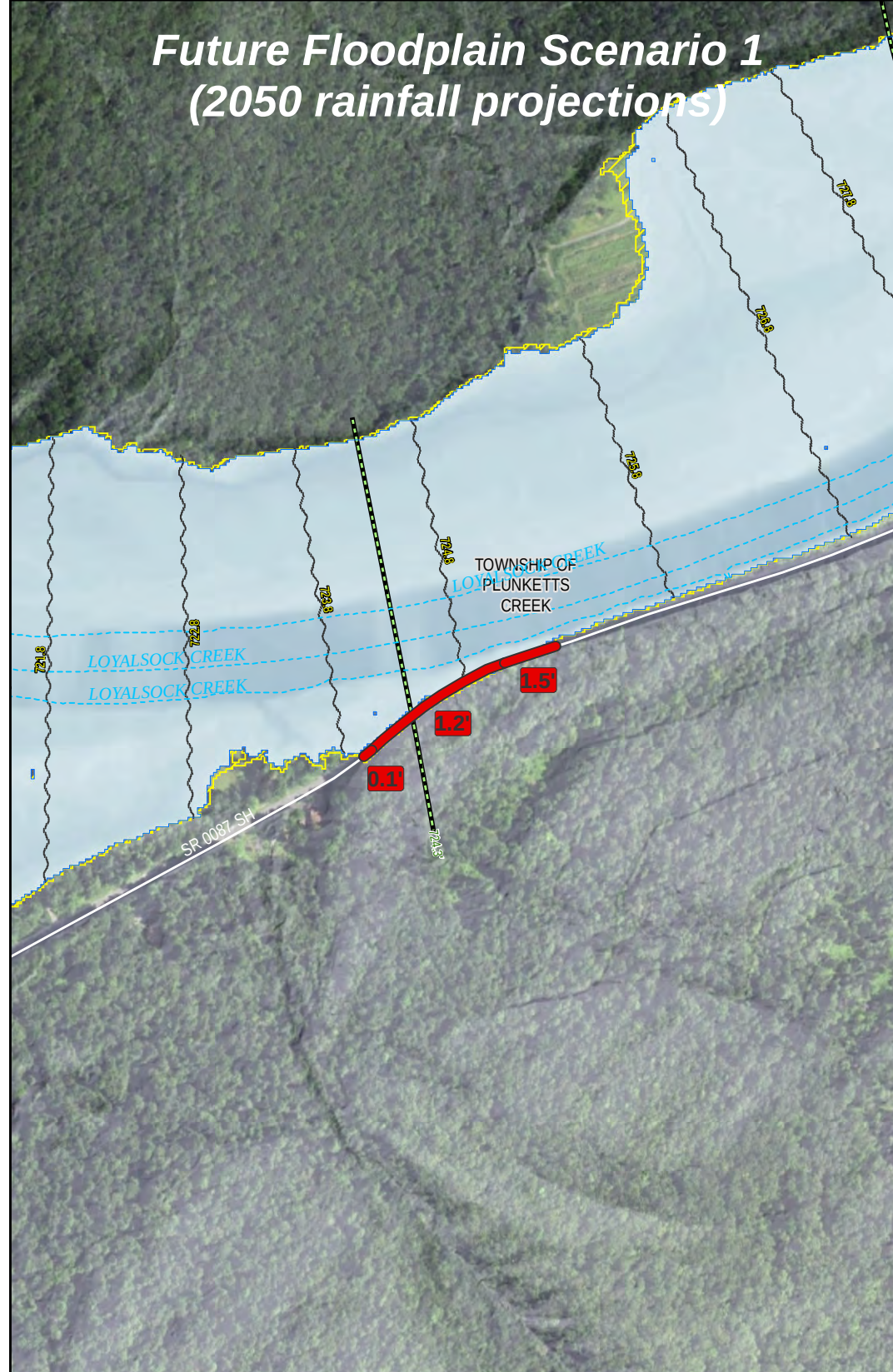
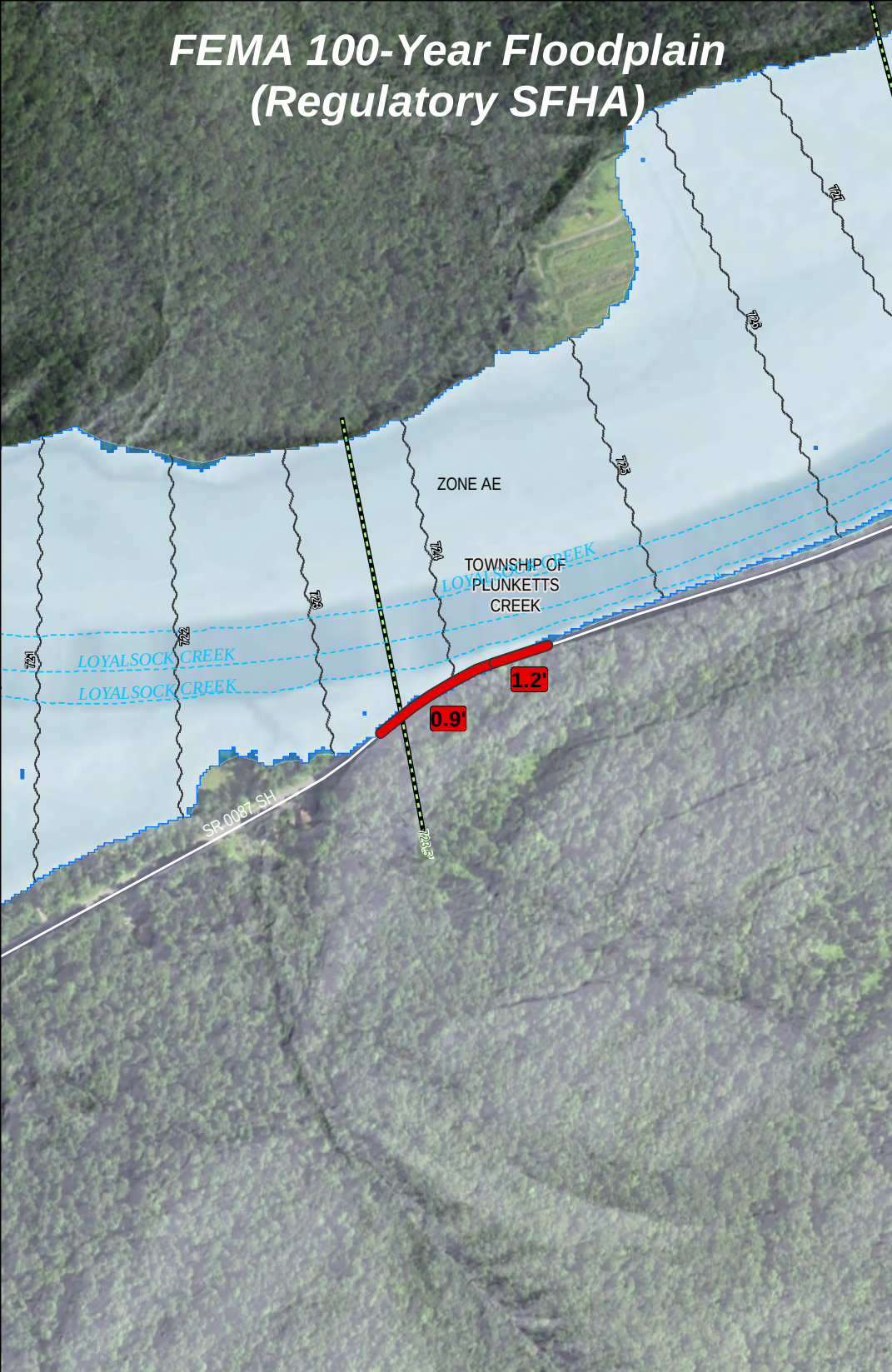
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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

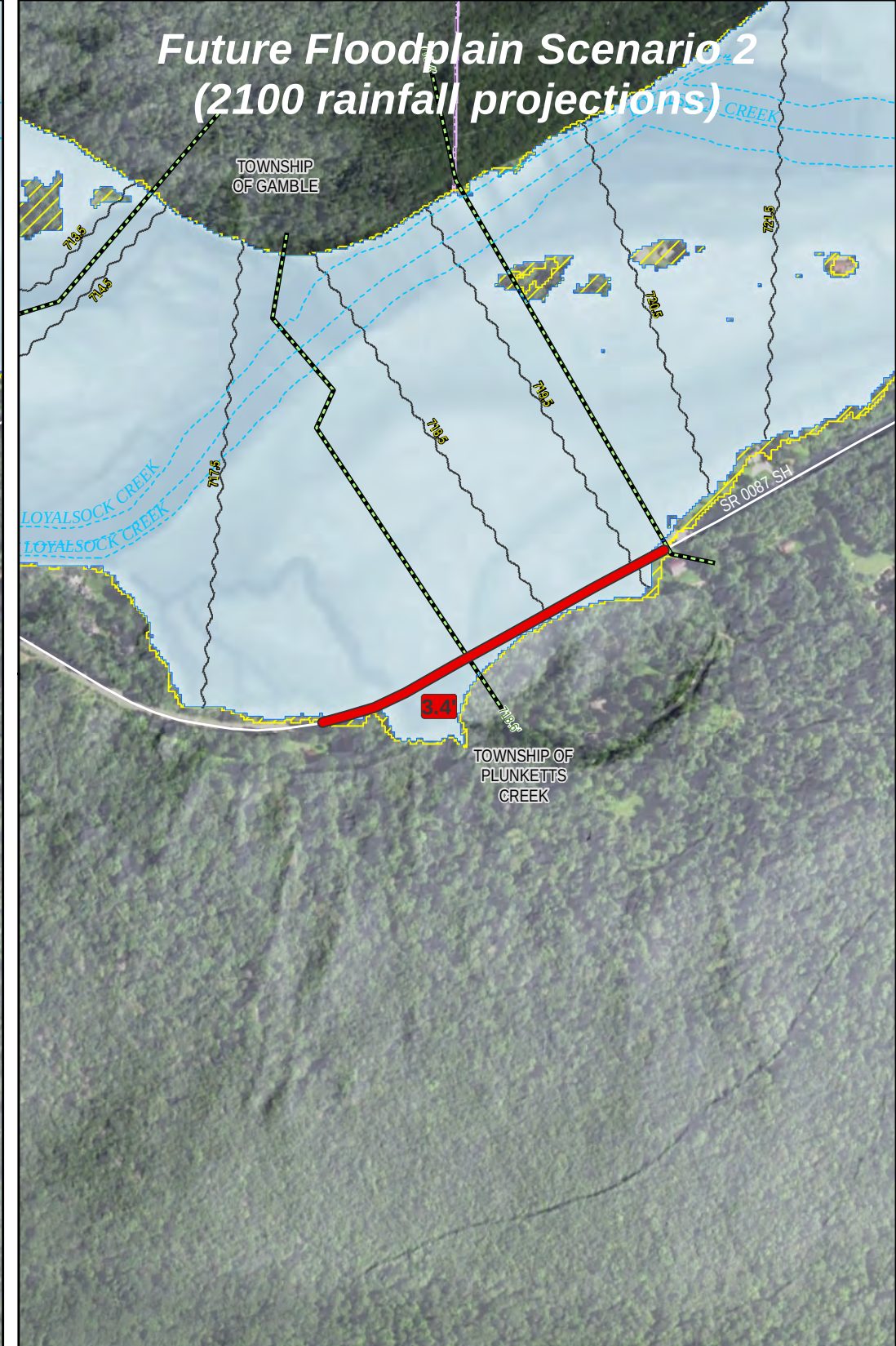
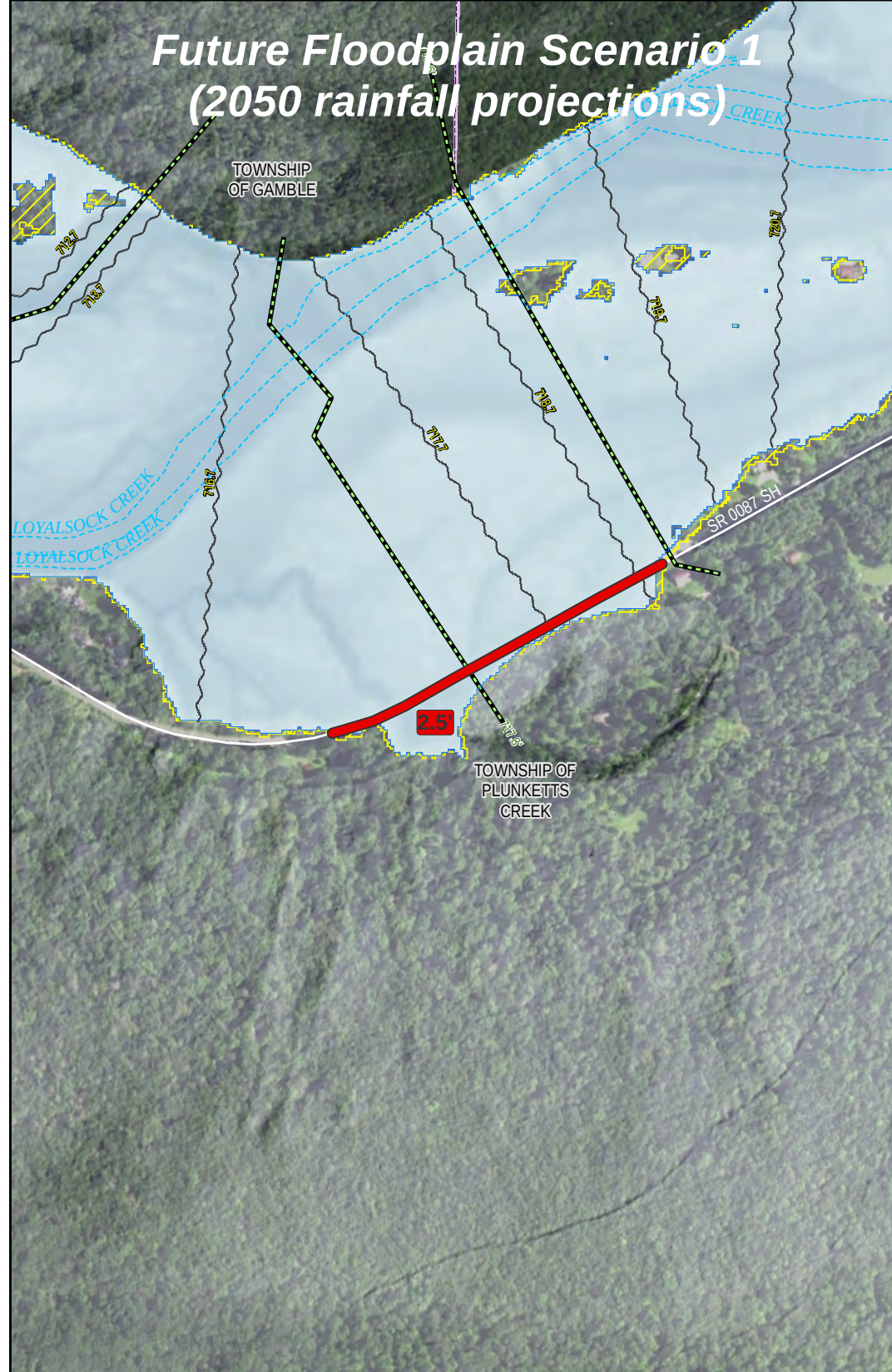
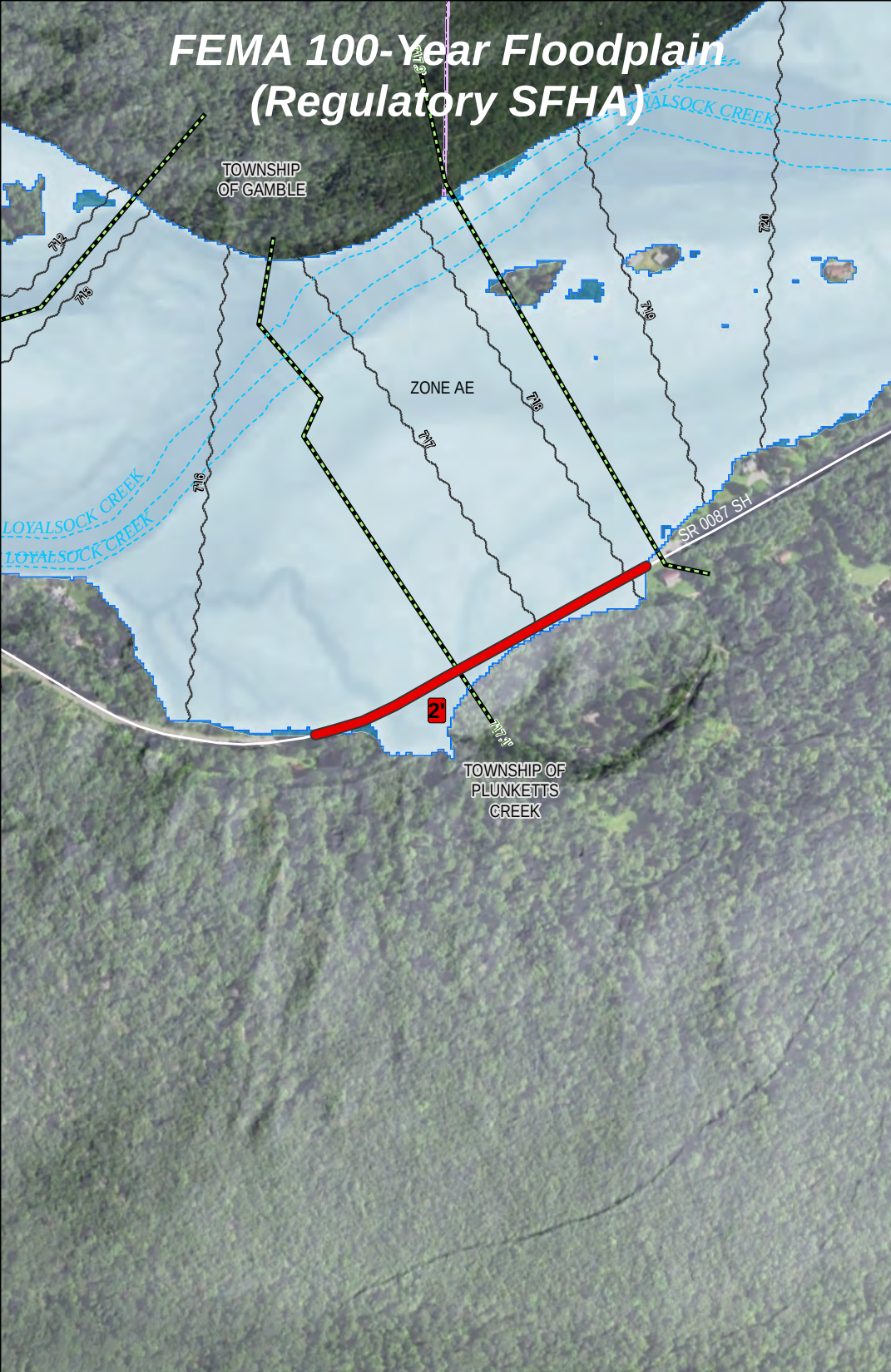
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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

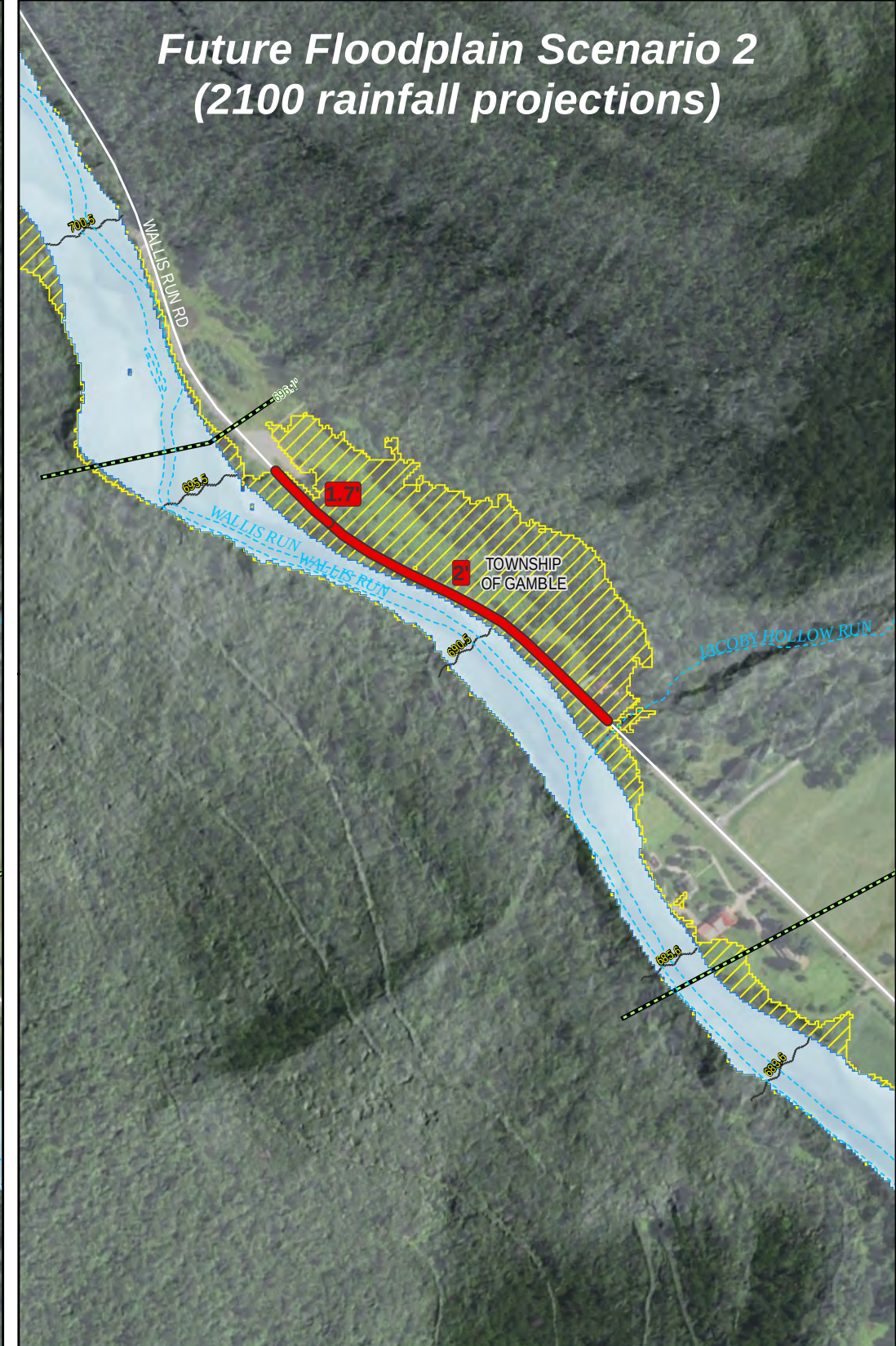
Sheet 38 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

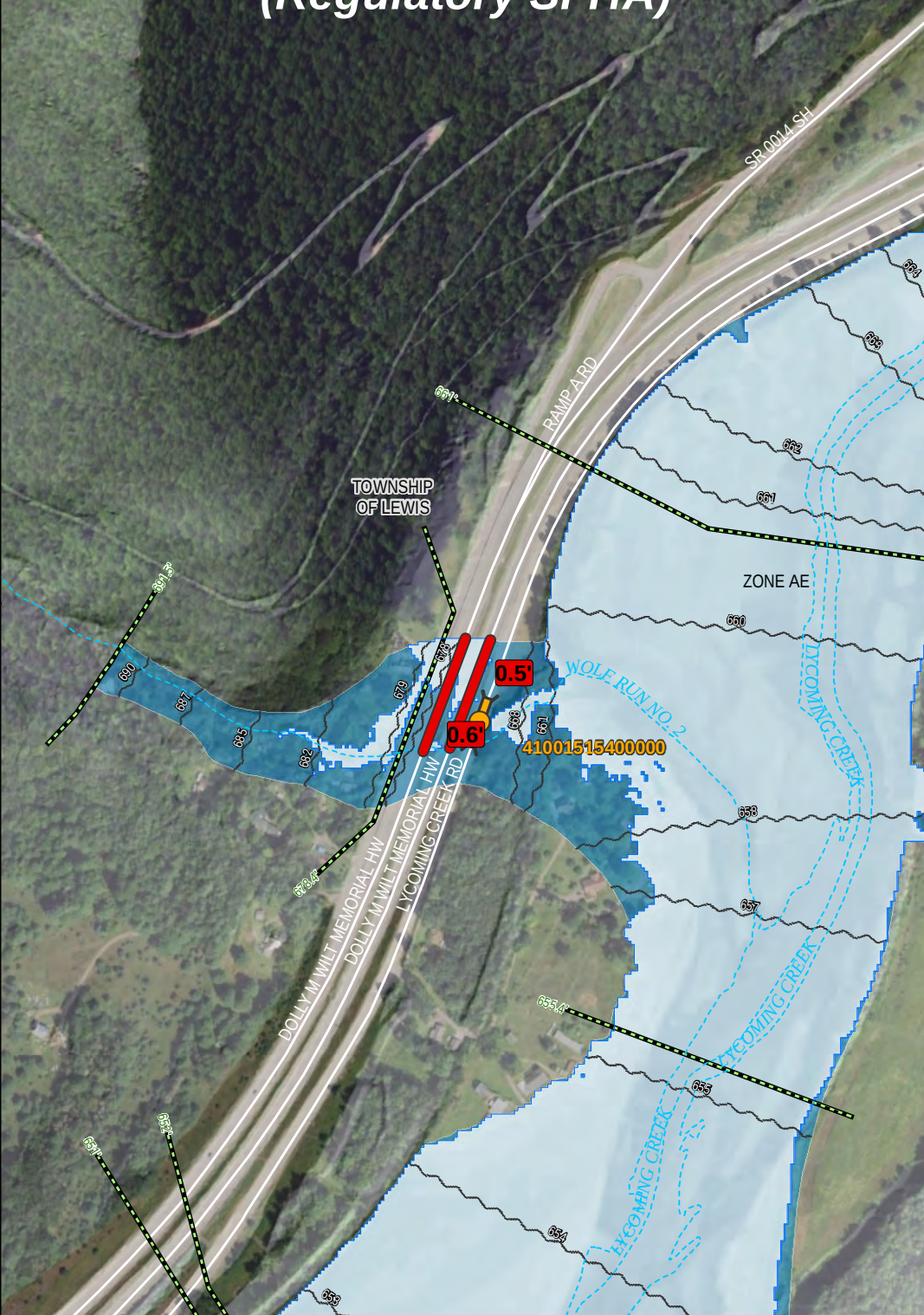
Sheet 39 of 163

DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

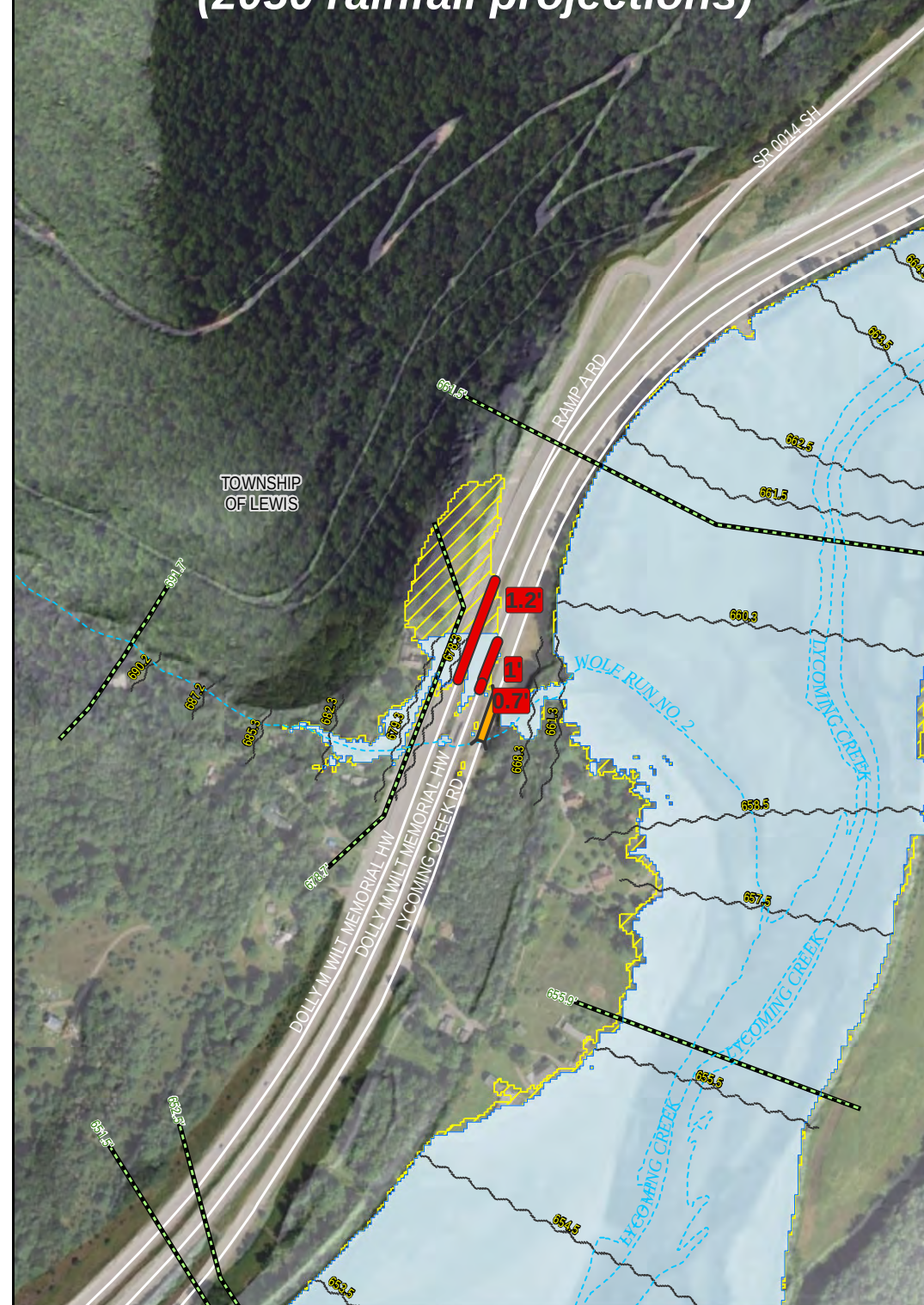
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

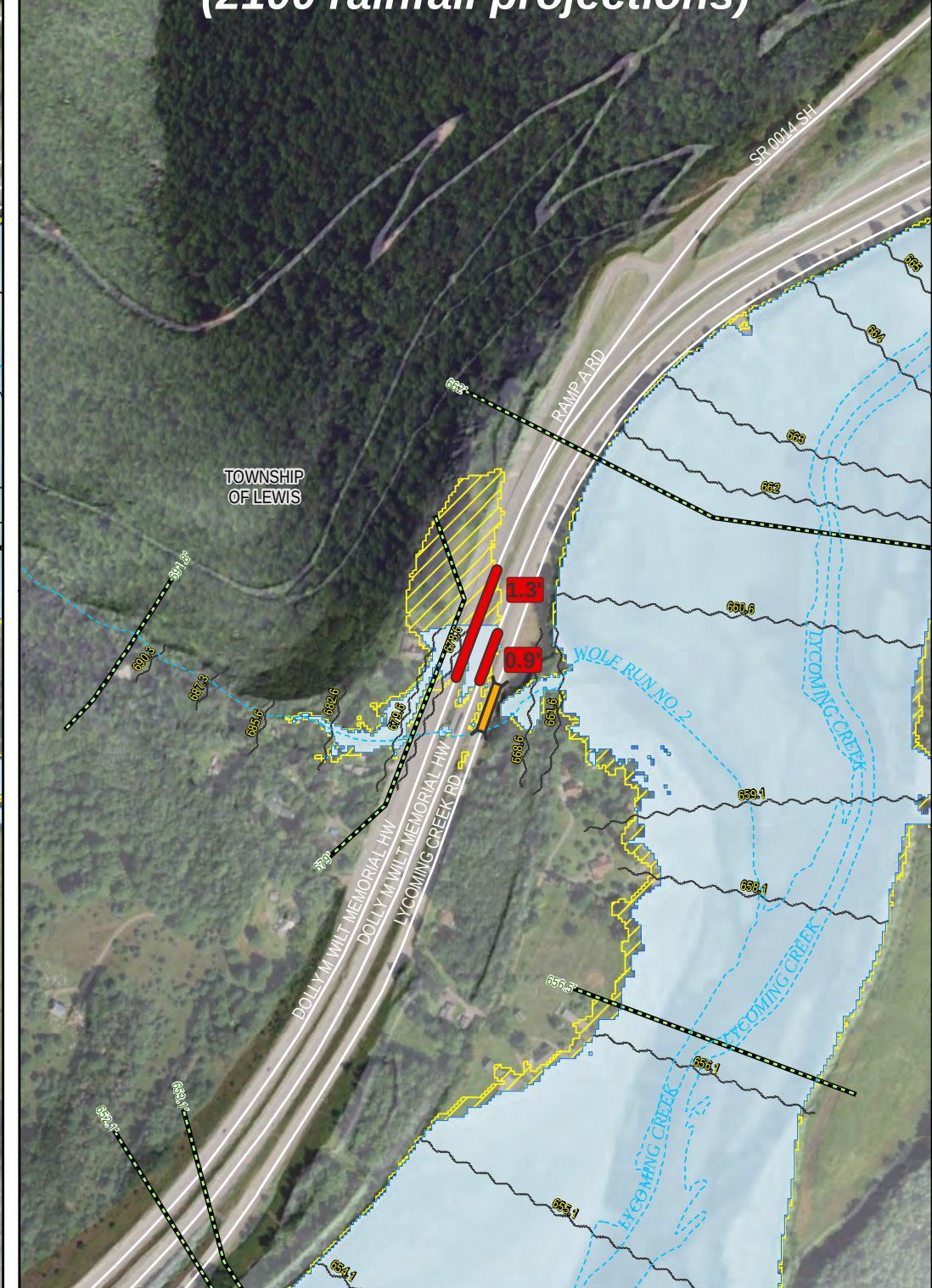
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

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FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
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FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

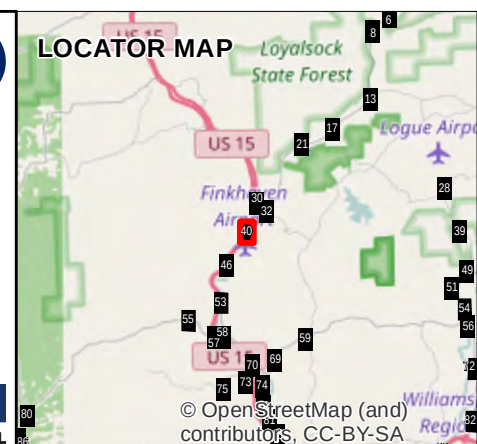
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DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
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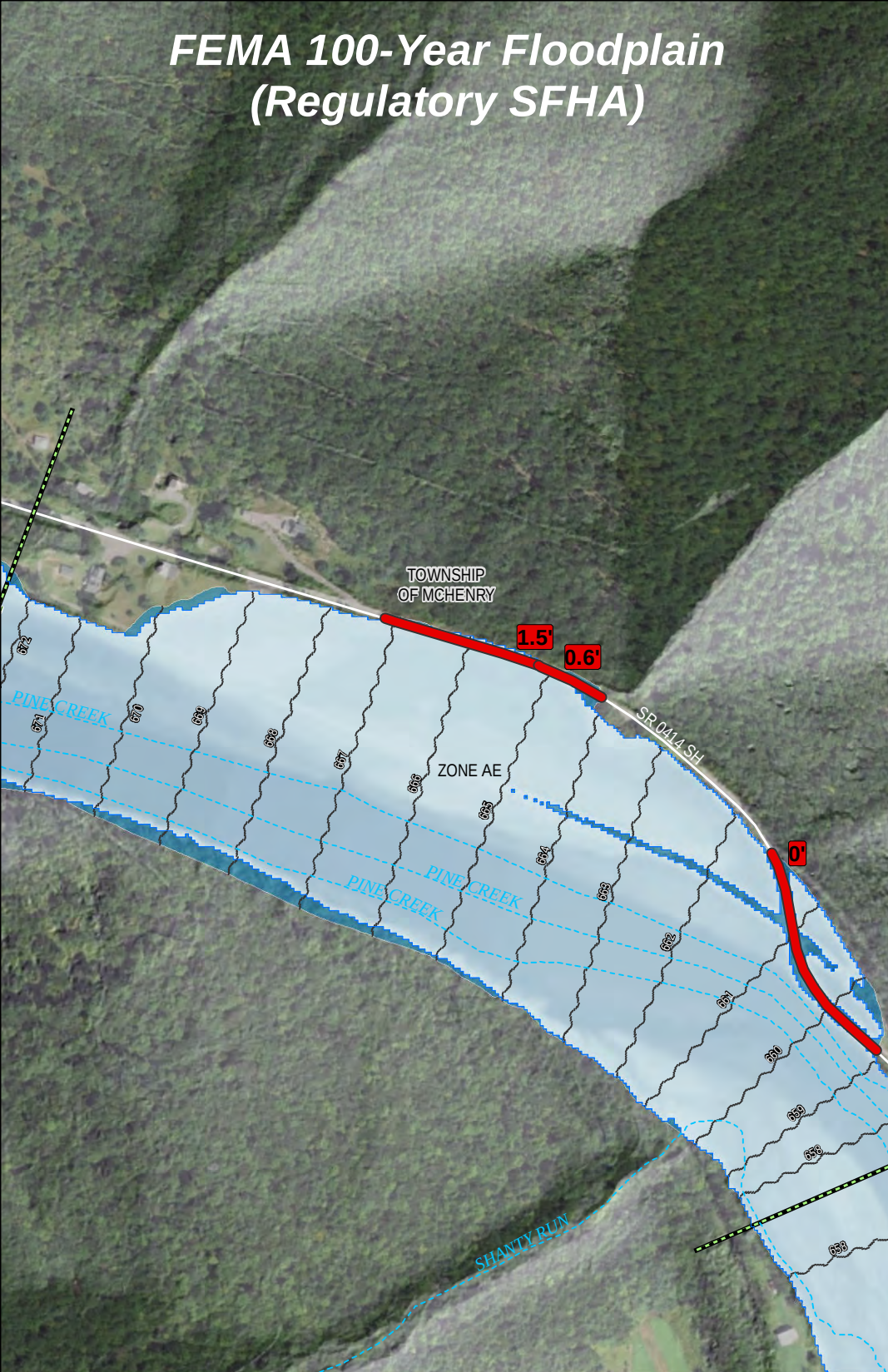
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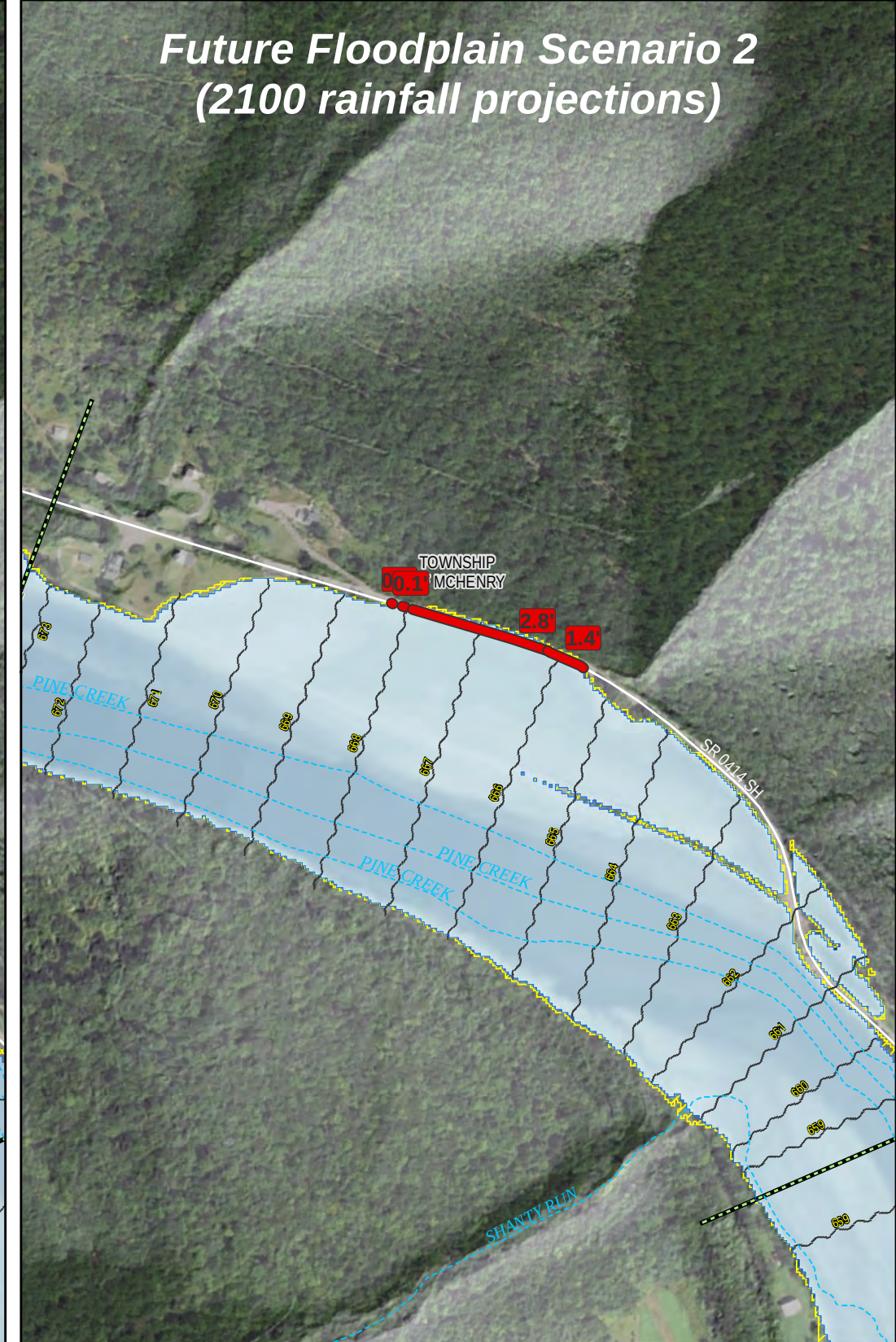
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Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

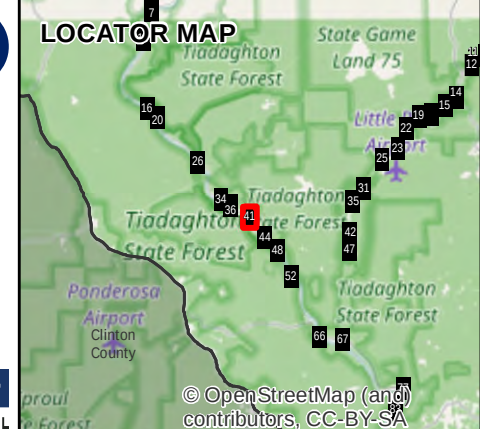
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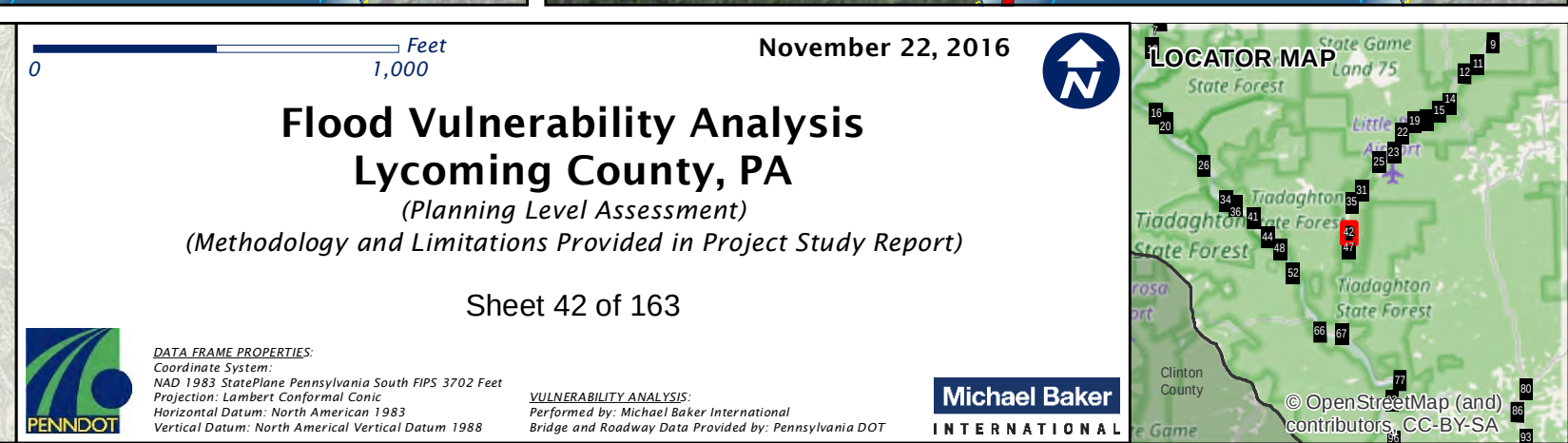
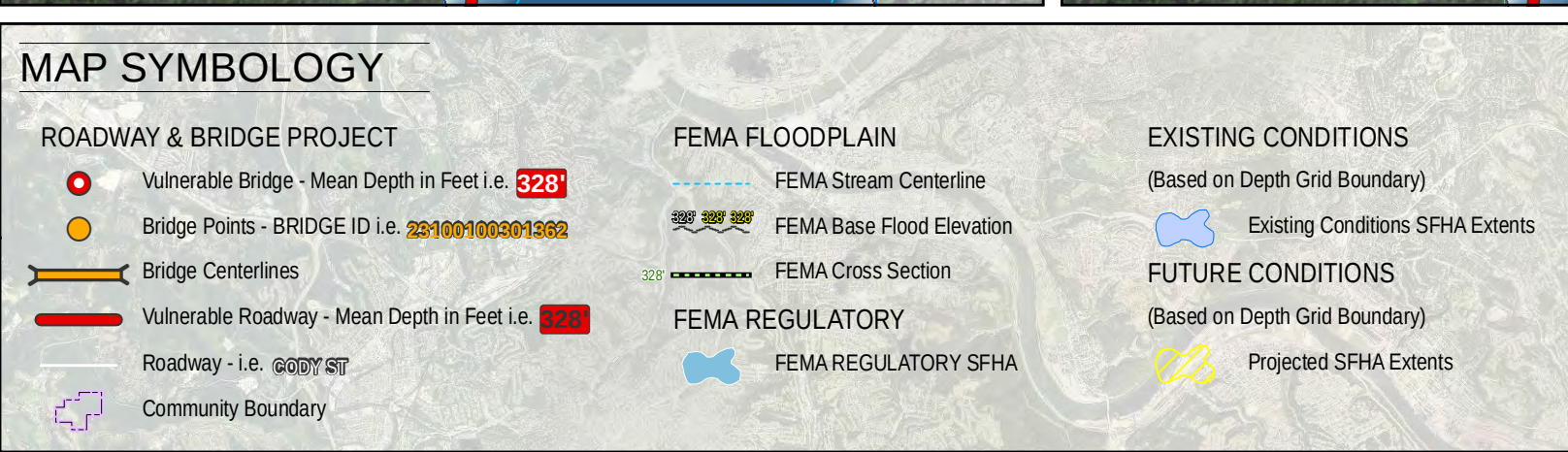
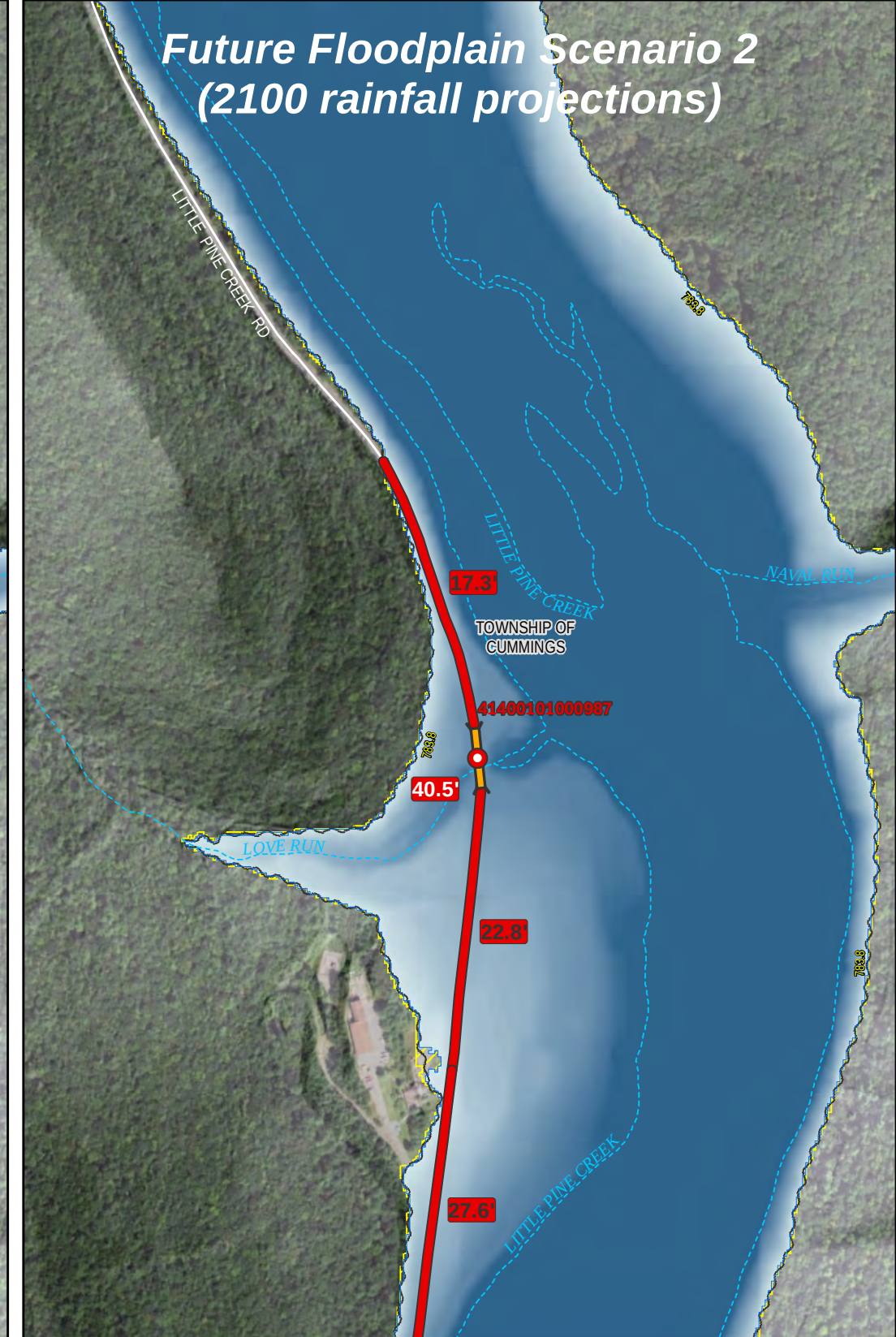
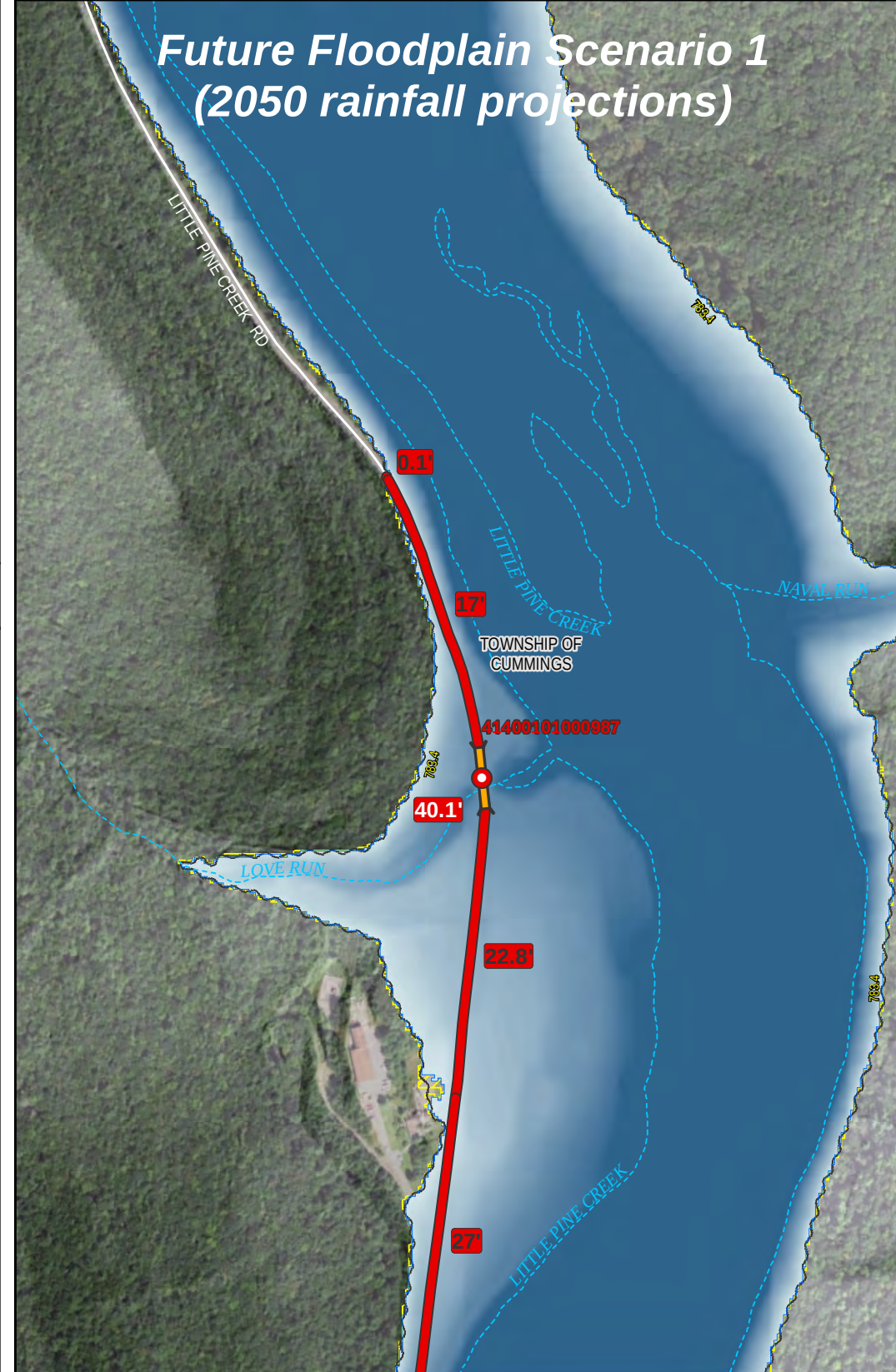
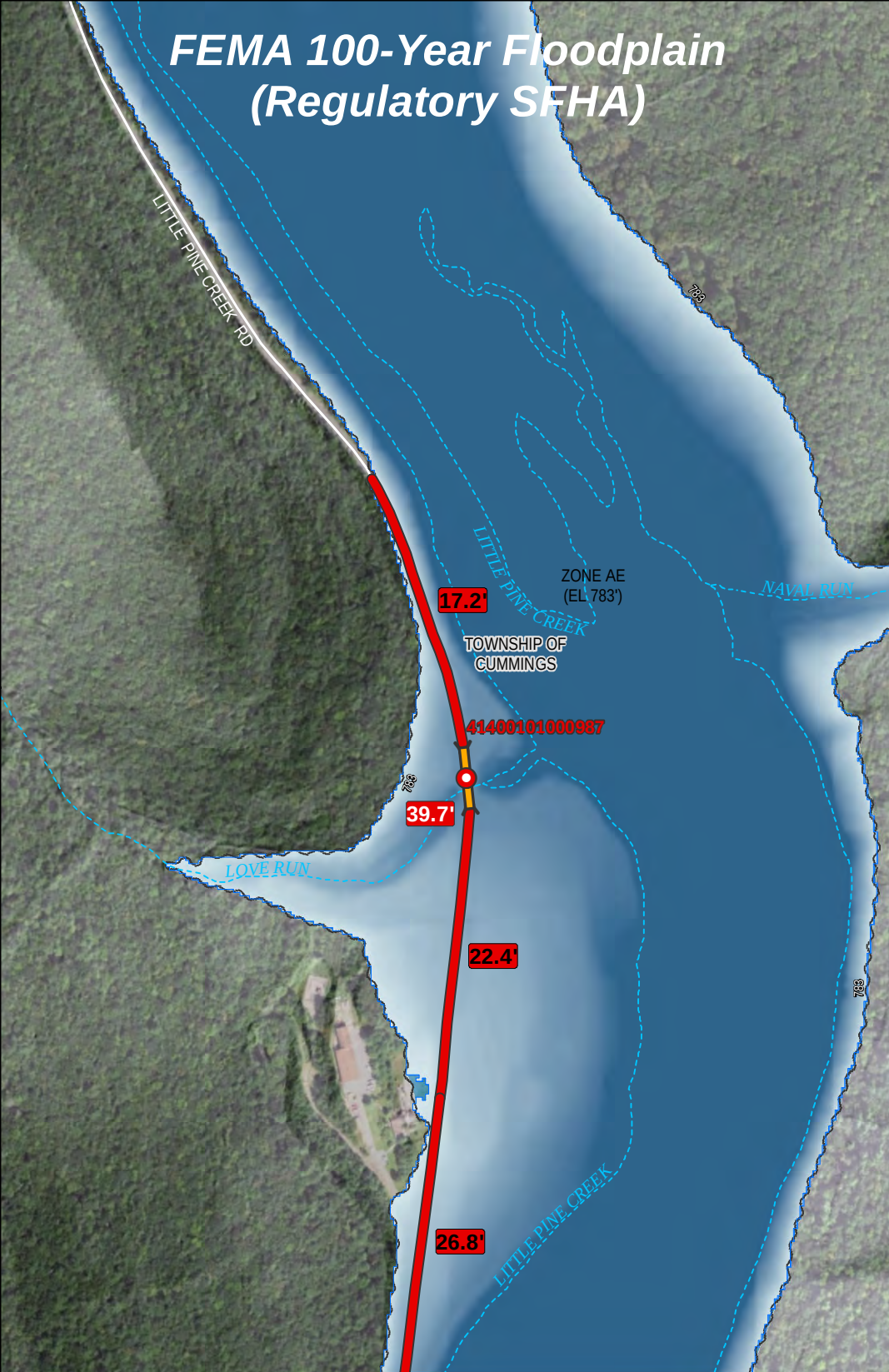
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

Michael Baker
INTERNATIONAL



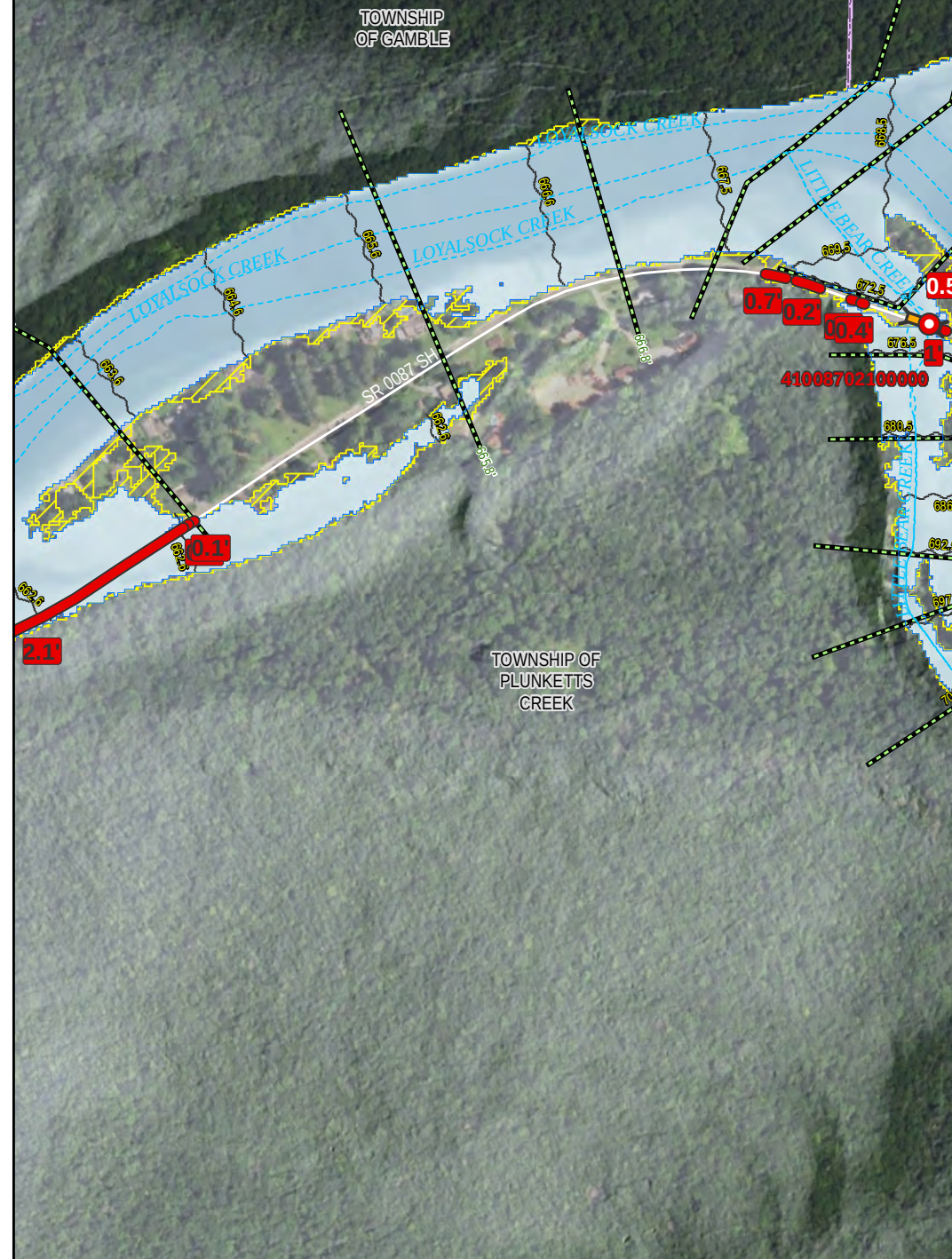
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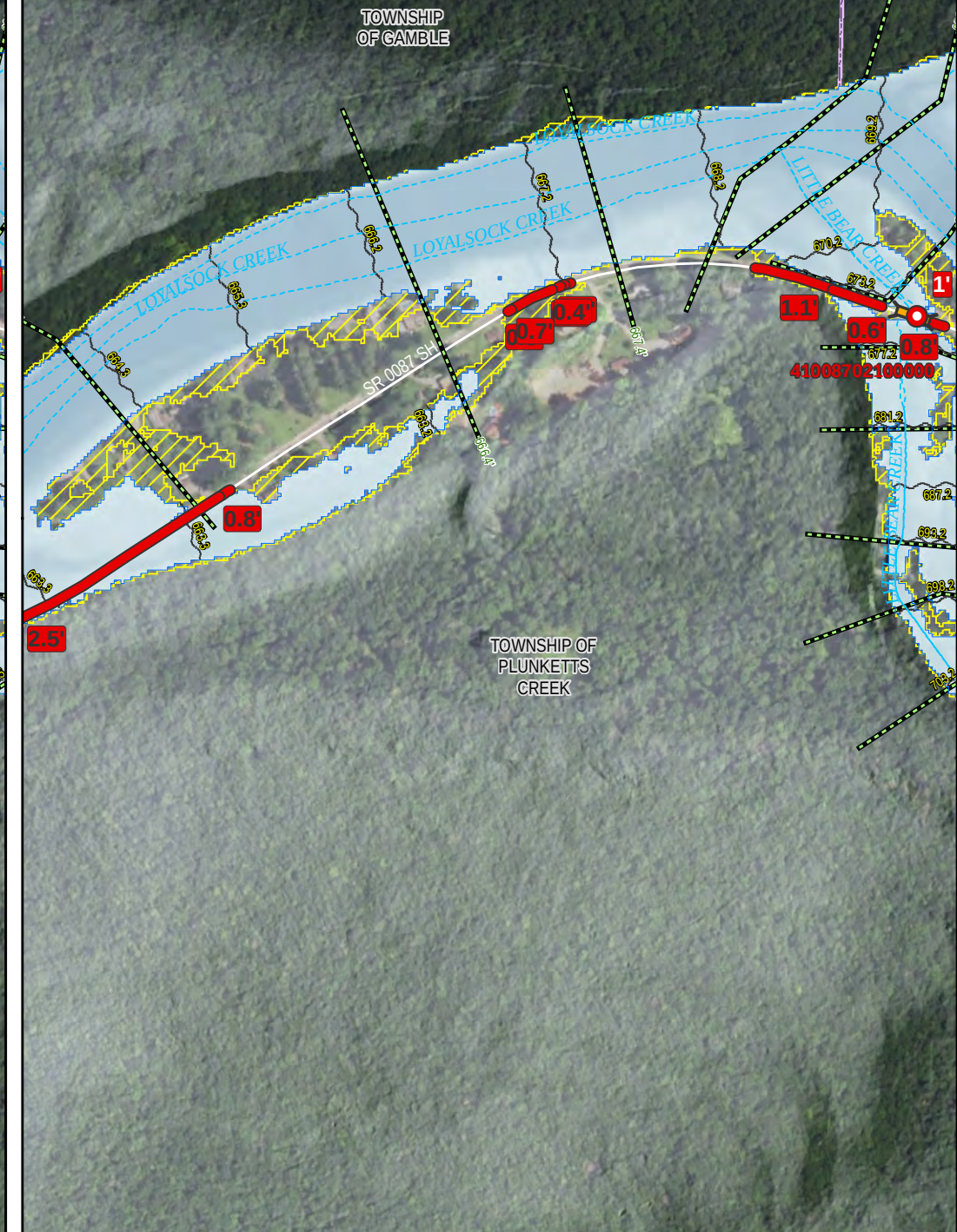
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

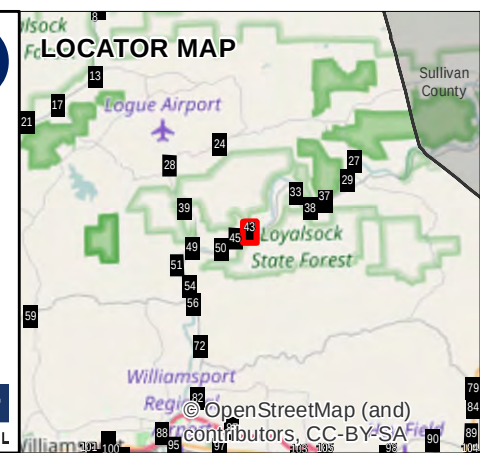
Sheet 43 of 163

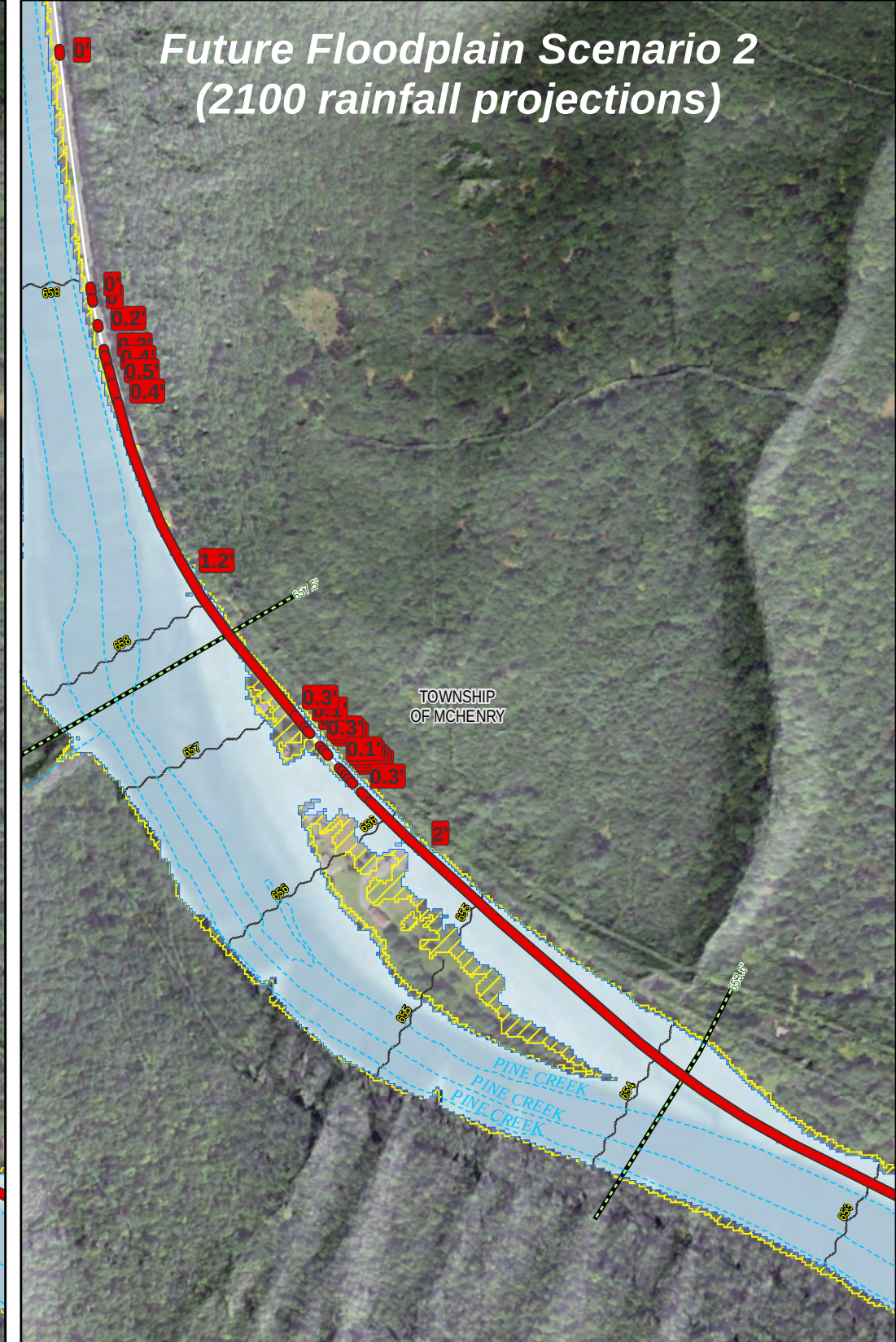
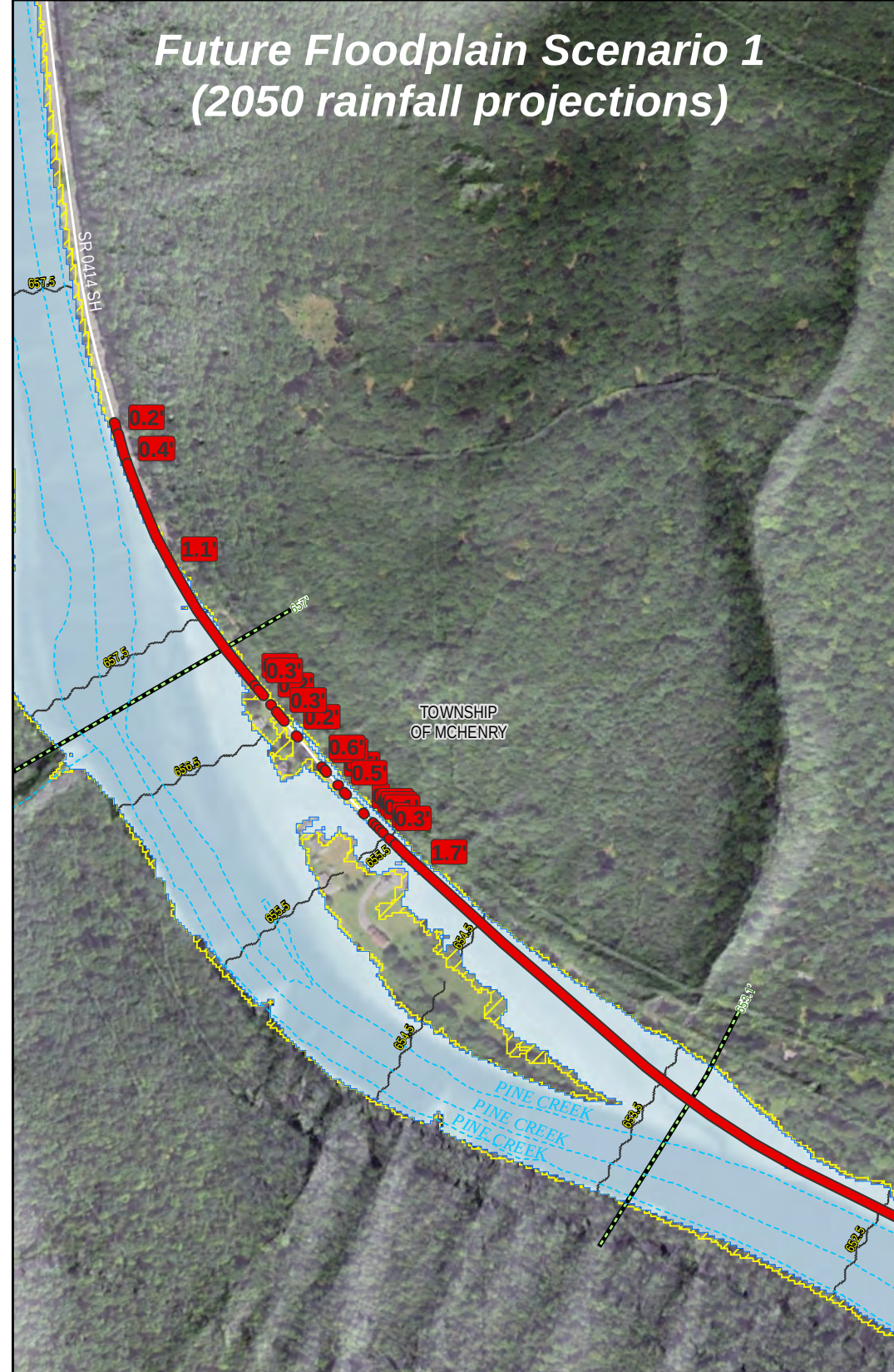
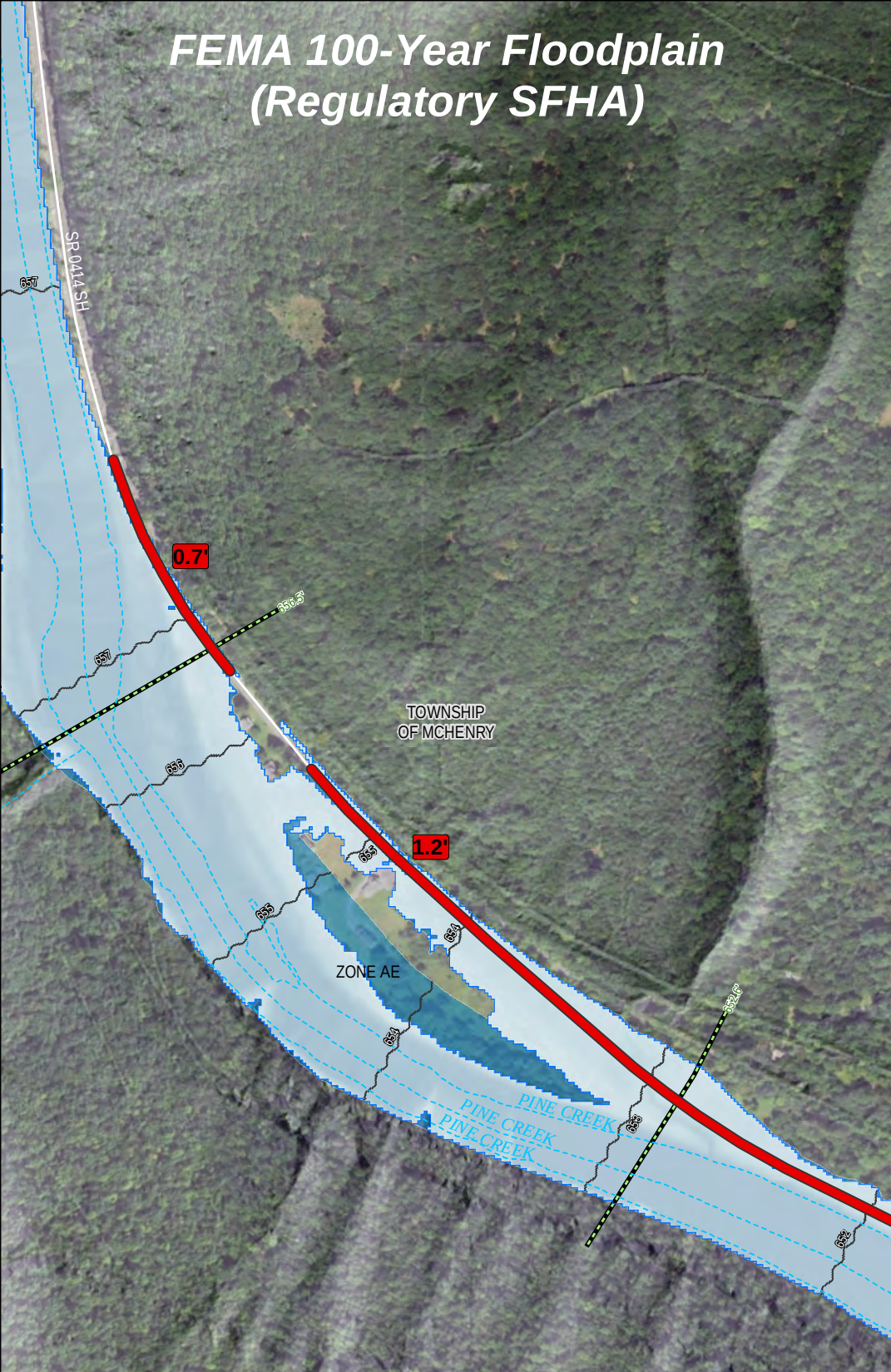


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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INTERNATIONAL**





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

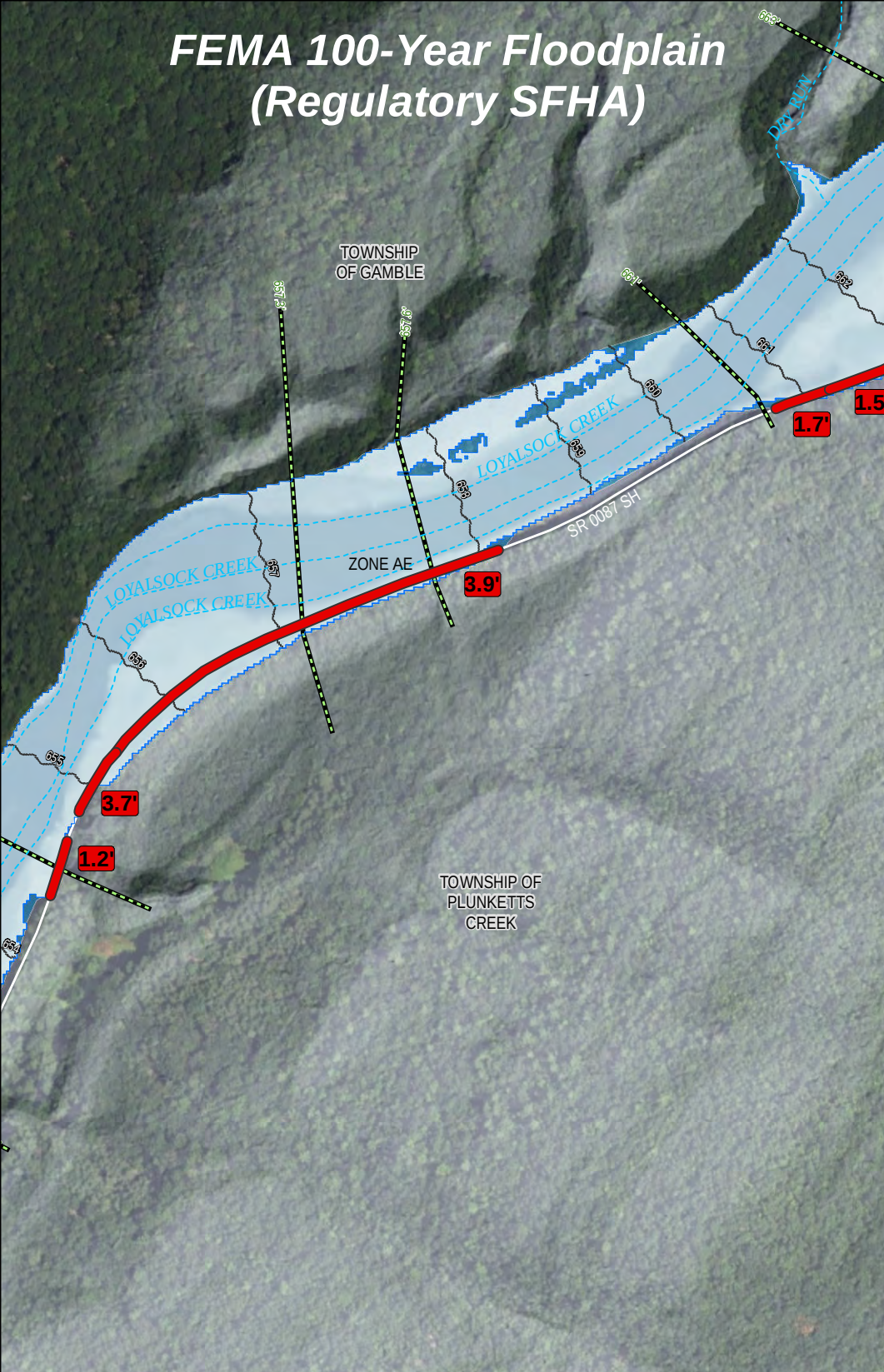
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

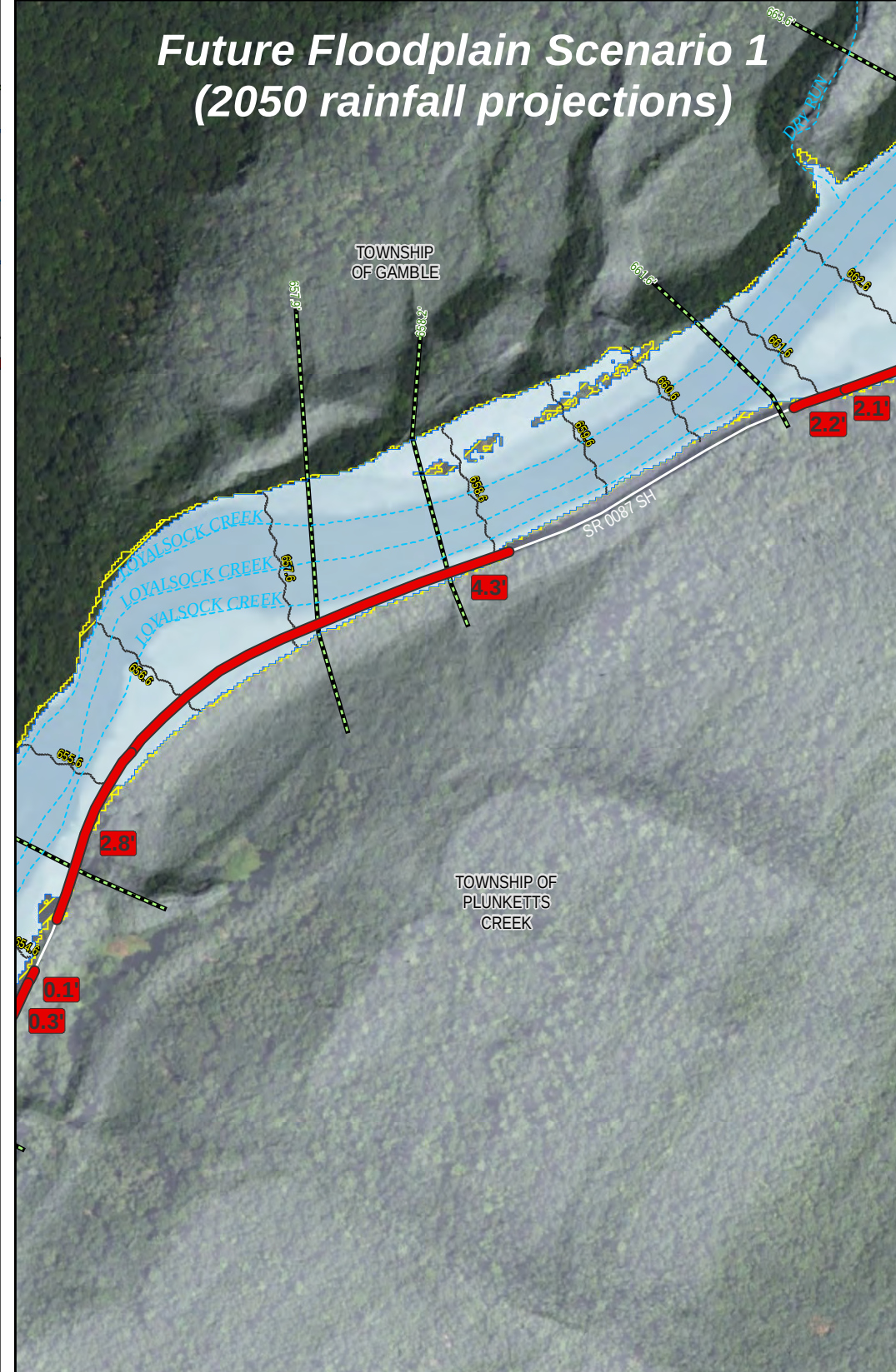
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

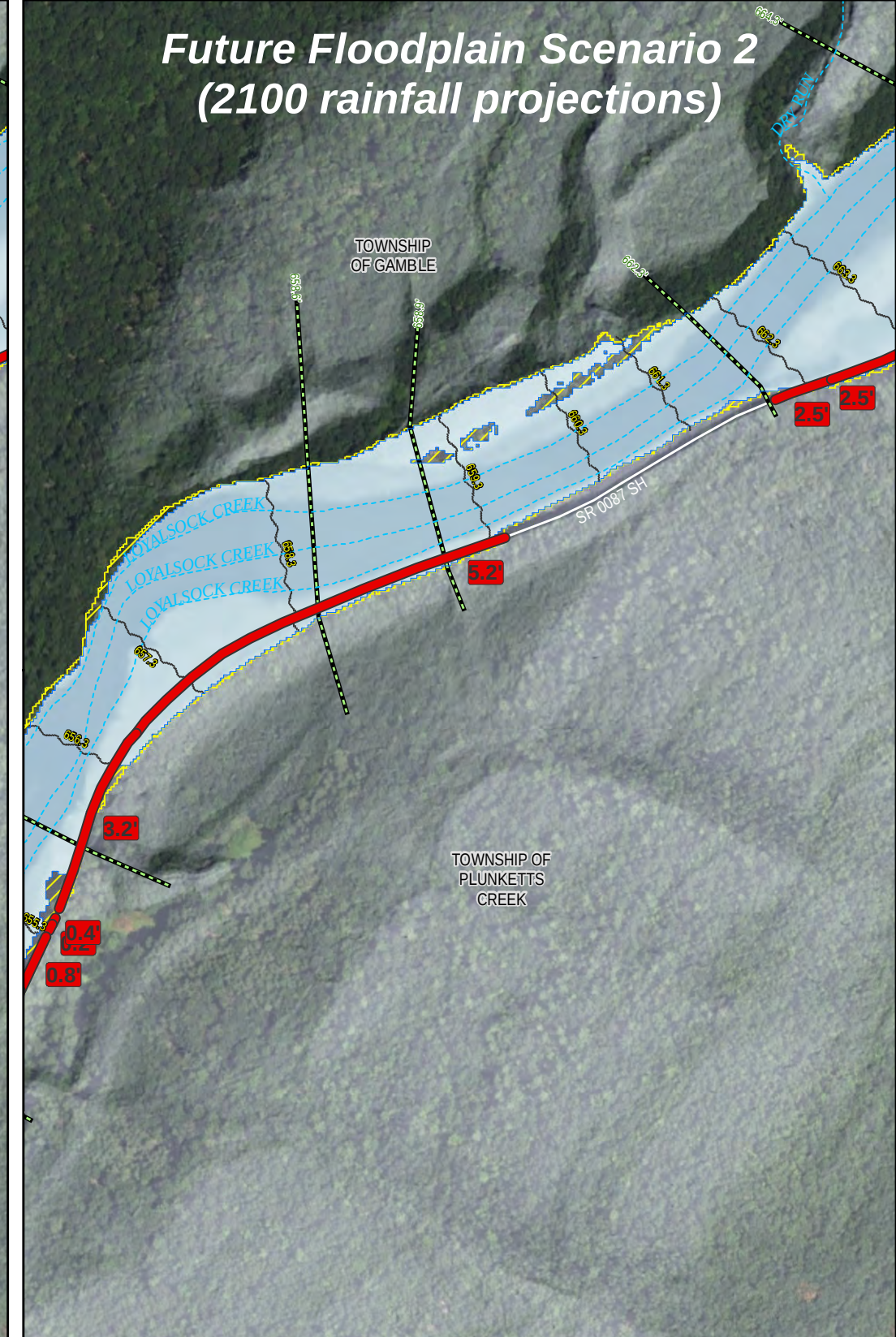
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

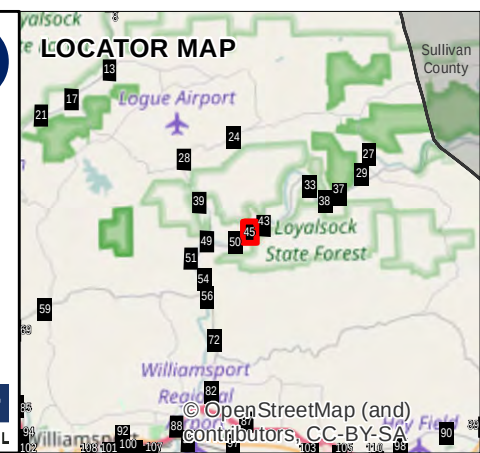
Sheet 45 of 163



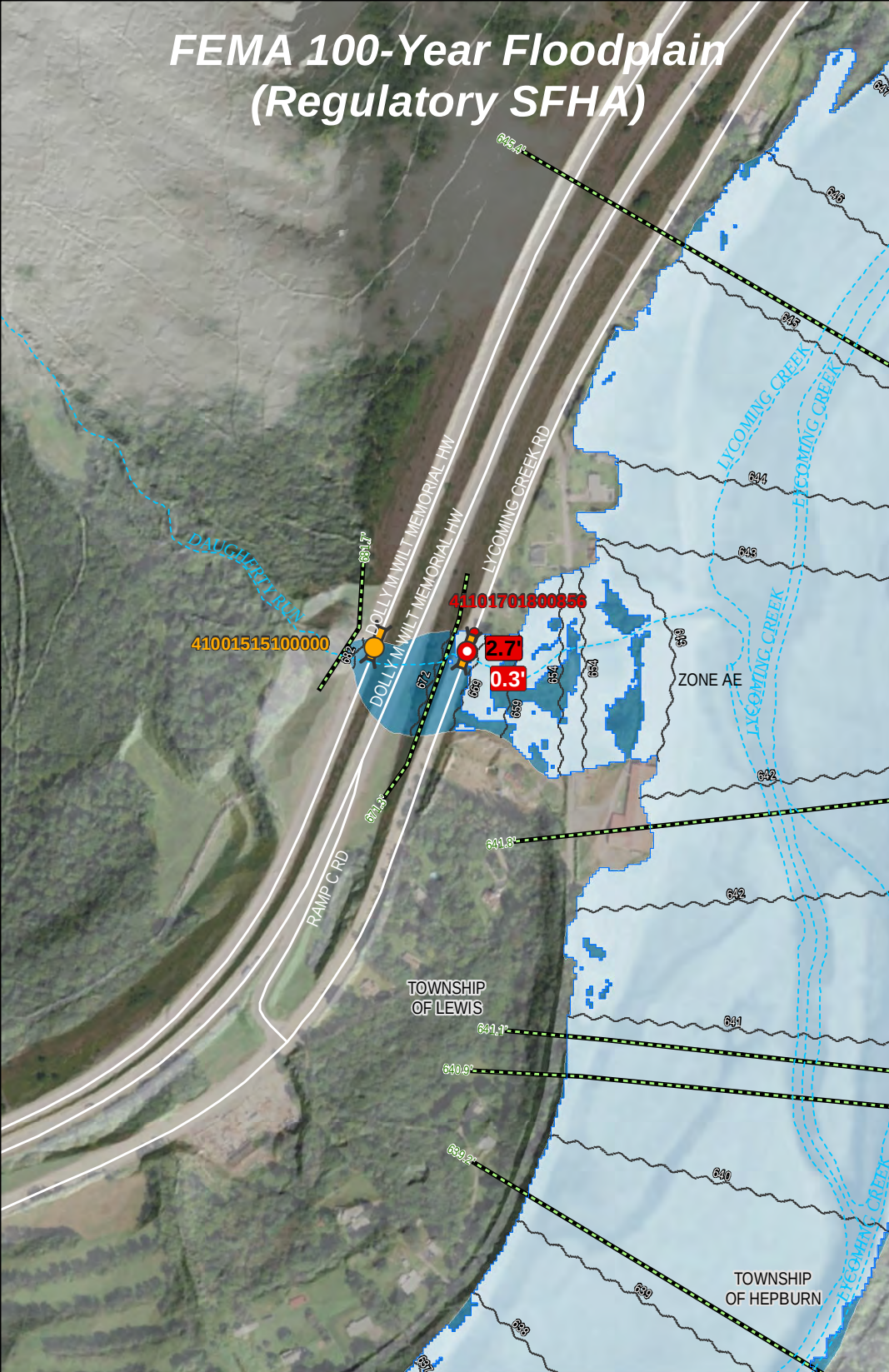
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NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

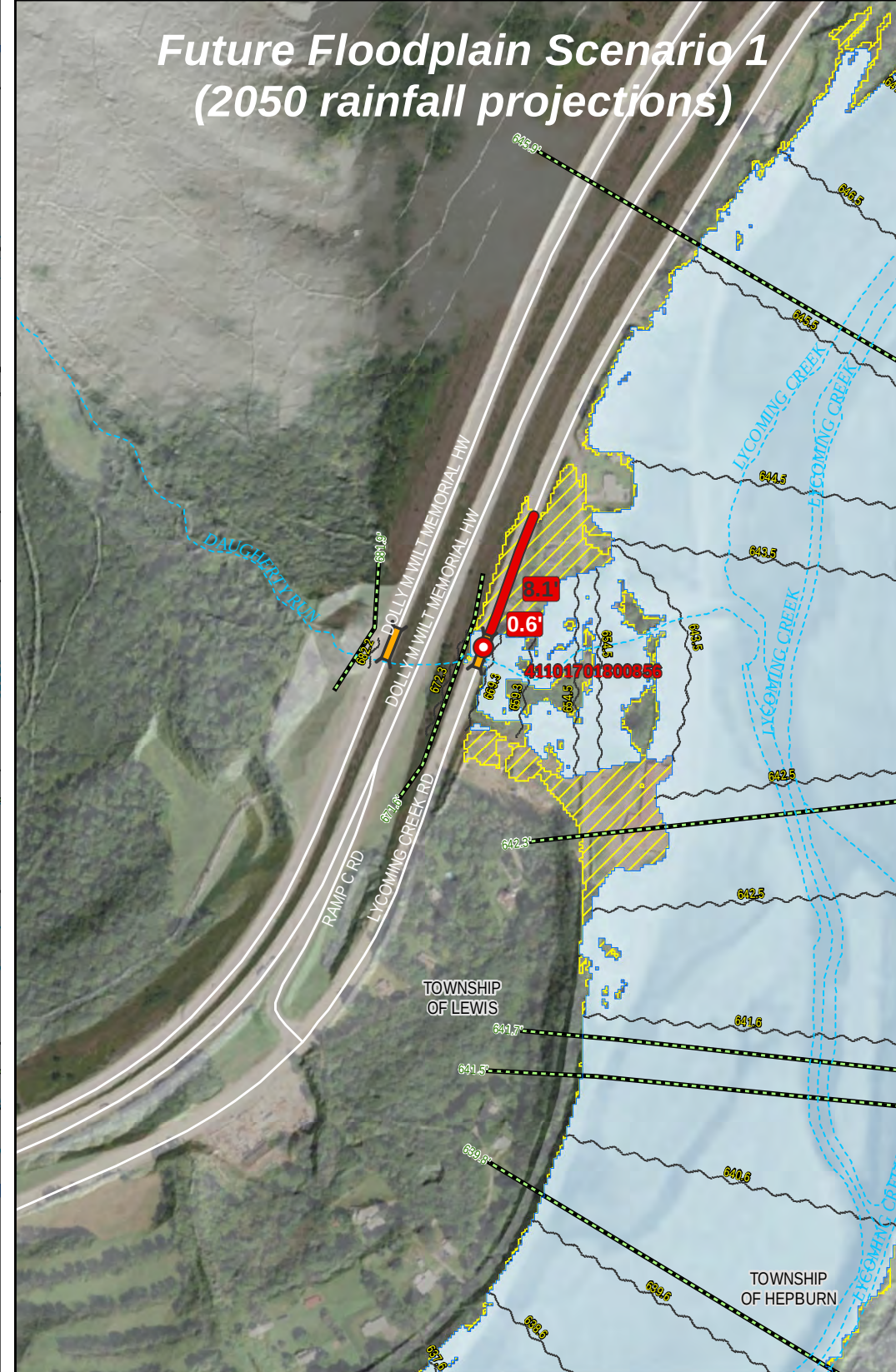
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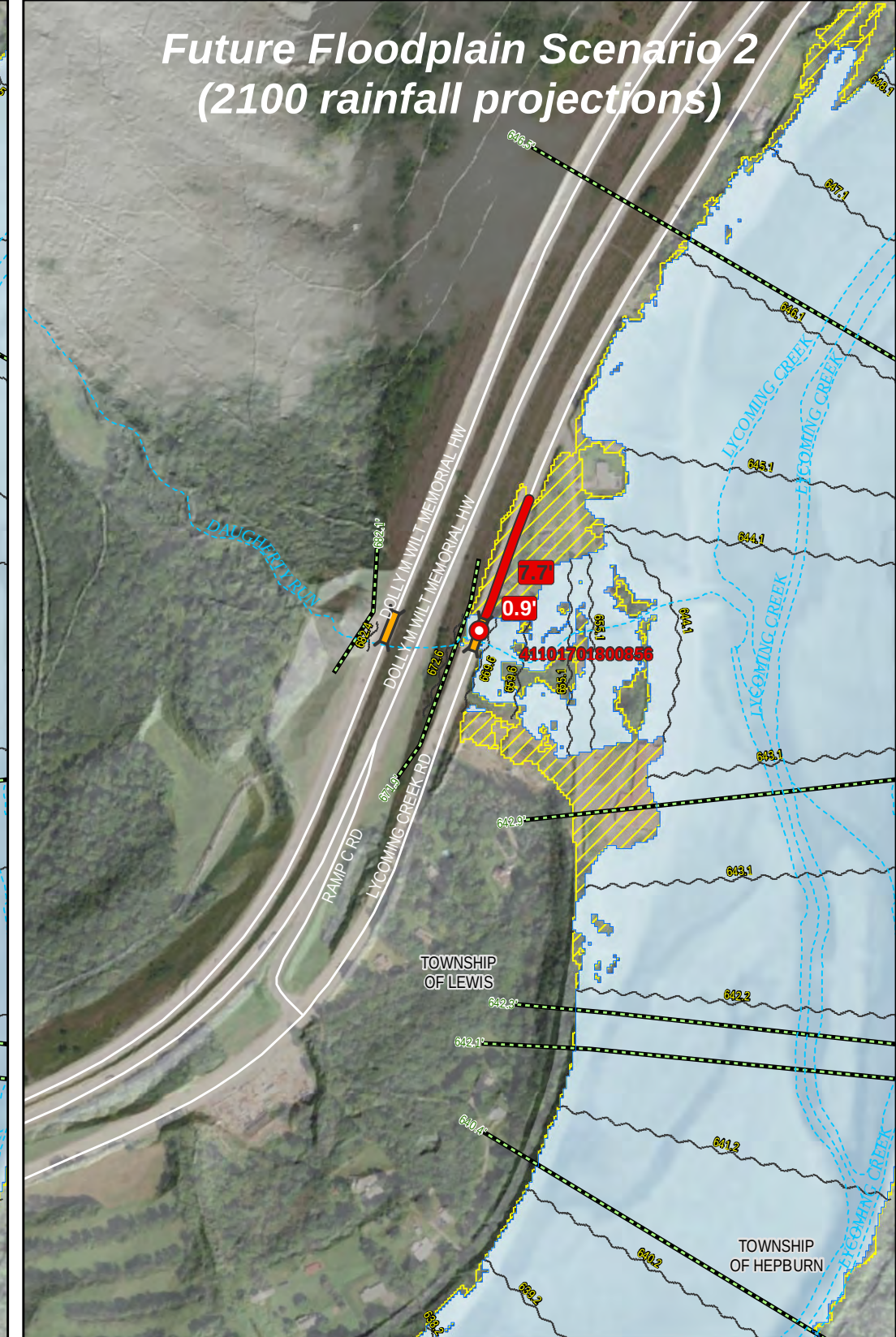
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

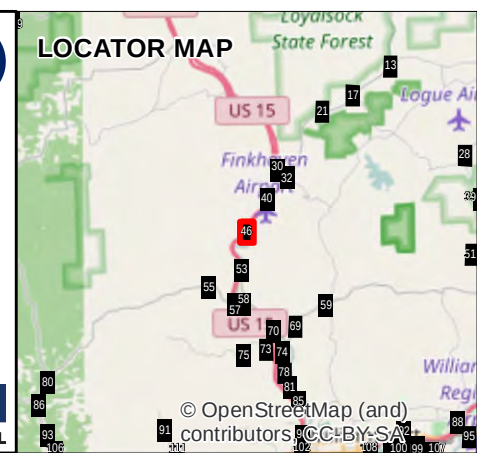
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DATA FRAME PROPERTIES:
Coordinate System:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

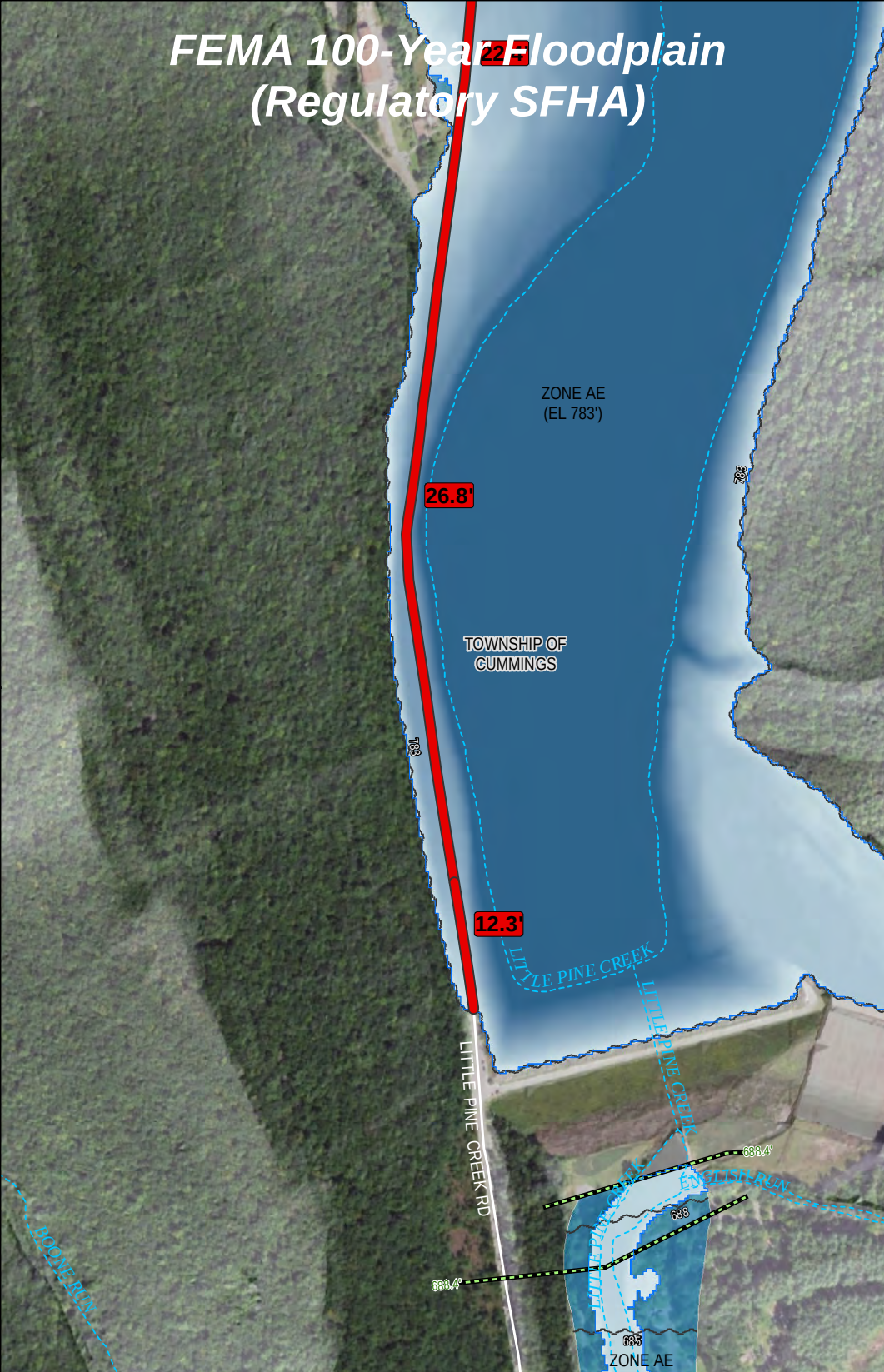
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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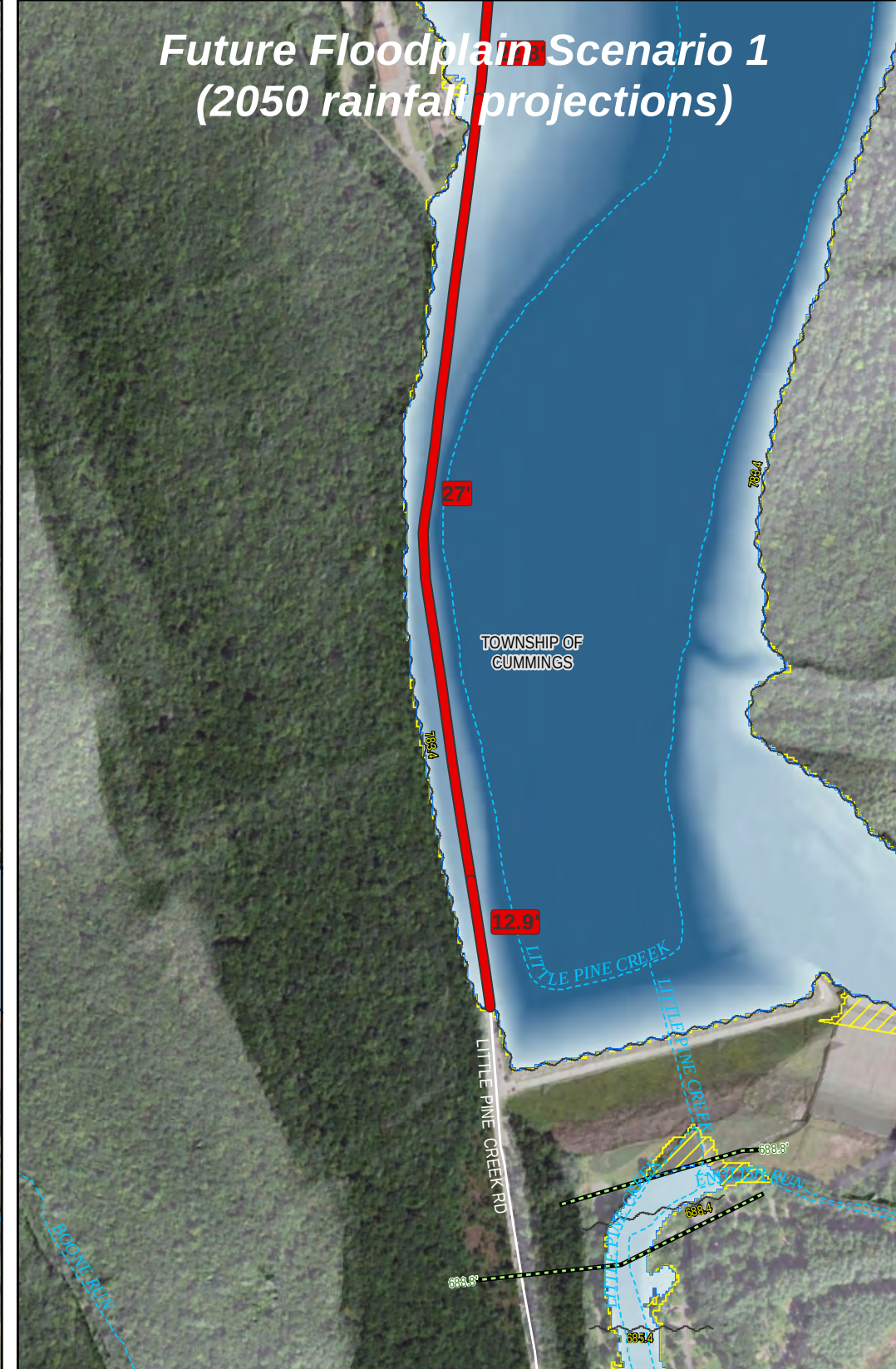


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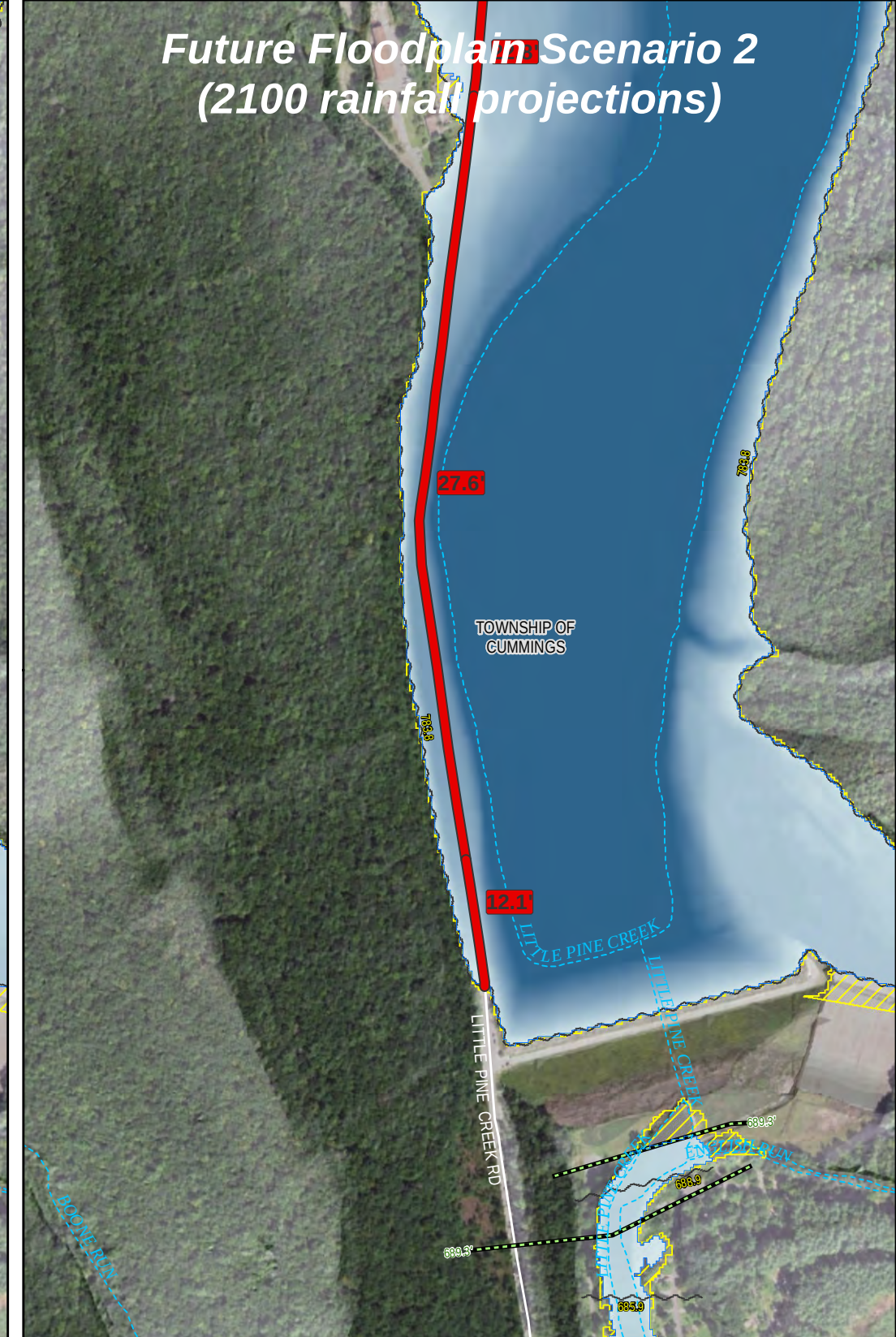
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOLOGY

- ROADWAY & BRIDGE PROJECT**
 - Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
 - Bridge Points - BRIDGE ID i.e. **23100100301362**
 - Bridge Centerlines
 - Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
 - Roadway - i.e. **CODY ST**
 - Community Boundary

- FEMA FLOODPLAIN**
 - FEMA Stream Centerline
 - FEMA Base Flood Elevation
 - FEMA Cross Section
- FEMA REGULATORY**
 - FEMA REGULATORY SFHA

- EXISTING CONDITIONS**
(Based on Depth Grid Boundary)
 - Existing Conditions SFHA Extents
- FUTURE CONDITIONS**
(Based on Depth Grid Boundary)
 - Projected SFHA Extents

0 1,000 Feet

November 22, 2016



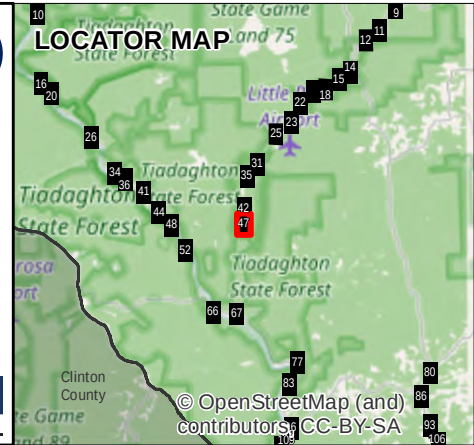
Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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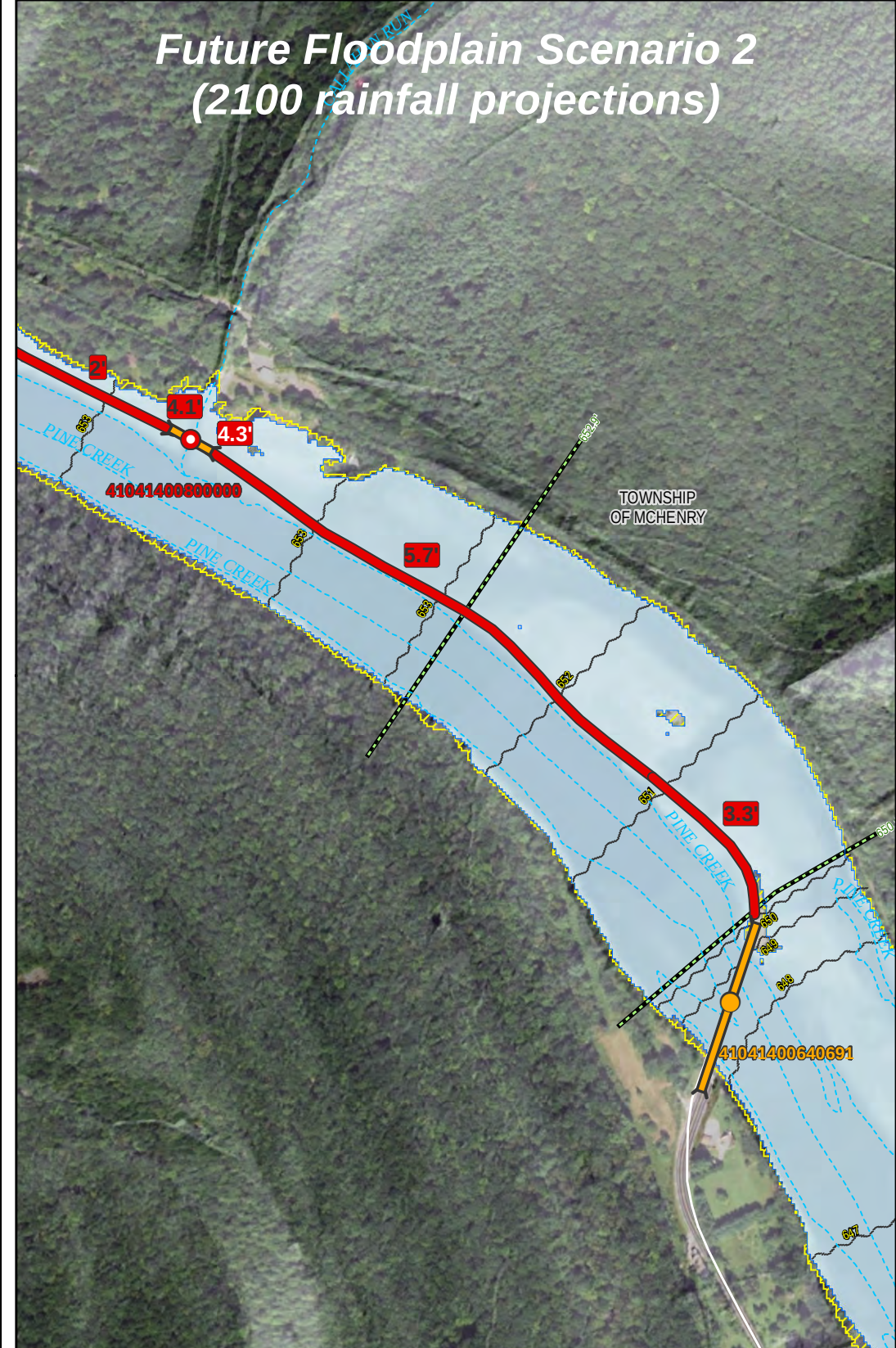
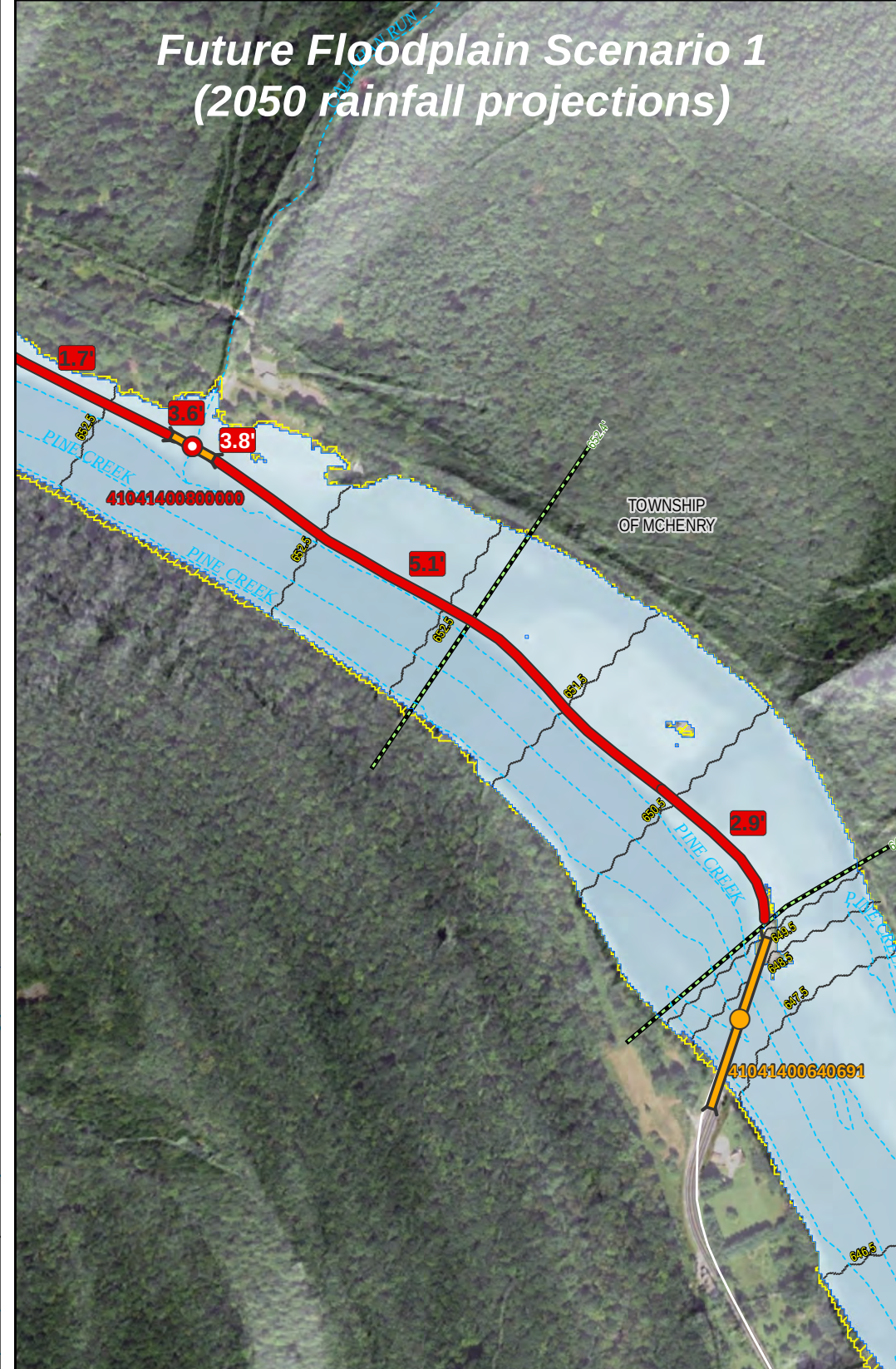
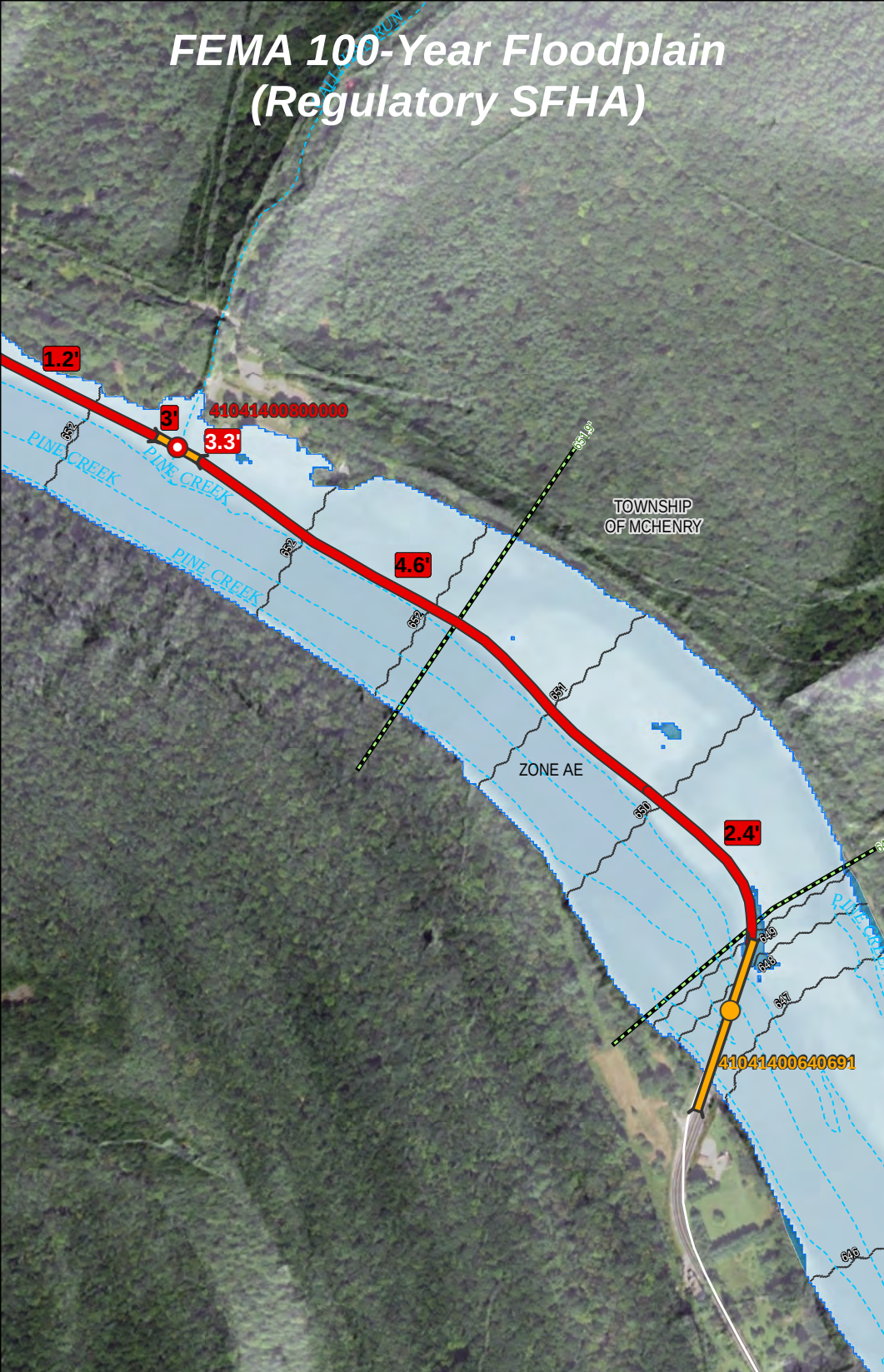


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

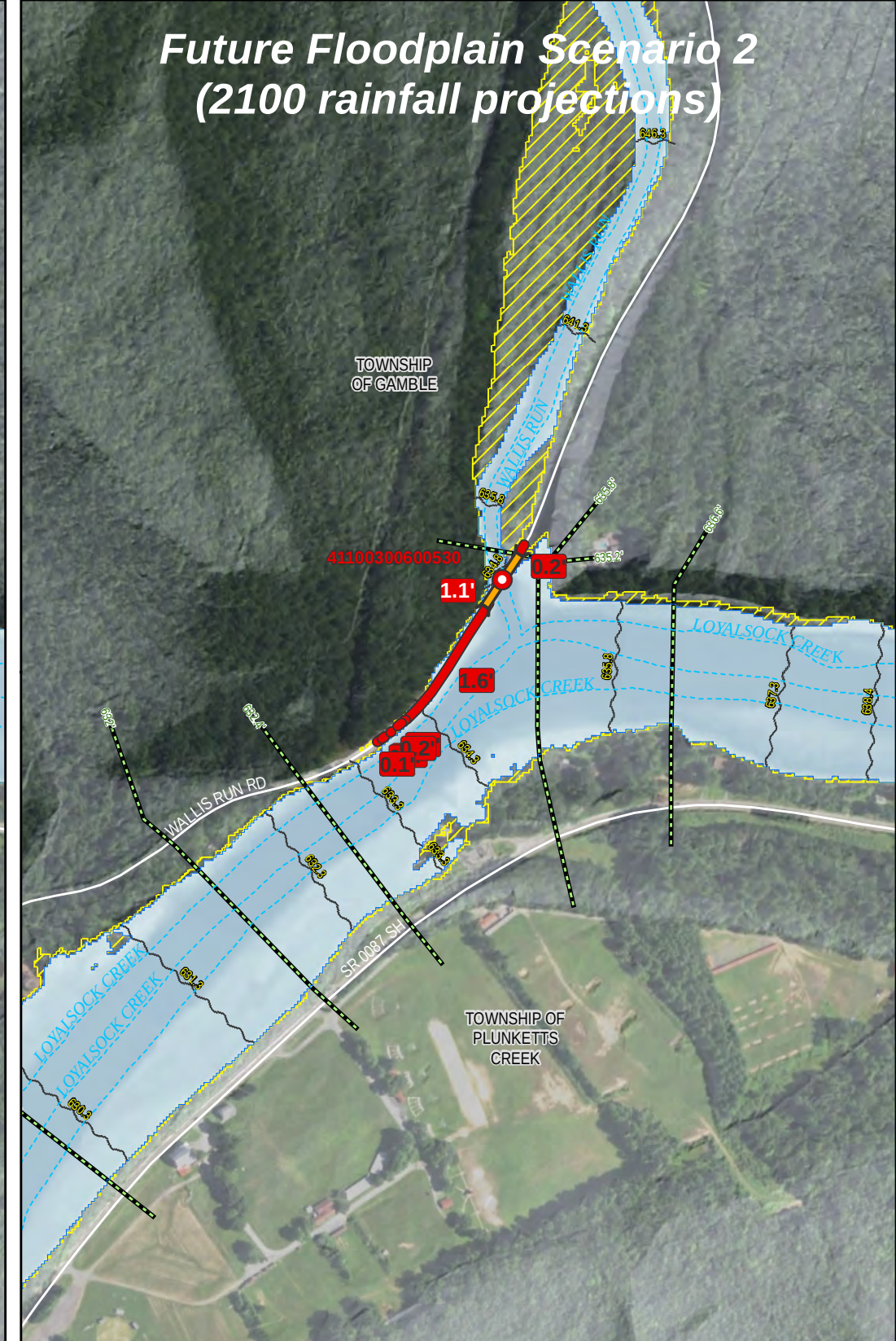
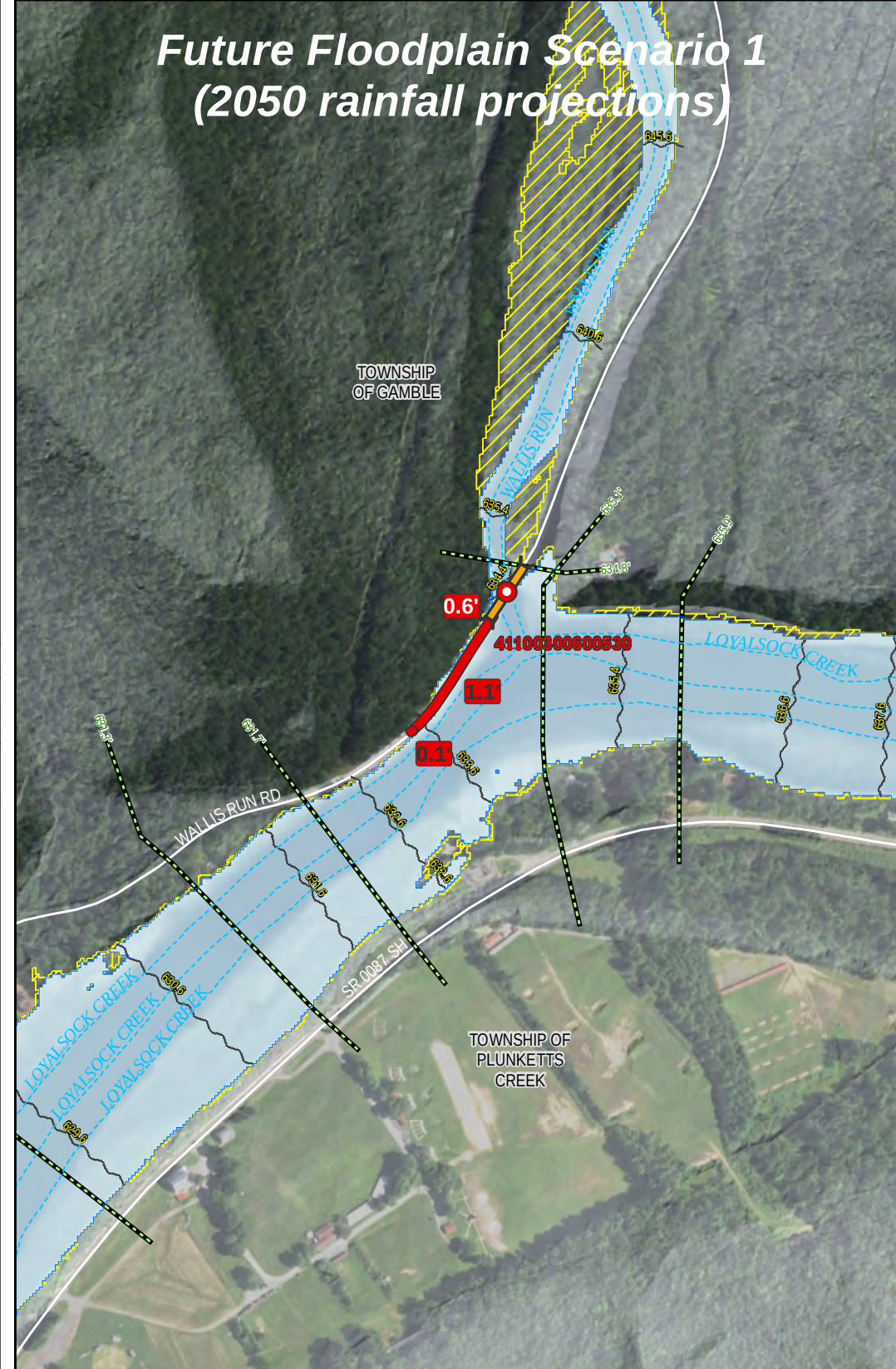
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LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

November 22, 2016

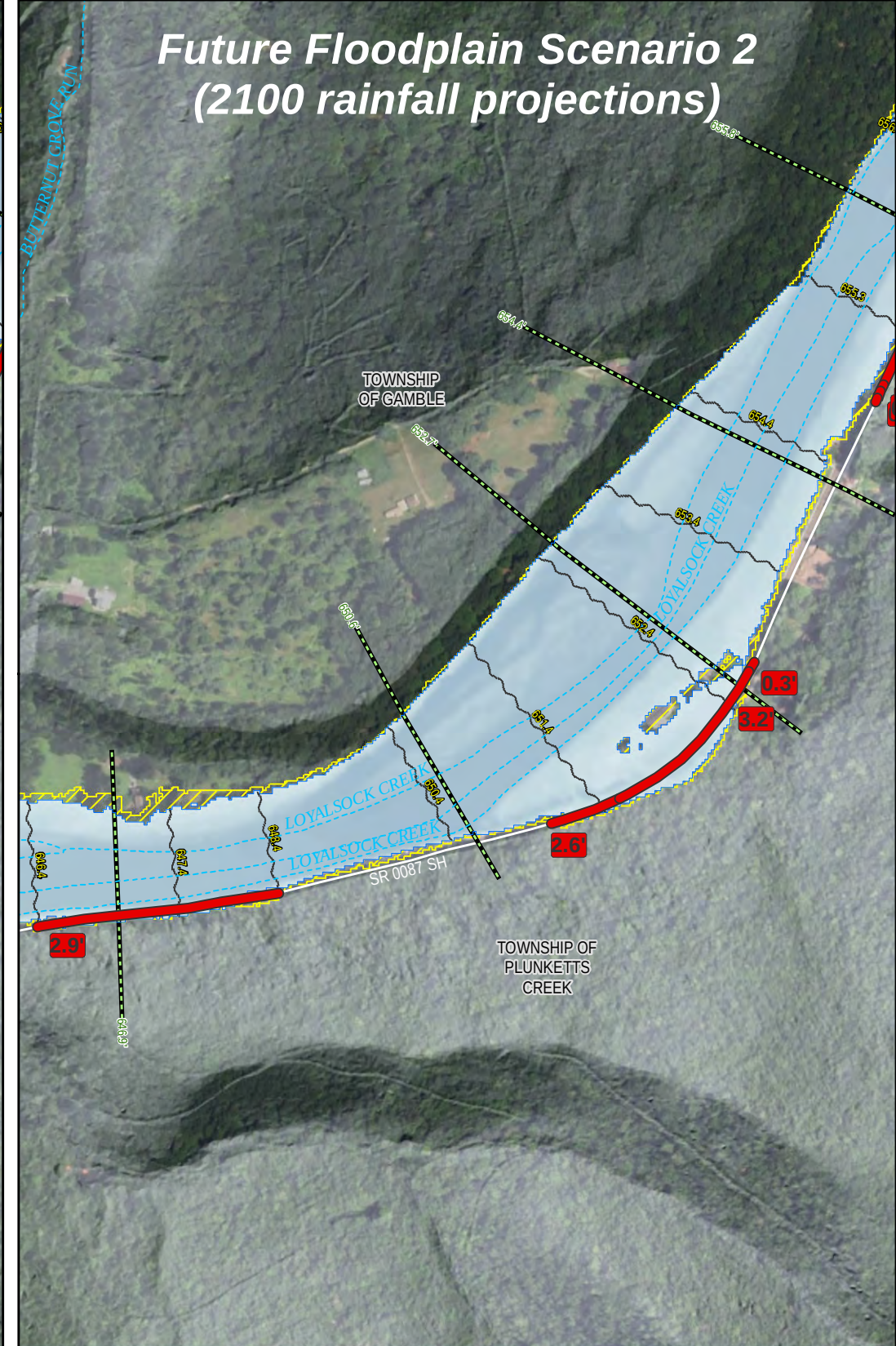
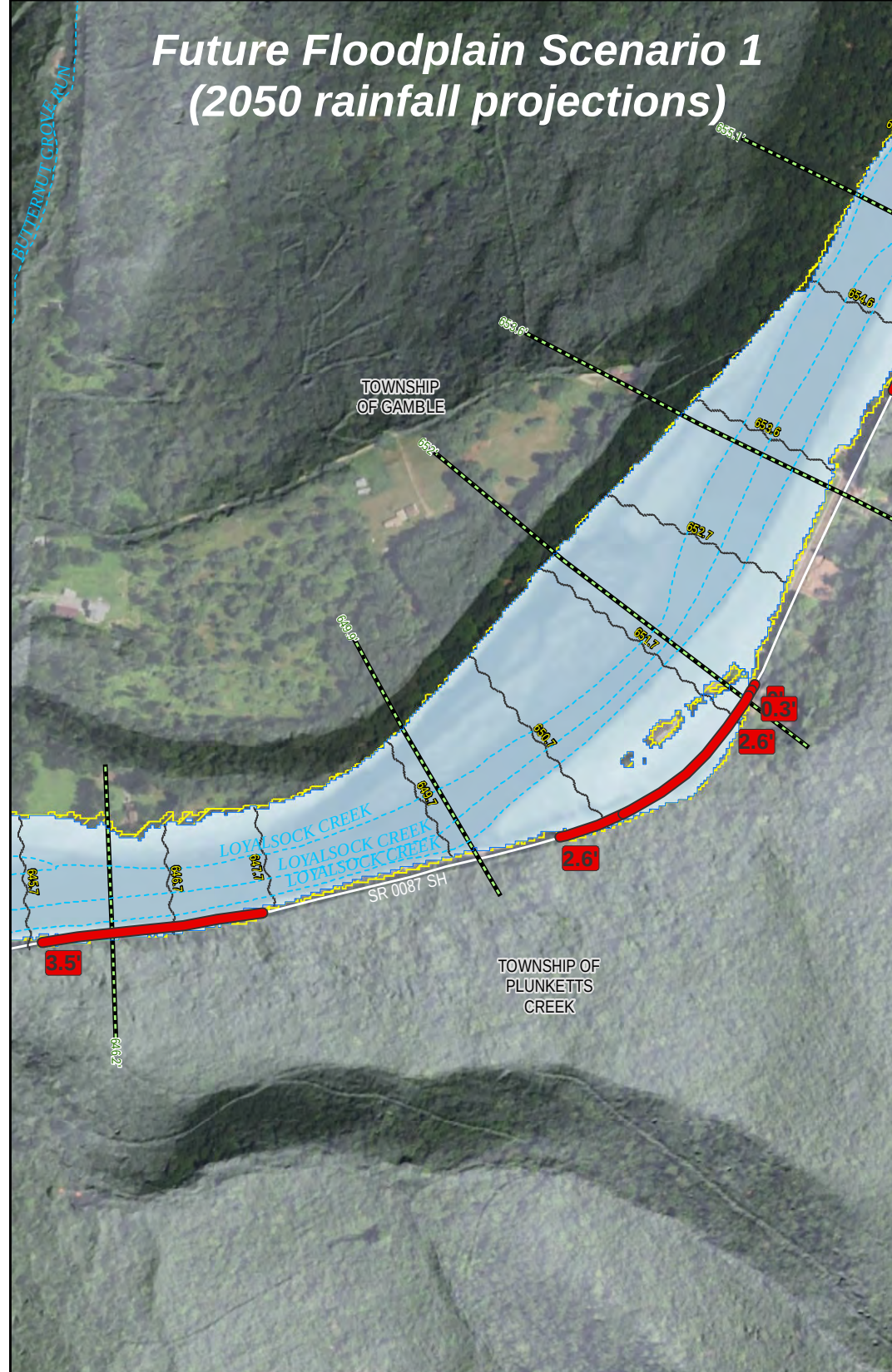
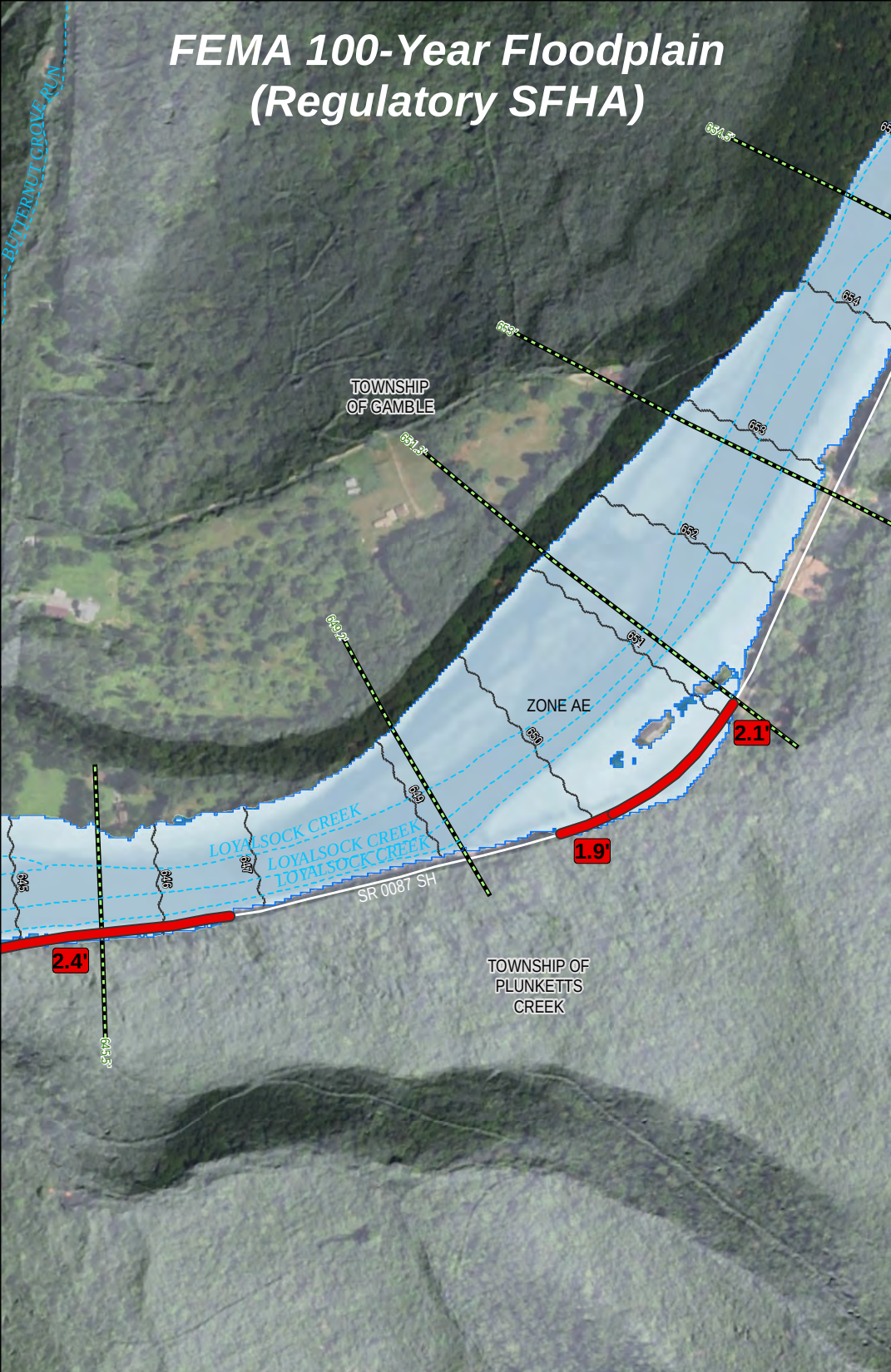
Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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Michael Baker
INTERNATIONAL

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. 60DY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

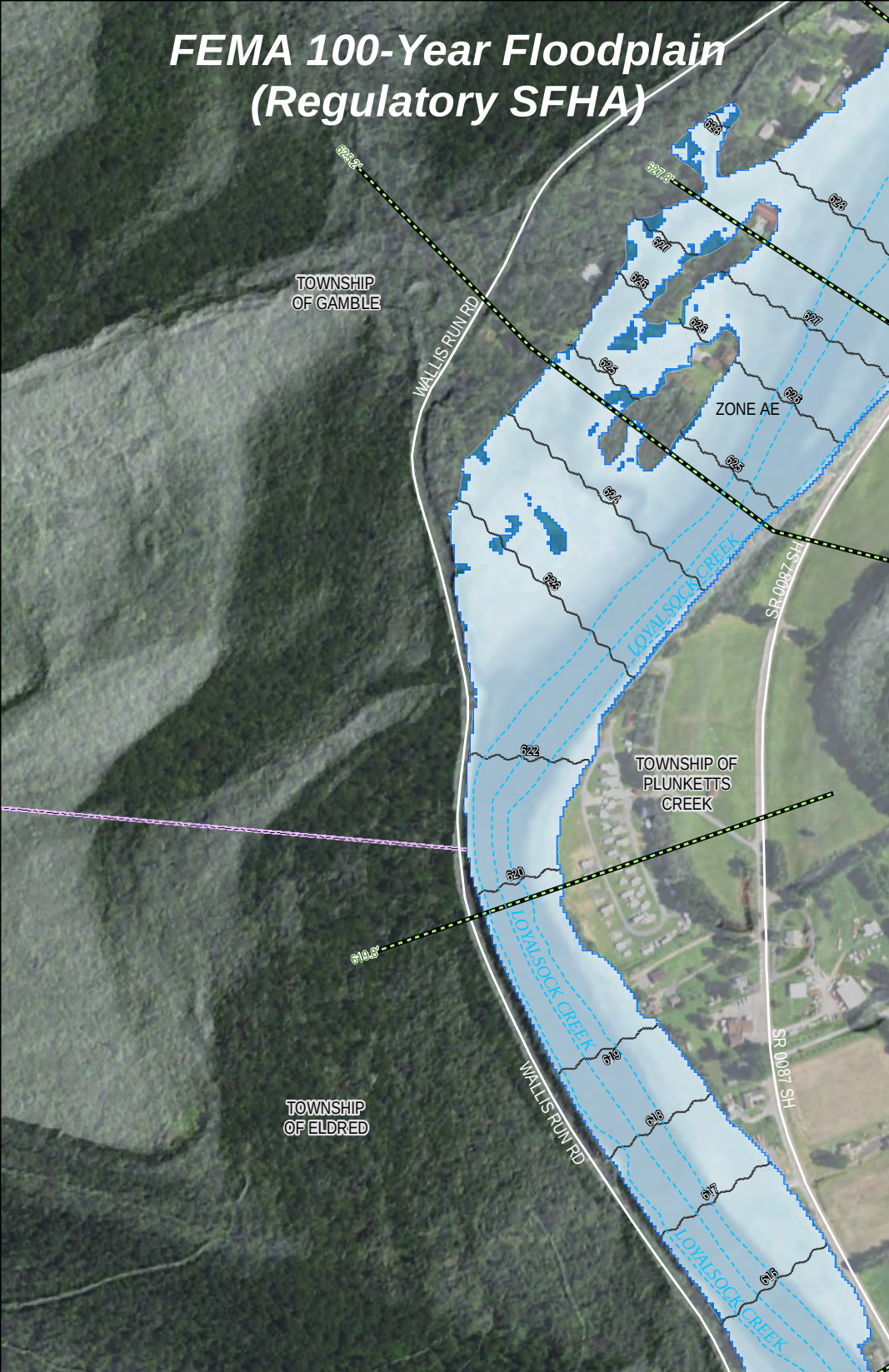
Sheet 50 of 163

DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

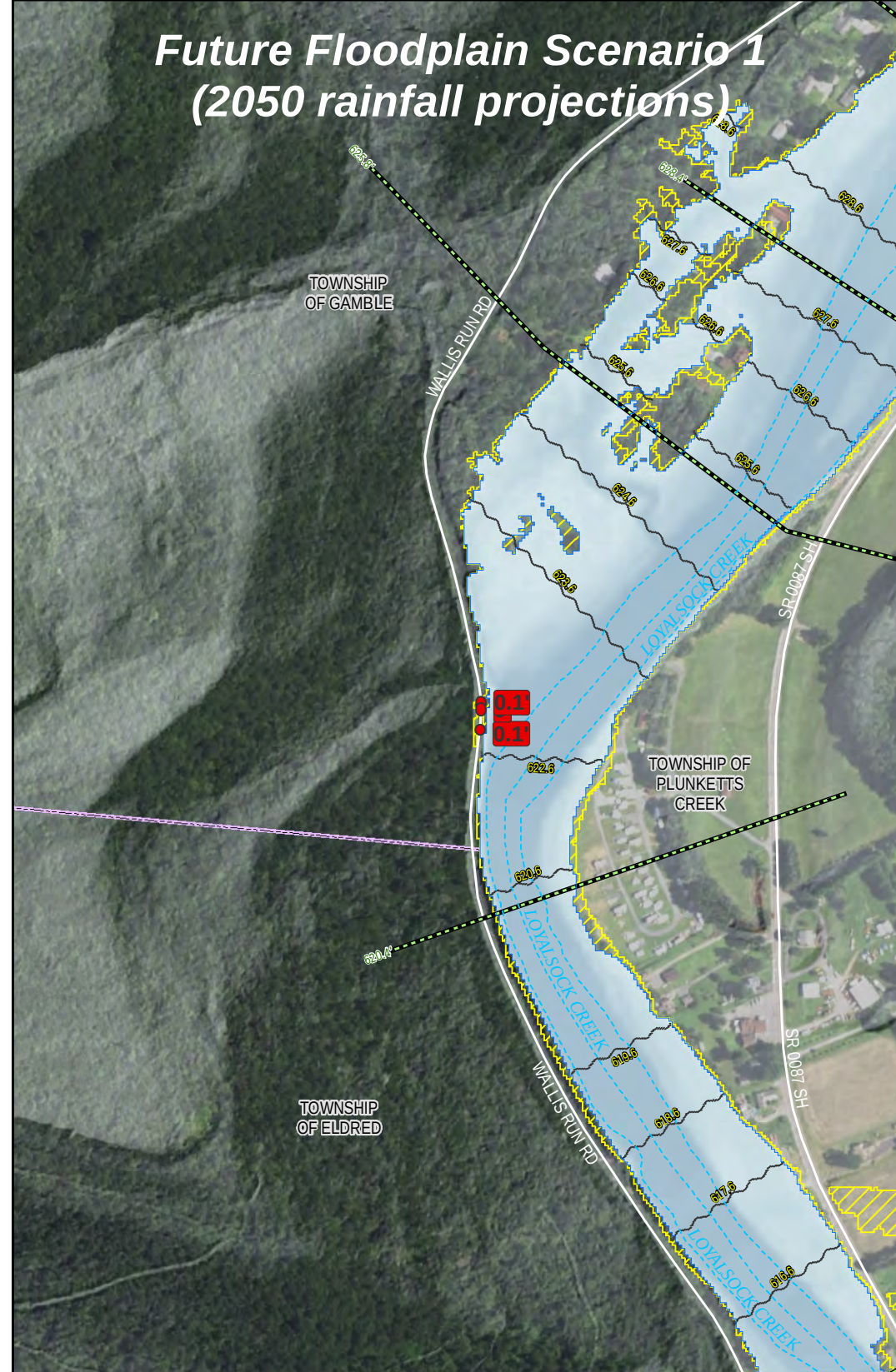
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

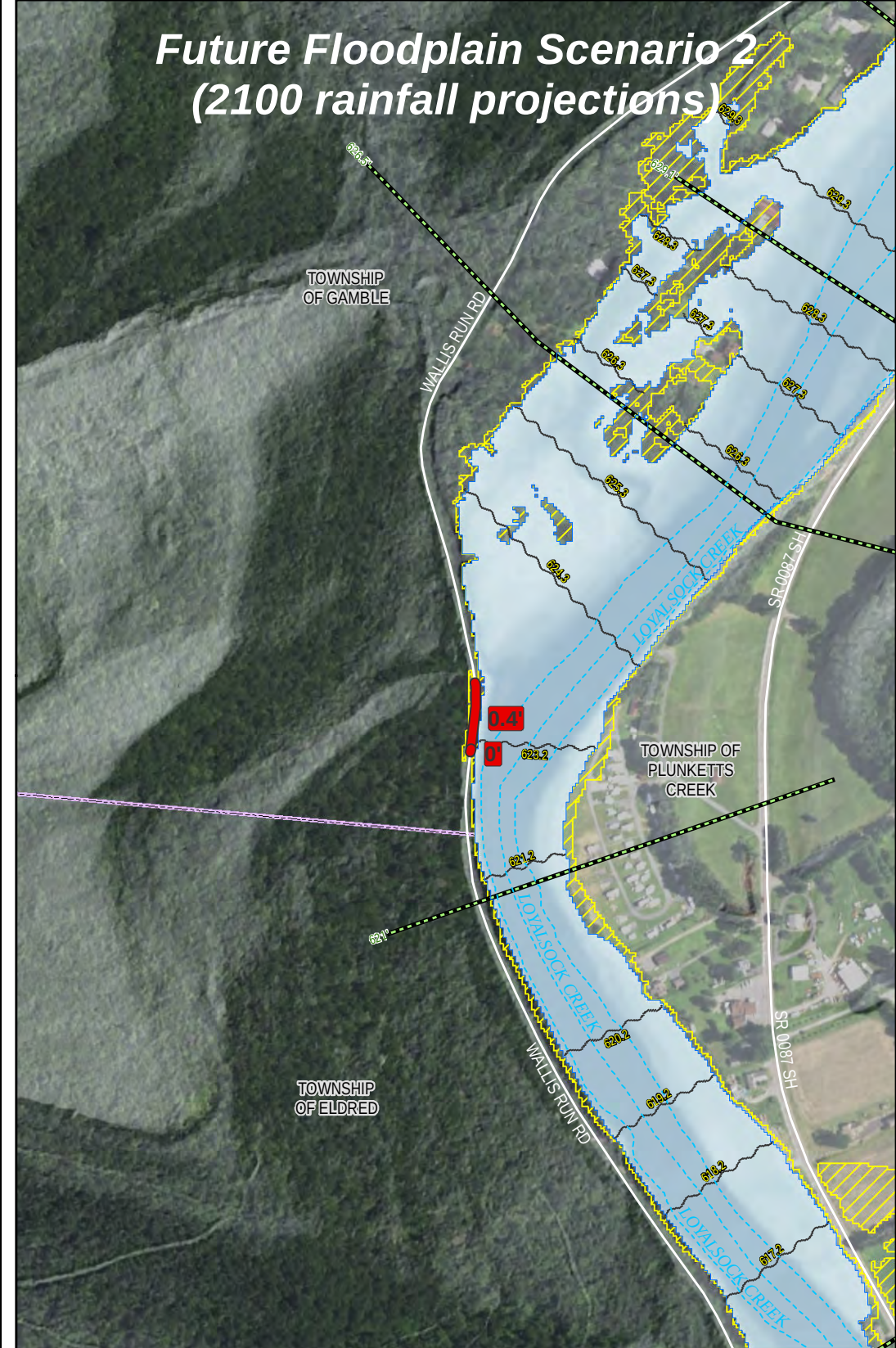
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

- ROADWAY & BRIDGE PROJECT**
- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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 - Bridge Centerlines
 - Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
 - Roadway - i.e. **CODY ST**
 - Community Boundary

- FEMA FLOODPLAIN**
- FEMA Stream Centerline
 - FEMA Base Flood Elevation
 - FEMA Cross Section
- FEMA REGULATORY**
- FEMA REGULATORY SFHA

- EXISTING CONDITIONS**
(Based on Depth Grid Boundary)
- Existing Conditions SFHA Extents
- FUTURE CONDITIONS**
(Based on Depth Grid Boundary)
- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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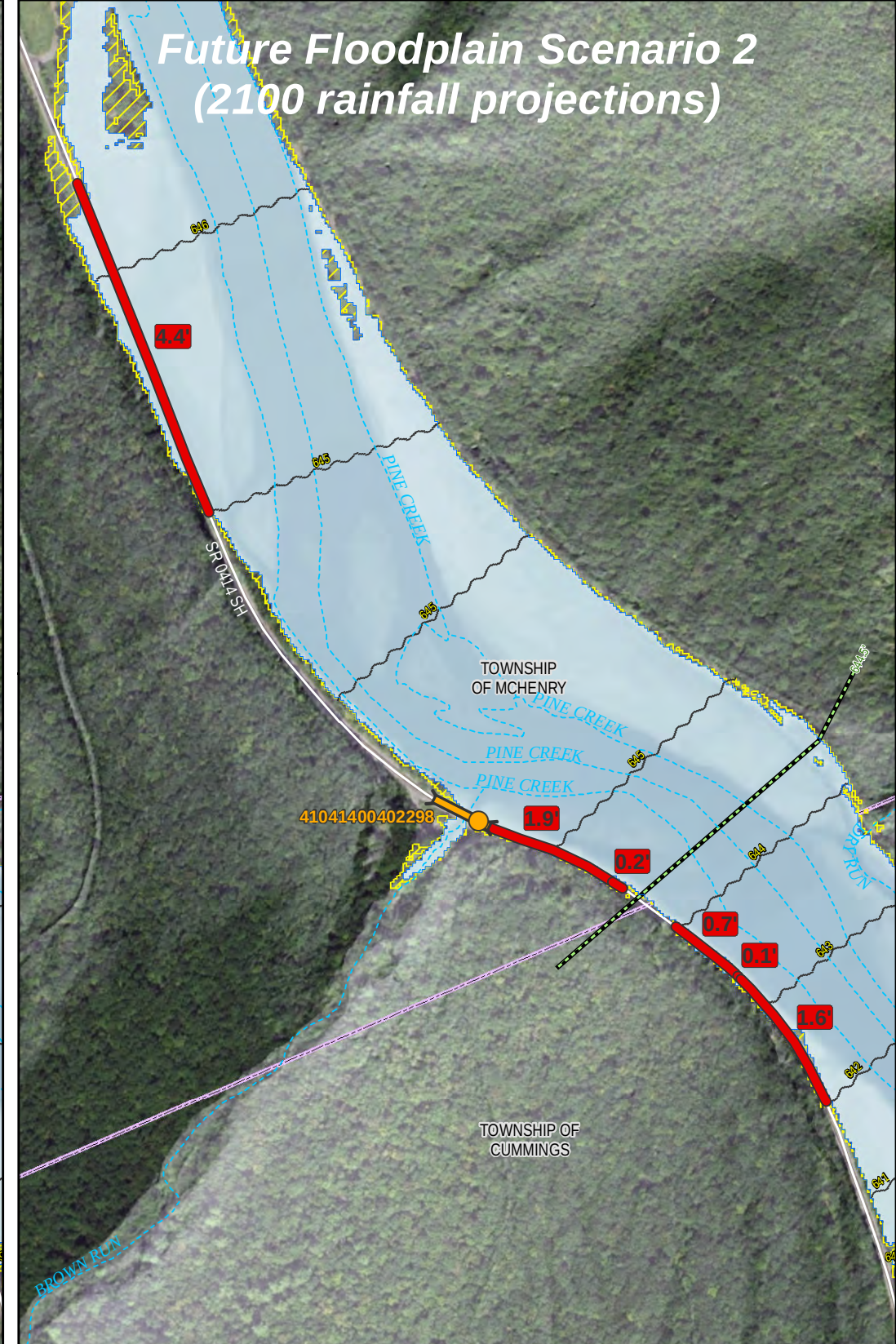
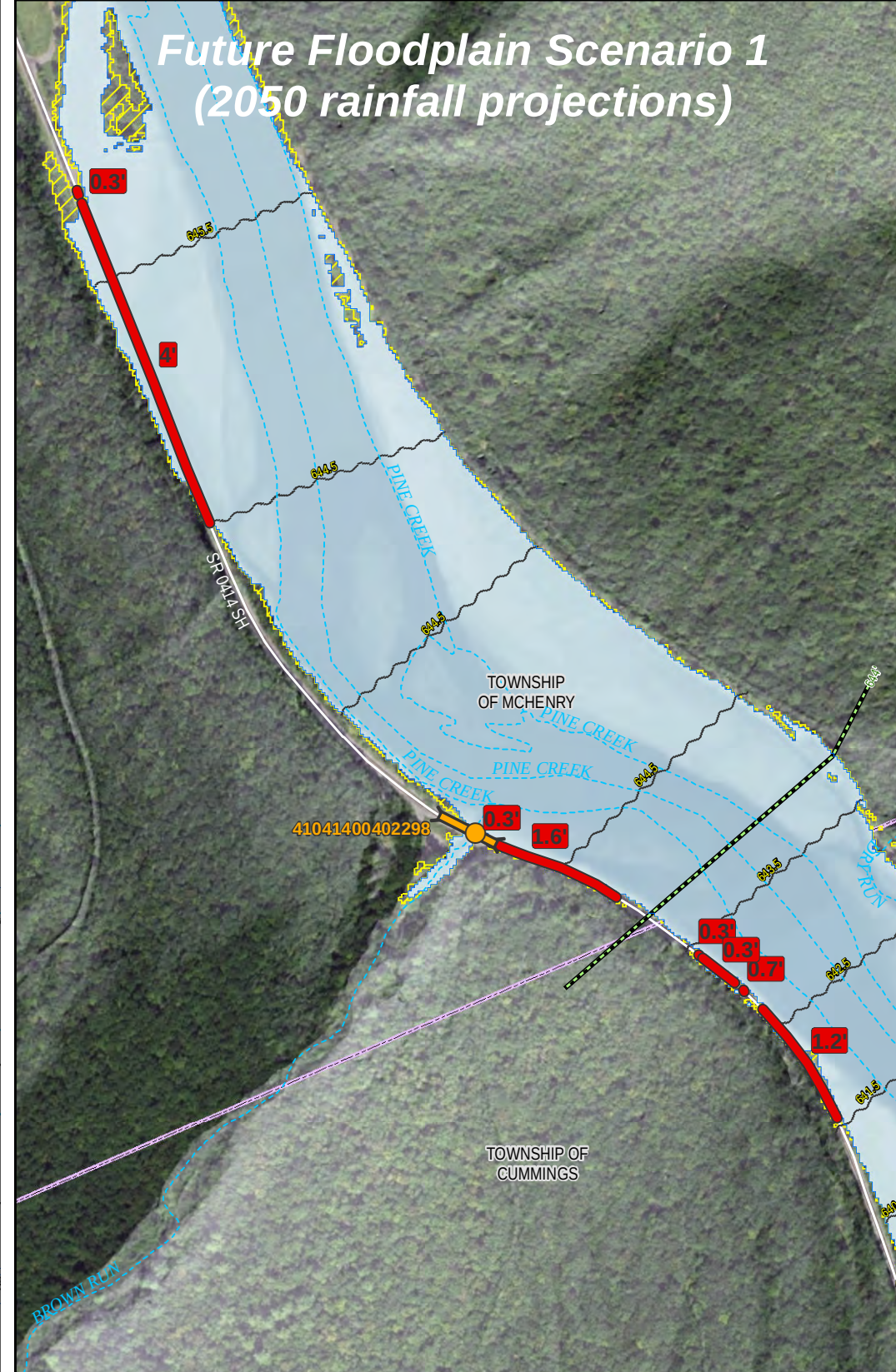
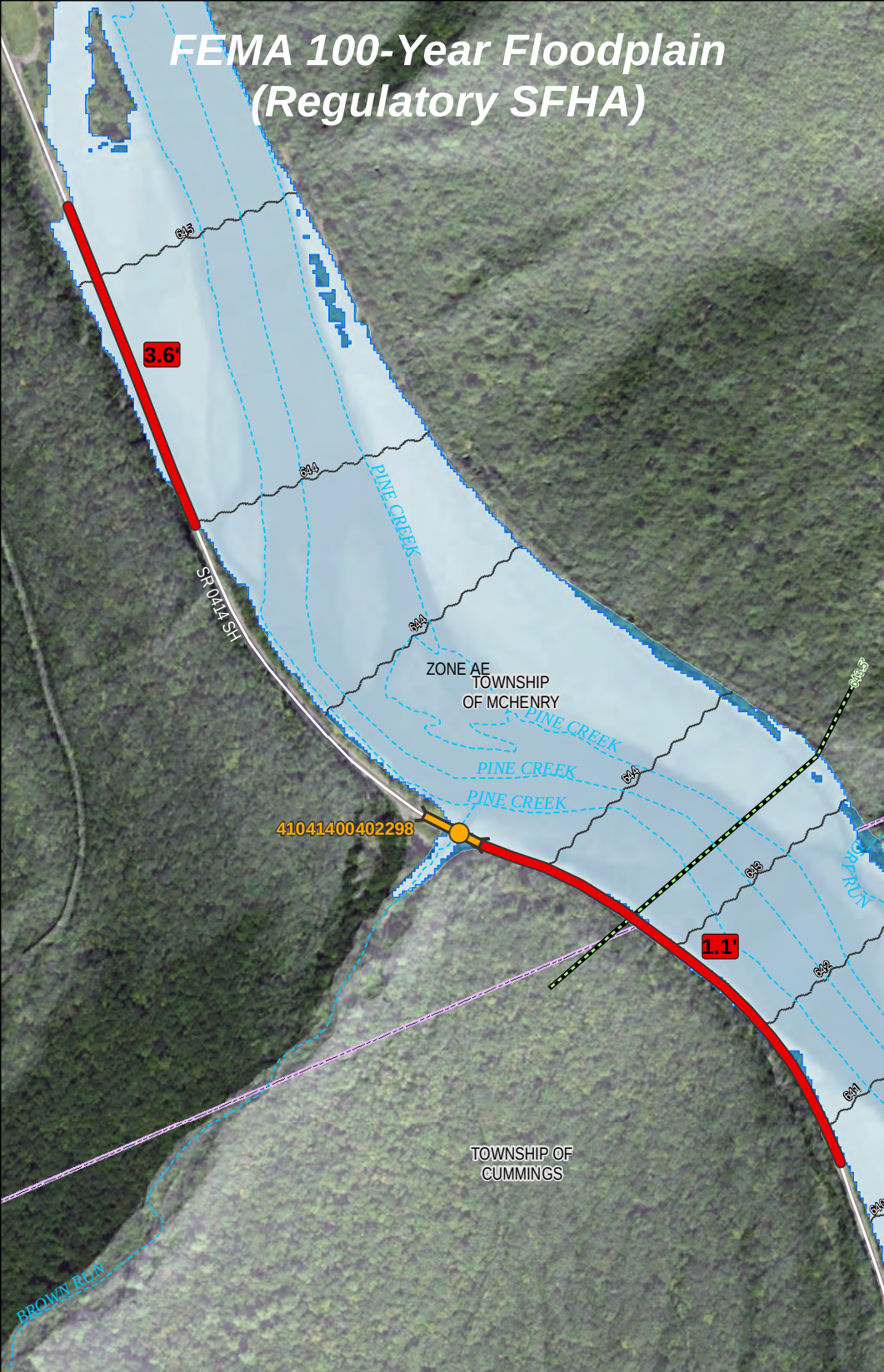
PENNDOT

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LOCATOR MAP

State Forest
Logan Airport
Williamsport Regional Airport
Hey

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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PENNDOT

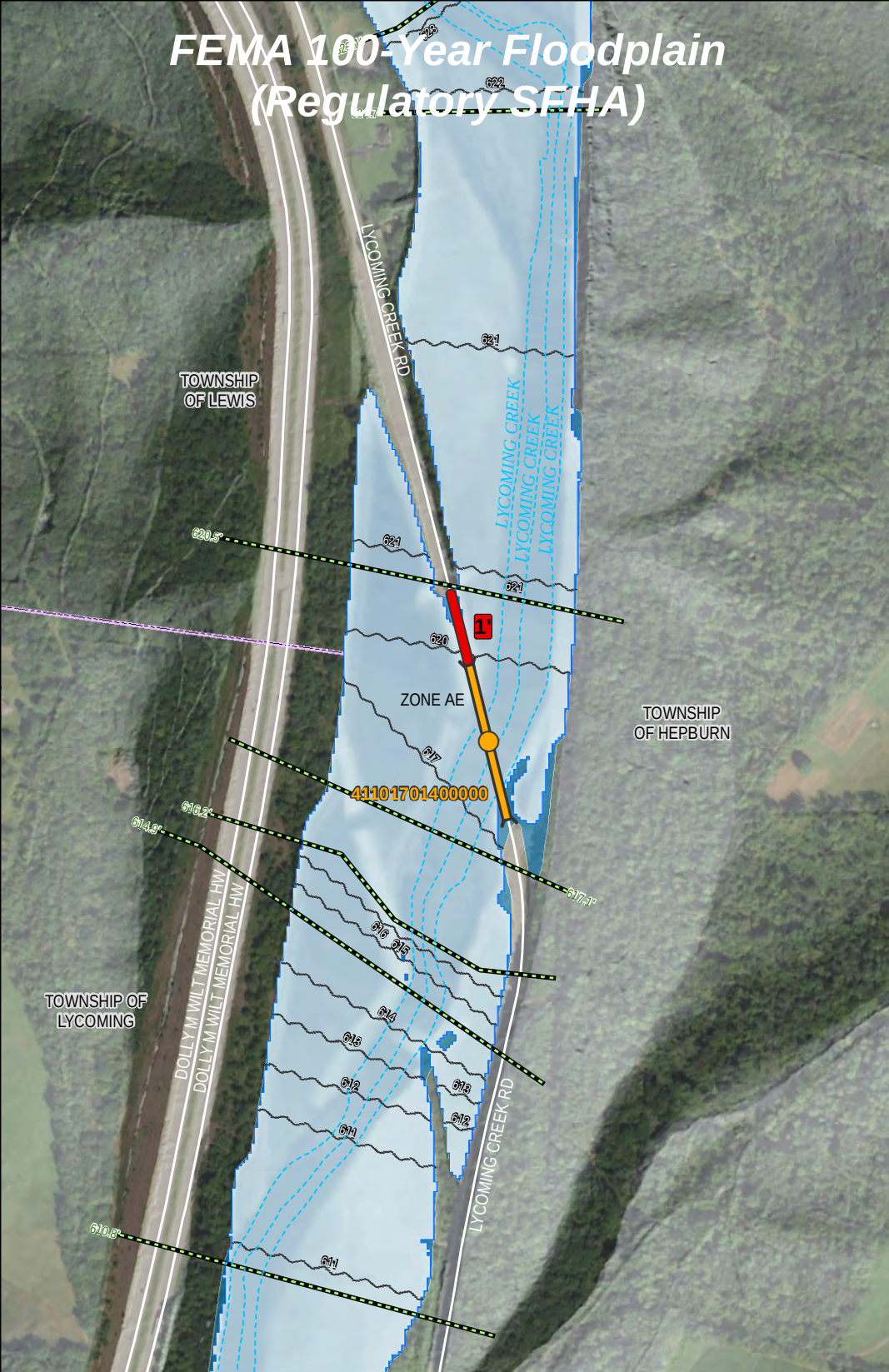
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

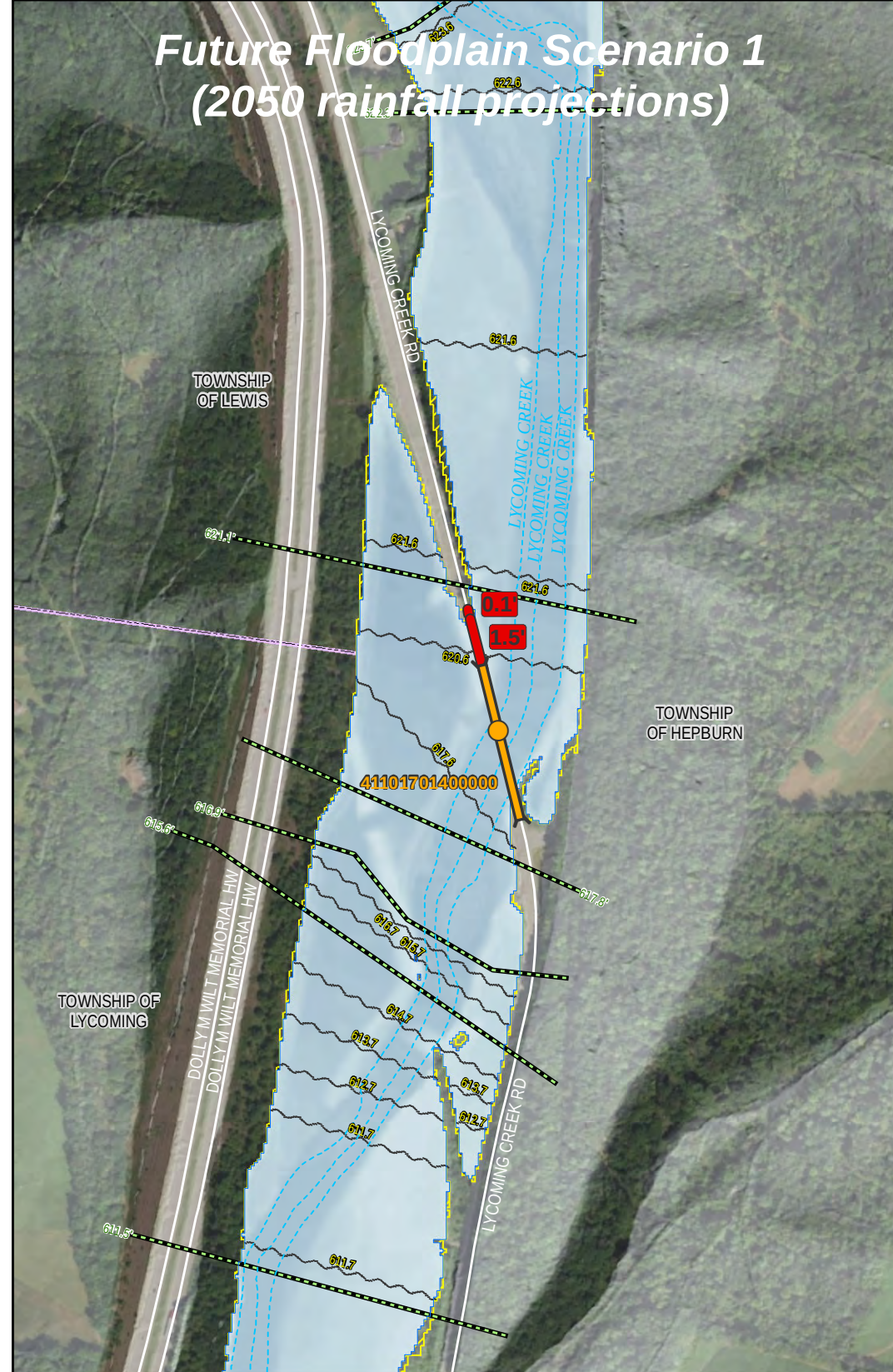
**Michael Baker
INTERNATIONAL**

LOCATOR MAP

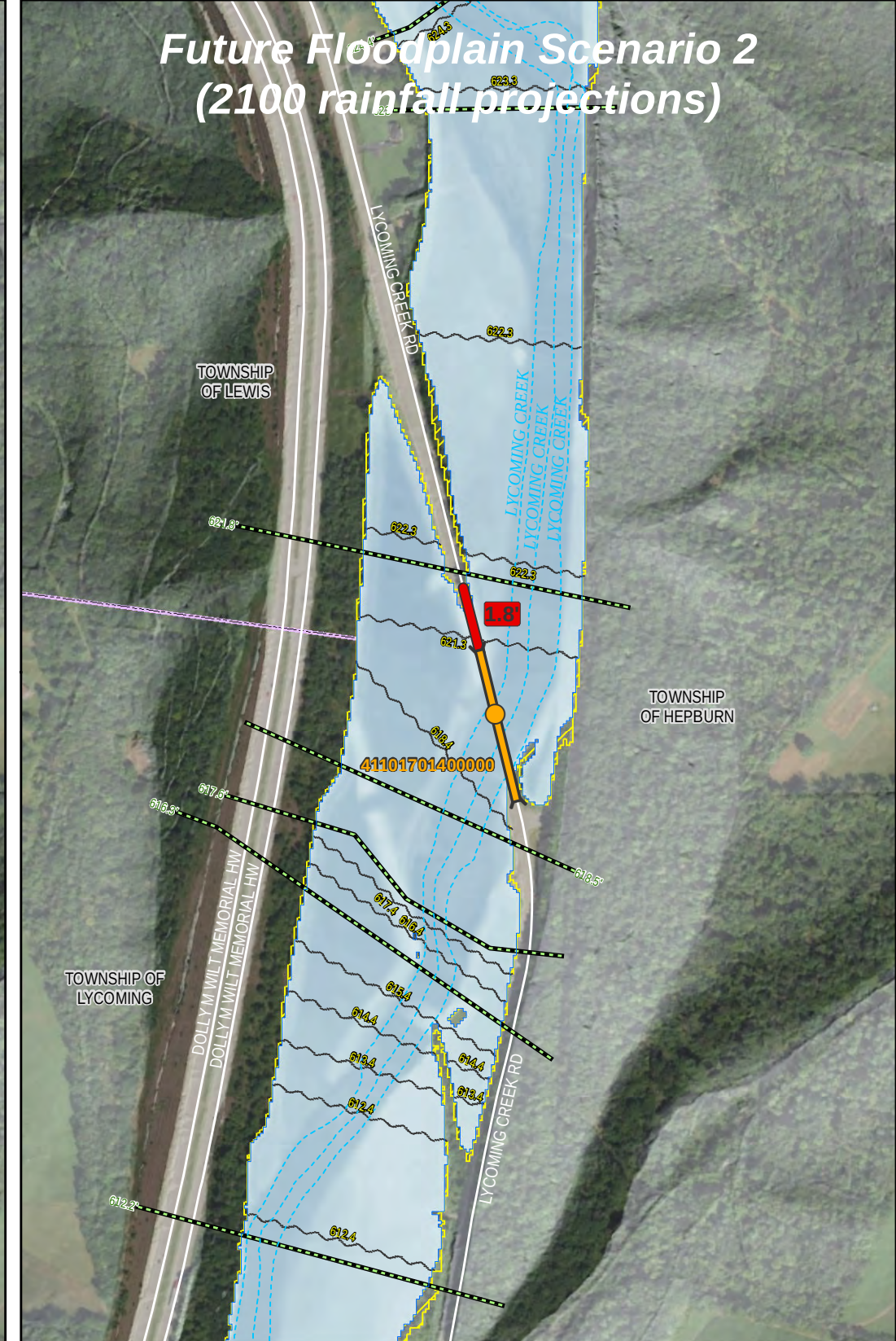
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

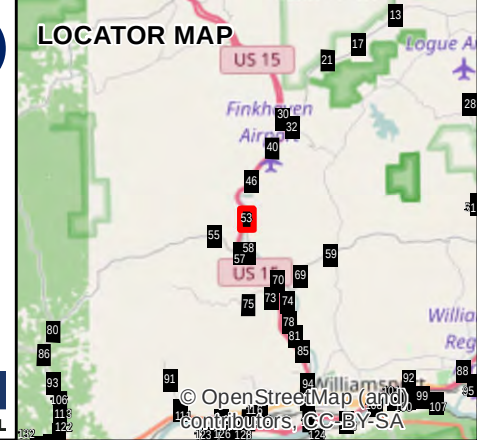
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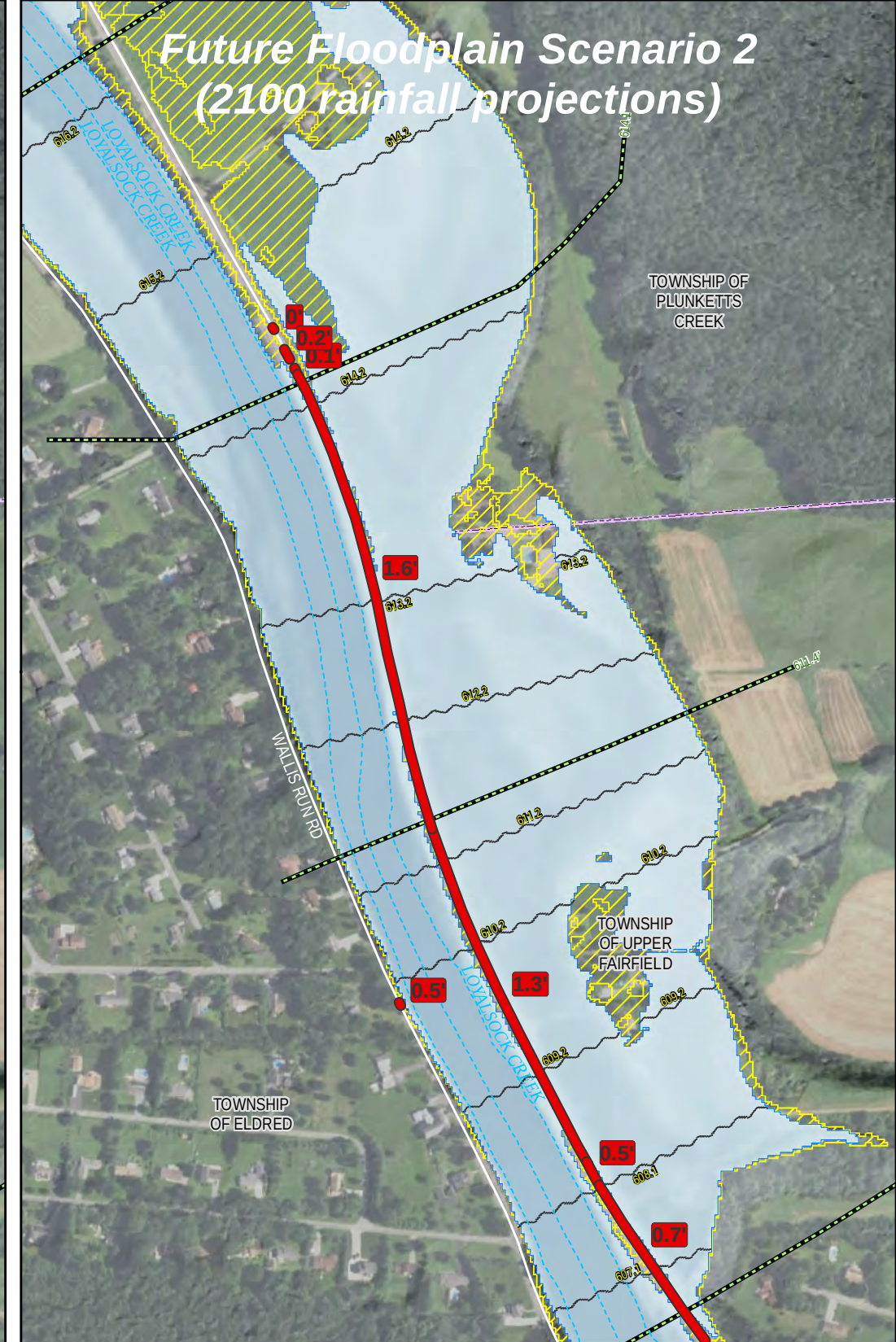
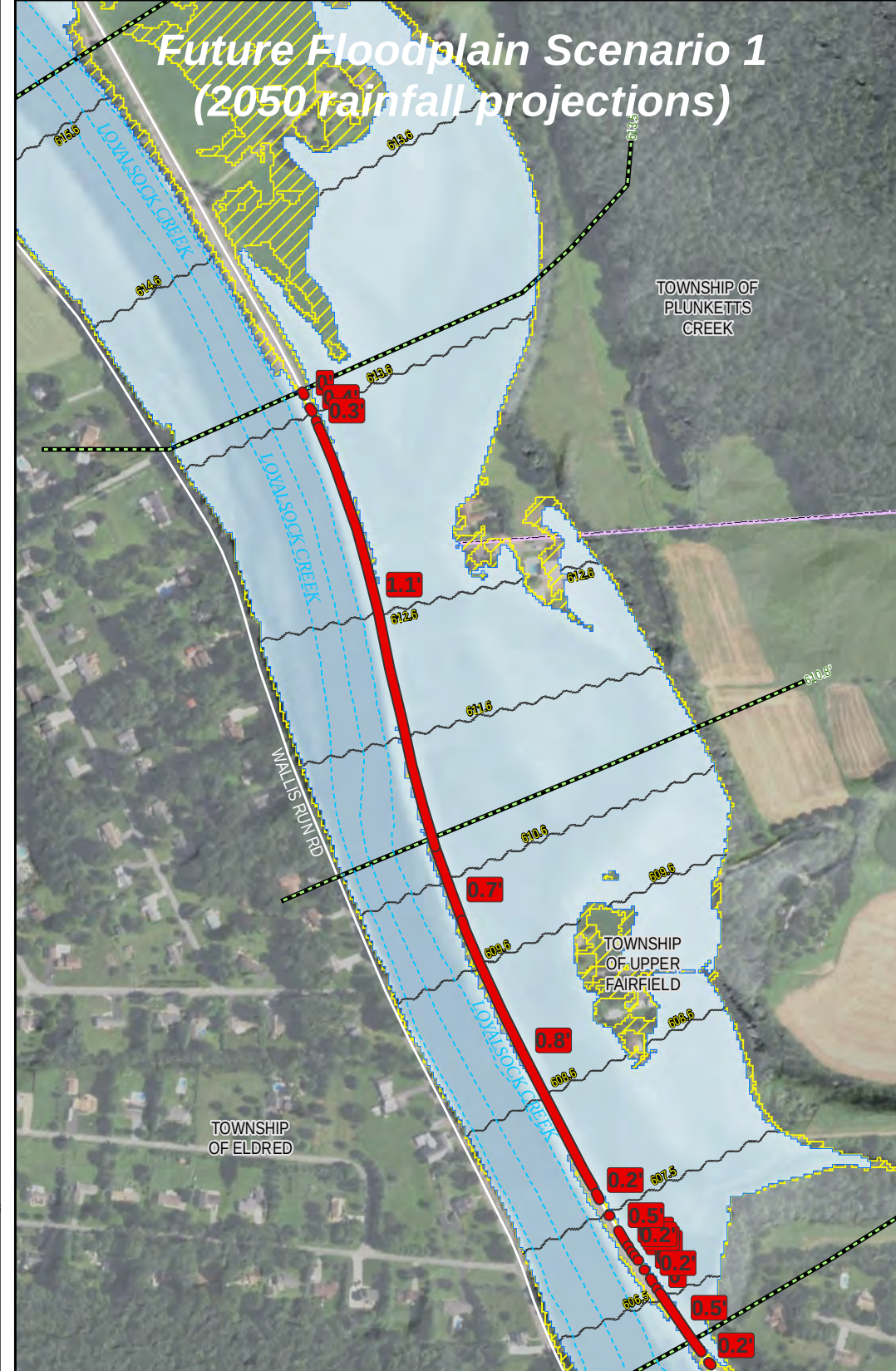
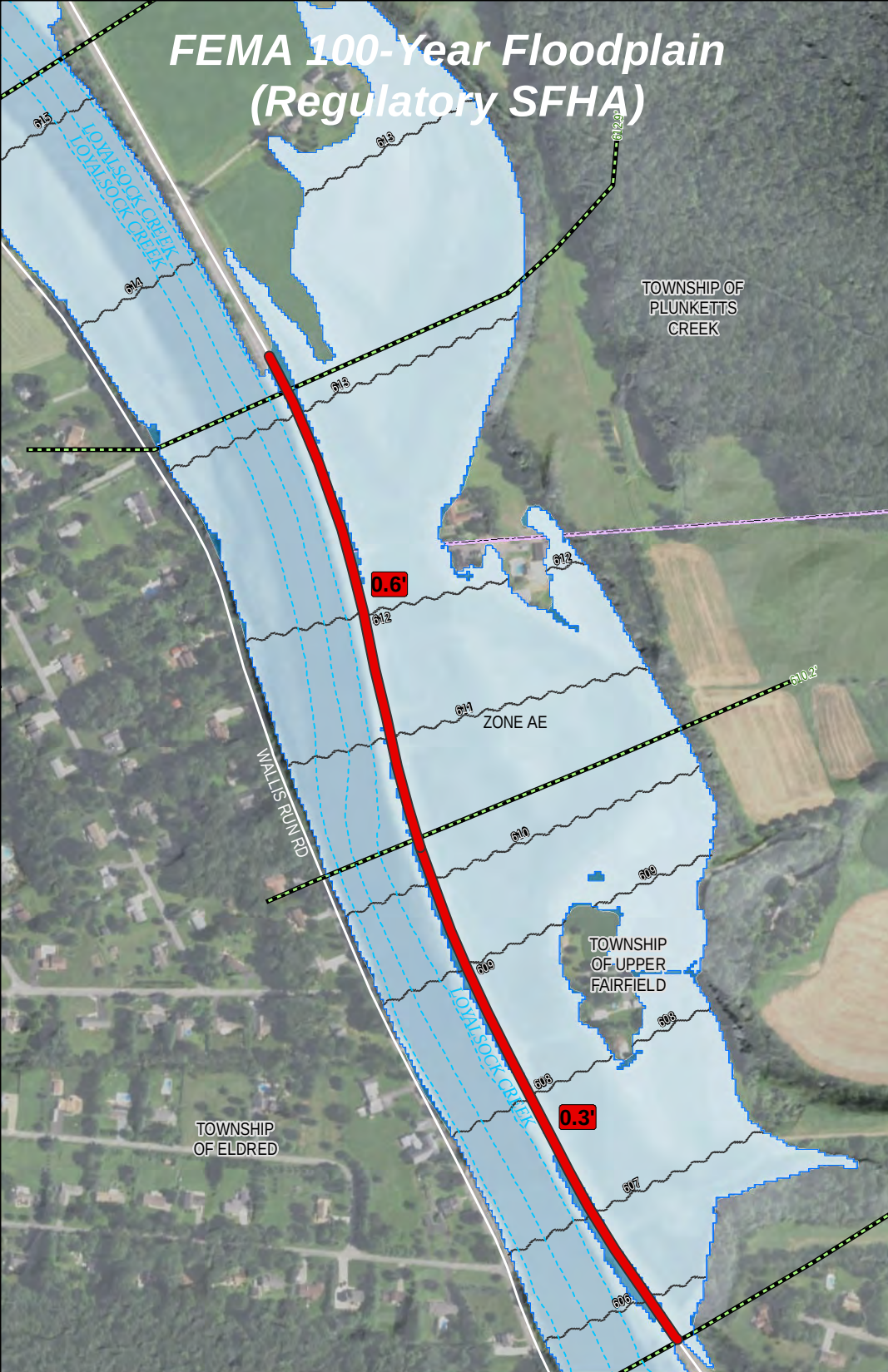


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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INTERNATIONAL**





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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- Bridge Centerlines
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- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

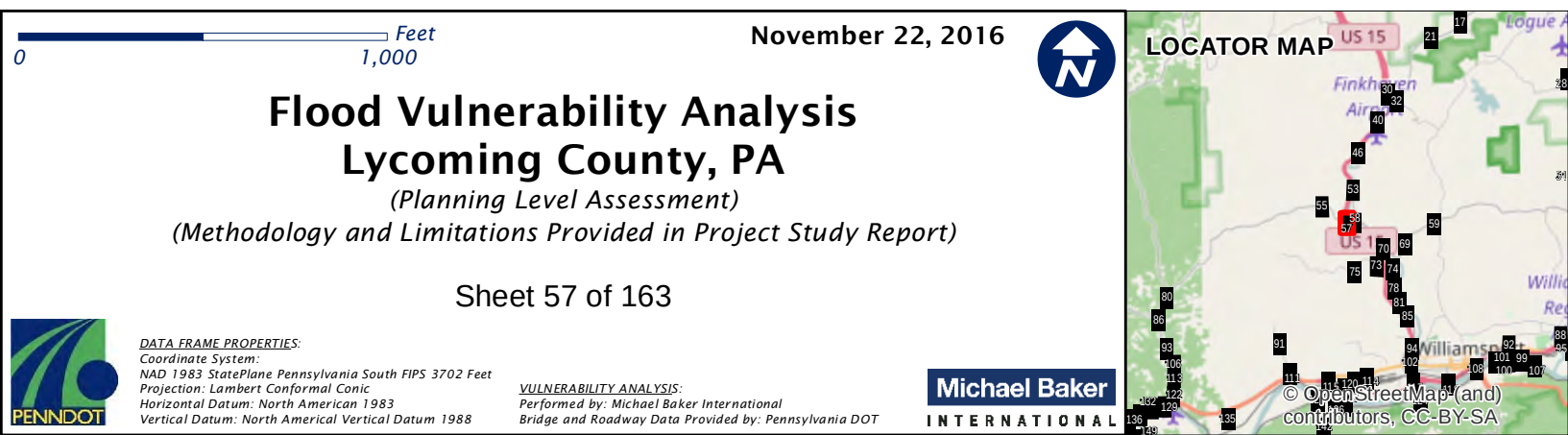
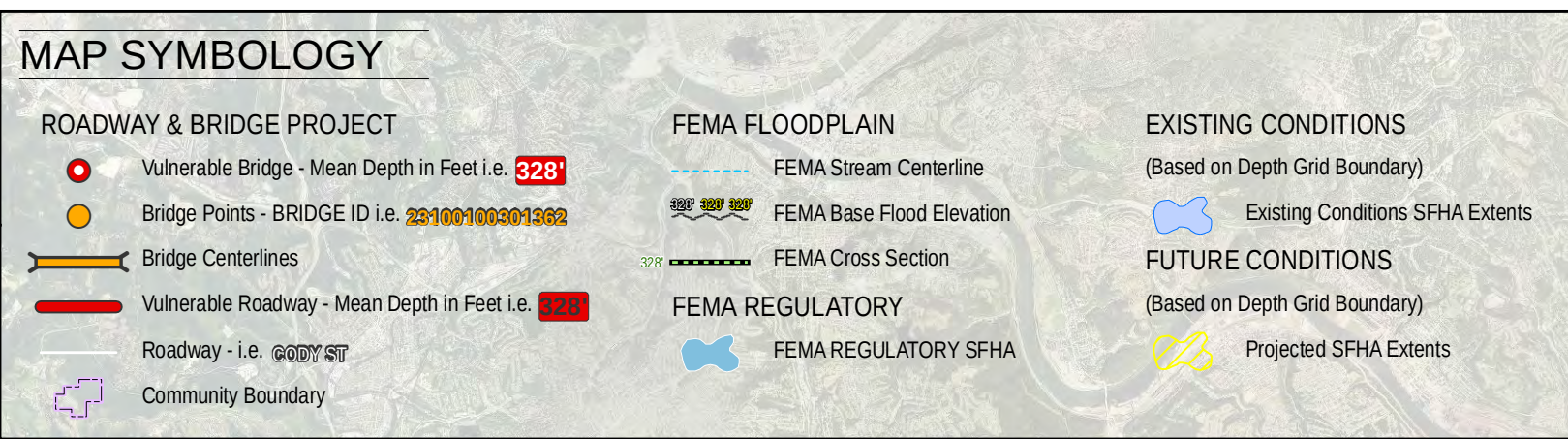
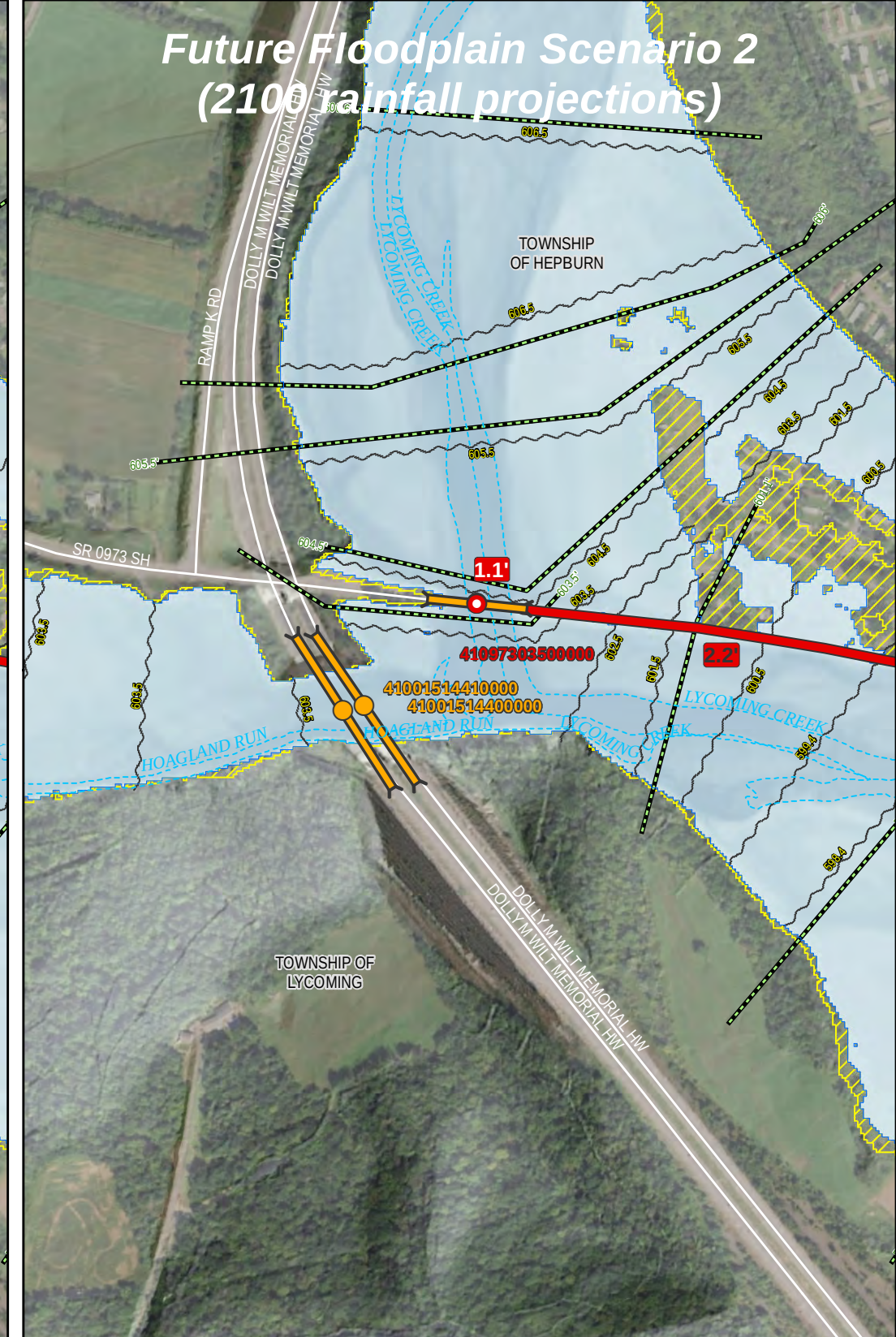
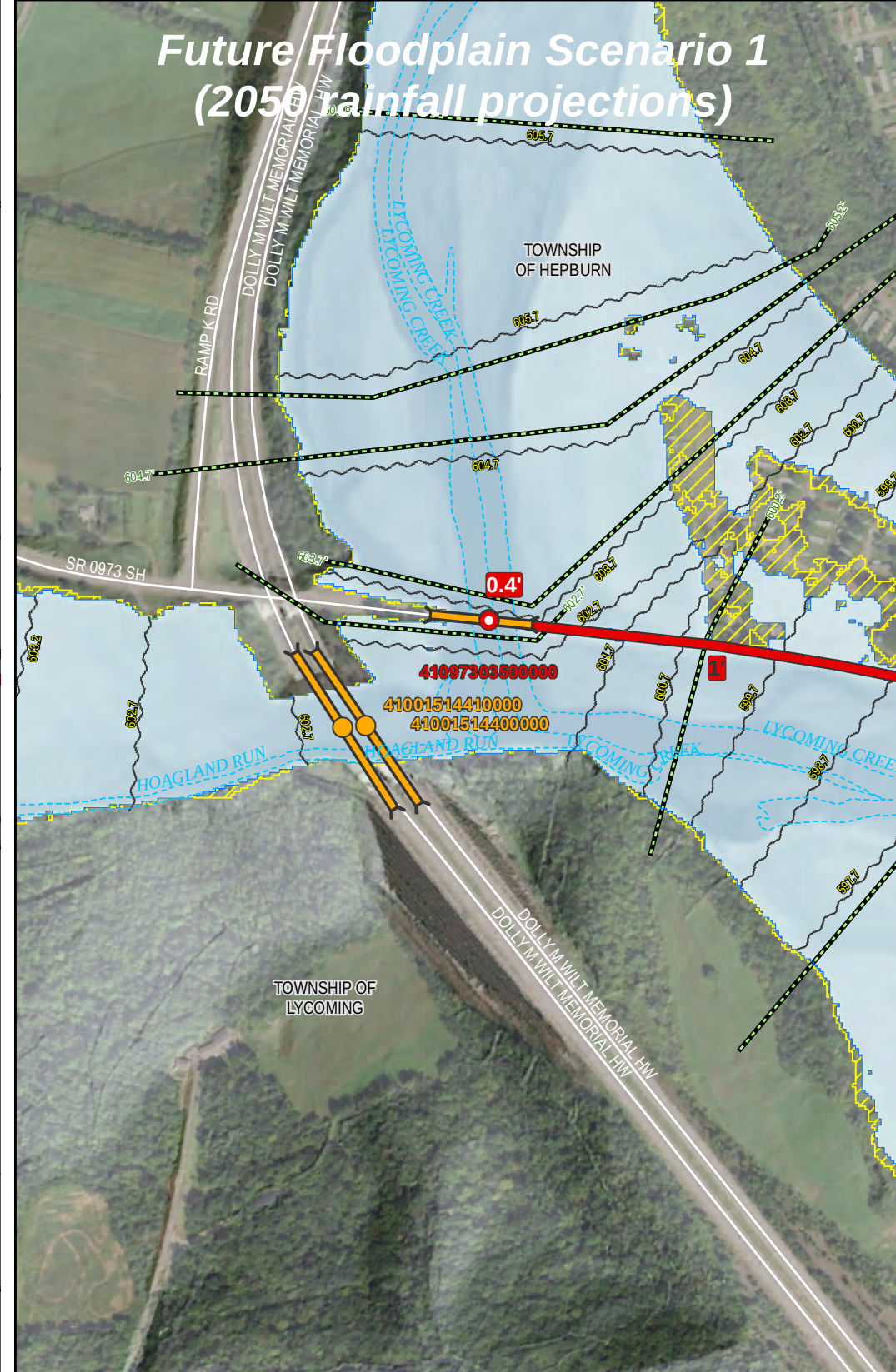
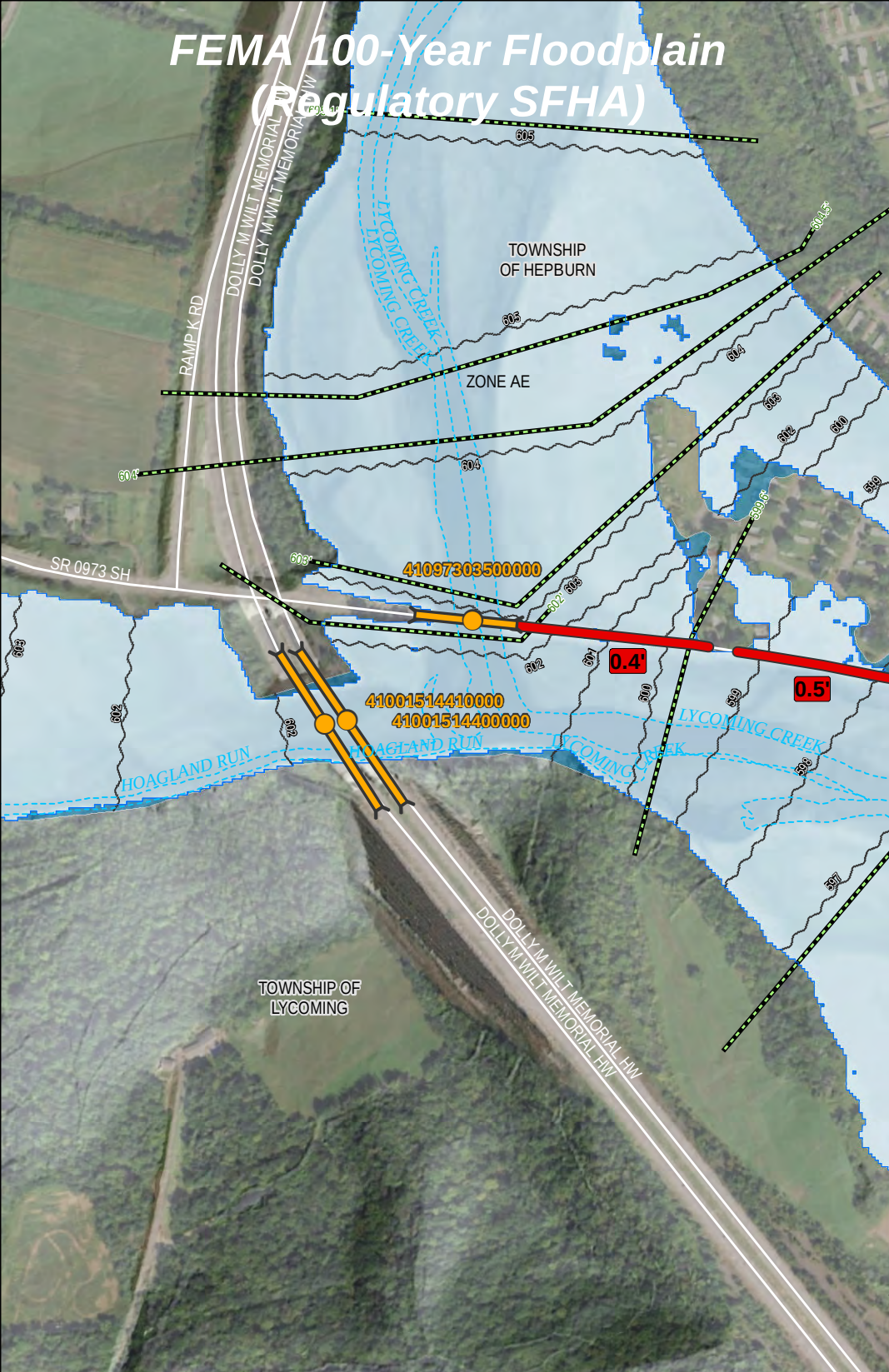
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

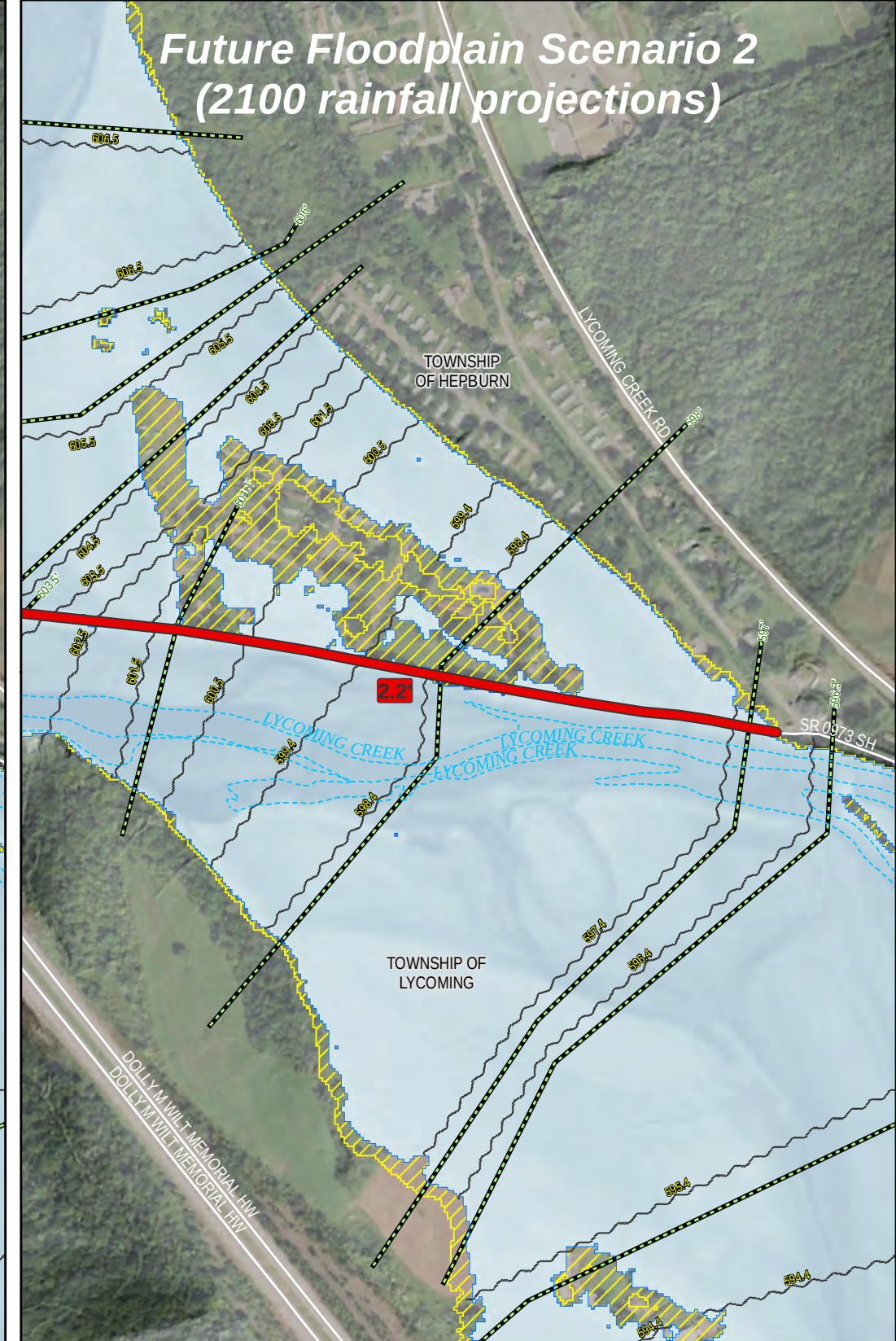
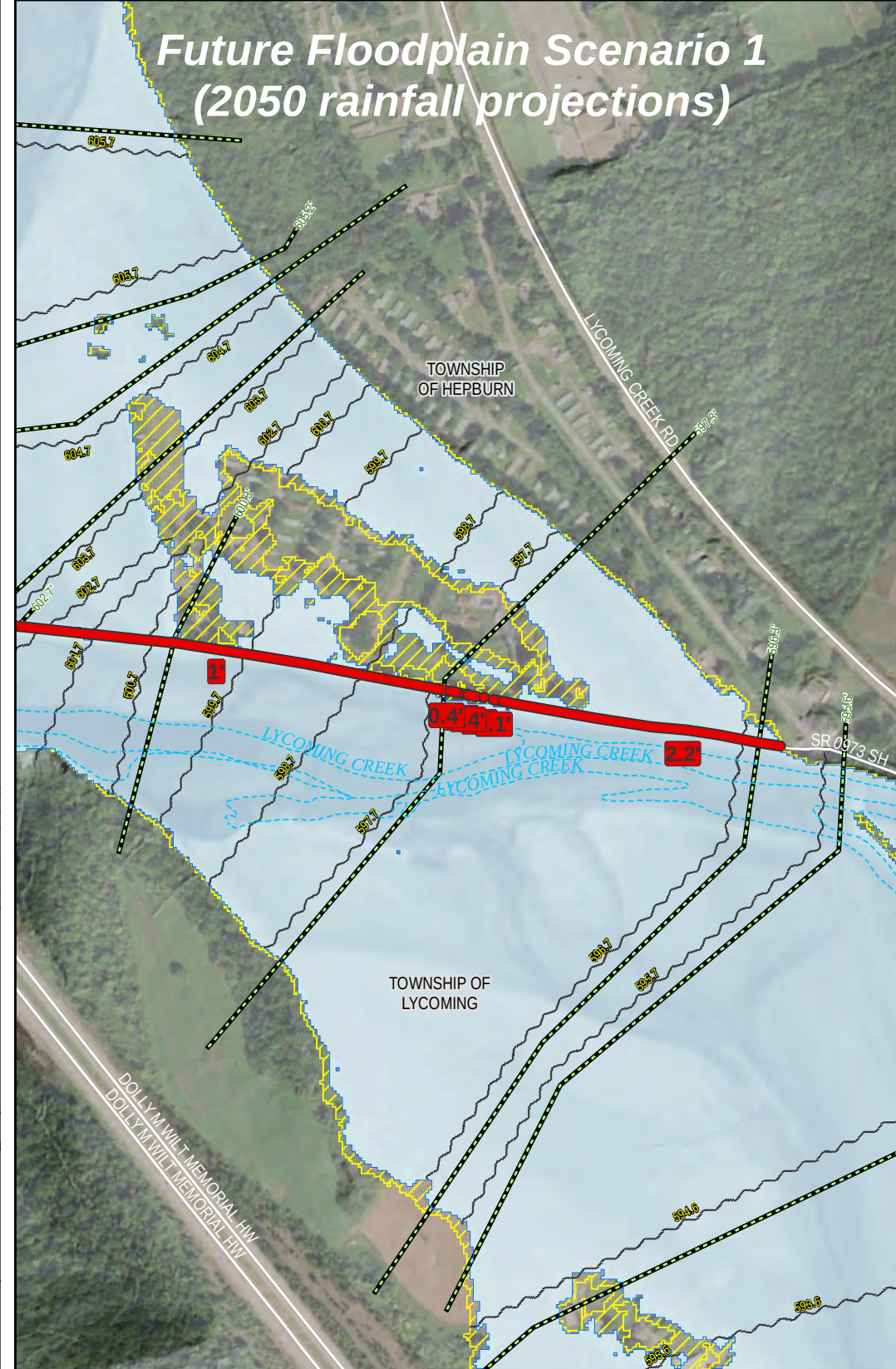
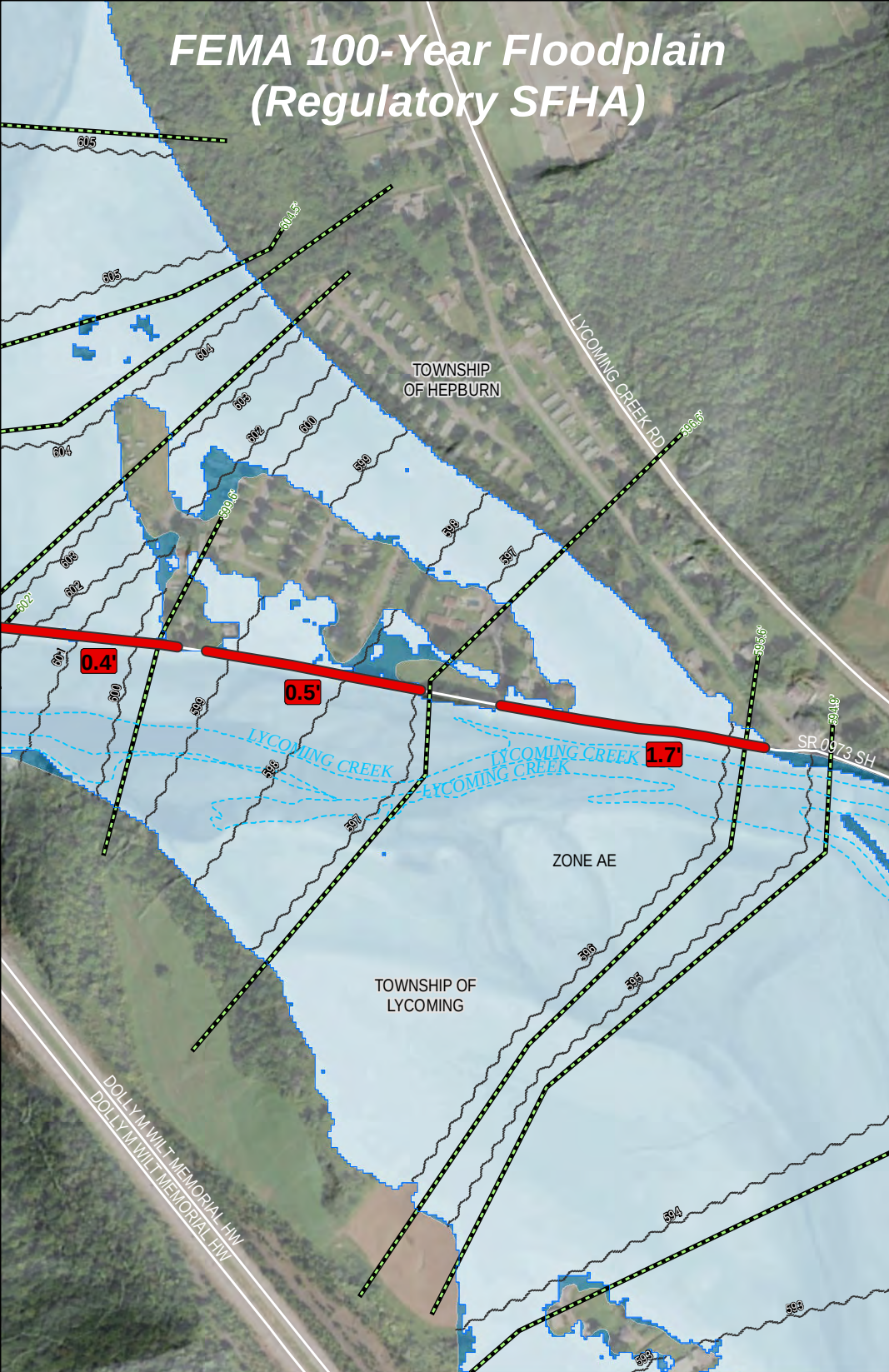
Sheet 54 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
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Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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PENNDOT

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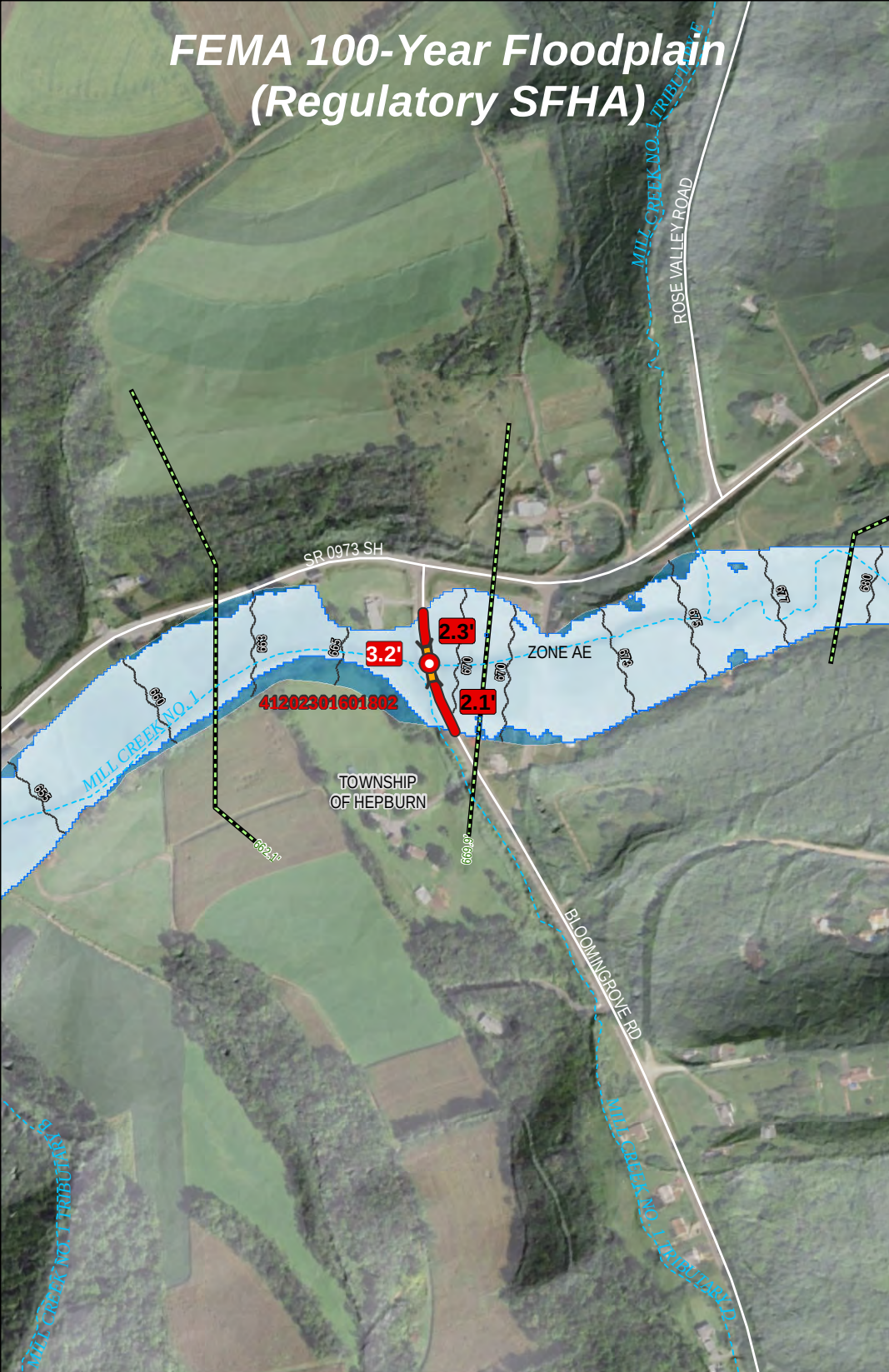
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Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

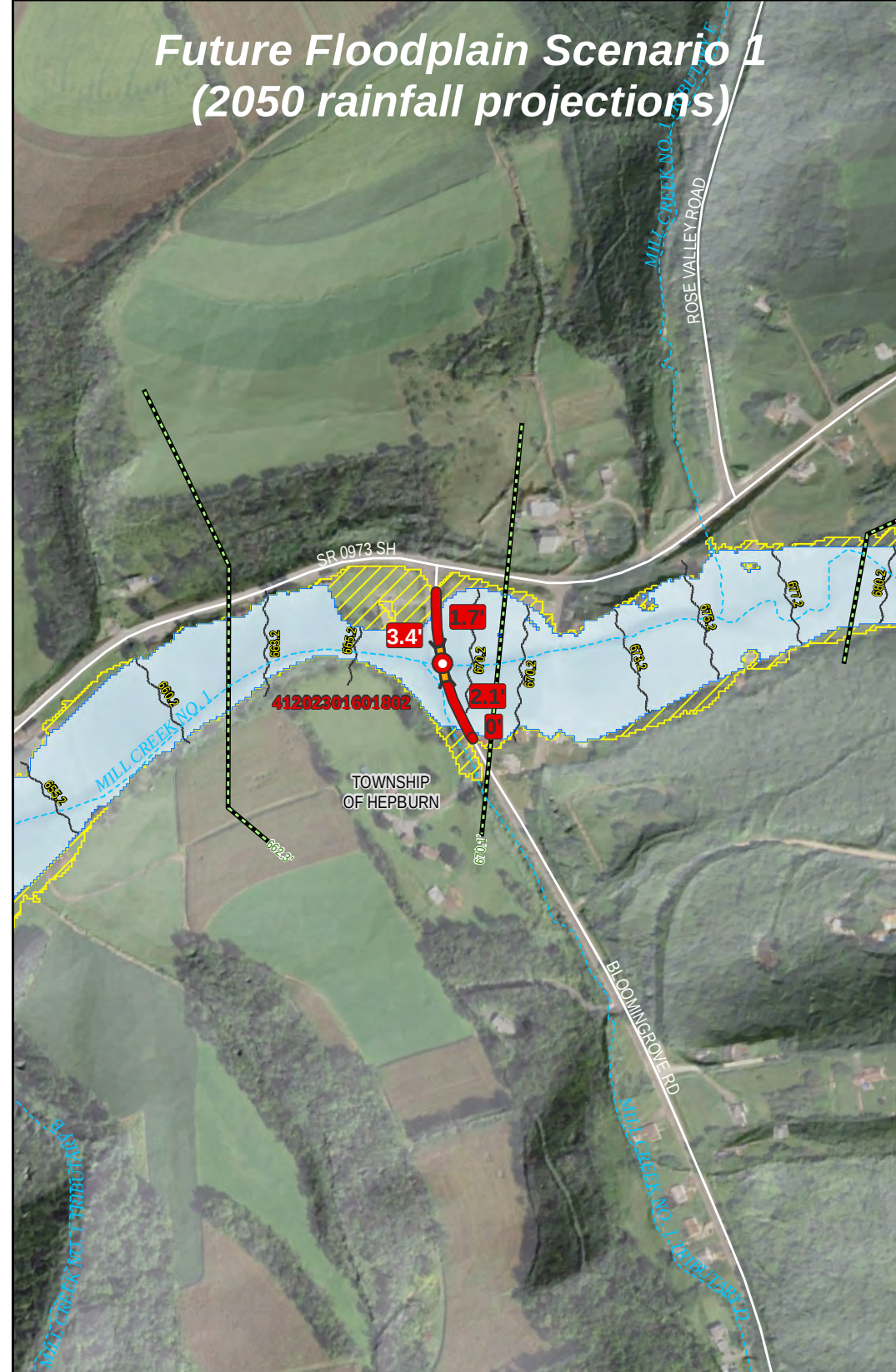
LOCATOR MAP

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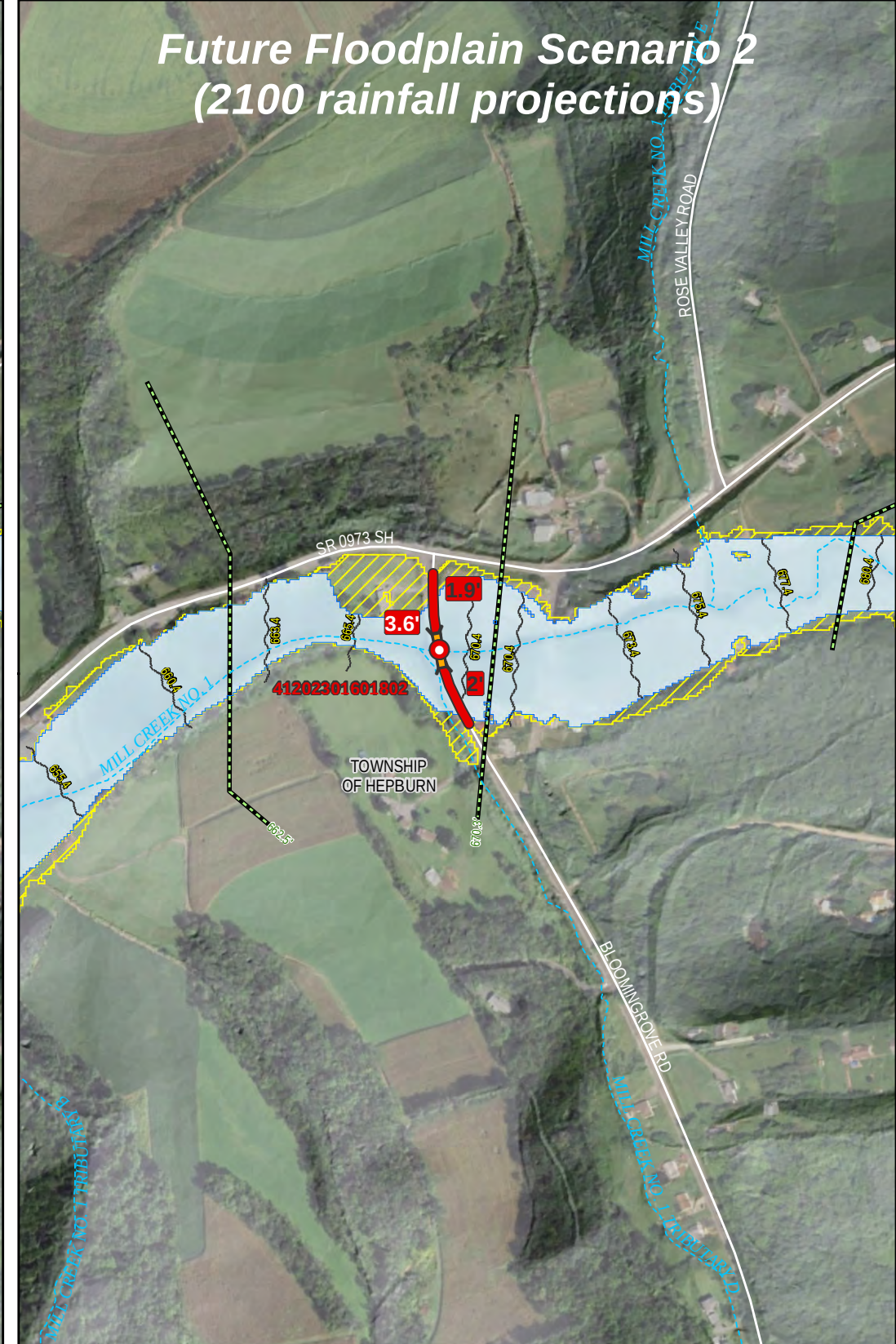
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

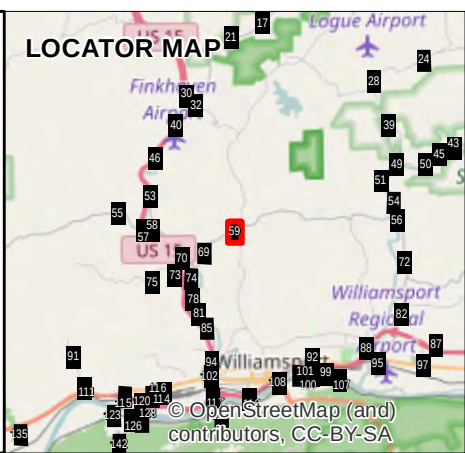
Sheet 59 of 163

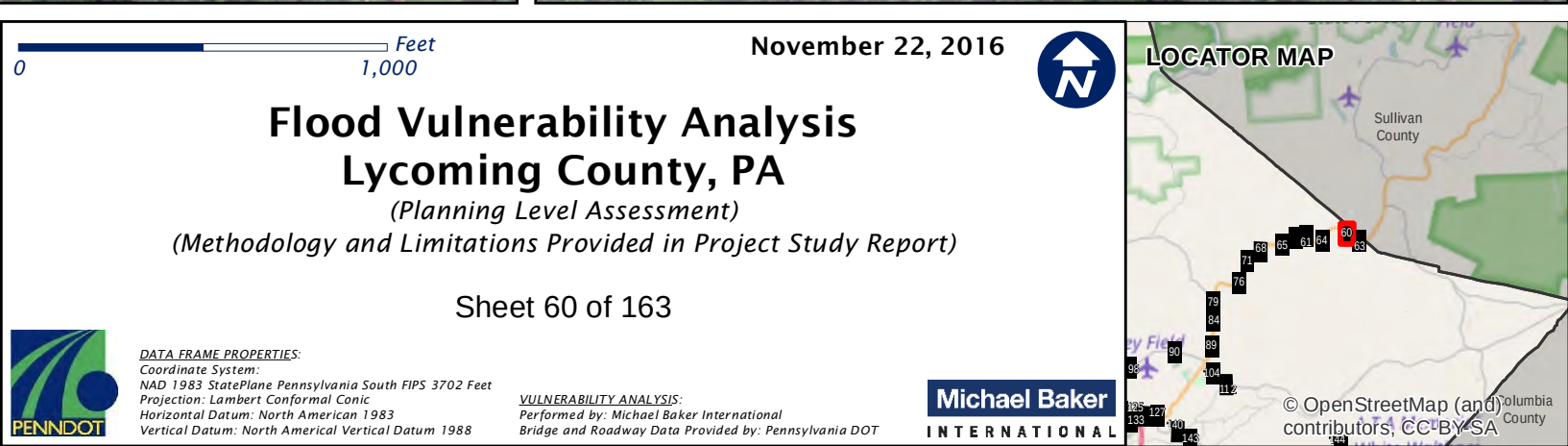
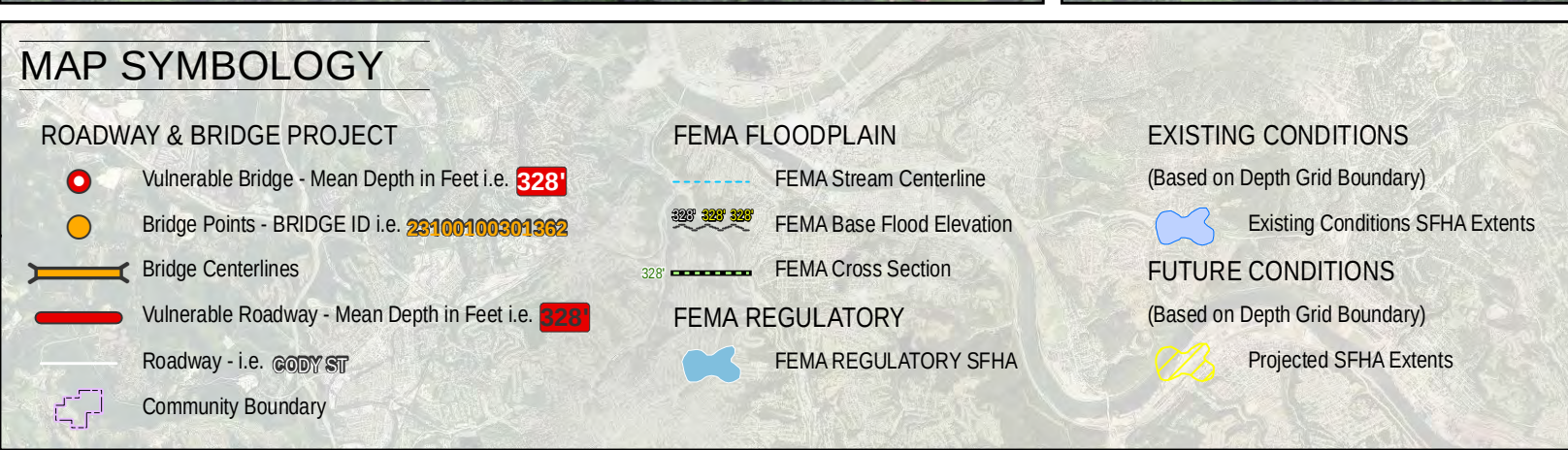
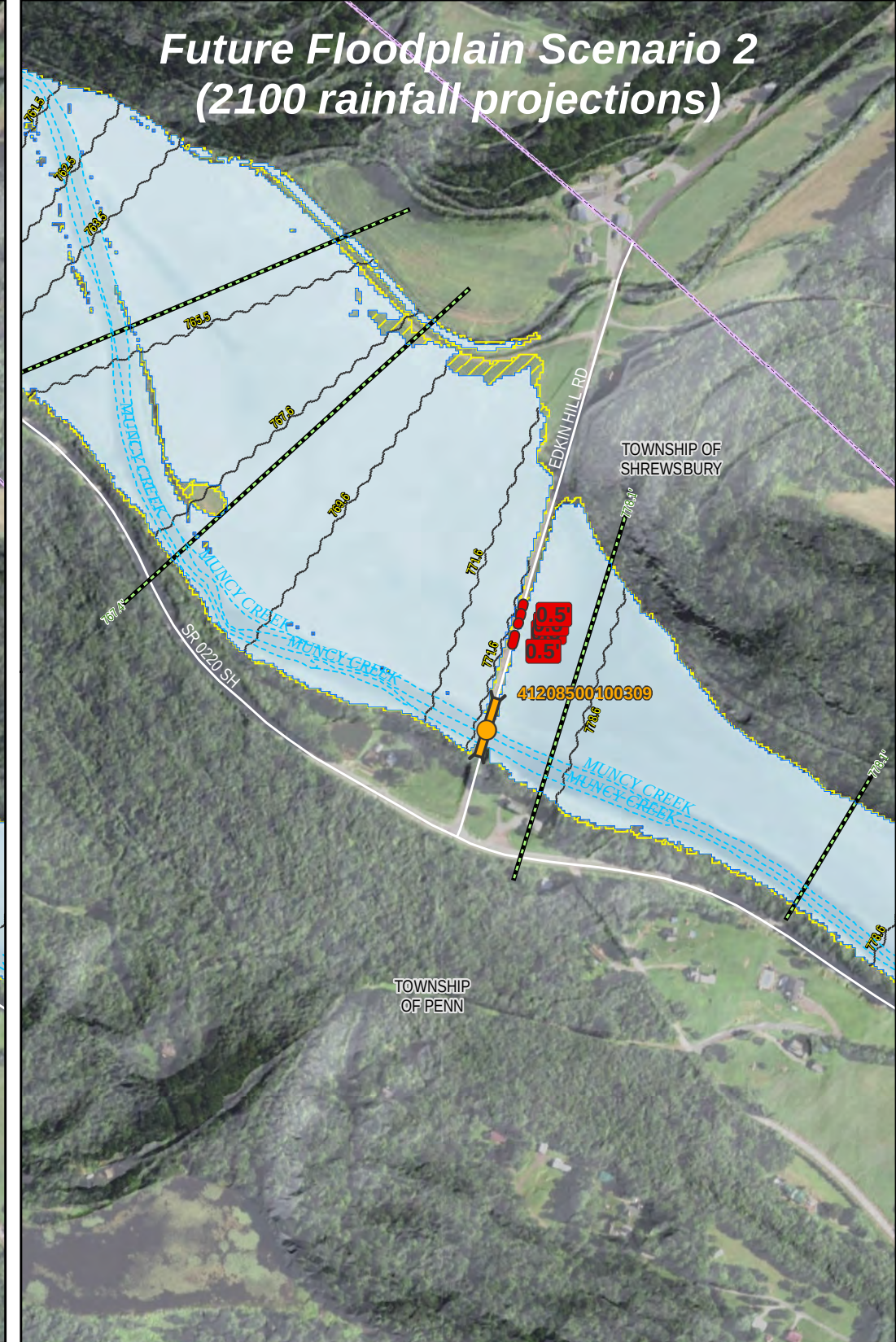
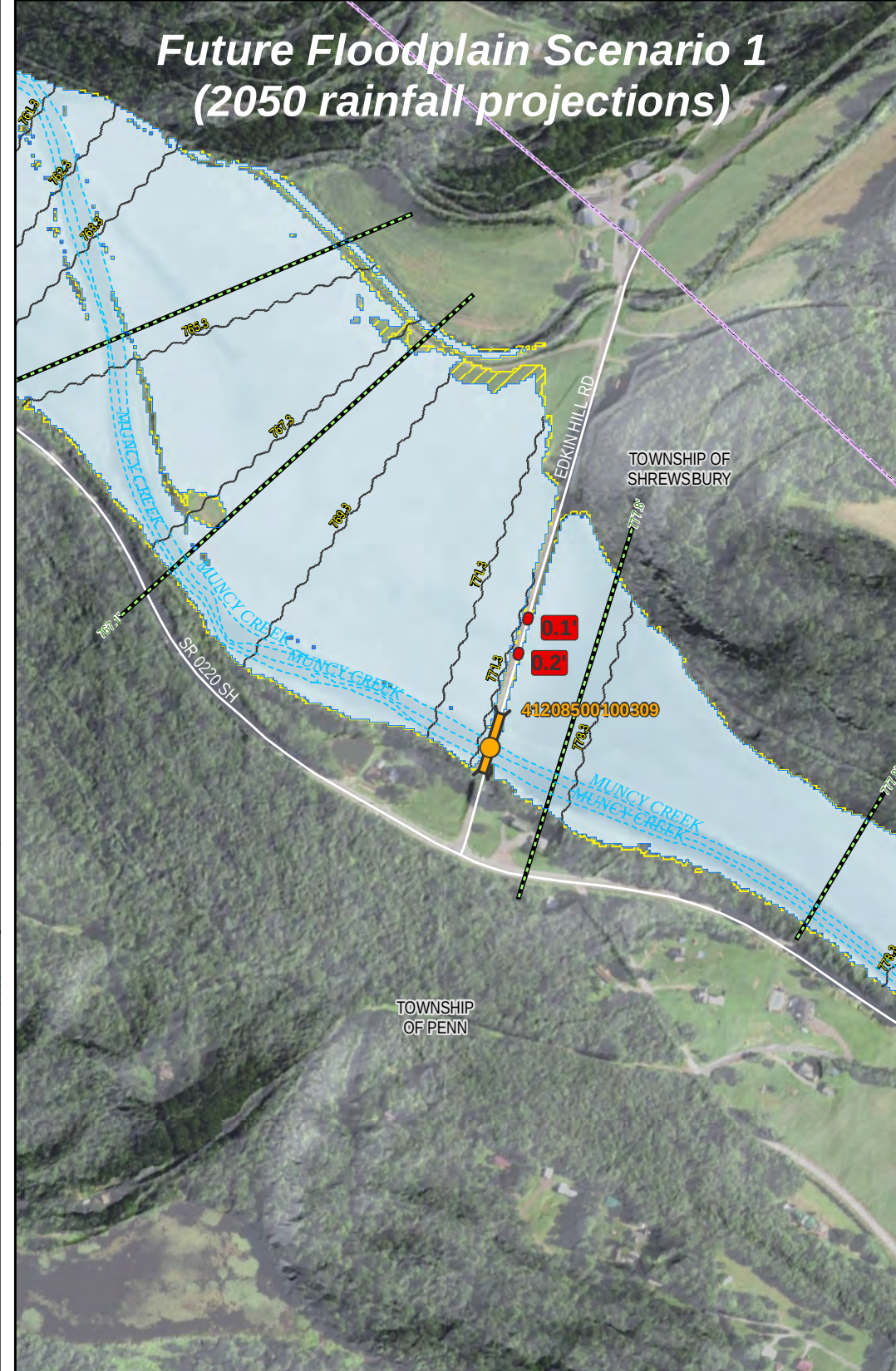
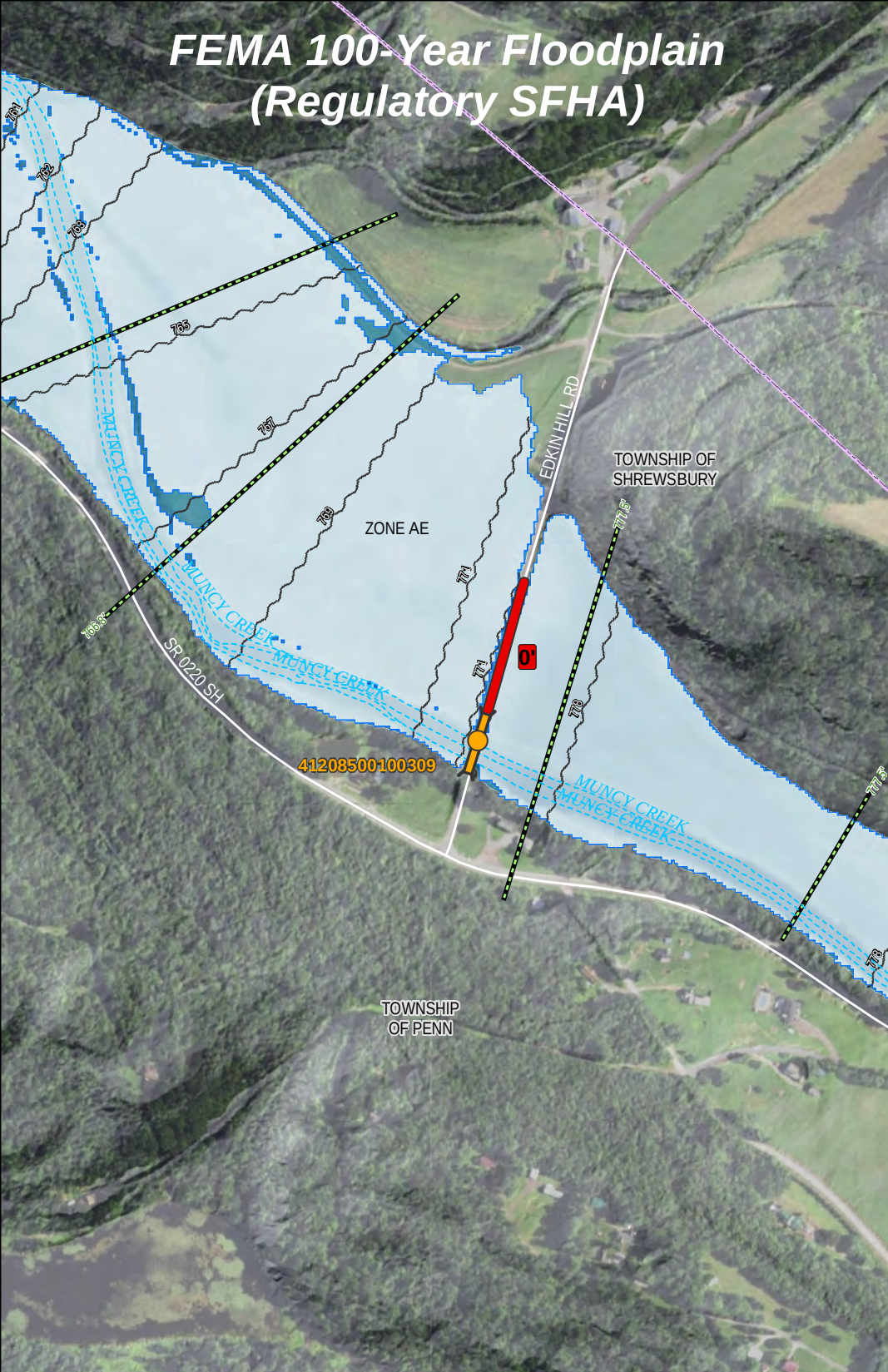


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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

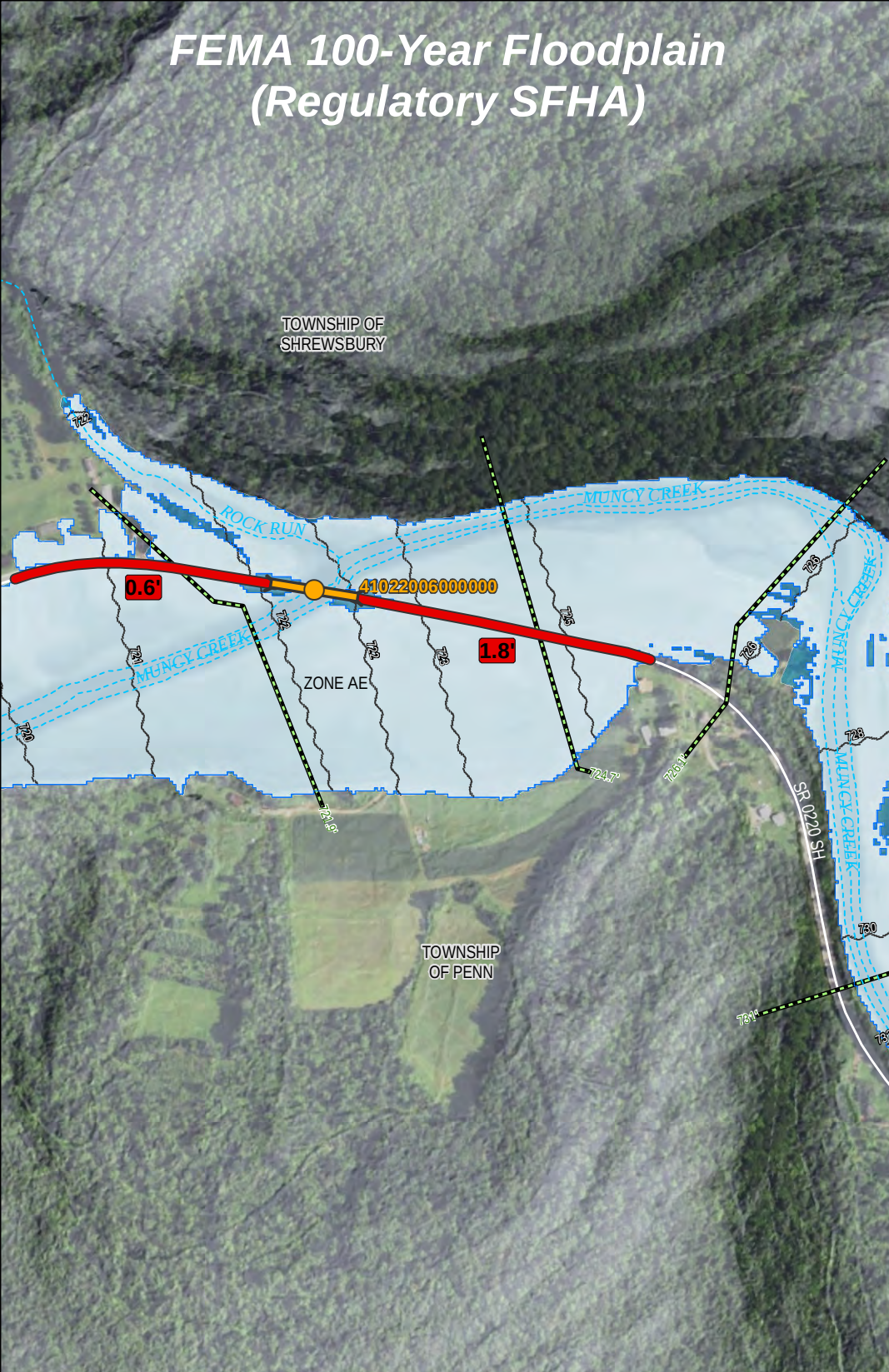
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Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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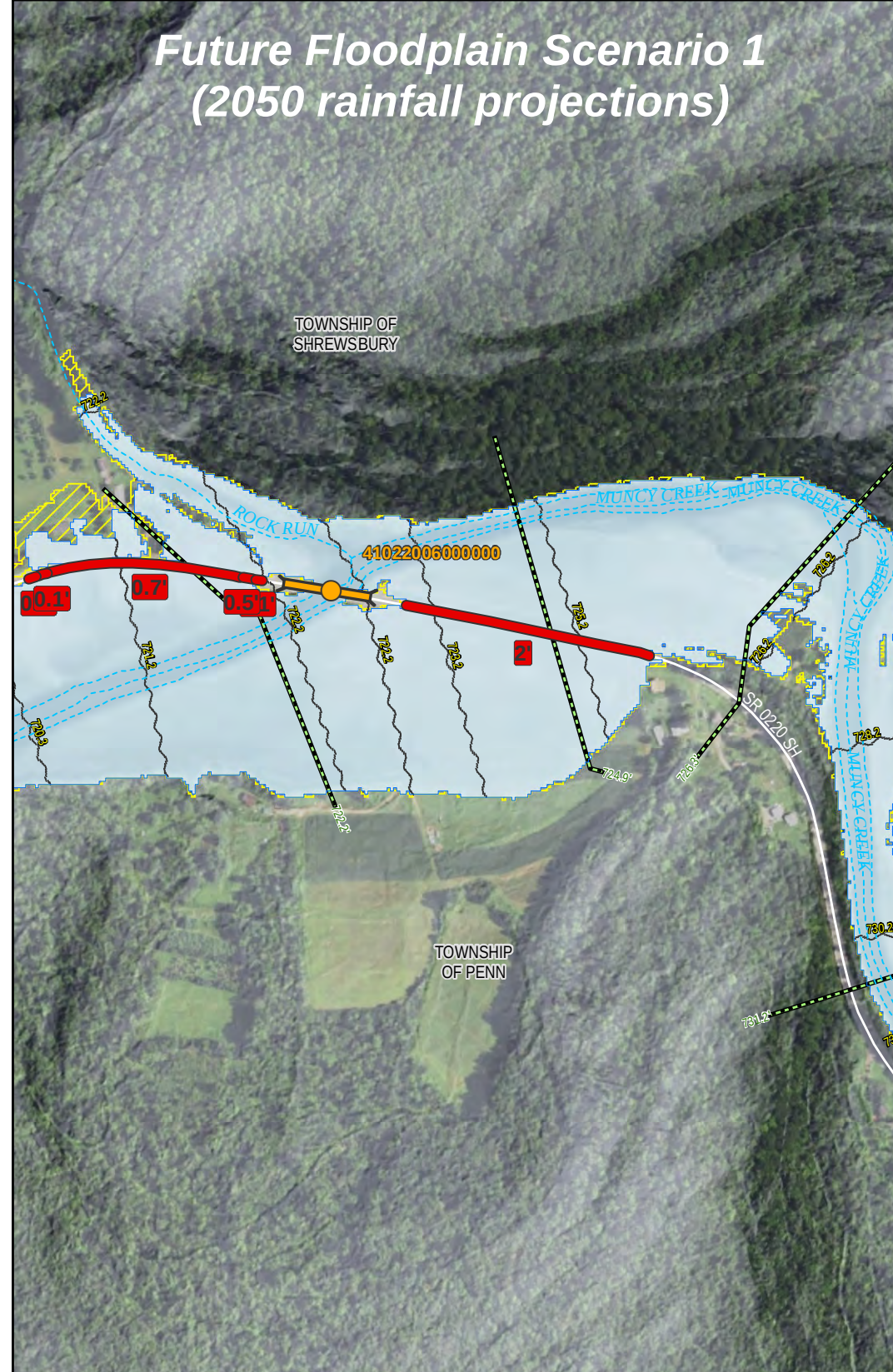




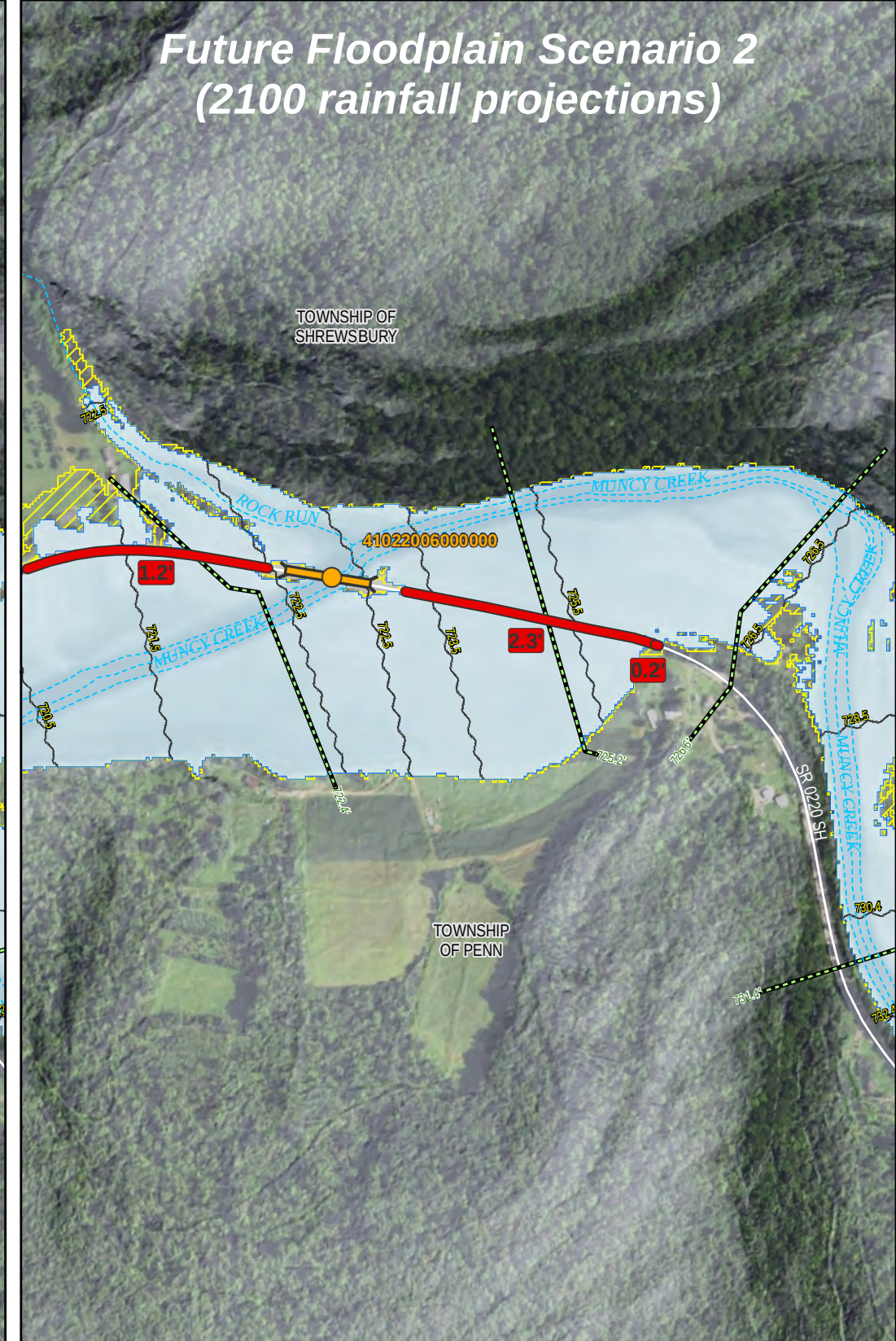
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

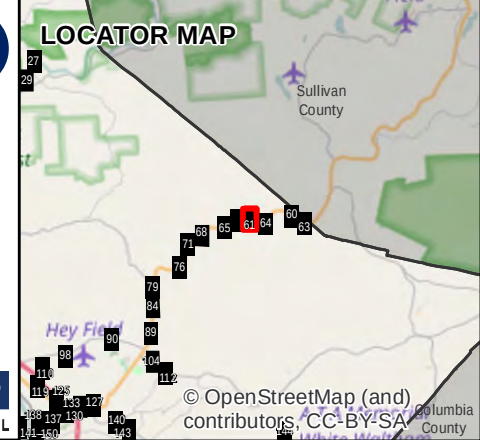
Sheet 61 of 163



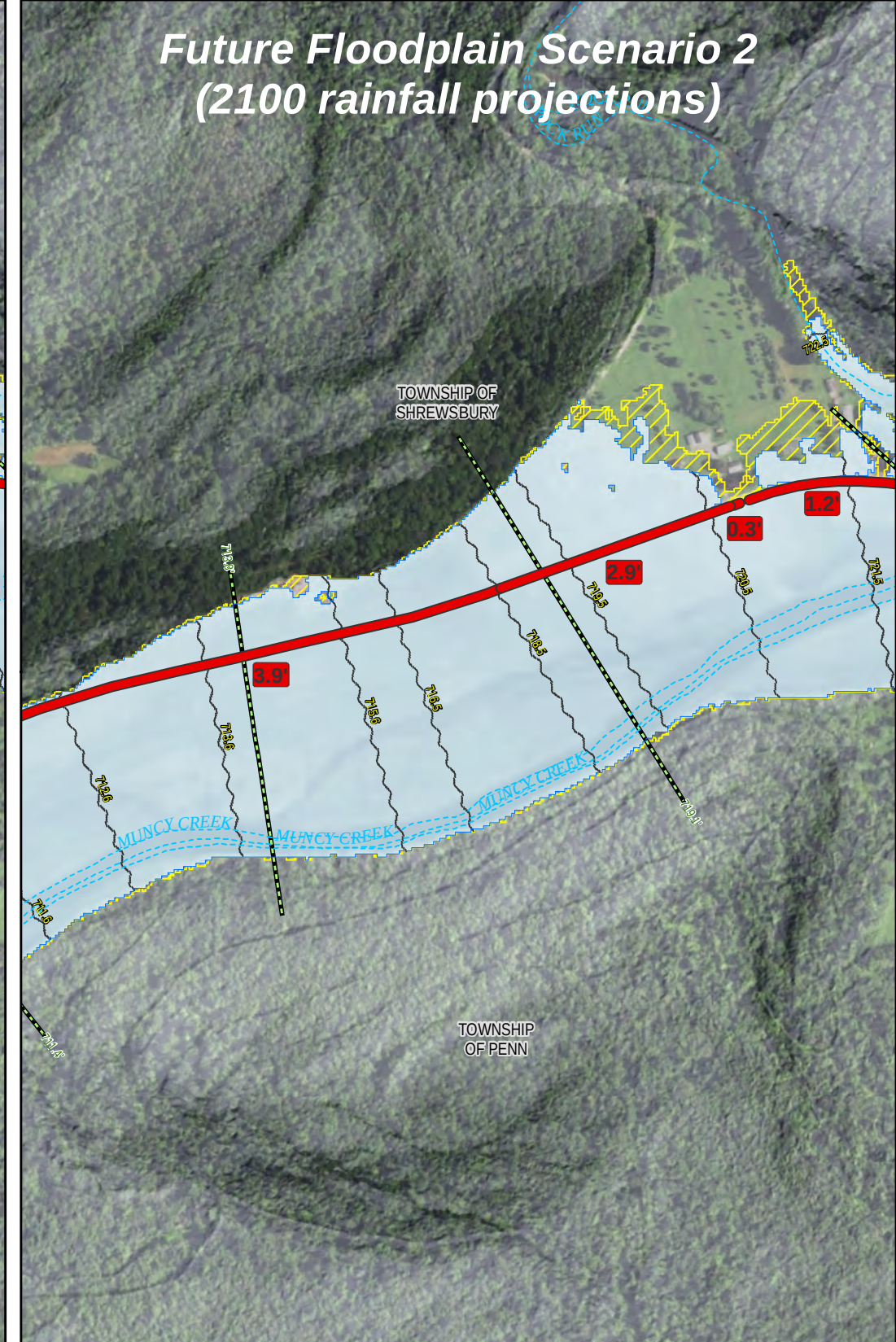
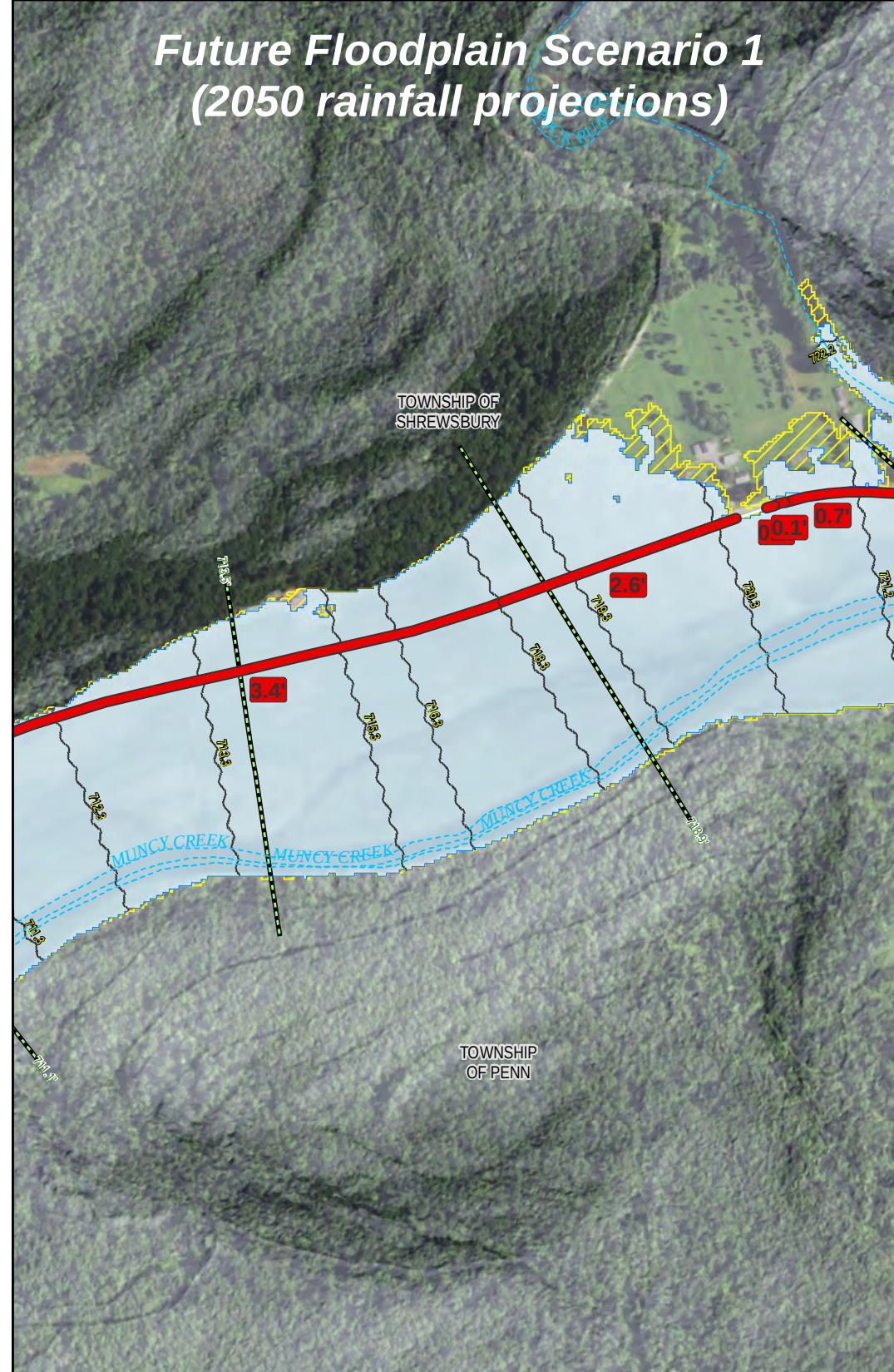
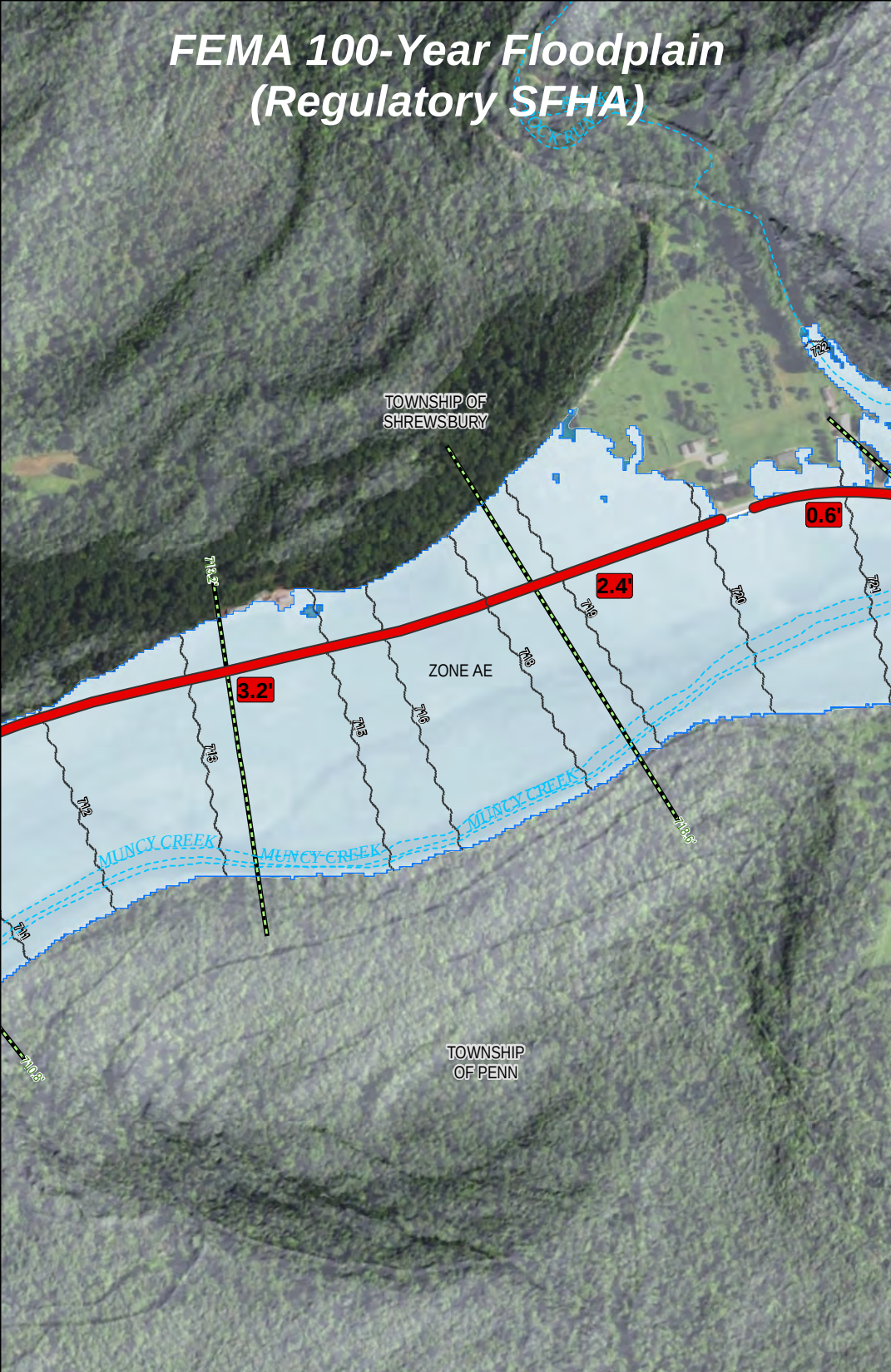
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

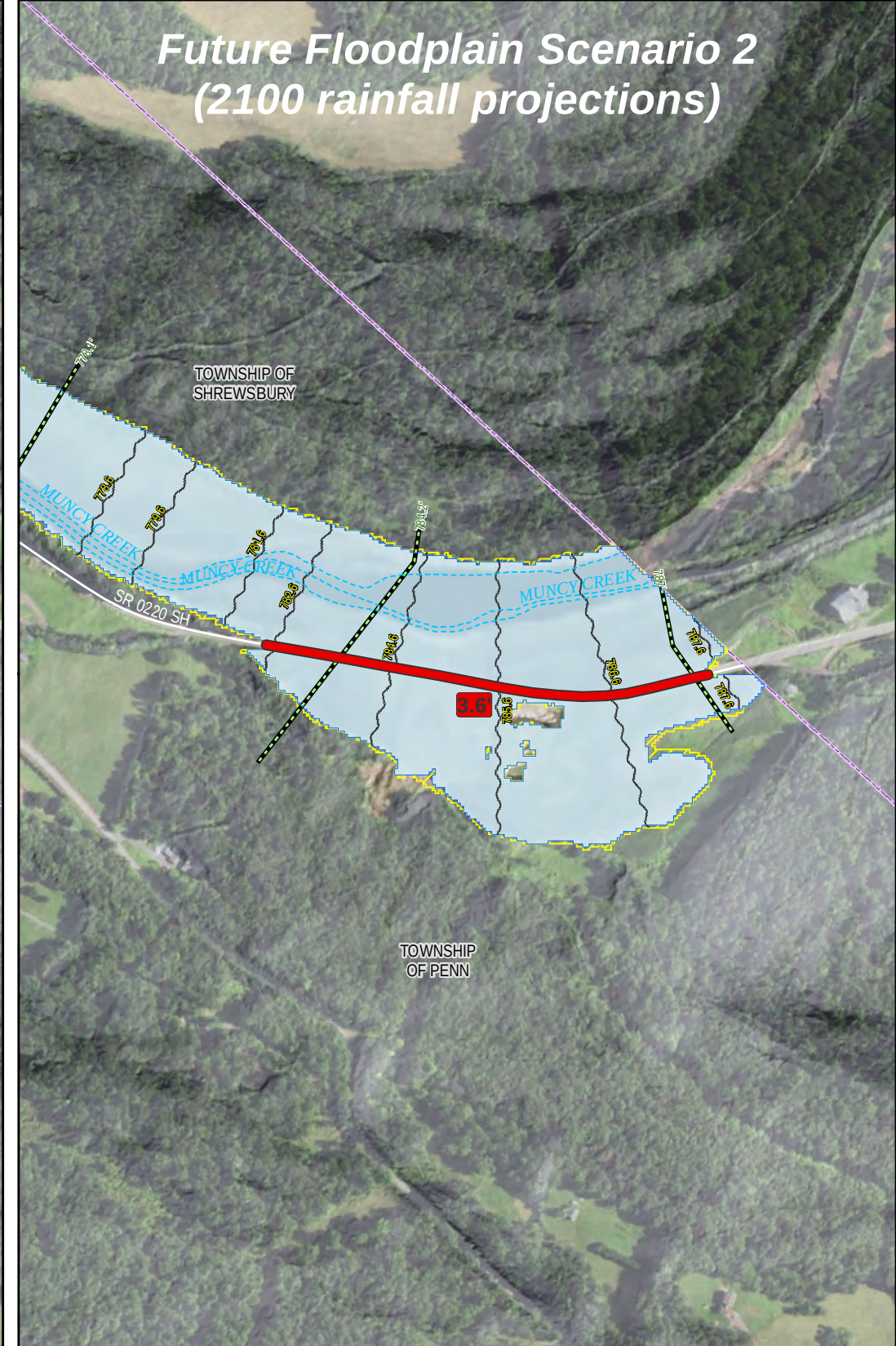
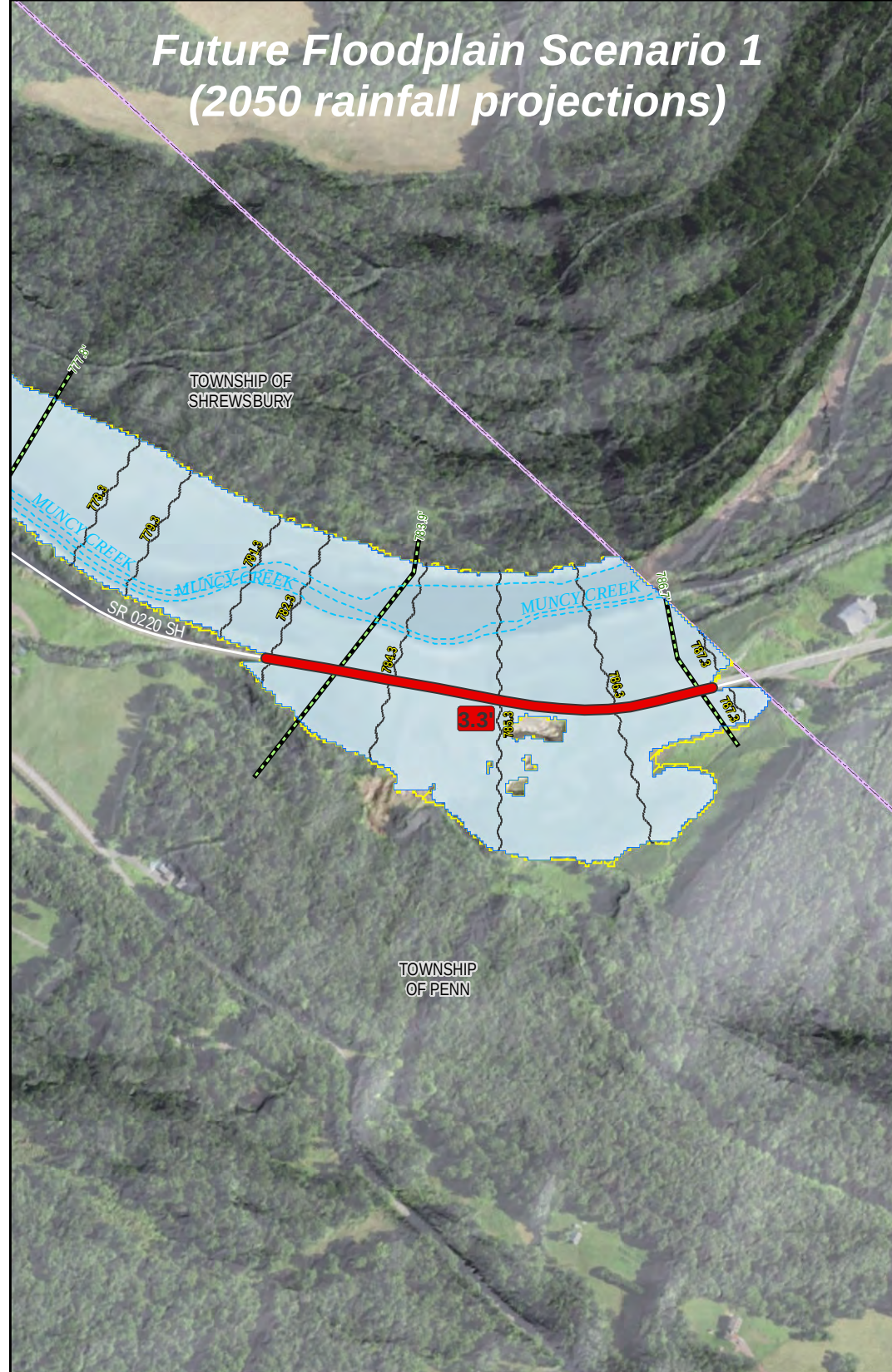
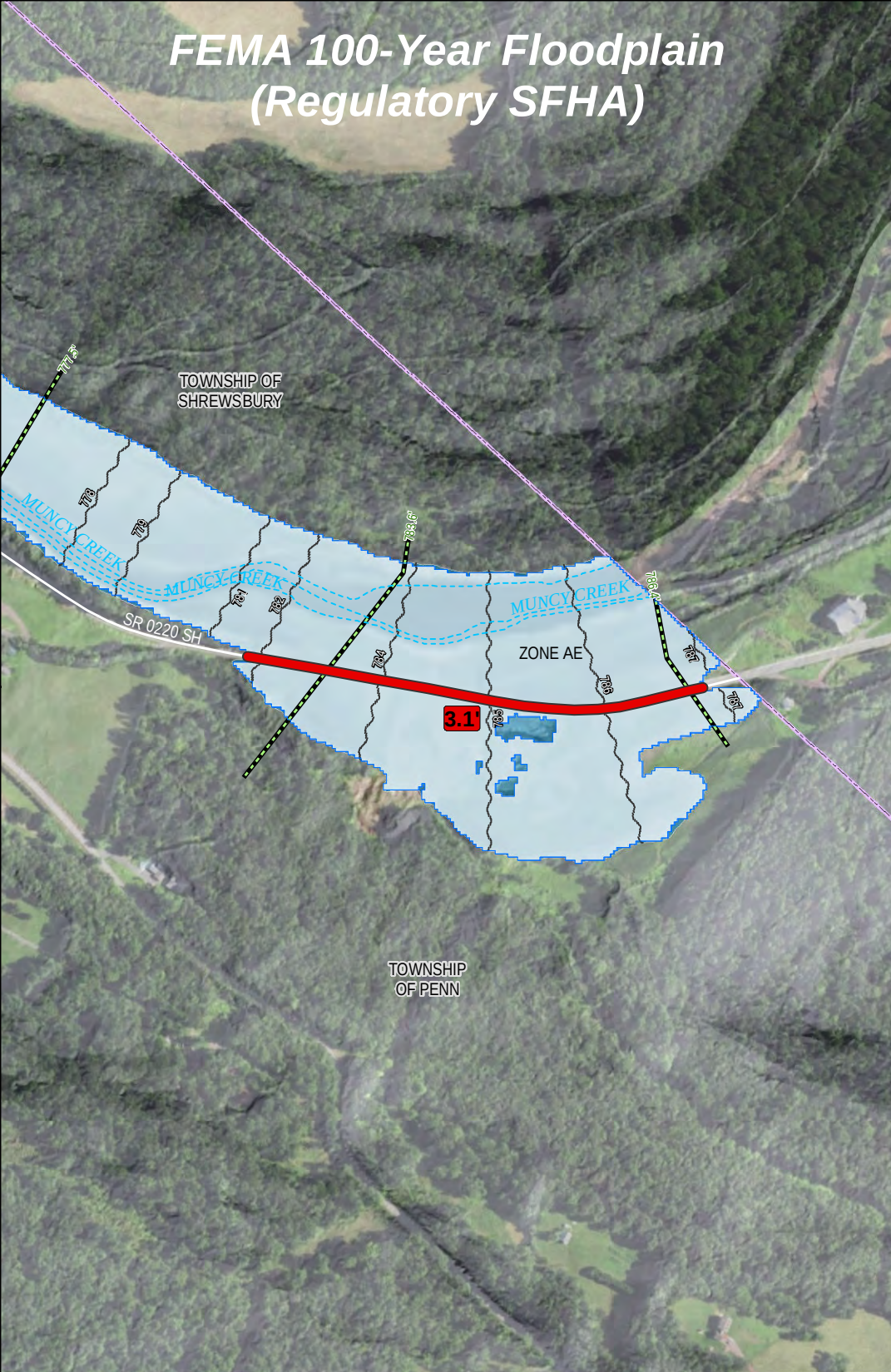
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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

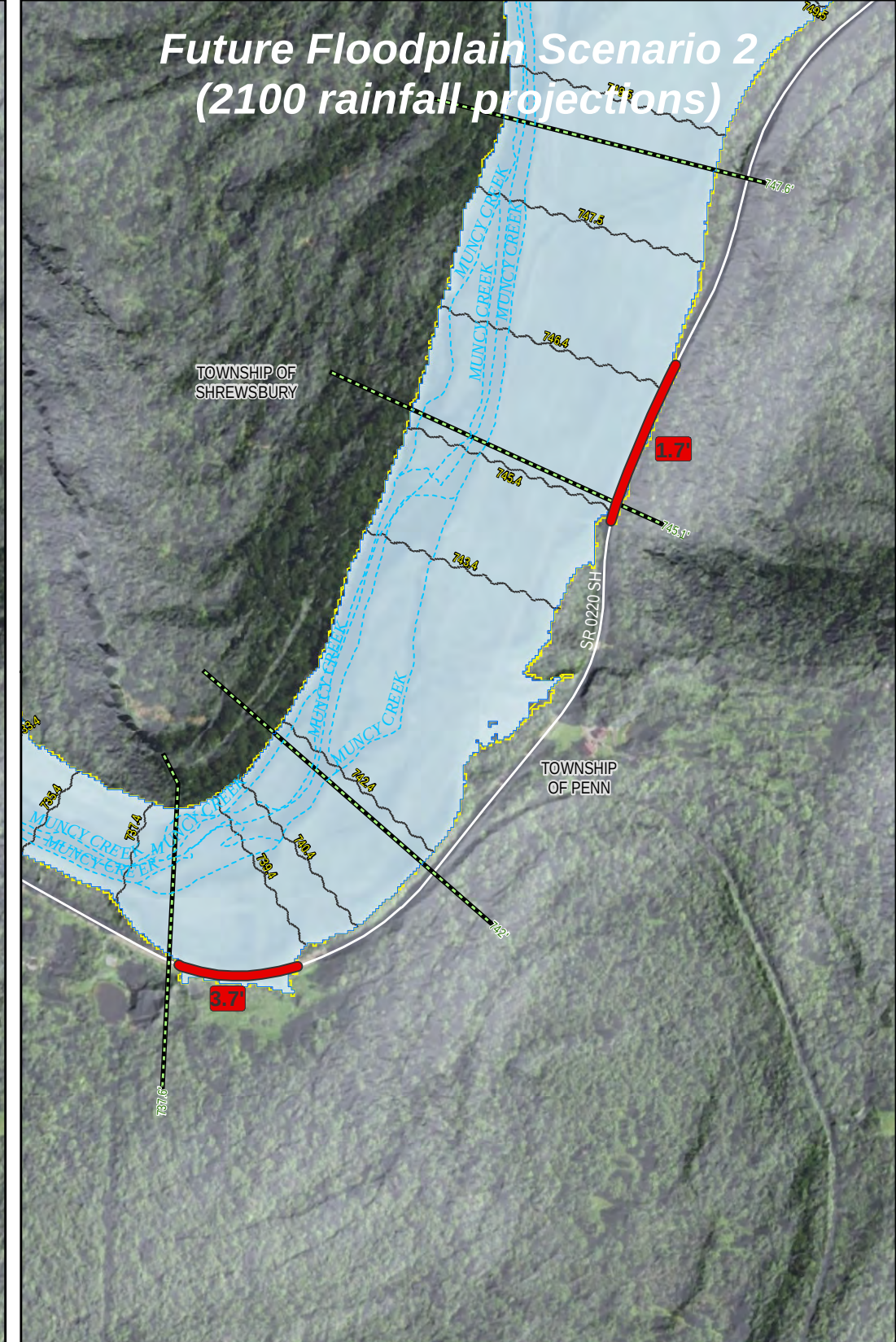
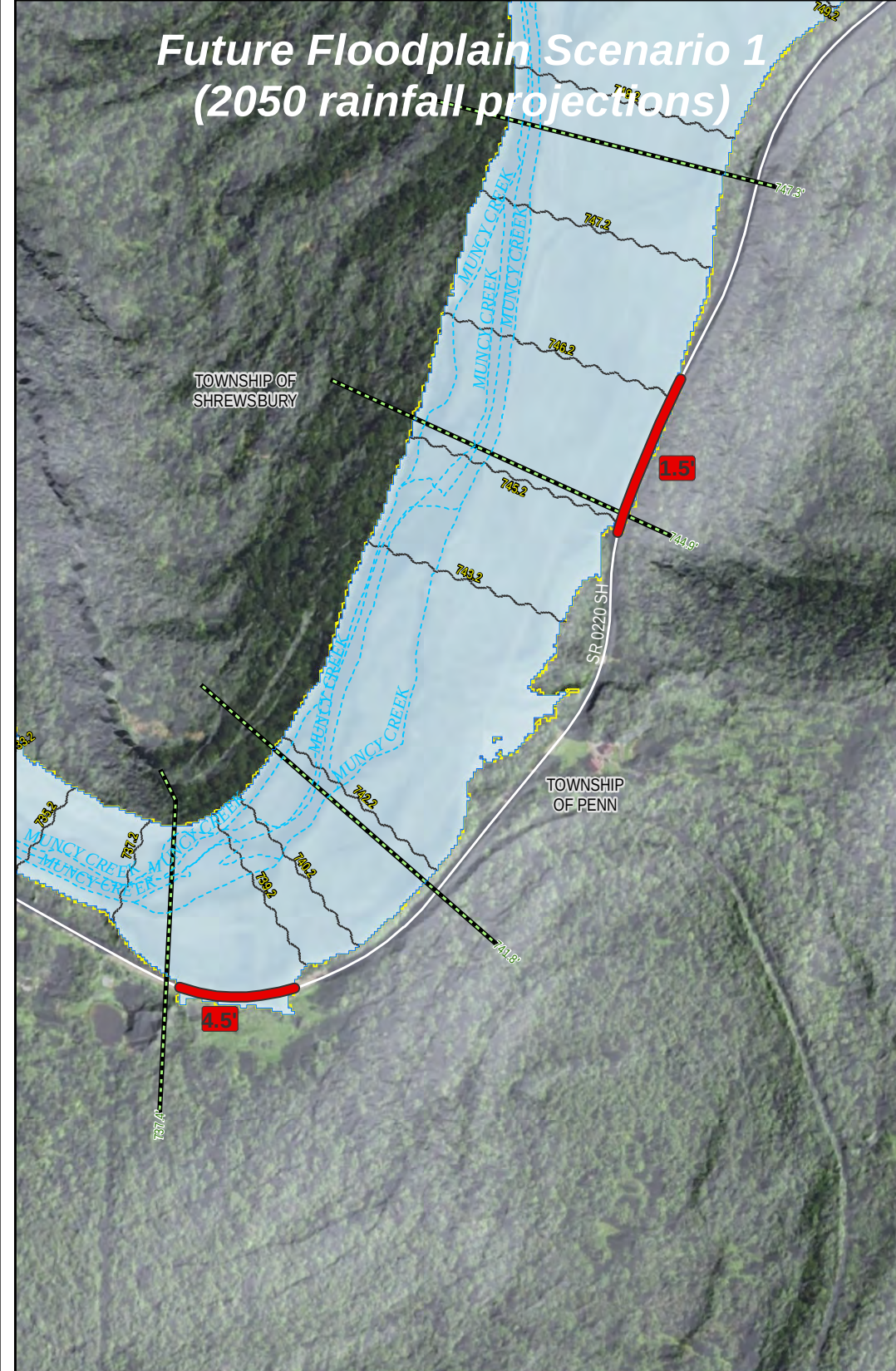
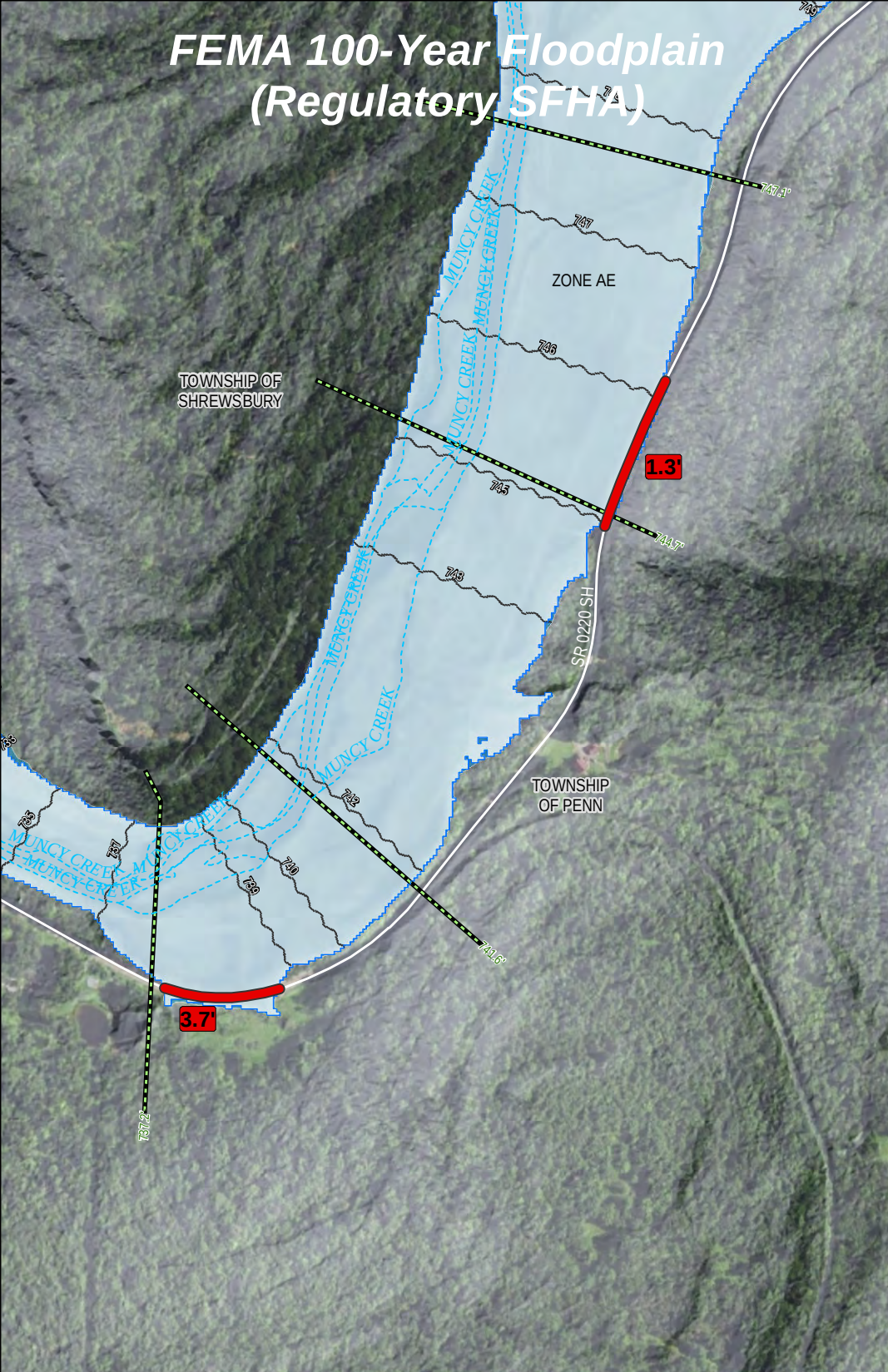
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DATA FRAME PROPERTIES:
Coordinate System:
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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section

FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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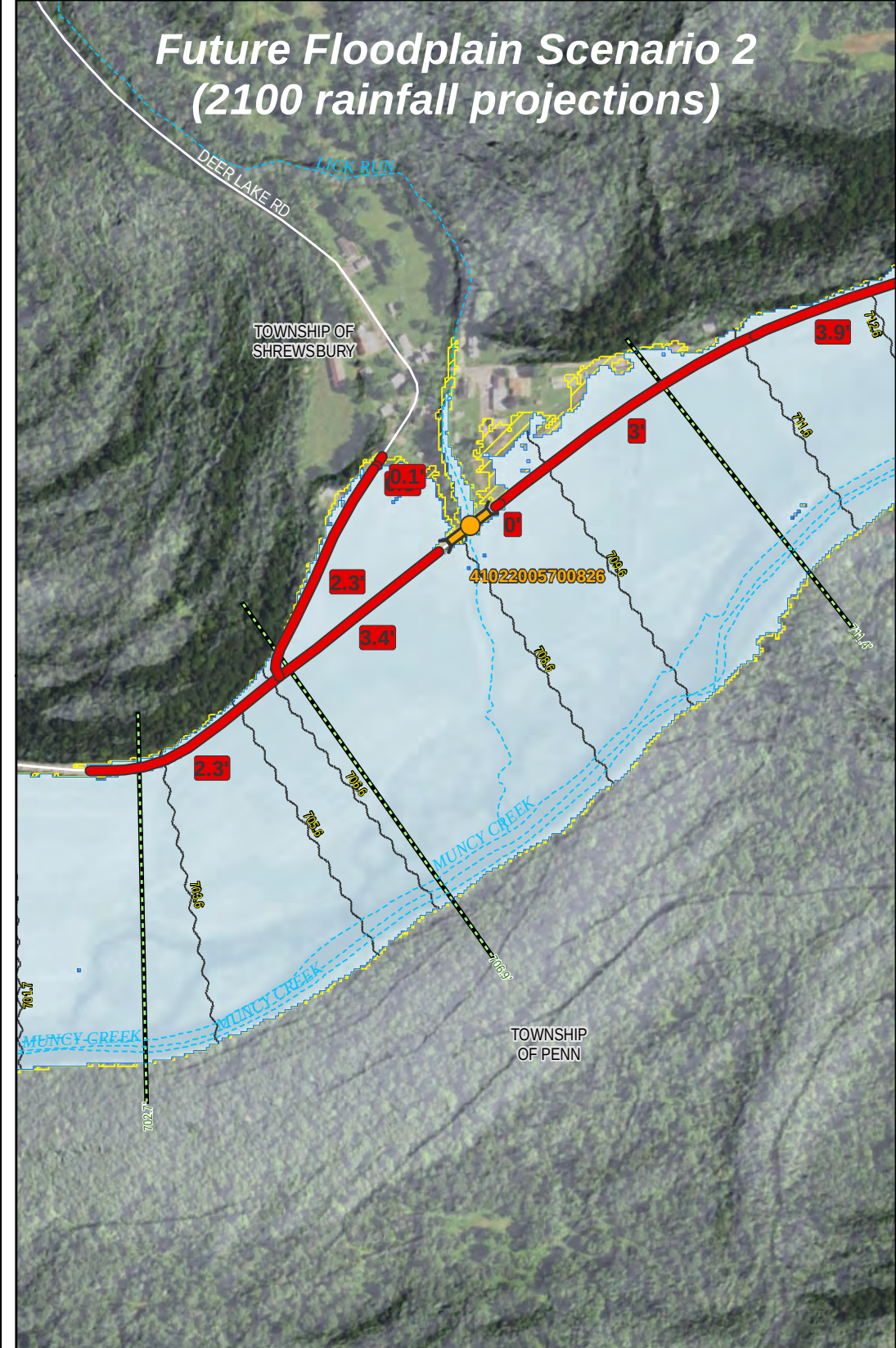
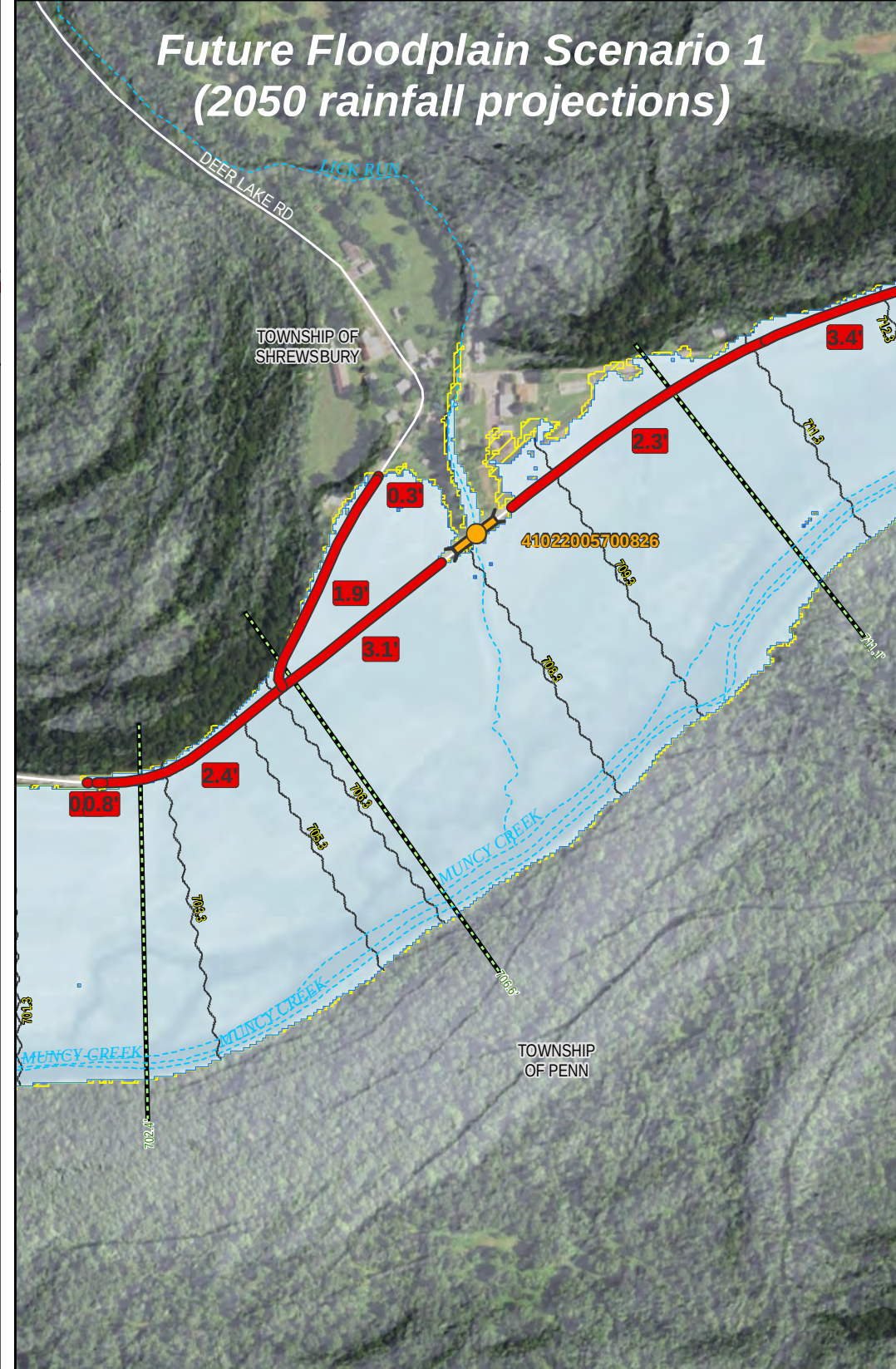
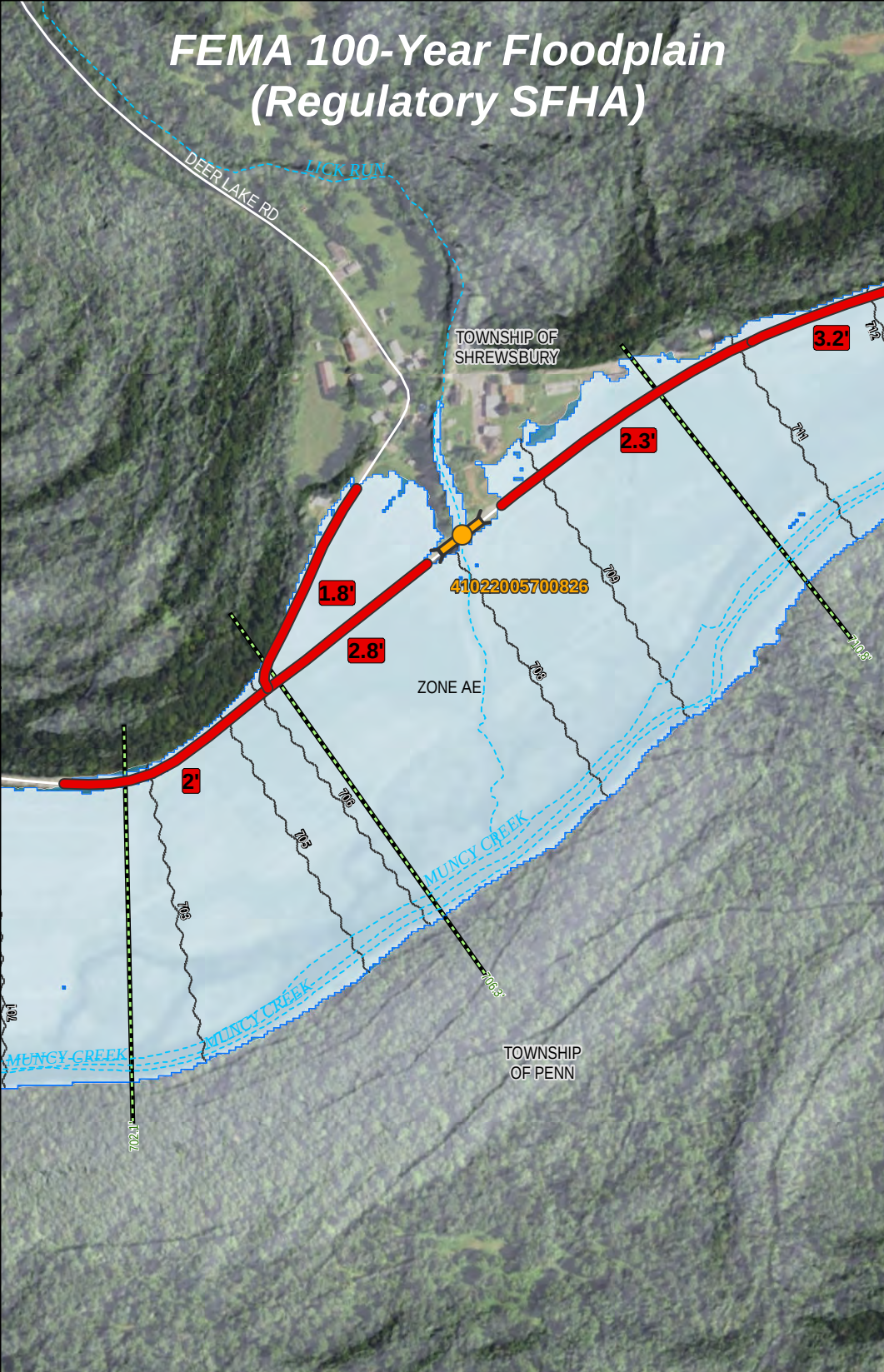
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VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT		FEMA FLOODPLAIN		EXISTING CONDITIONS	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'		FEMA Stream Centerline		Existing Conditions SFHA Extents
	Bridge Points - BRIDGE ID i.e. 23100100301362		FEMA Base Flood Elevation		Projected SFHA Extents
	Bridge Centerlines		FEMA Cross Section		
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'		FEMA REGULATORY		
	Roadway - i.e. CODY ST		FEMA REGULATORY SFHA		
	Community Boundary				

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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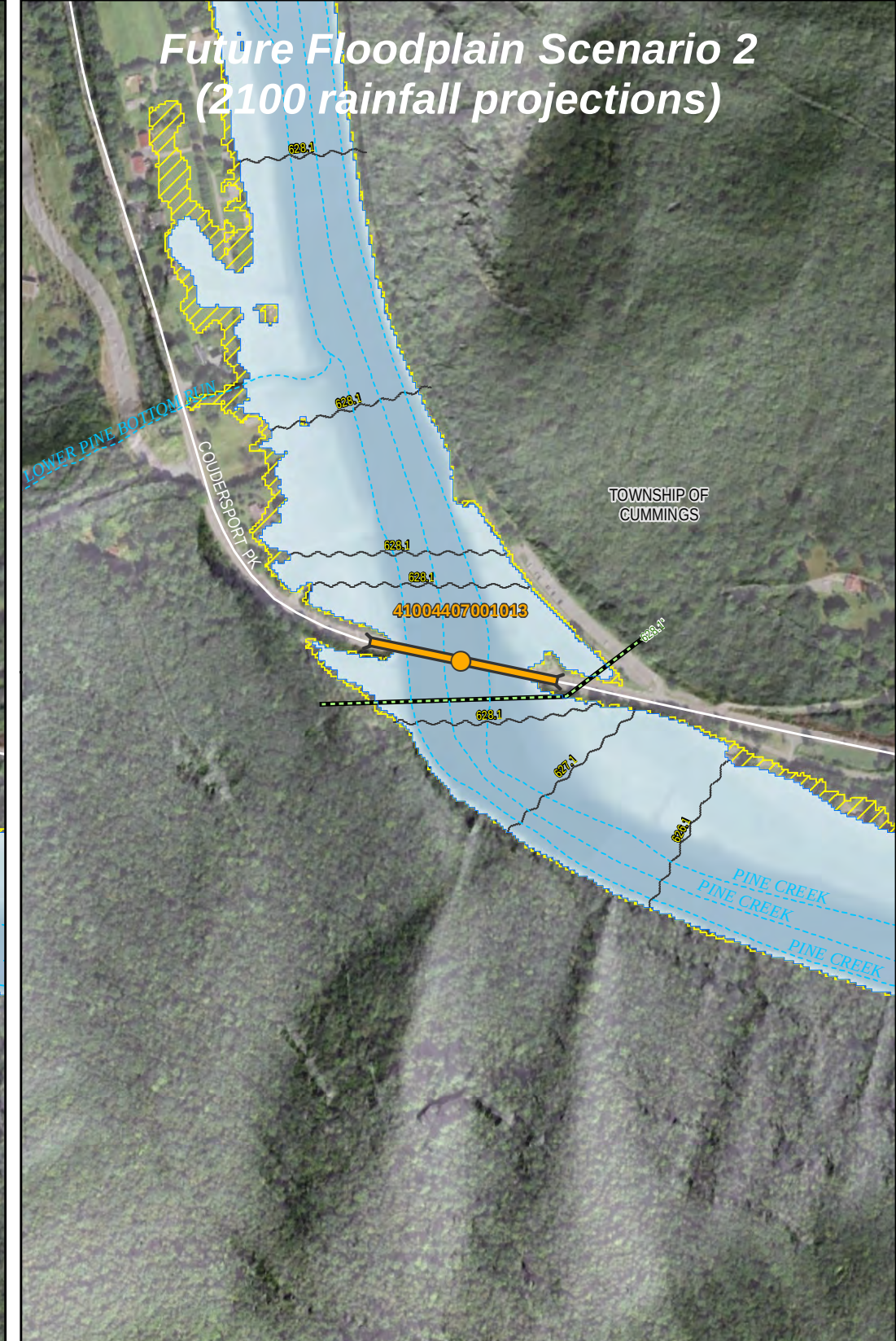
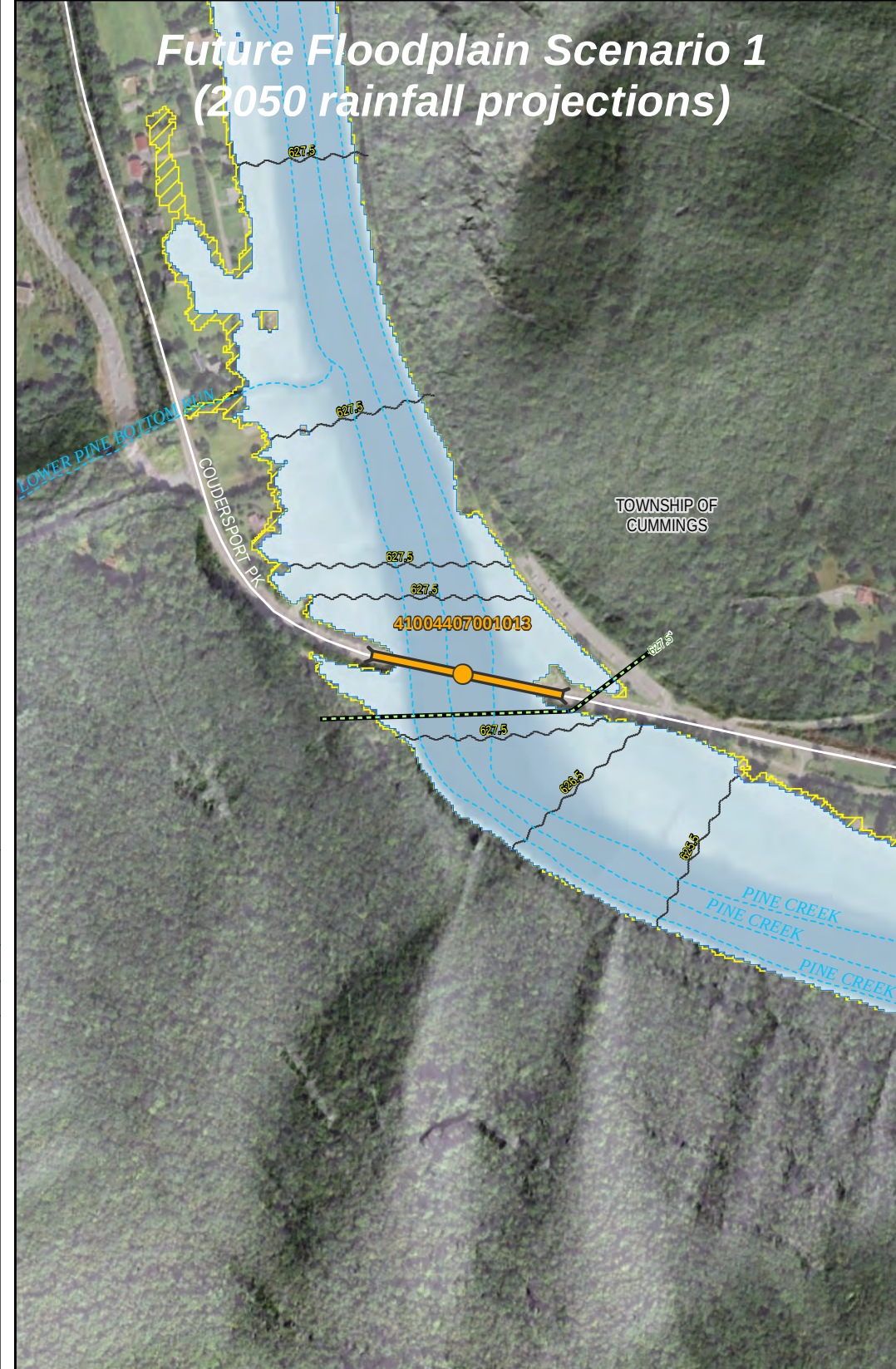
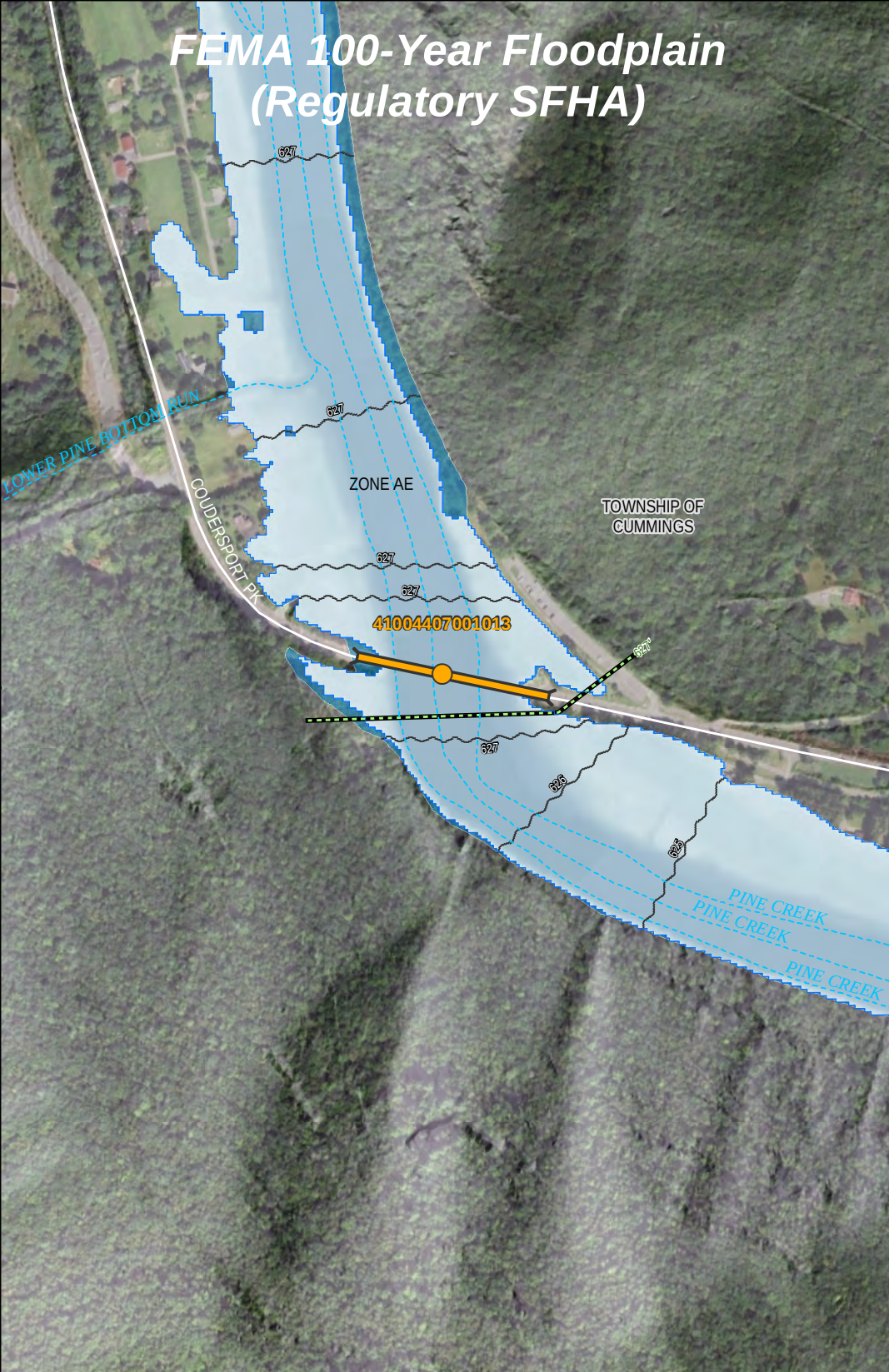
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DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT		FEMA FLOODPLAIN		EXISTING CONDITIONS	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'		FEMA Stream Centerline		Existing Conditions SFHA Extents
	Bridge Points - BRIDGE ID i.e. 23100100301362		FEMA Base Flood Elevation		Projected SFHA Extents
	Bridge Centerlines		FEMA Cross Section		
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'		FEMA REGULATORY SFHA		
	Roadway - i.e. CODY ST				
	Community Boundary				

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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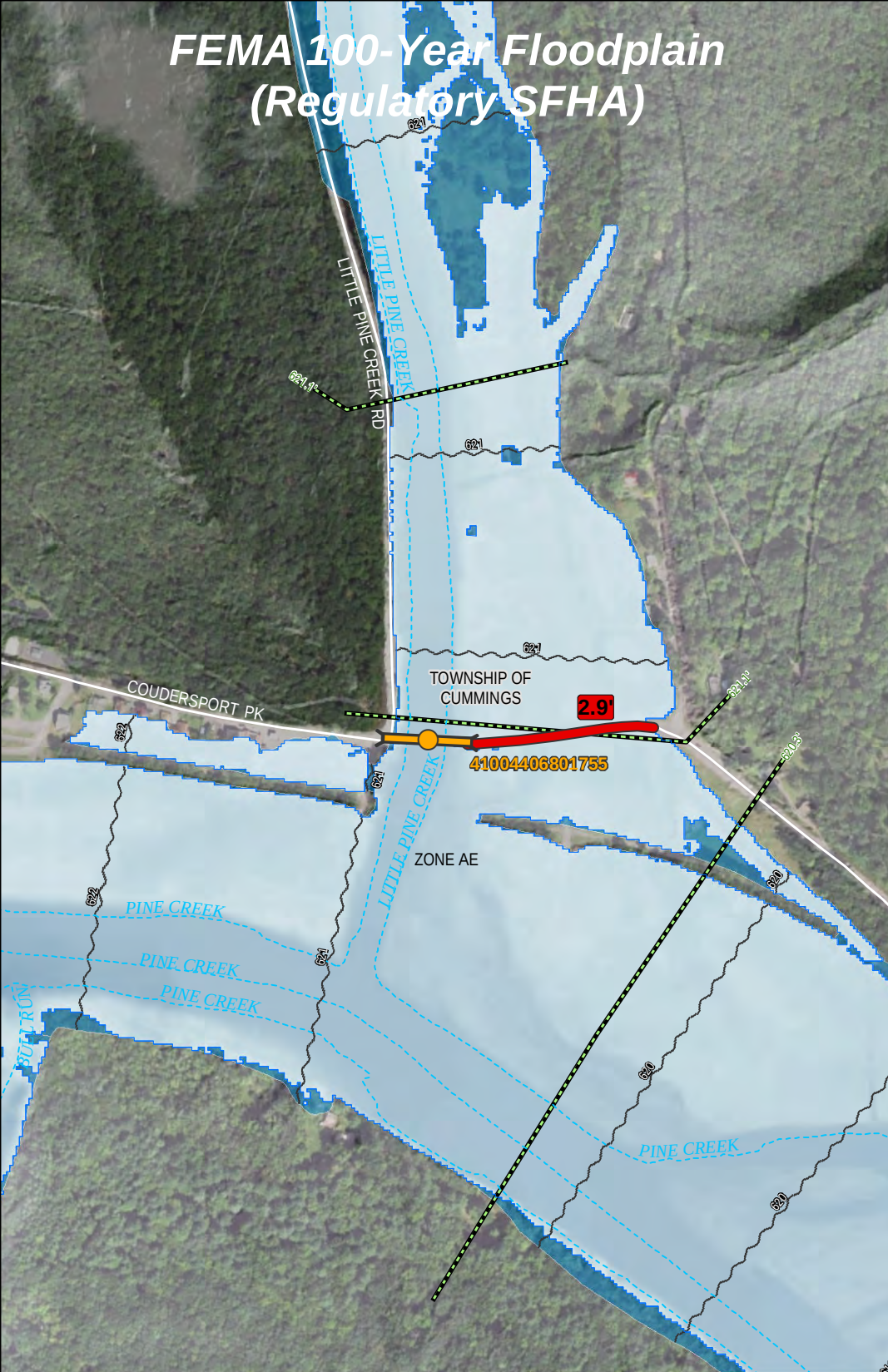
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LOCATOR MAP

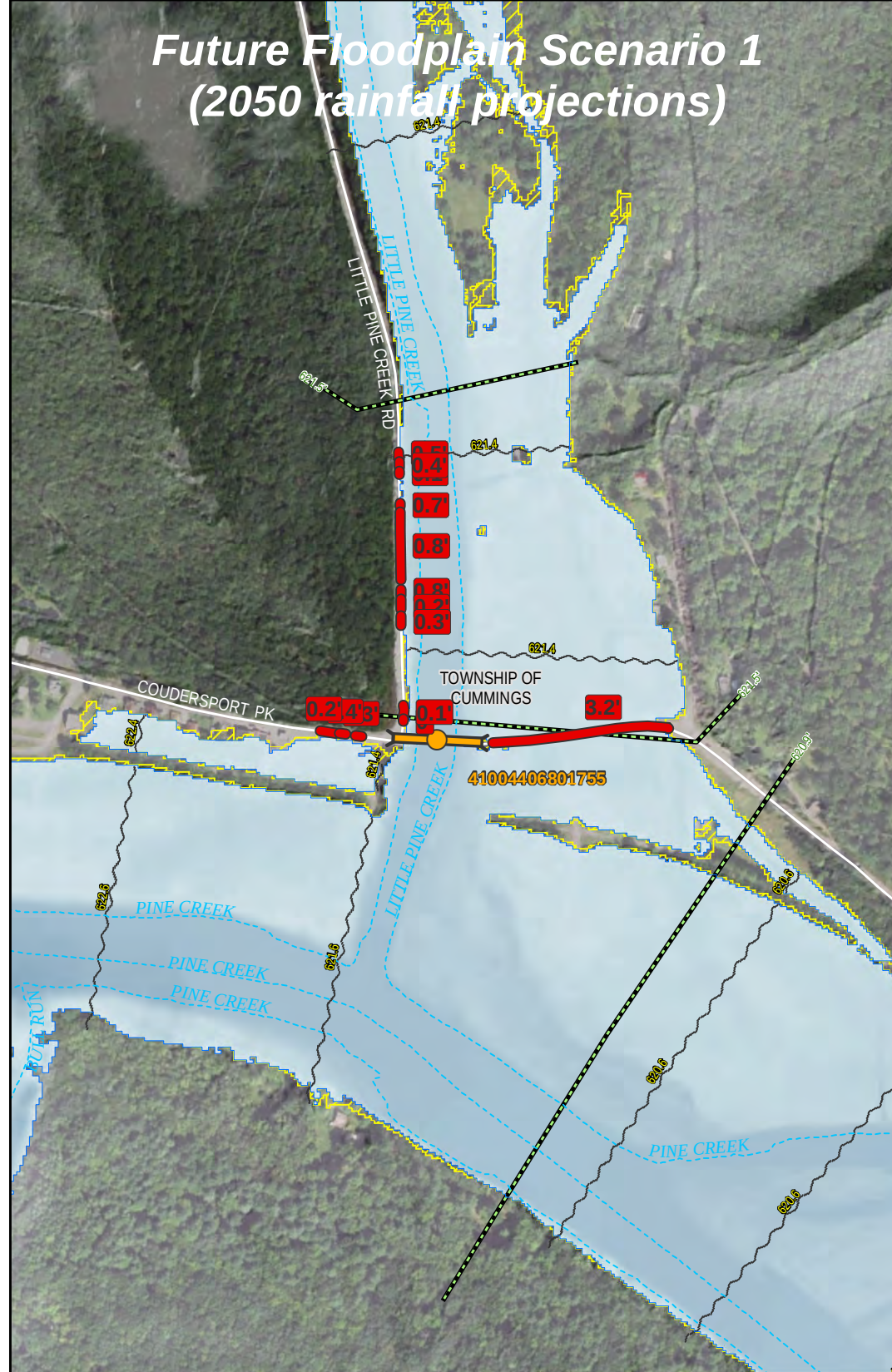
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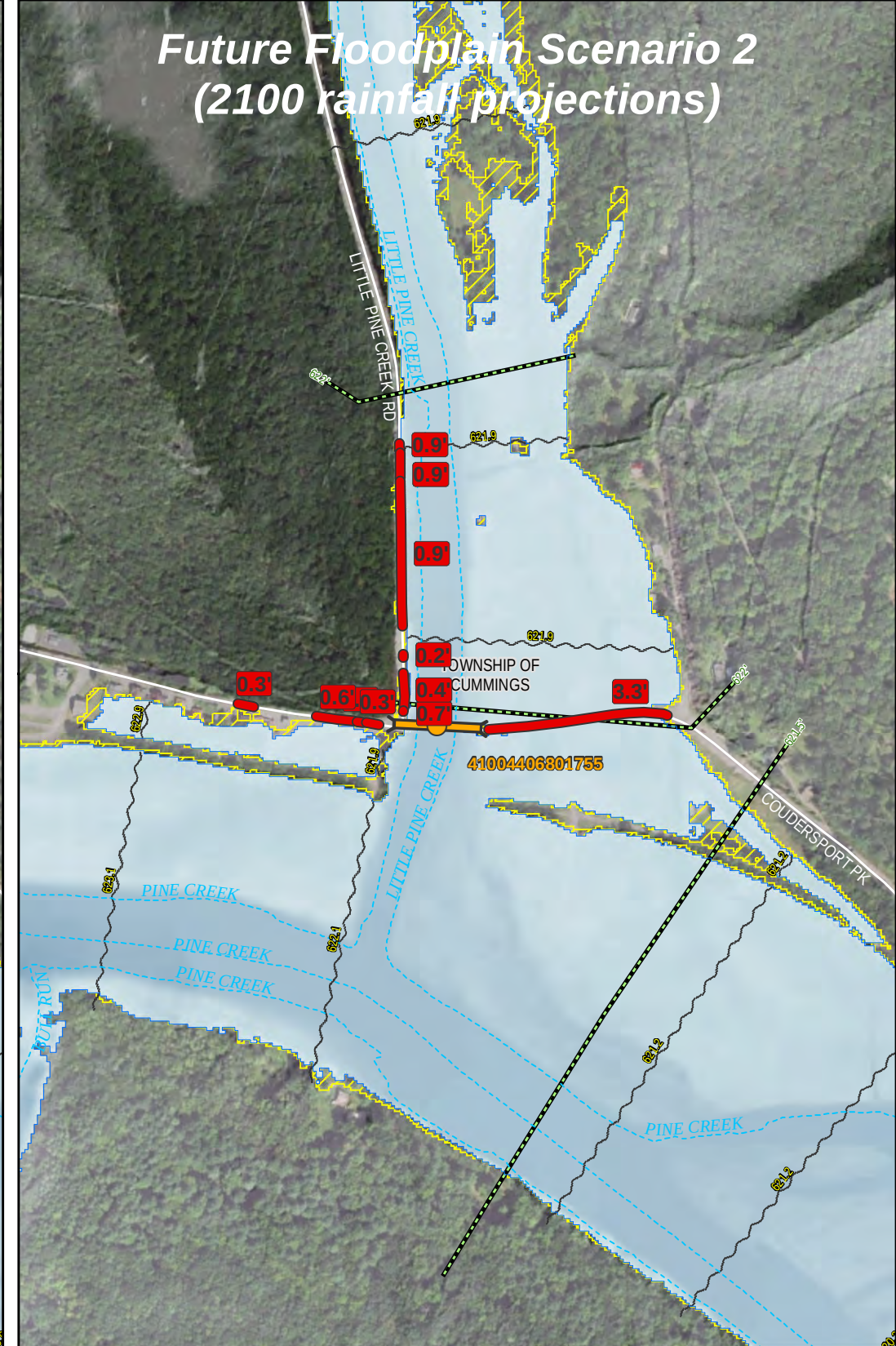
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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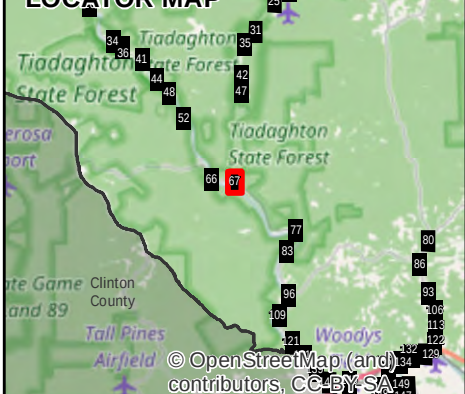


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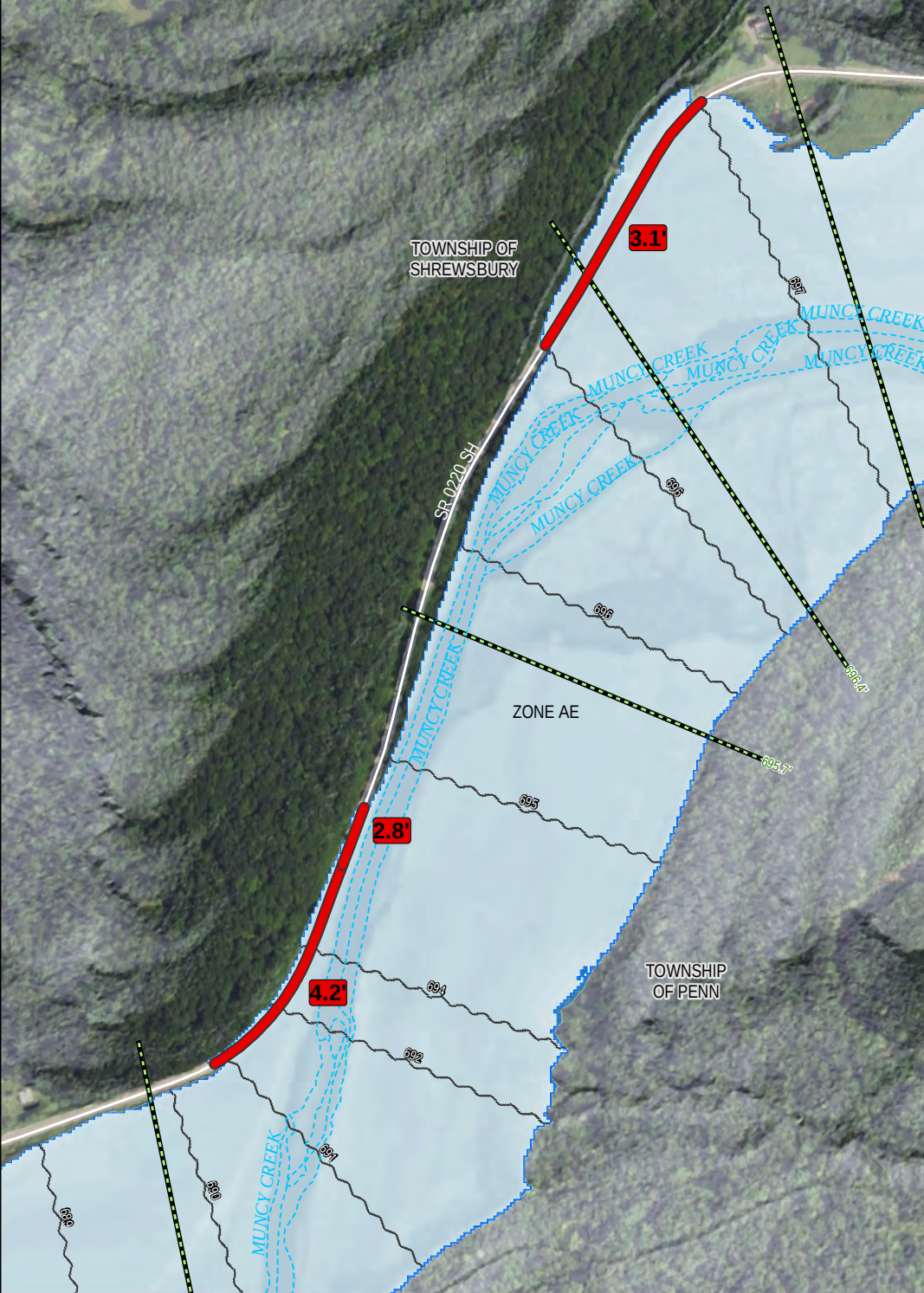
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Bridge and Roadway Data Provided by: Pennsylvania DOT

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INTERNATIONAL

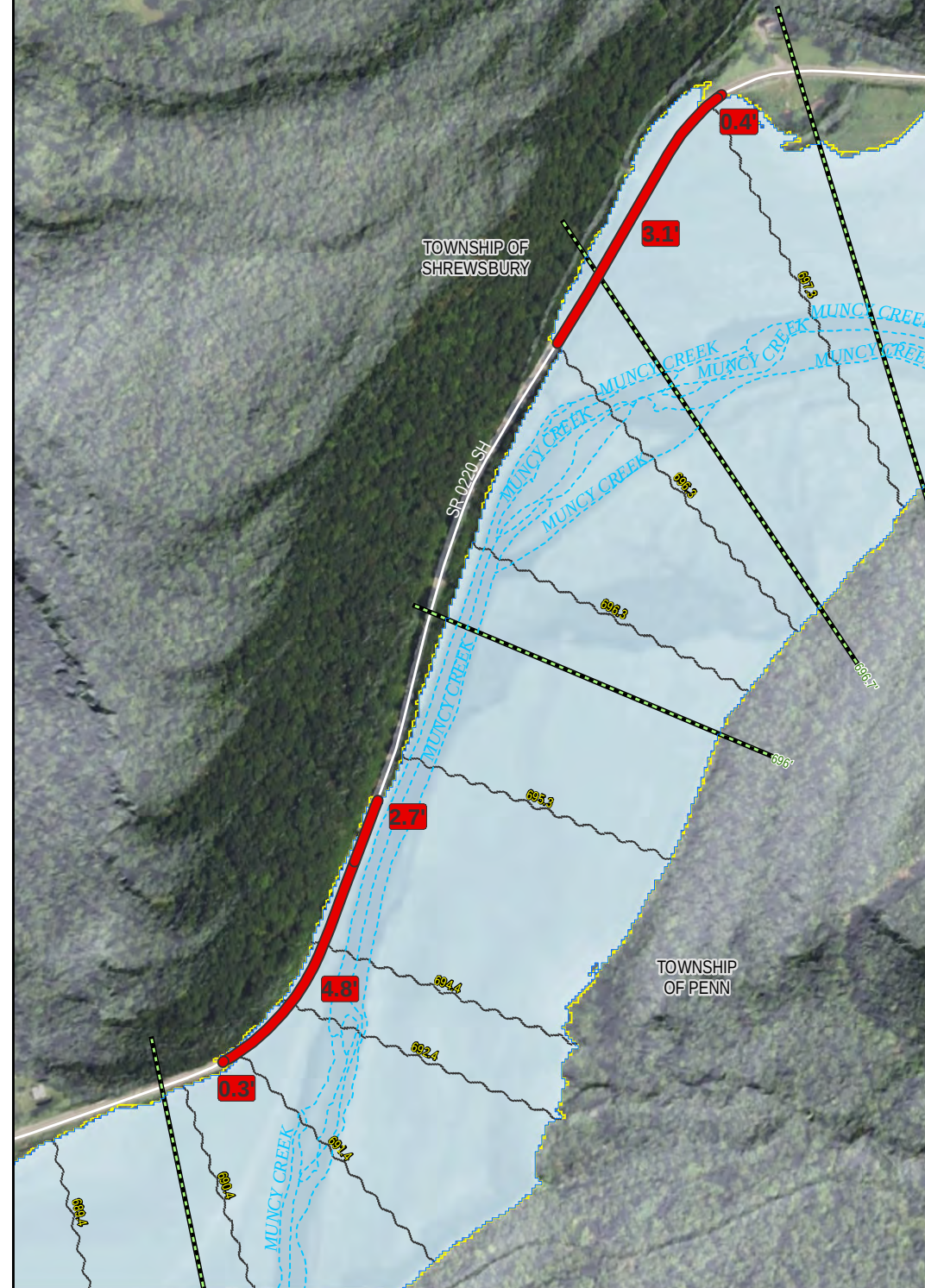
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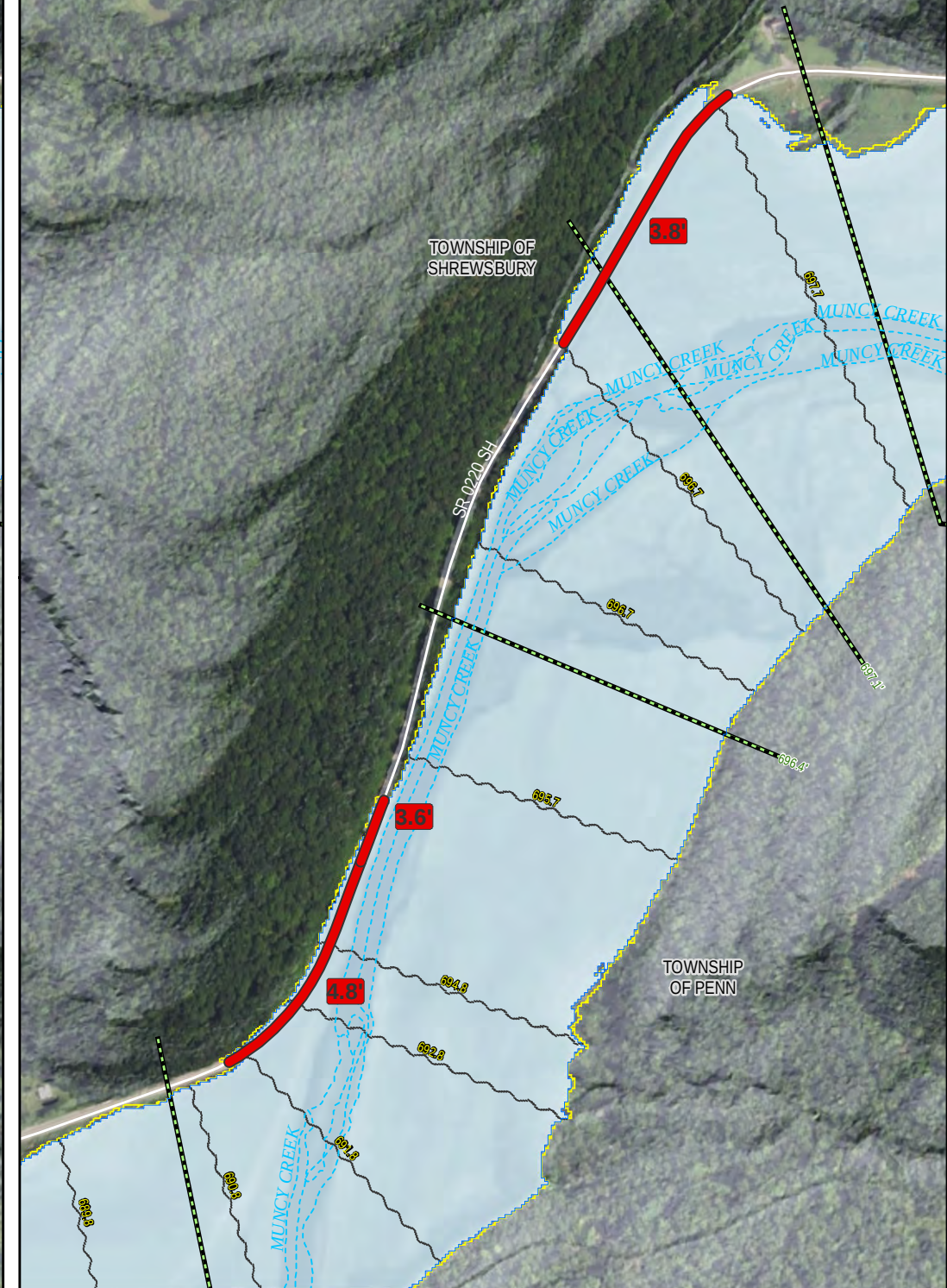
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

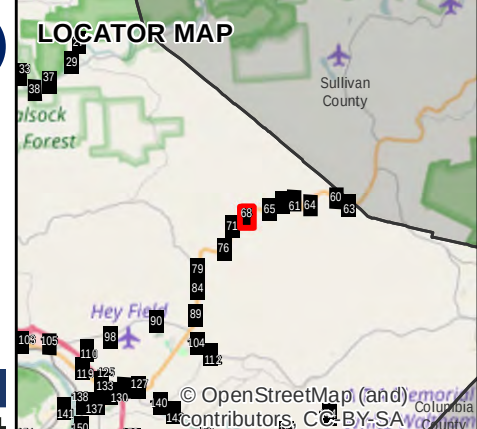
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DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
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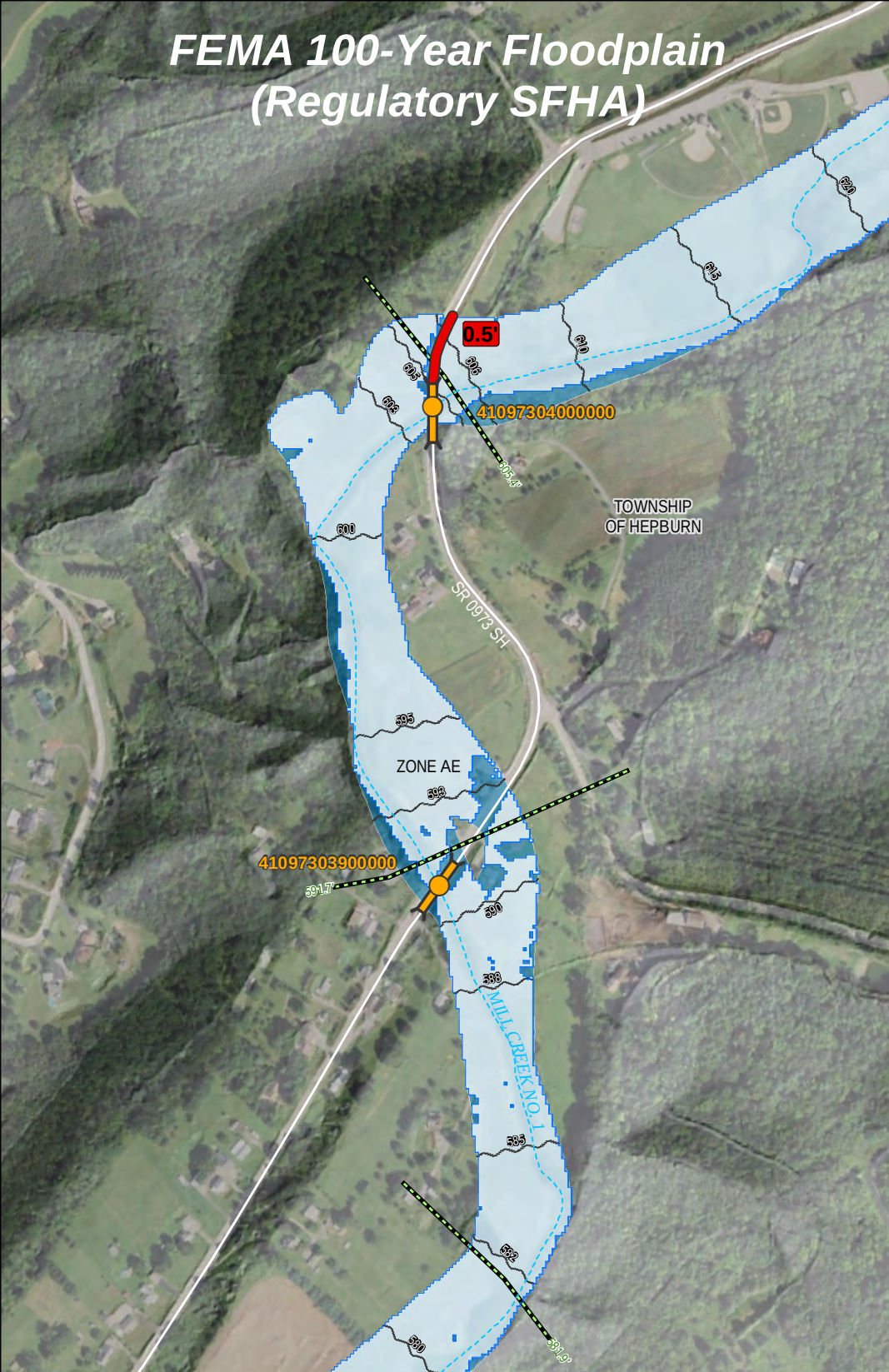
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INTERNATIONAL

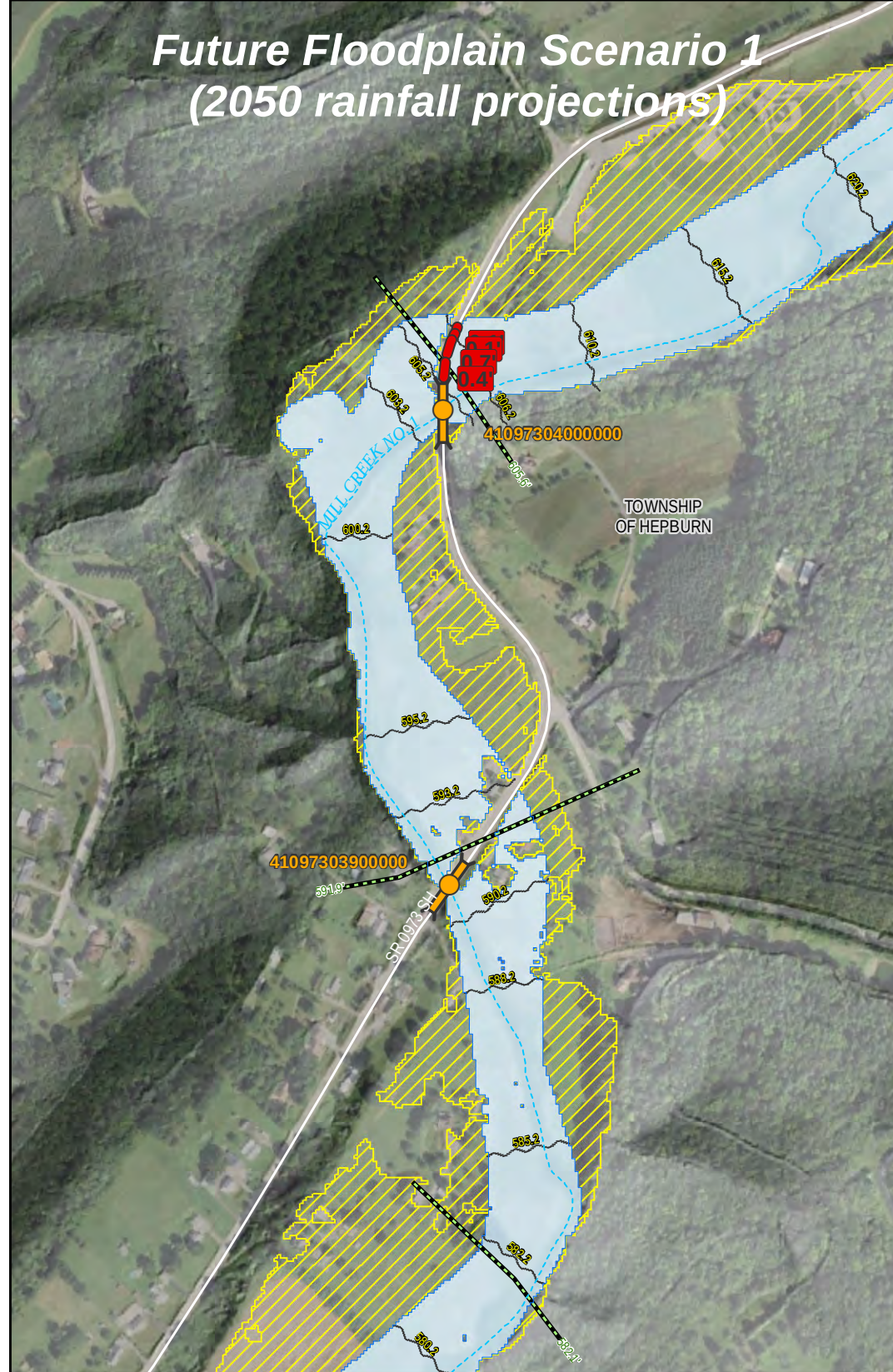


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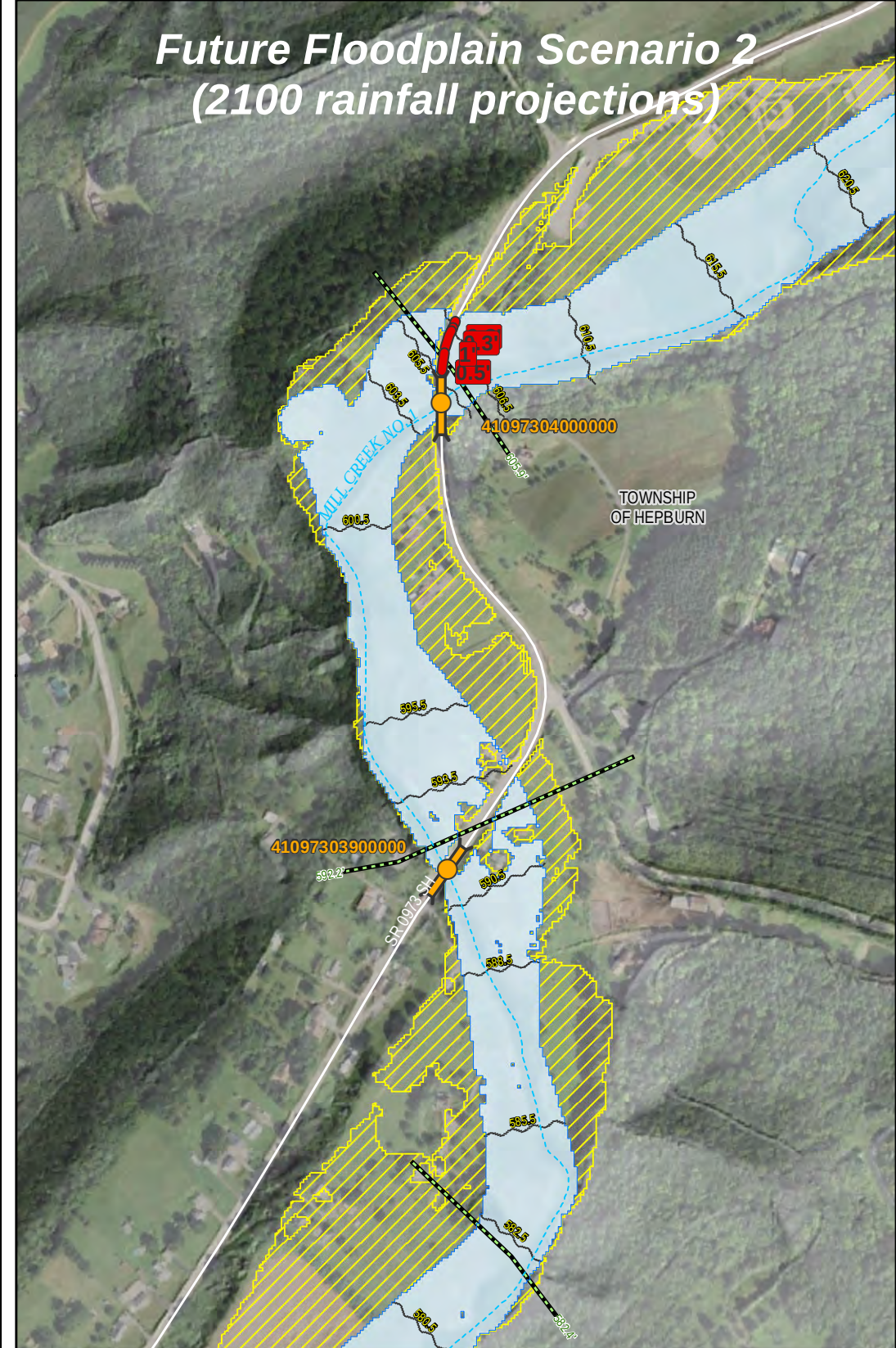
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
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FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

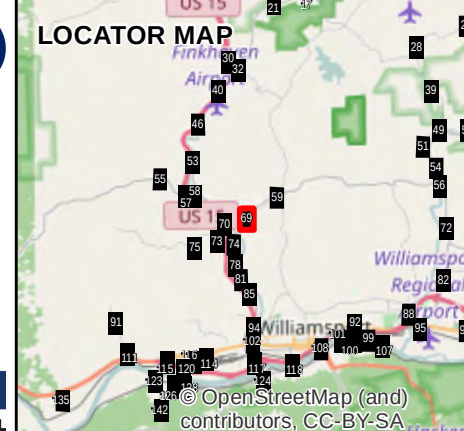
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DATA FRAME PROPERTIES:
Coordinate System:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

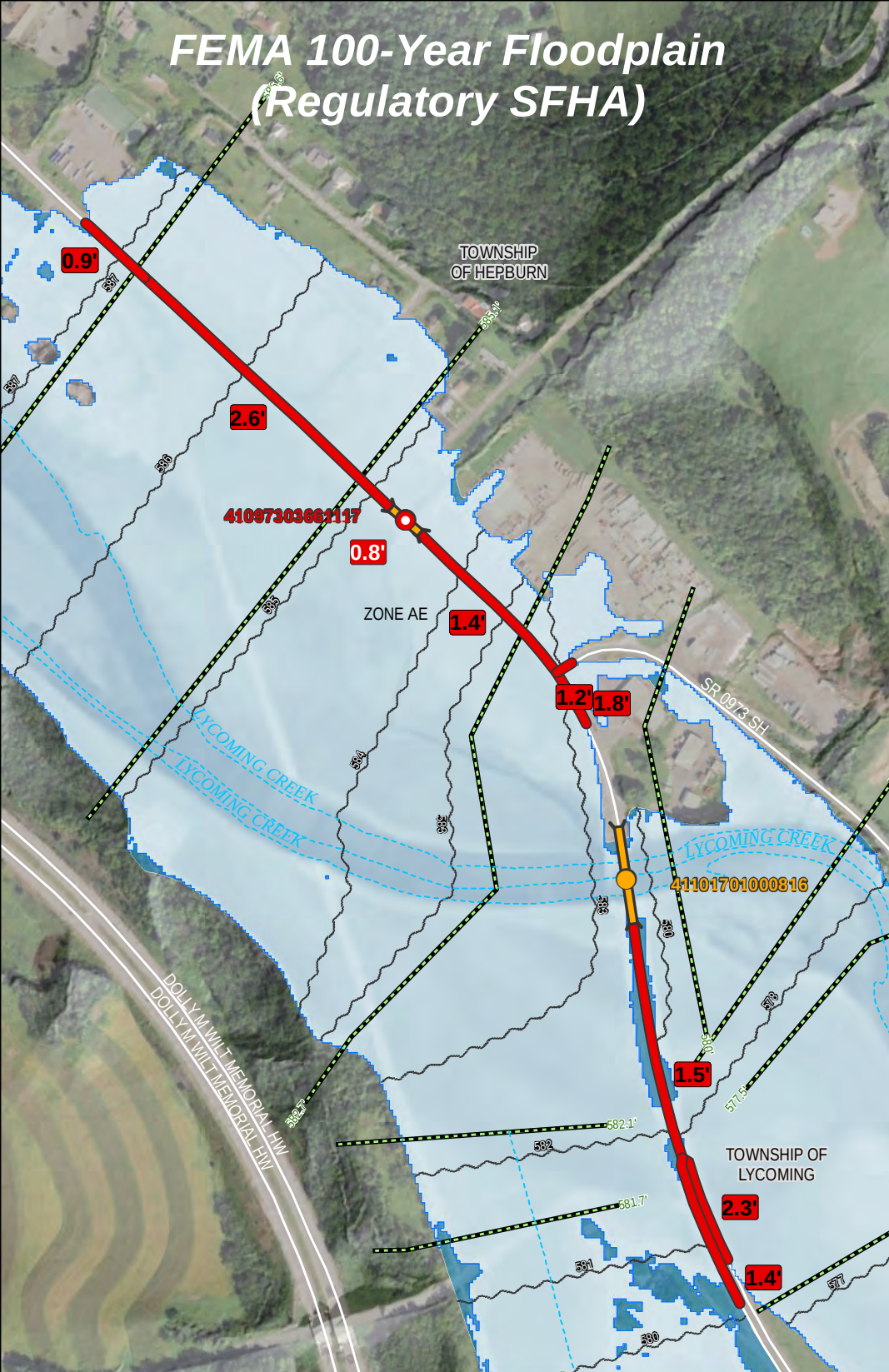
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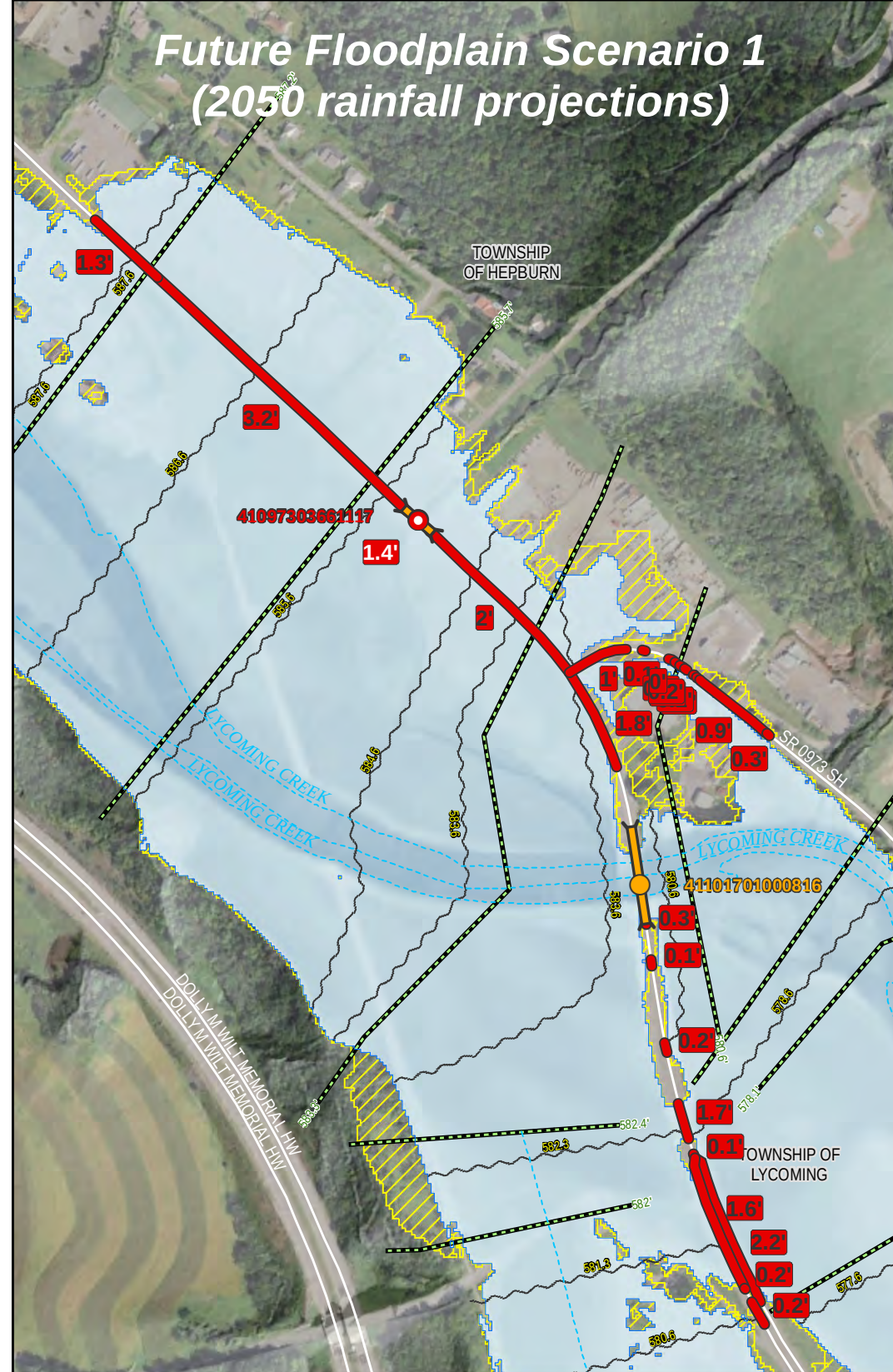


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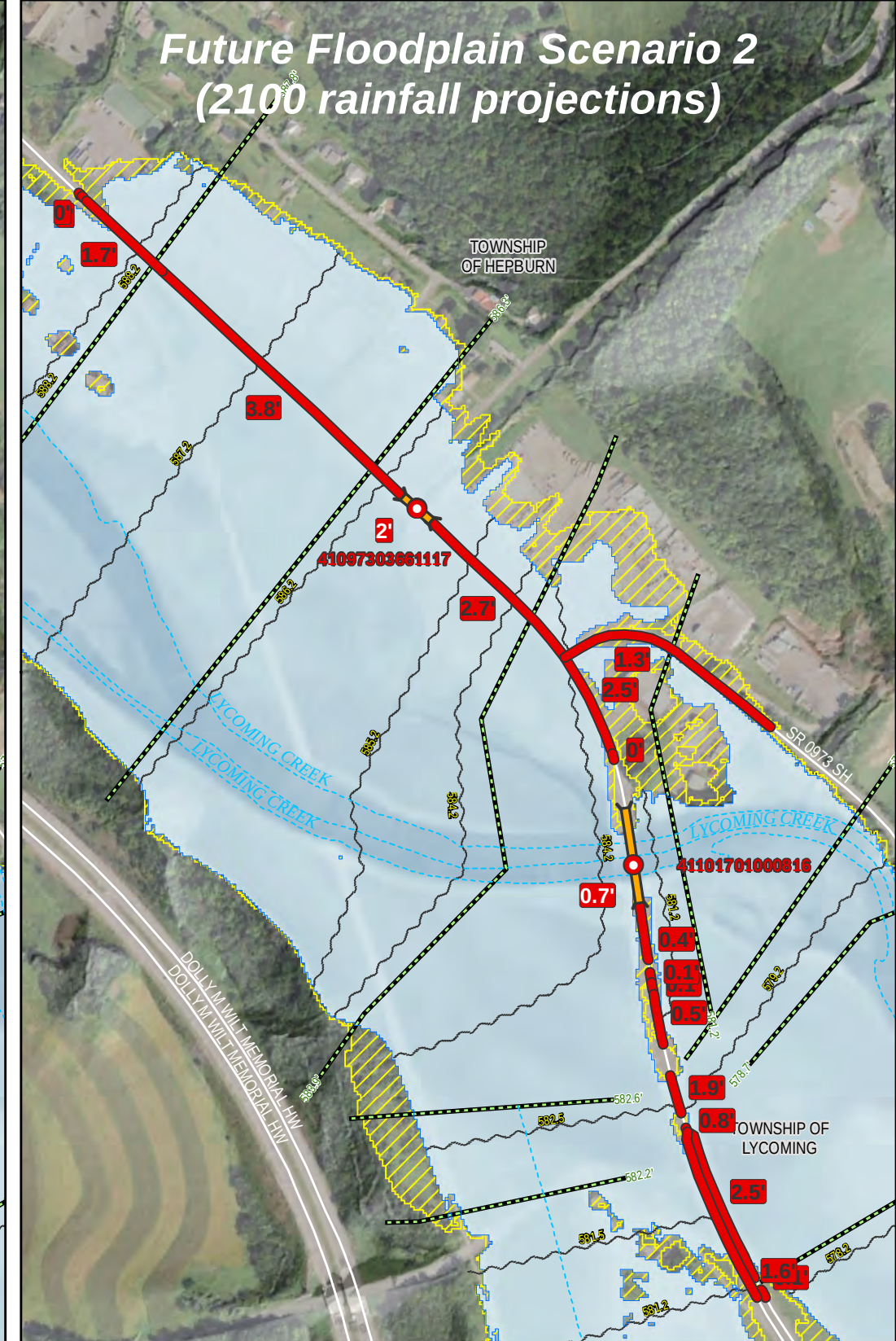
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MAP SYMBOLOGY

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- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY
- FEMA REGULATORY SFHA

EXISTING CONDITIONS

- Existing Conditions SFHA Extents
- FUTURE CONDITIONS
- (Based on Depth Grid Boundary)
- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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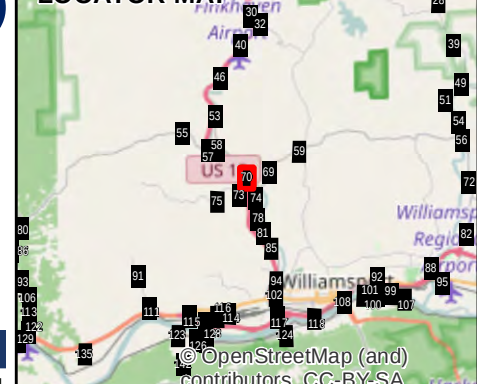


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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

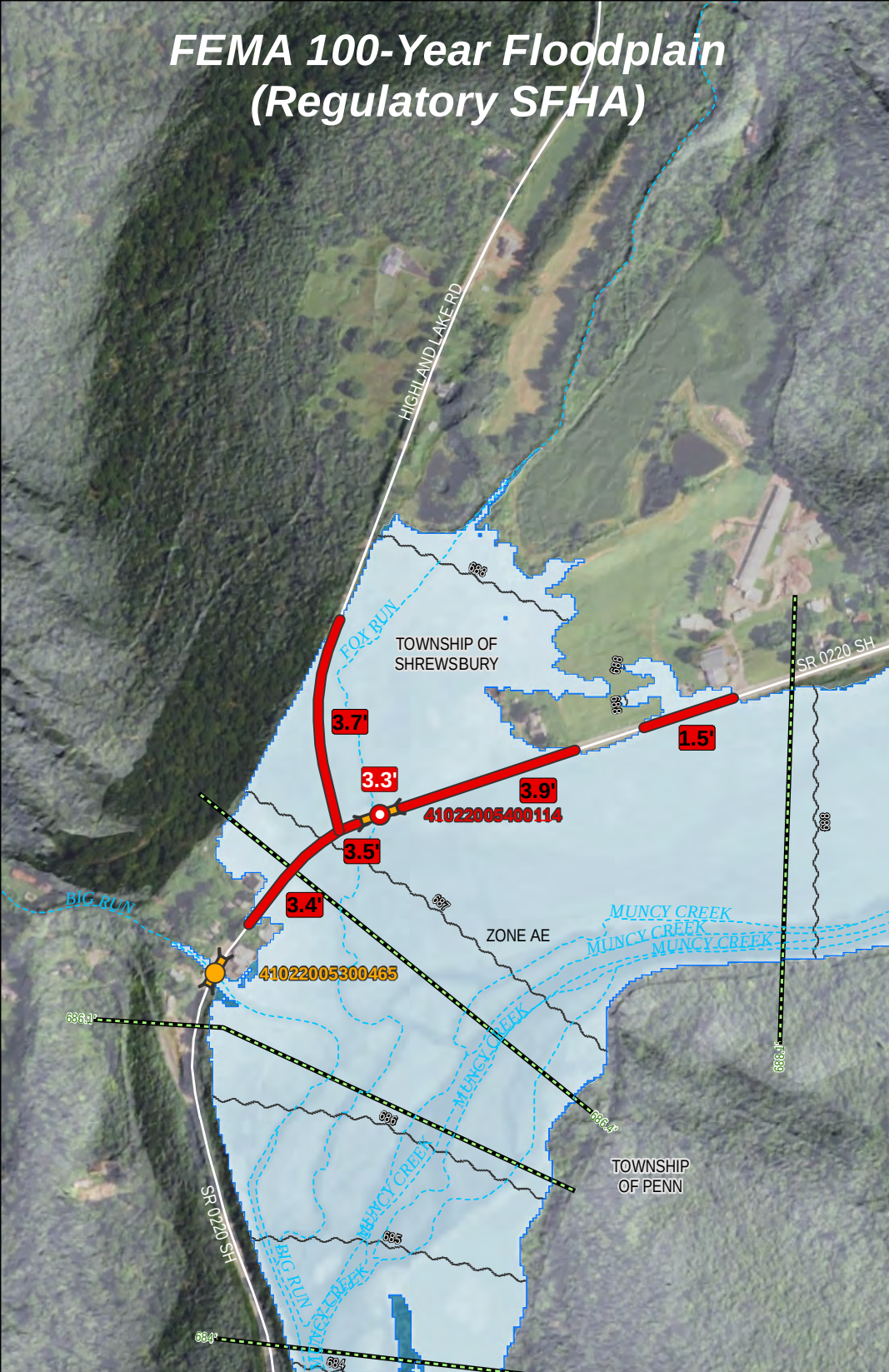
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

Michael Baker
INTERNATIONAL

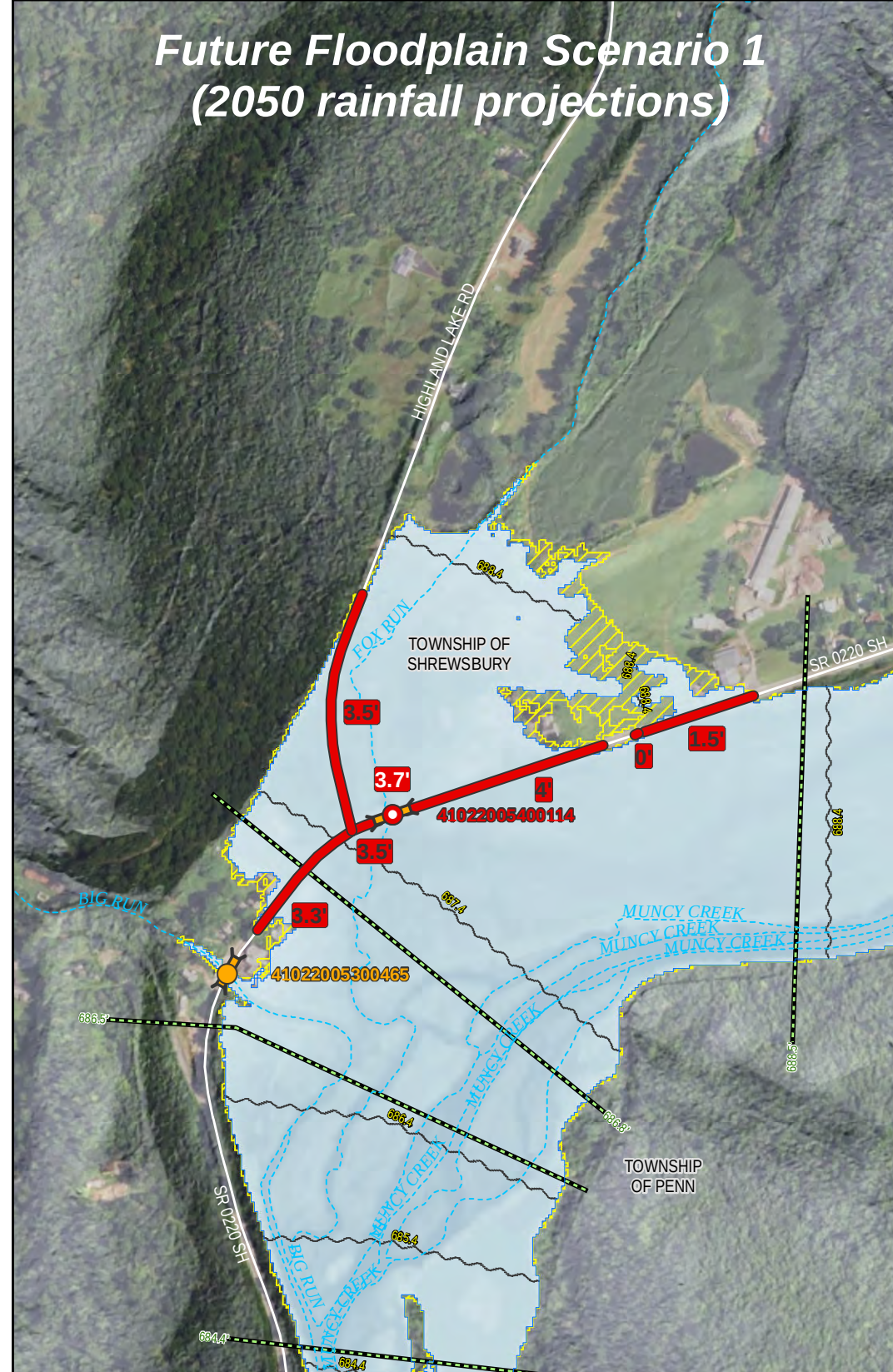
LOCATOR MAP



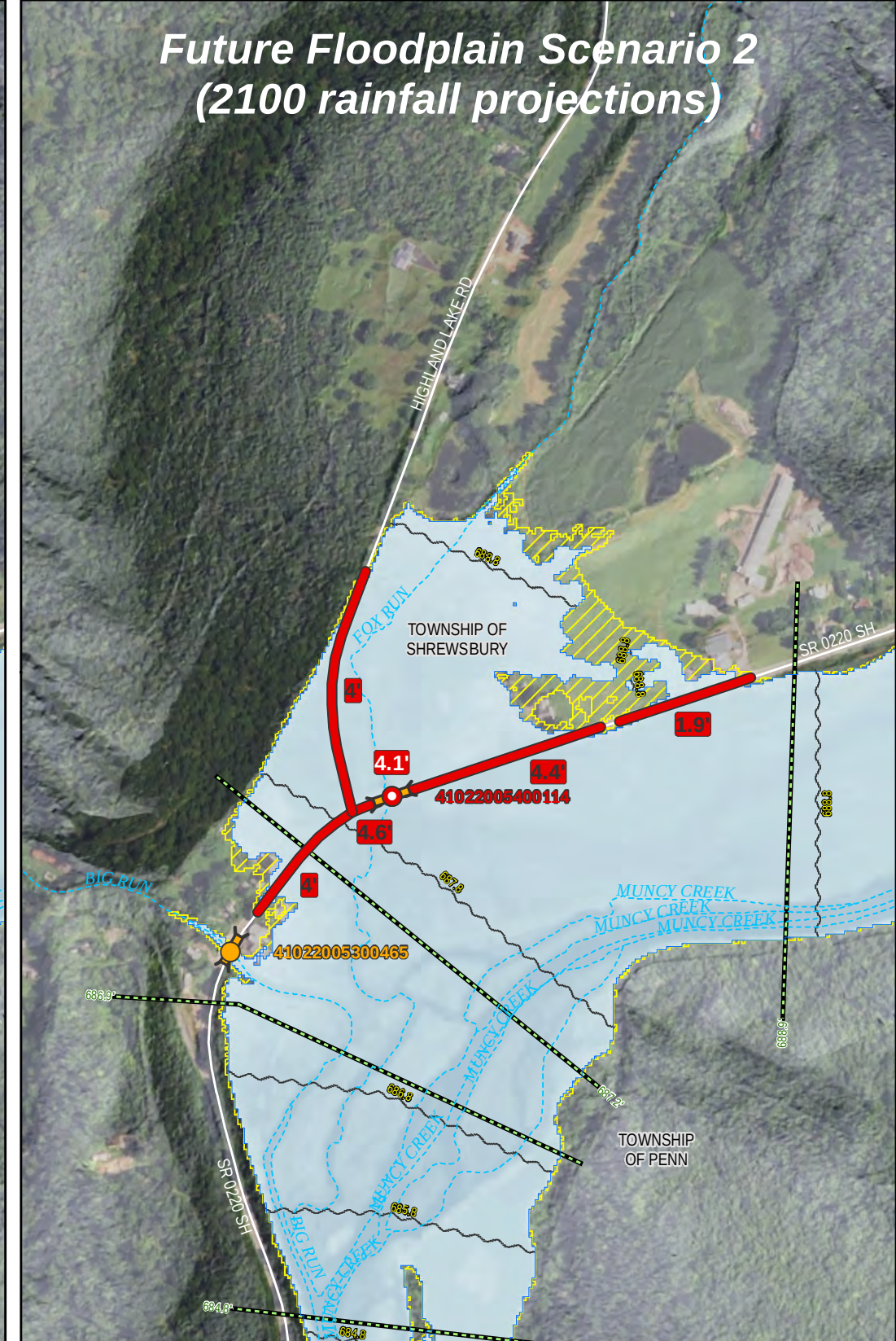
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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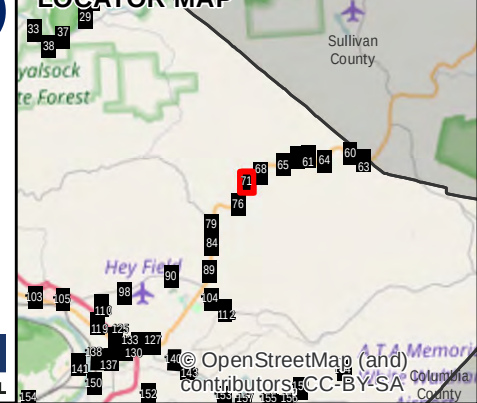


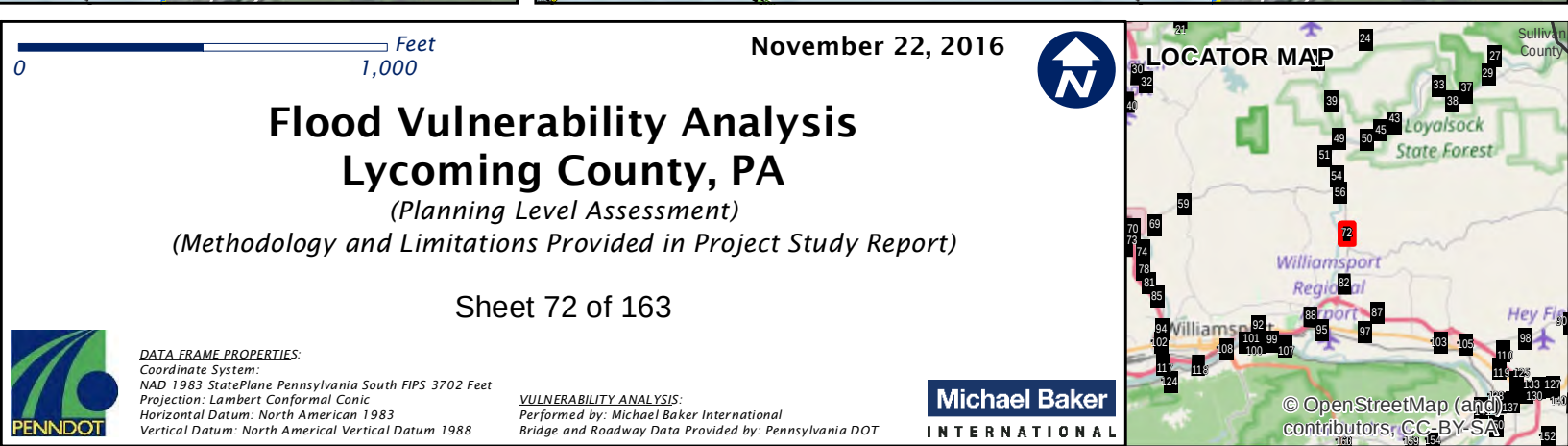
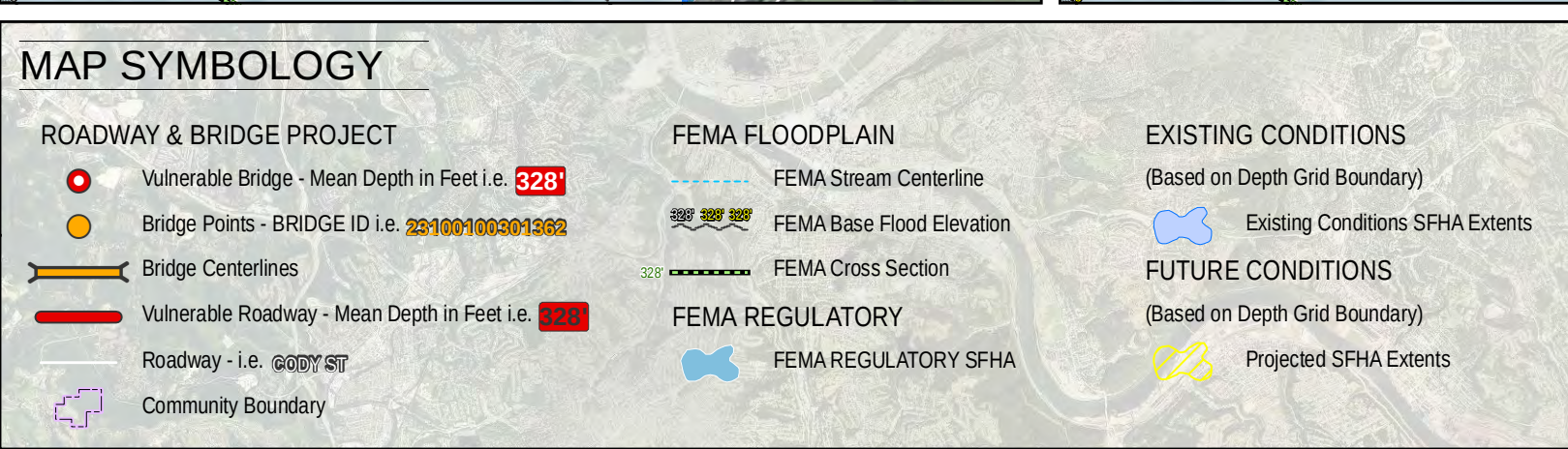
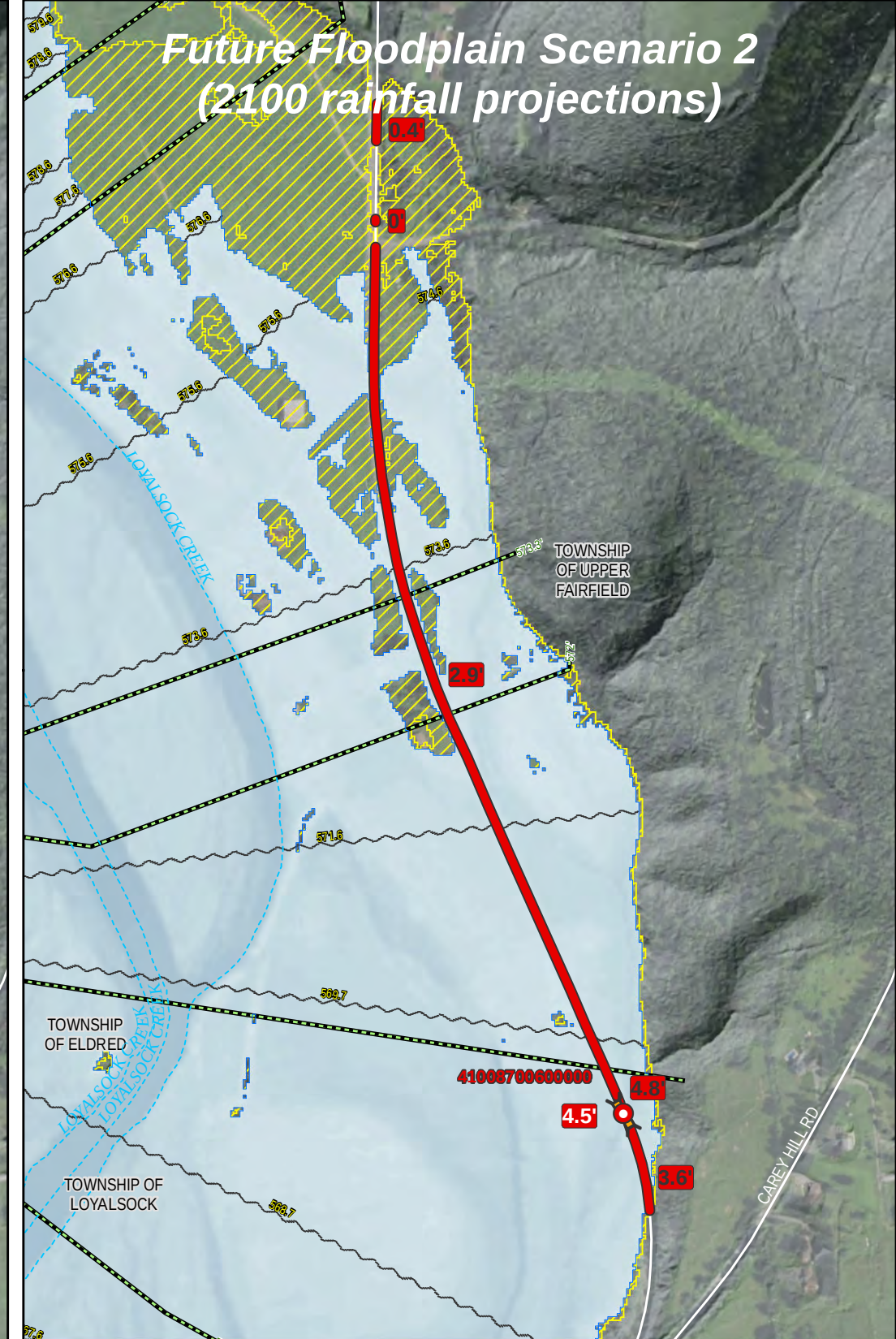
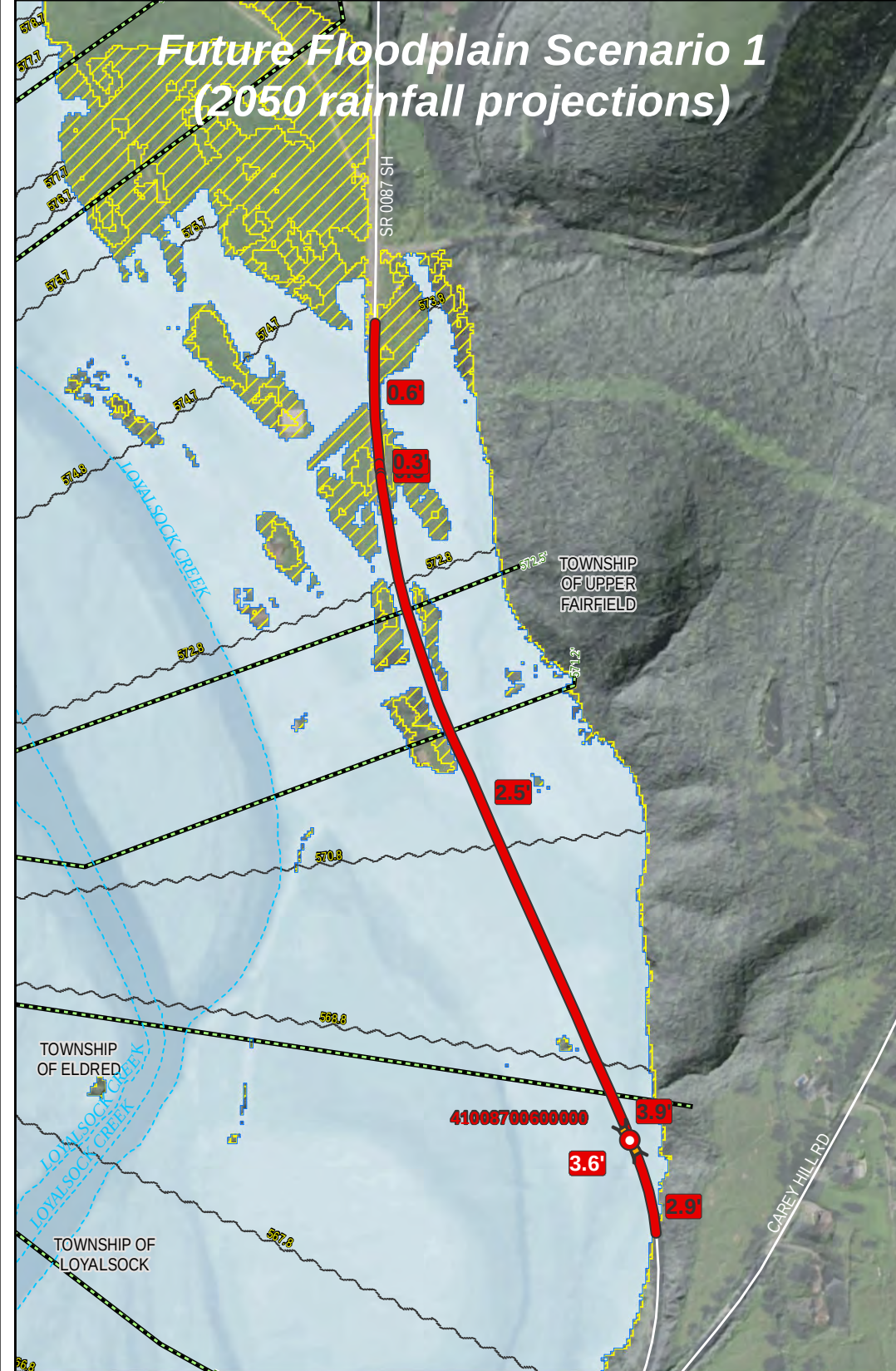
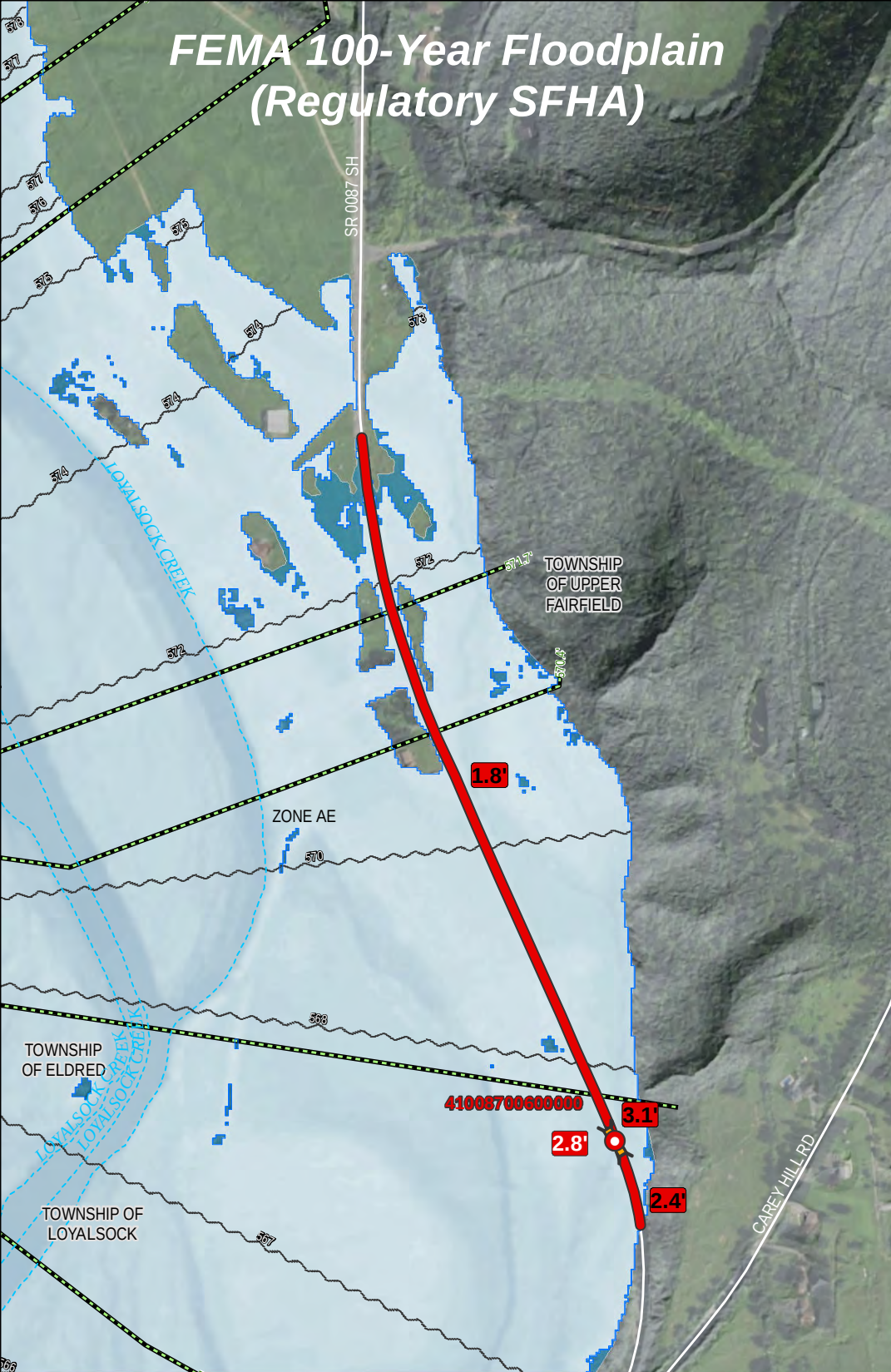
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

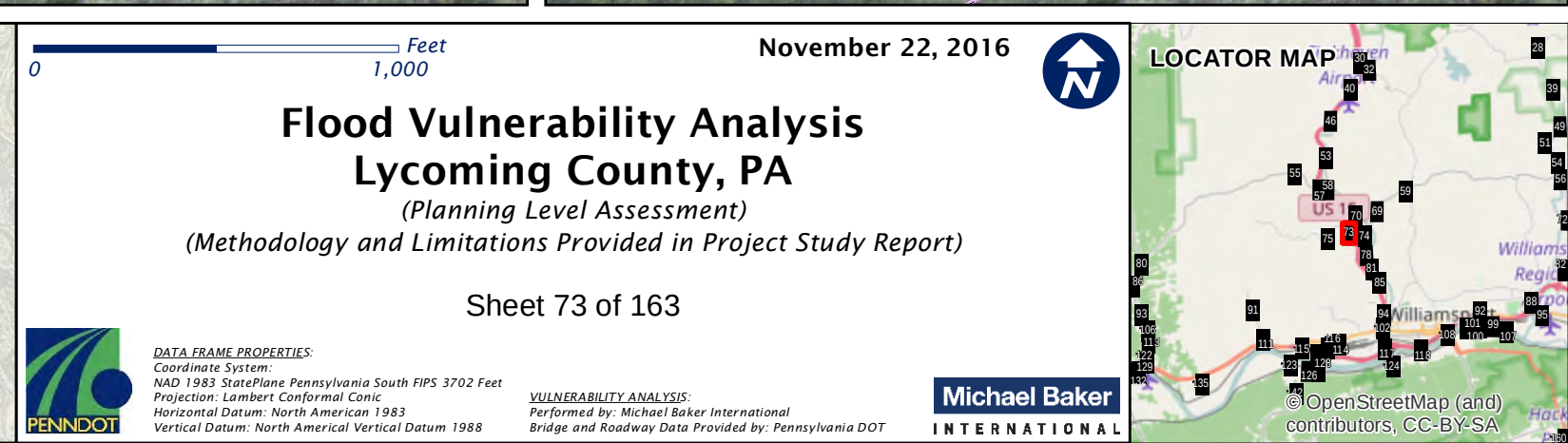
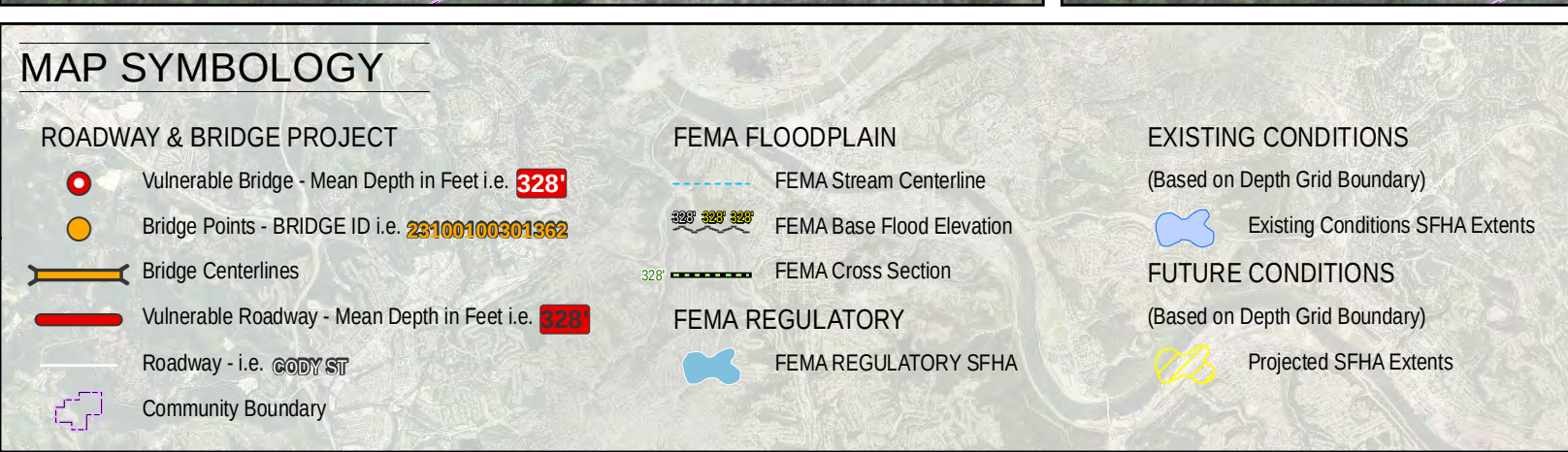
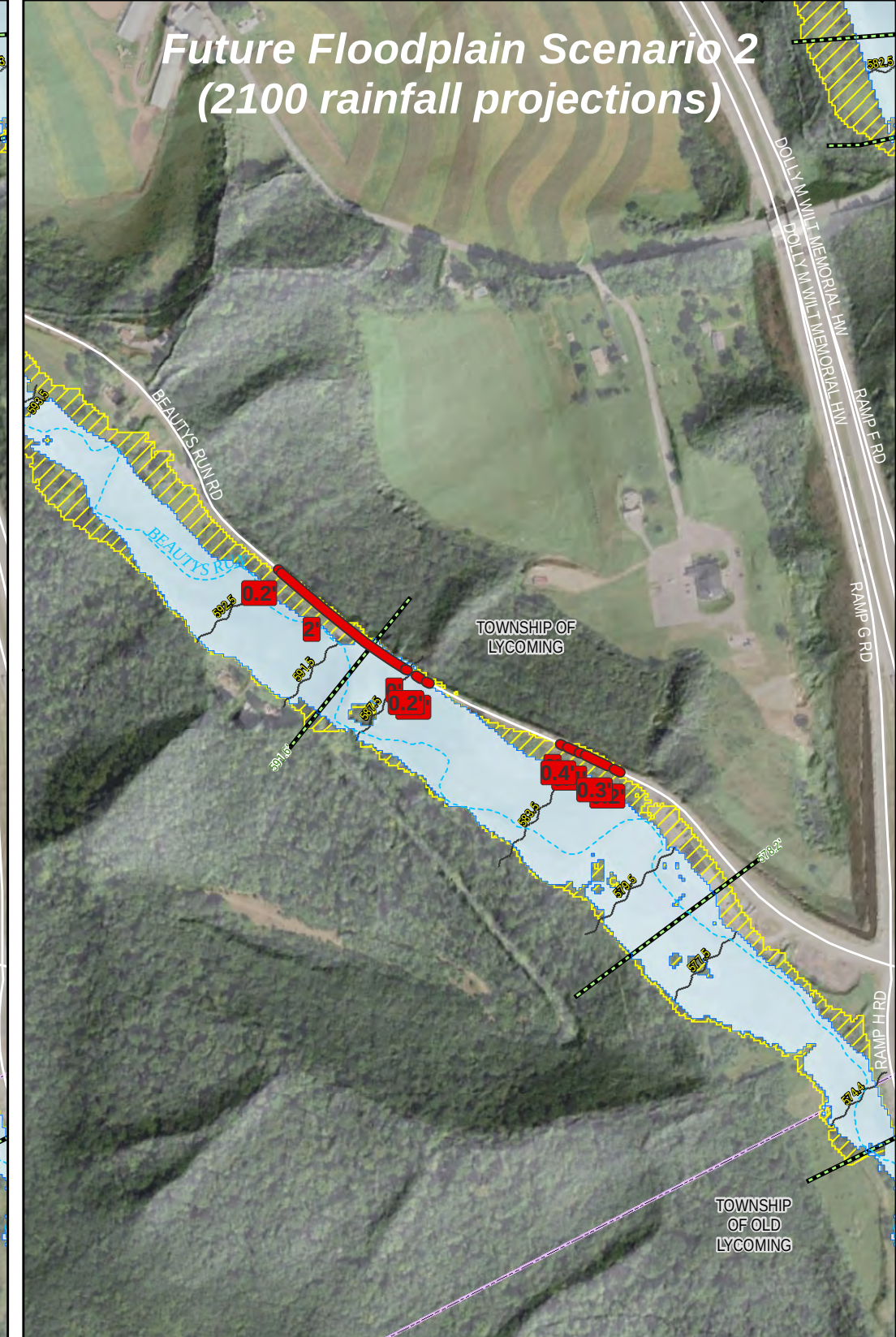
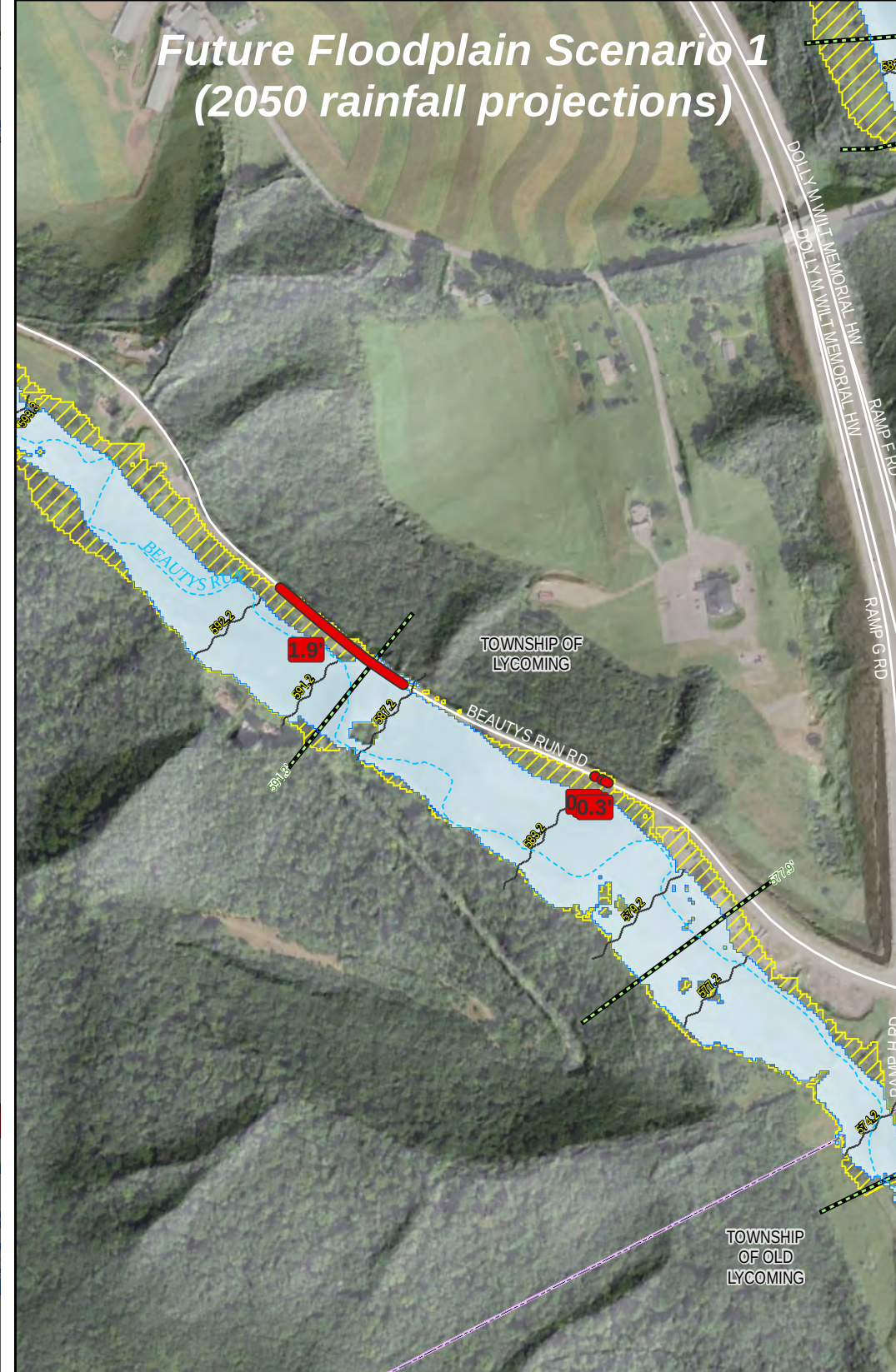
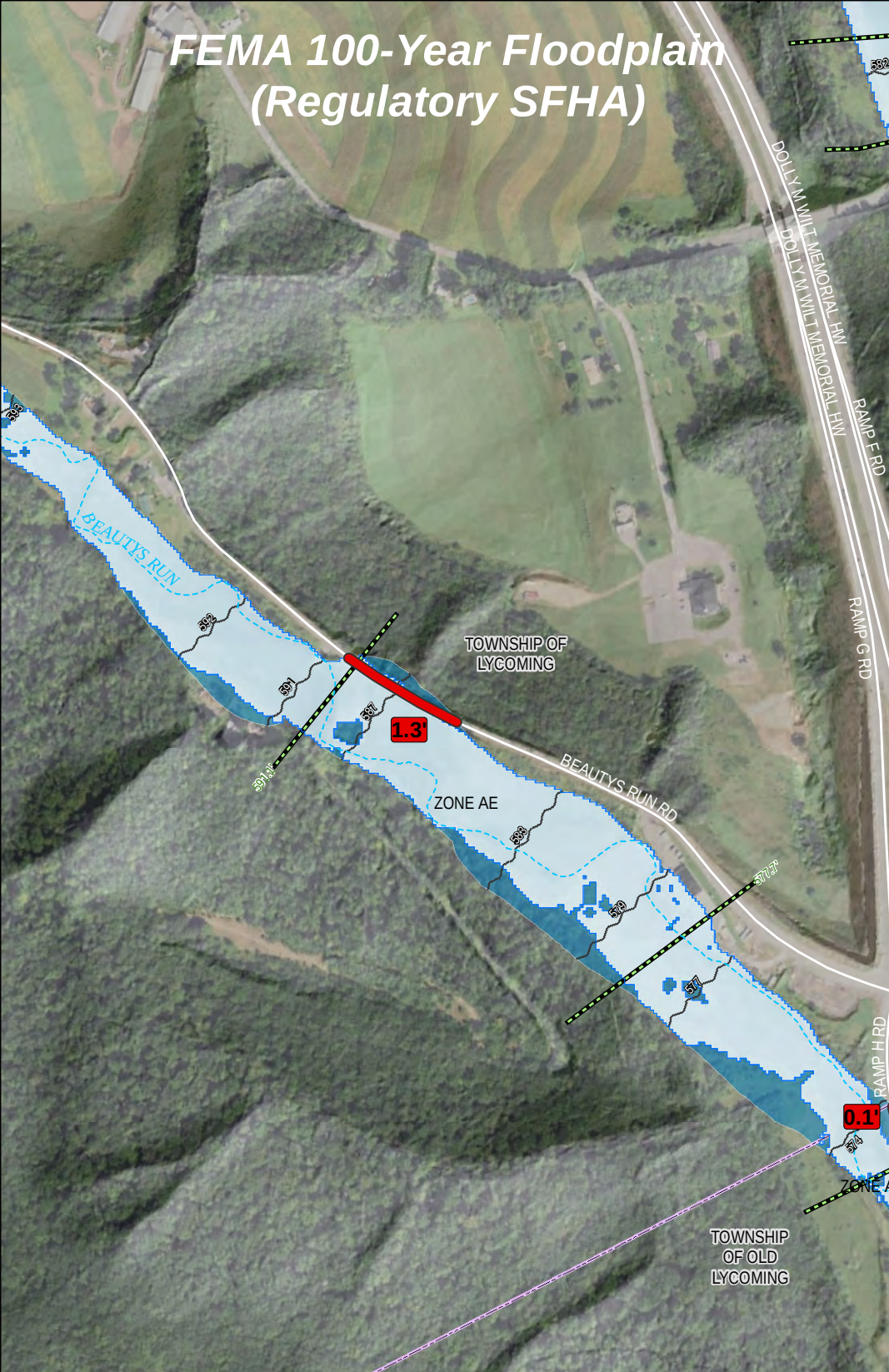
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

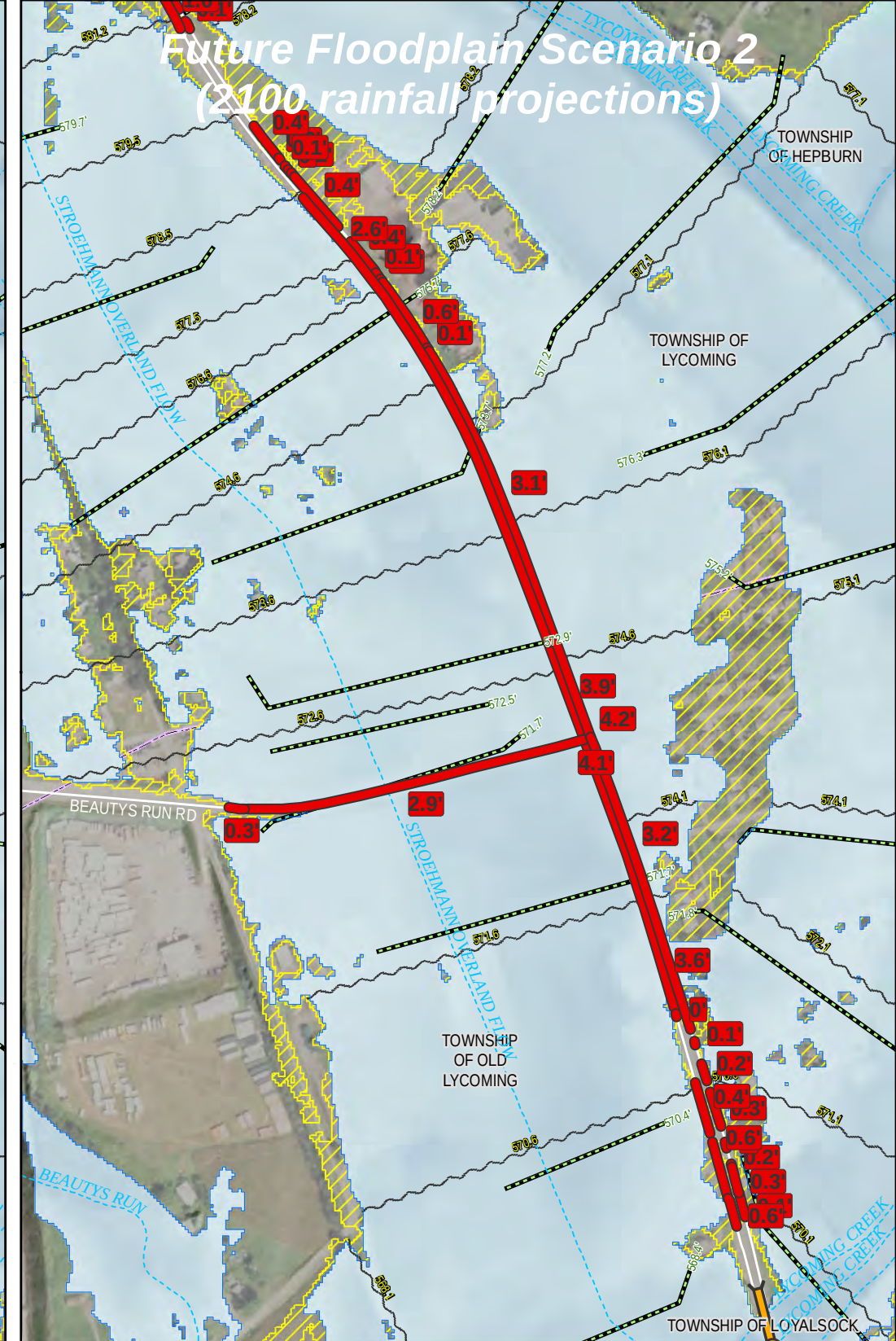
Michael Baker
INTERNATIONAL

LOCATOR MAP









MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

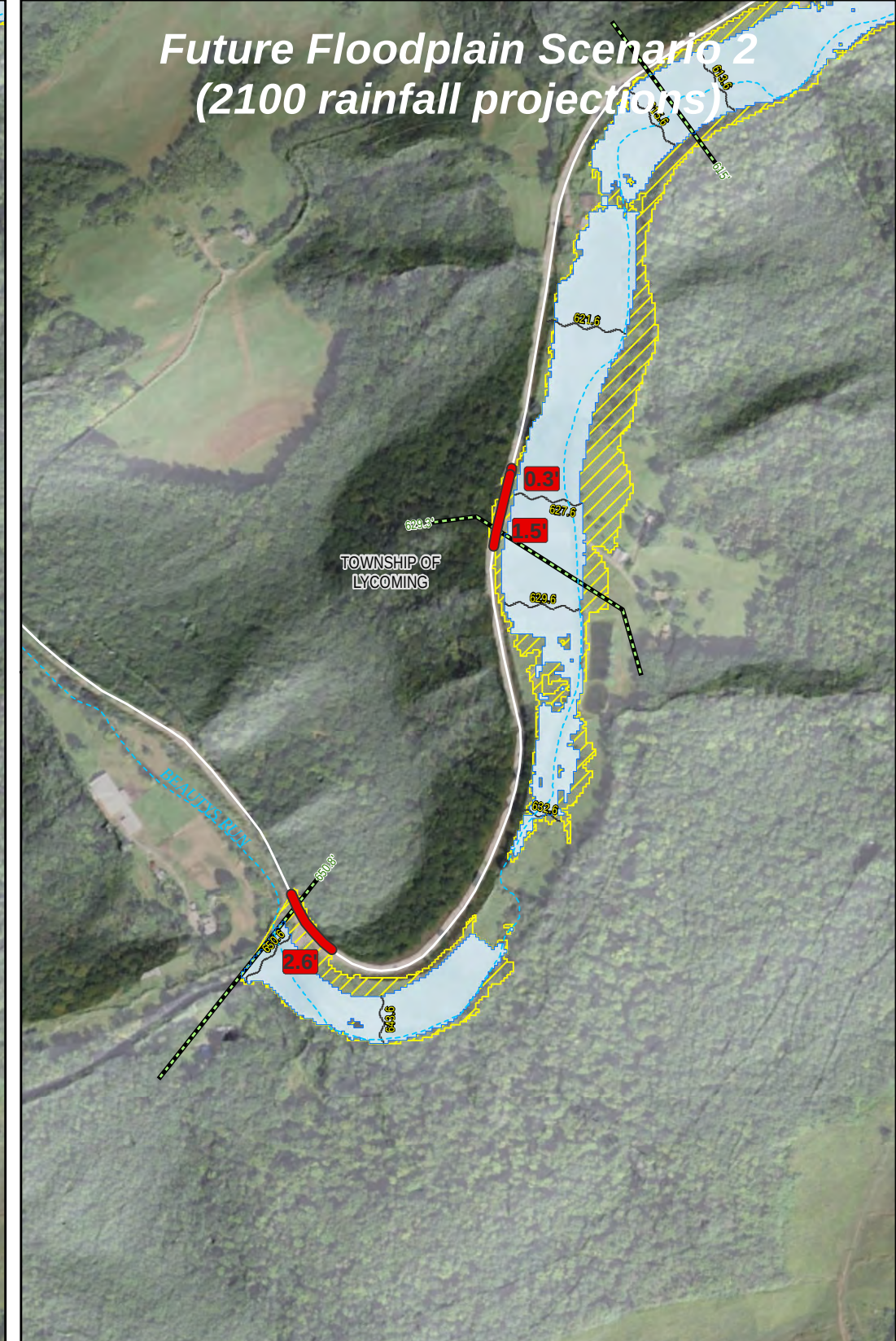
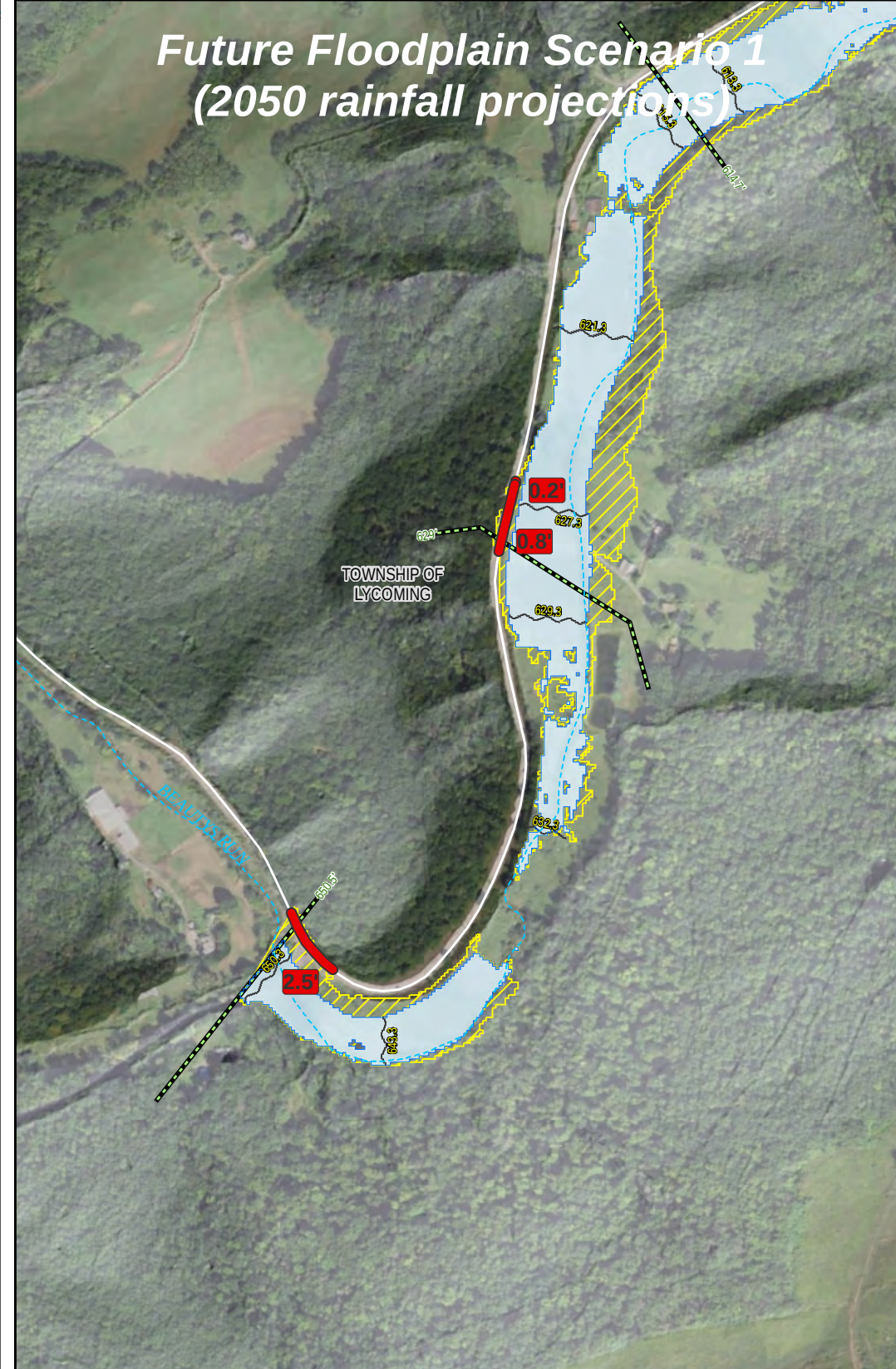
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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

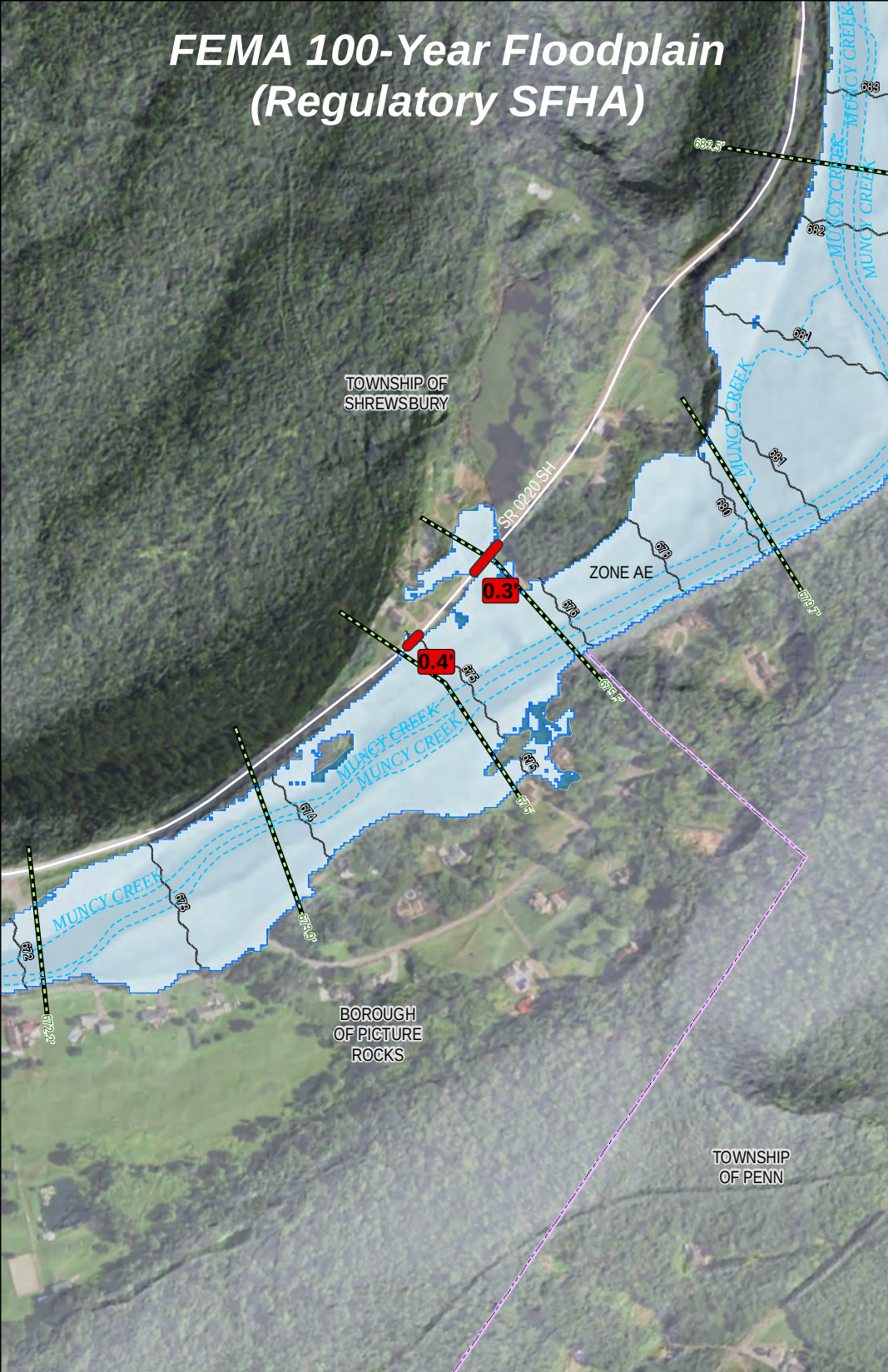
Sheet 75 of 163

DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

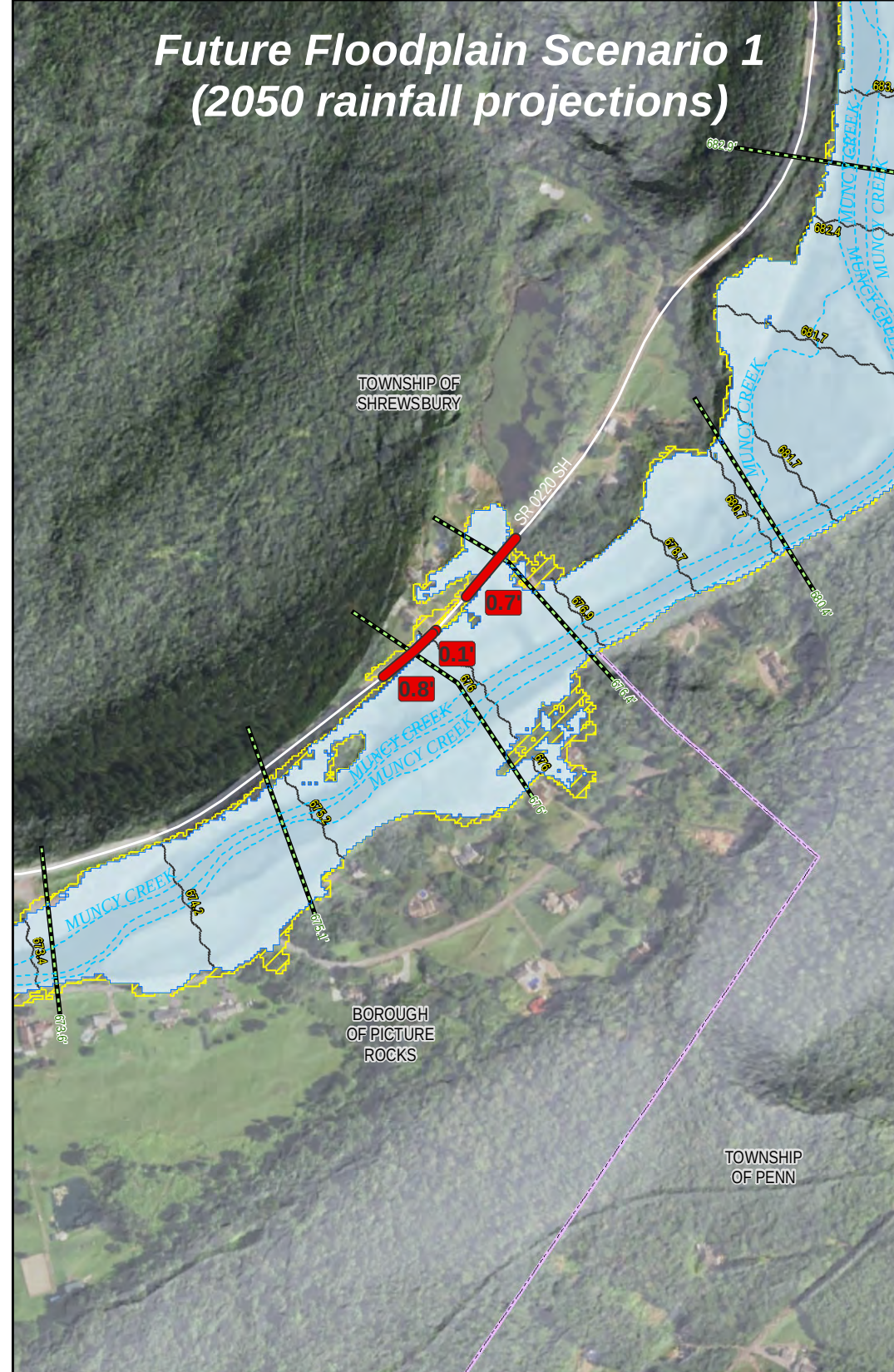
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

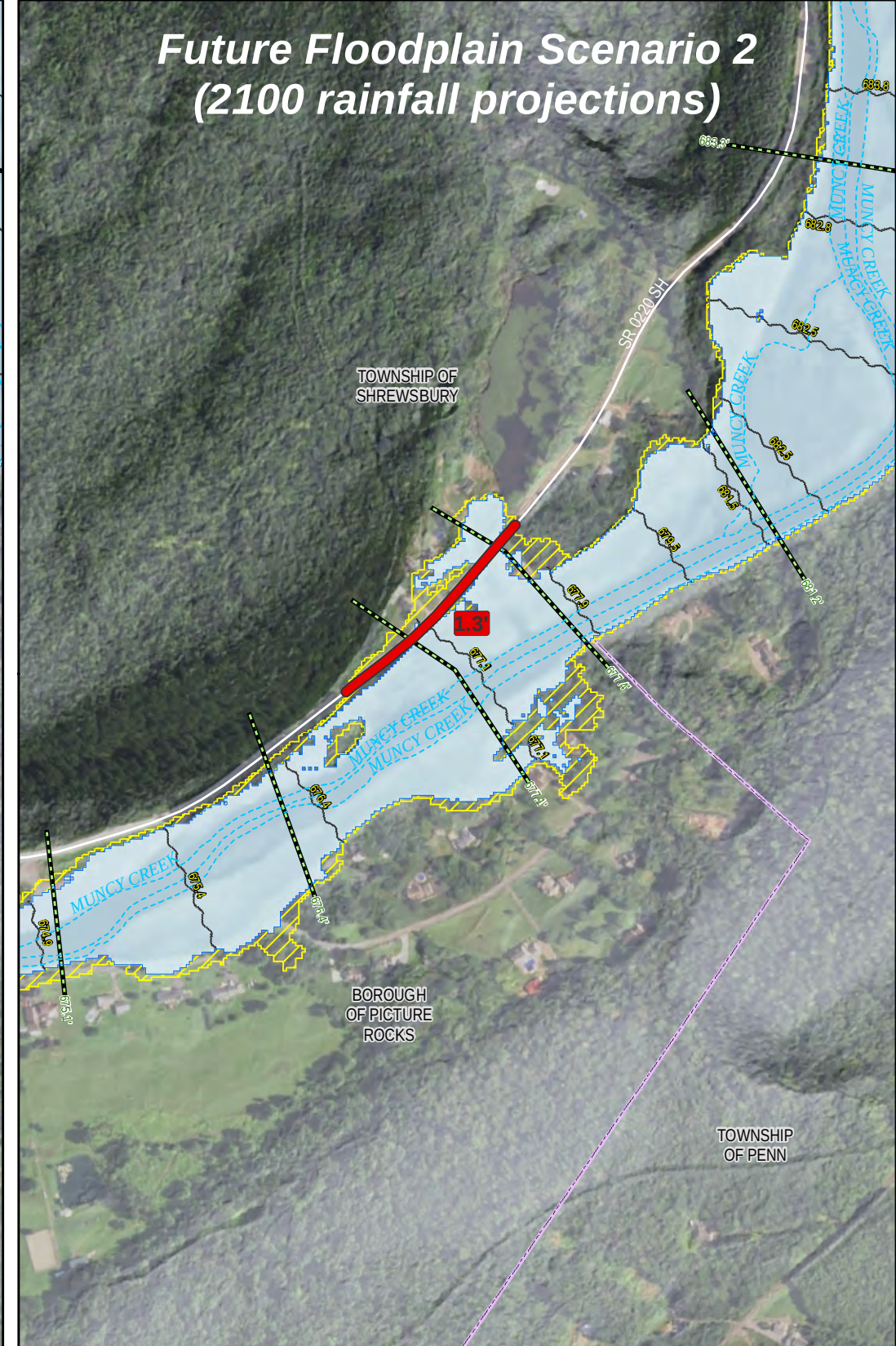
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

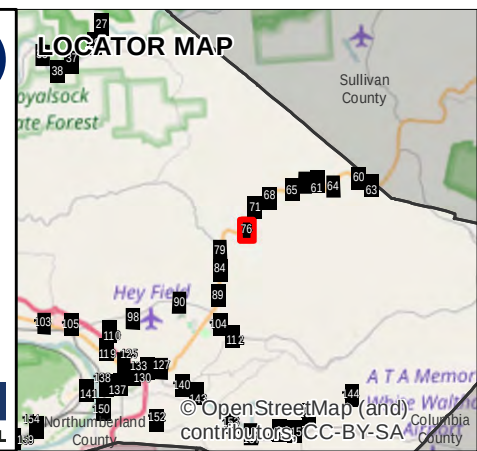
Sheet 76 of 163



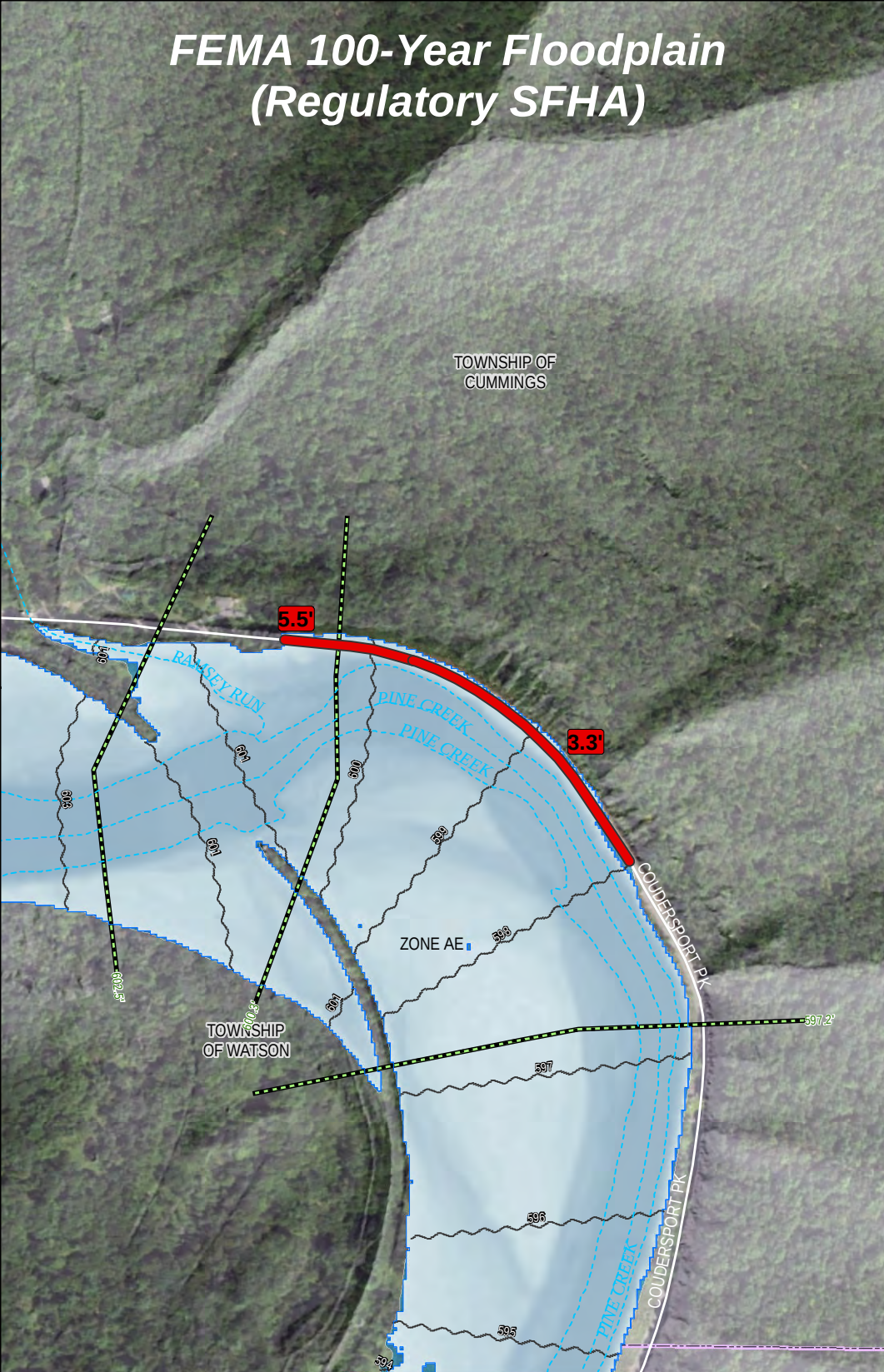
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

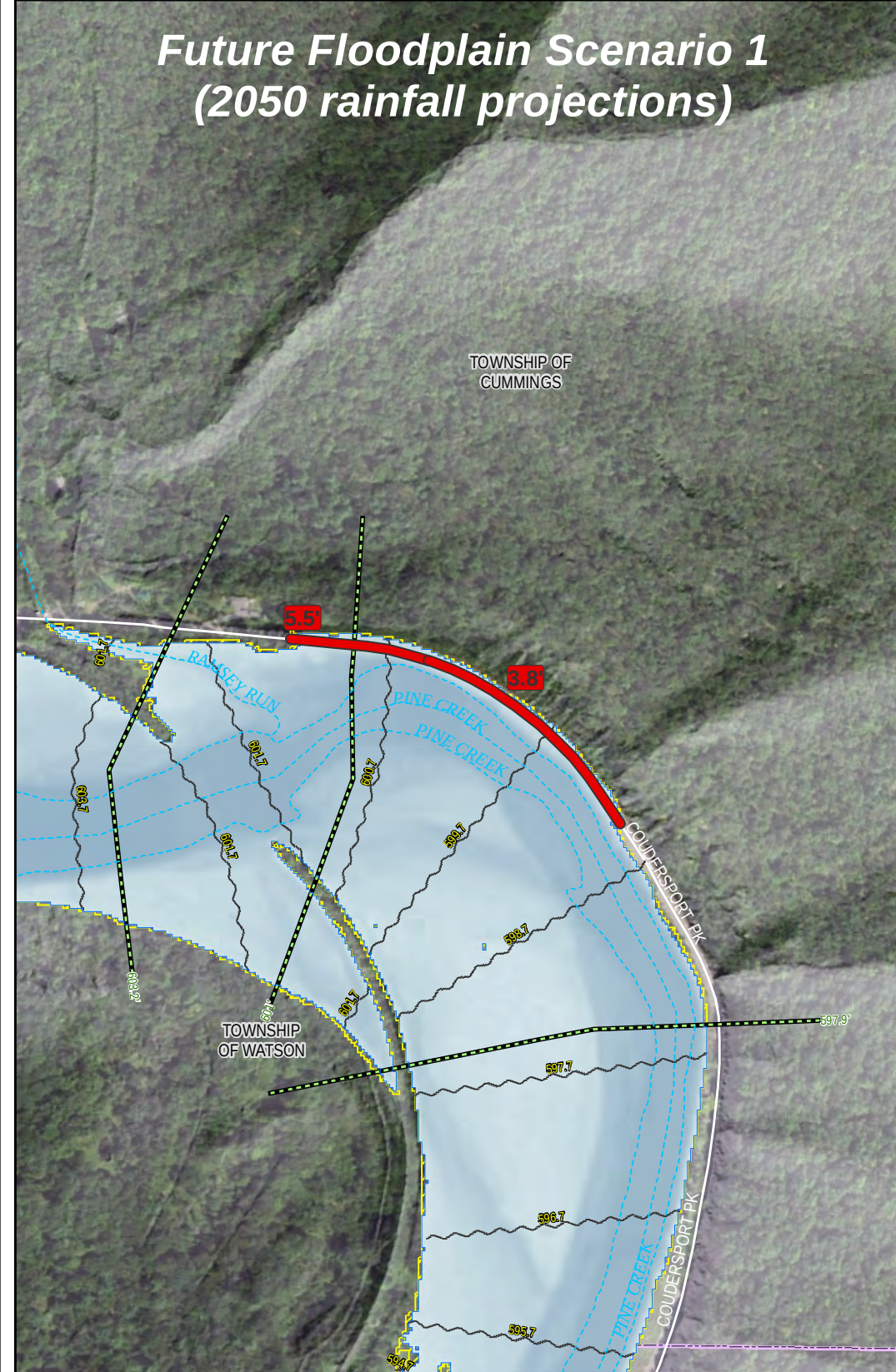
**Michael Baker
INTERNATIONAL**



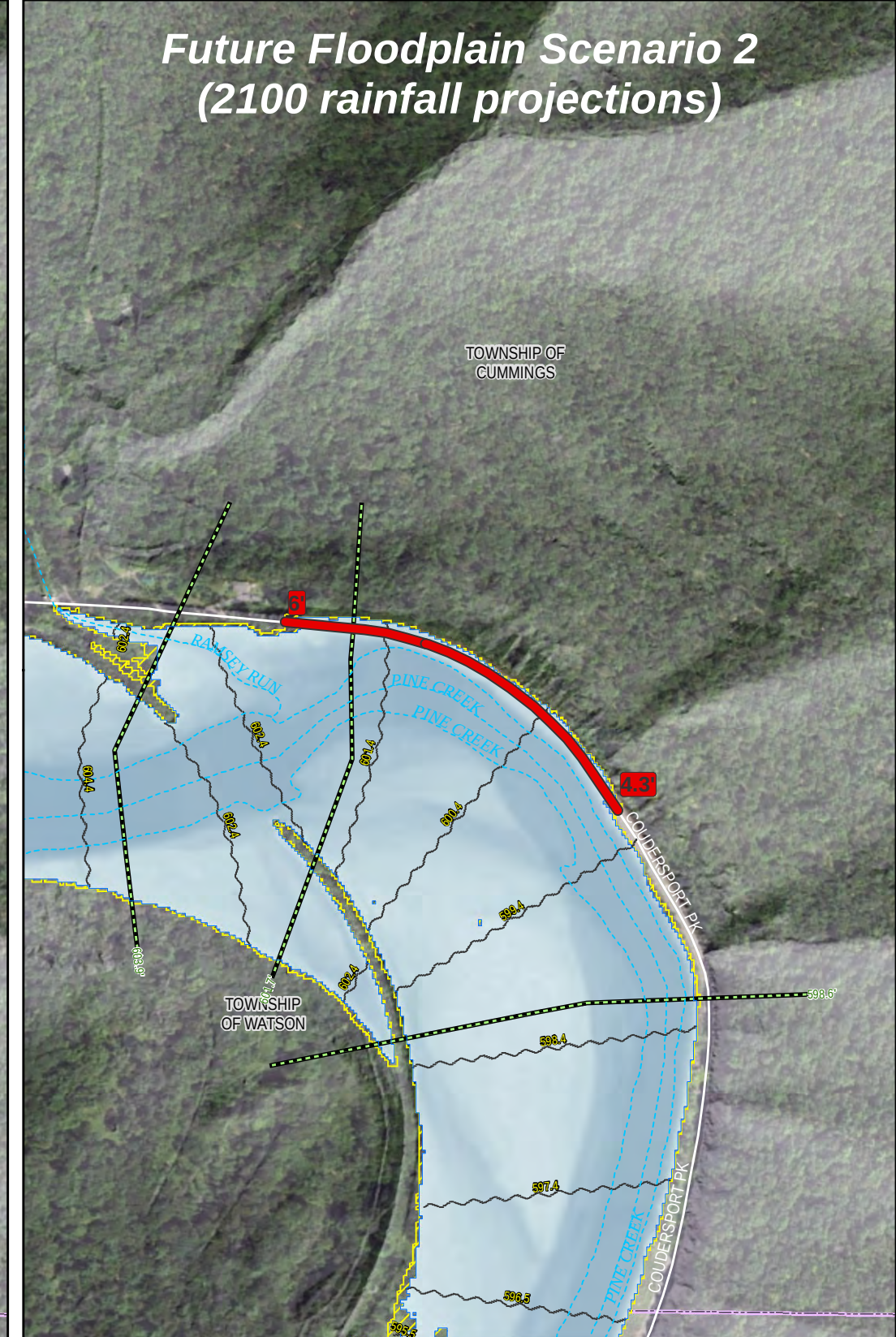
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

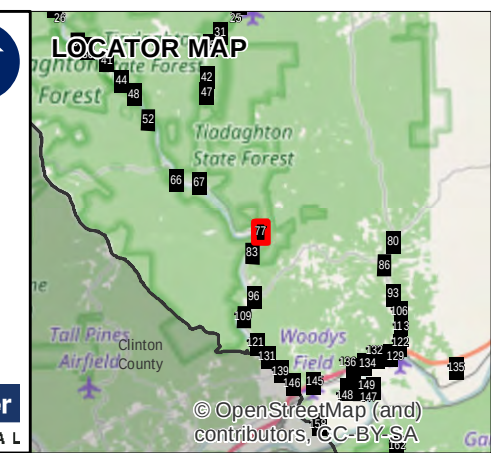
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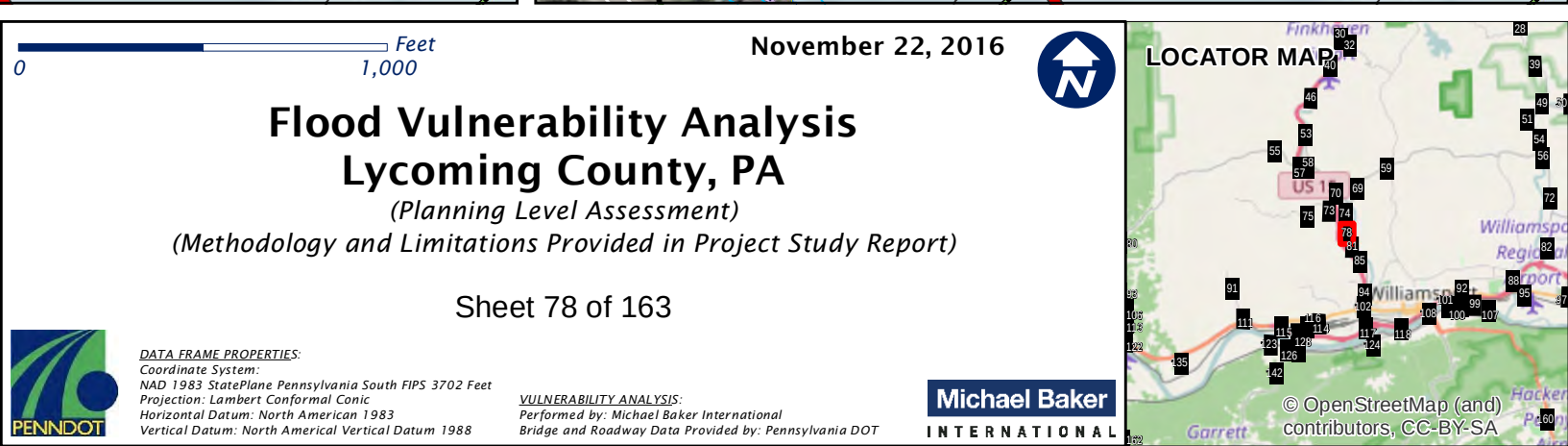
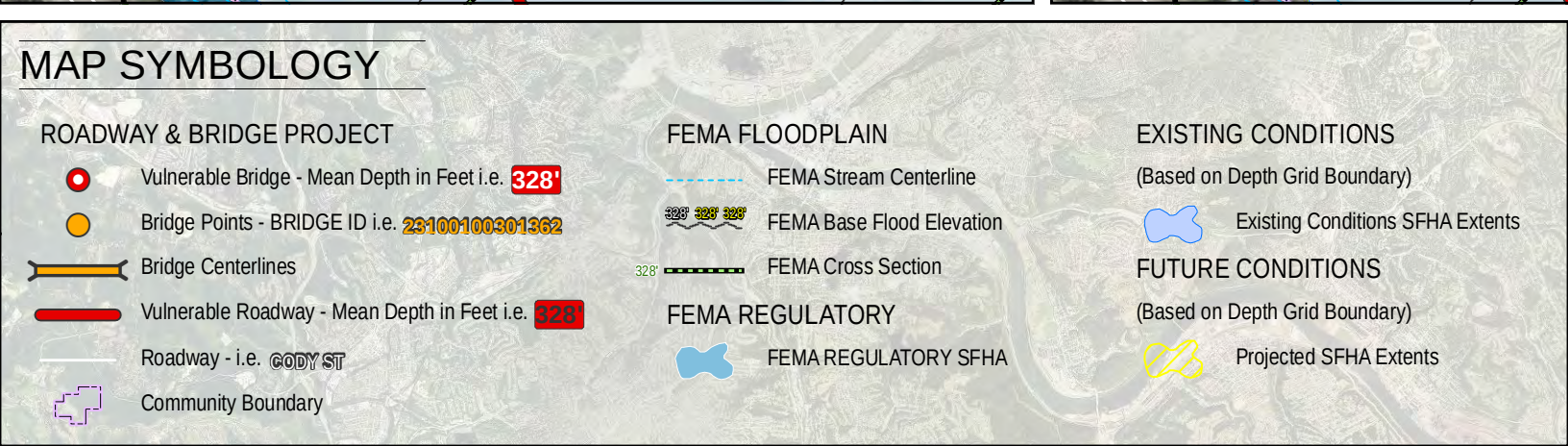
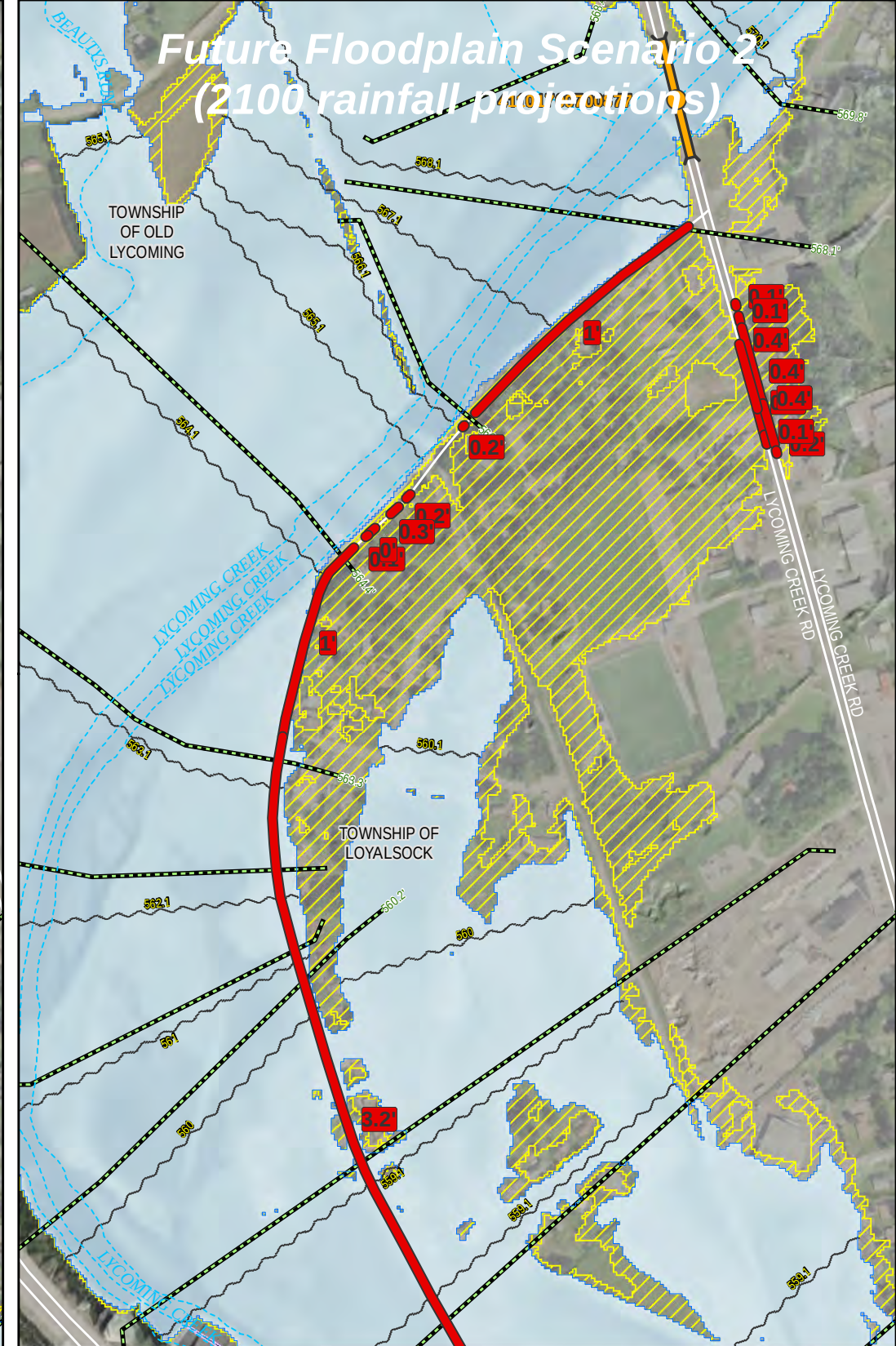
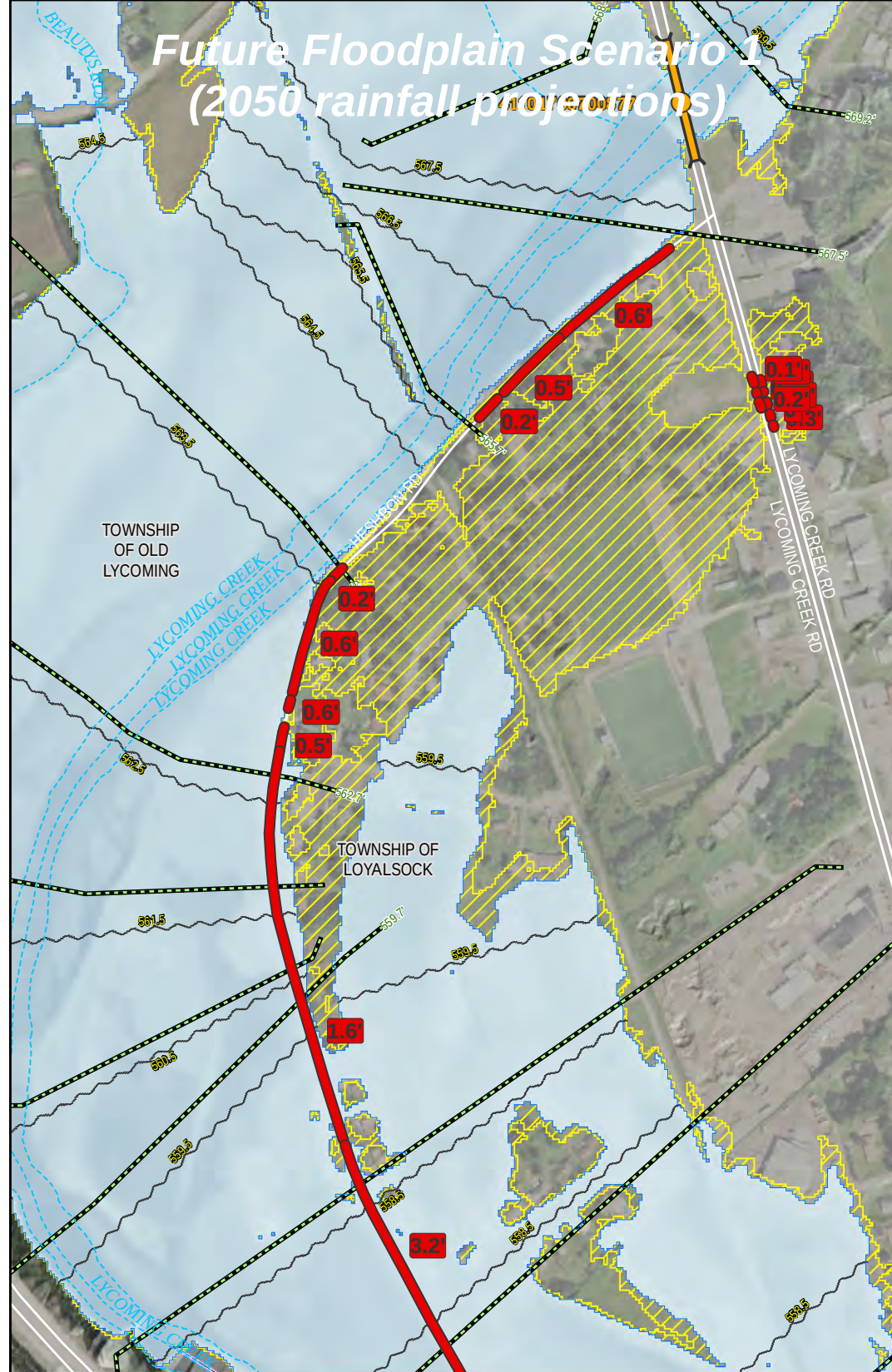
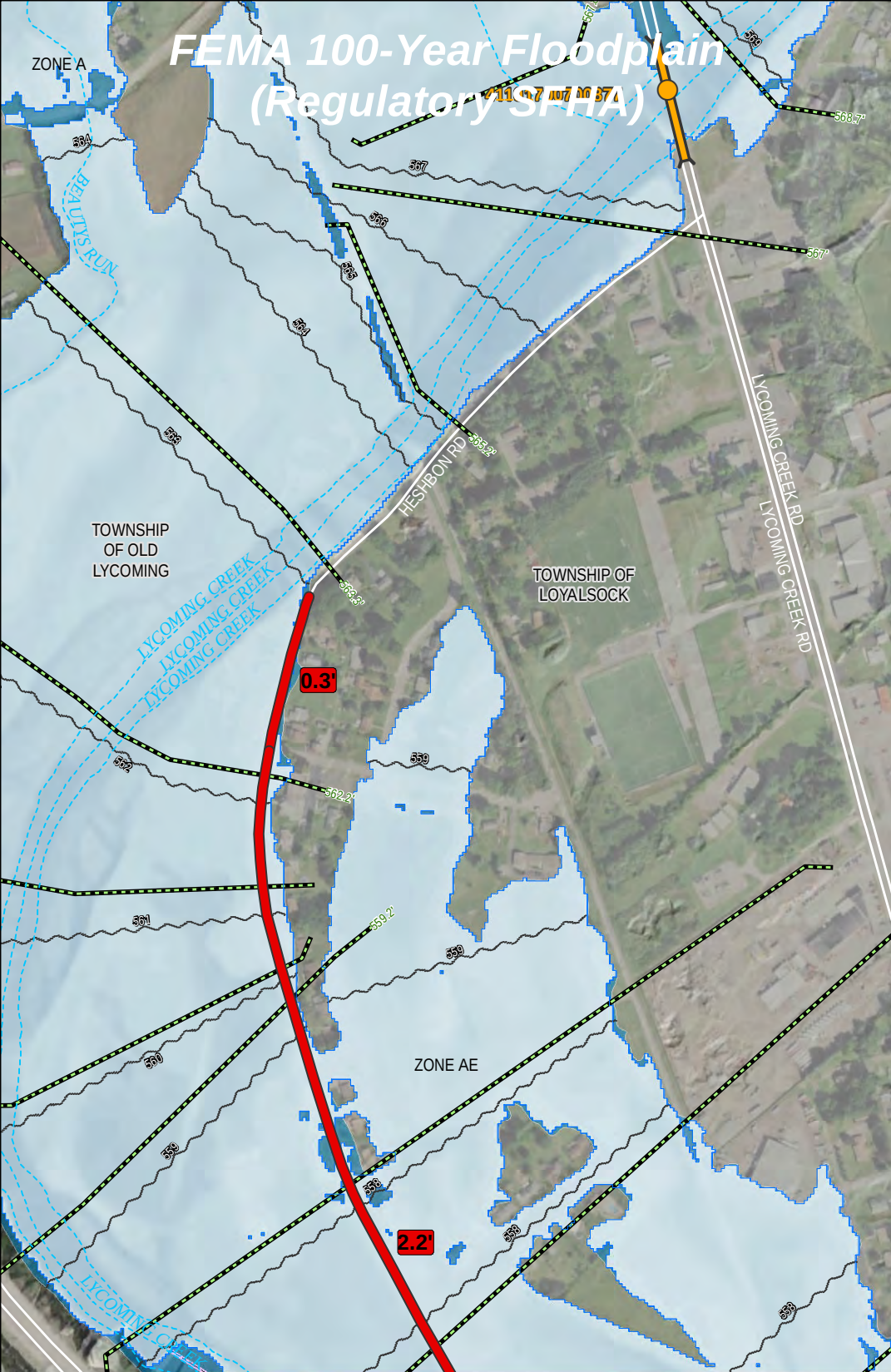
DATA FRAME PROPERTIES:
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NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

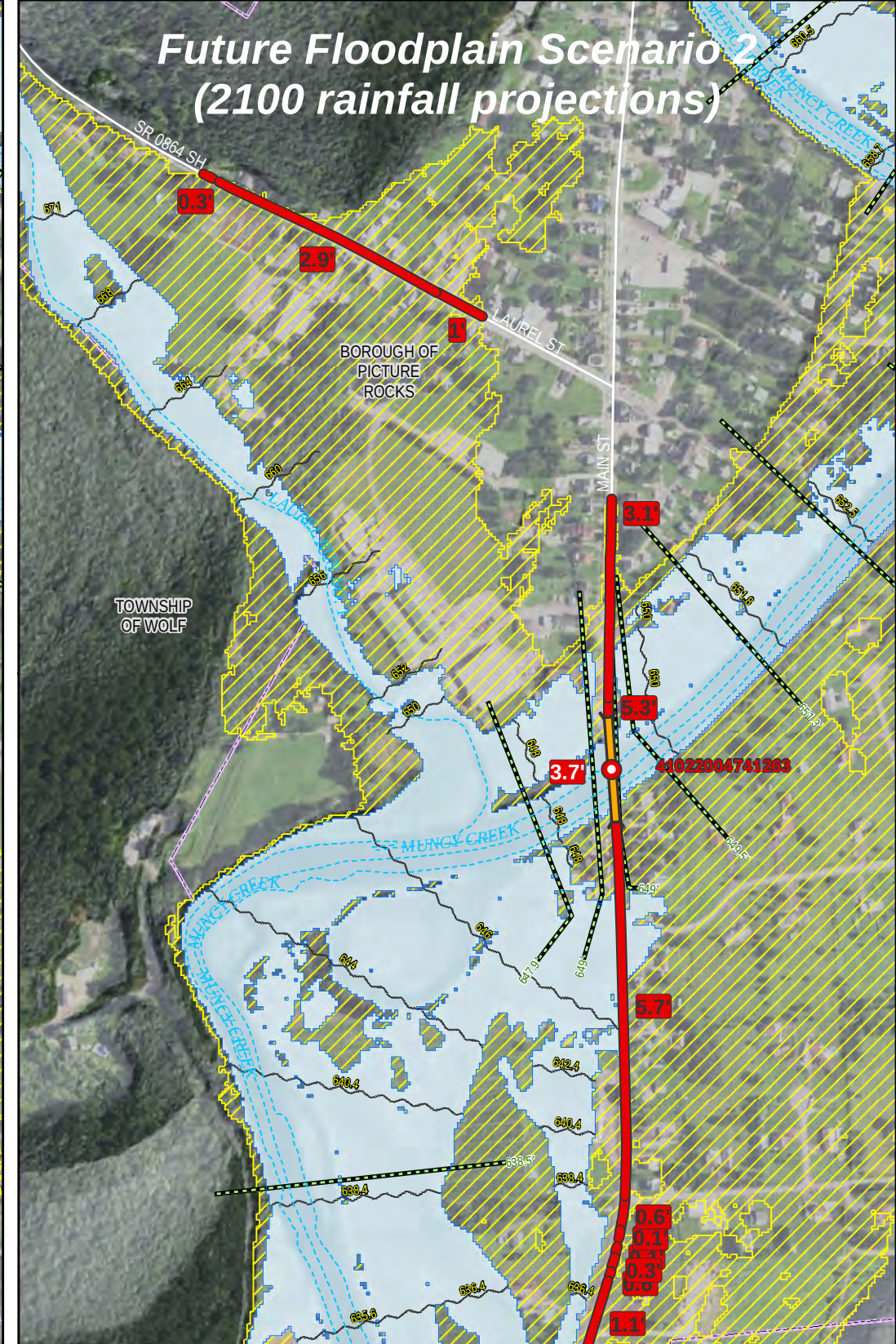
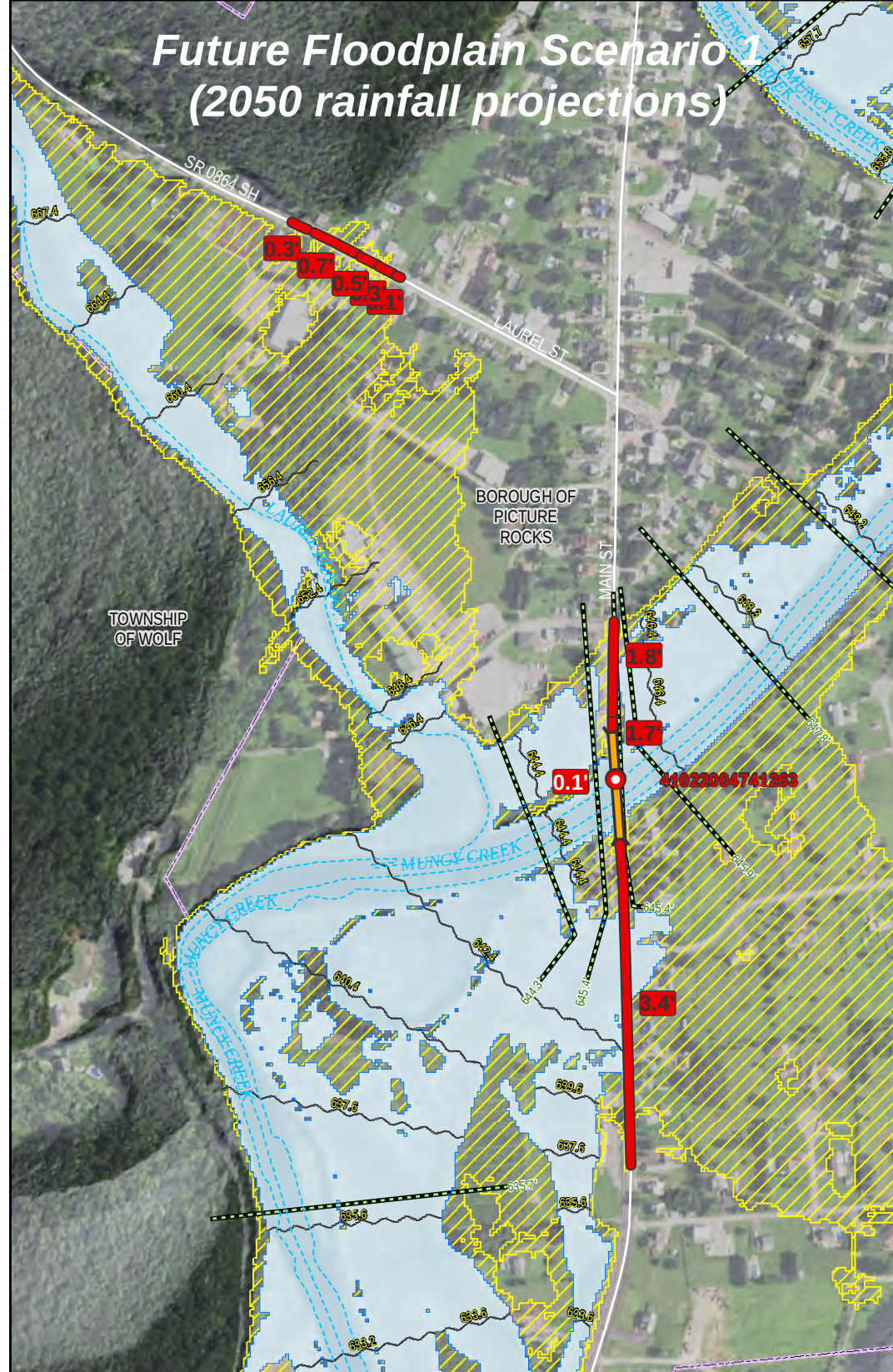
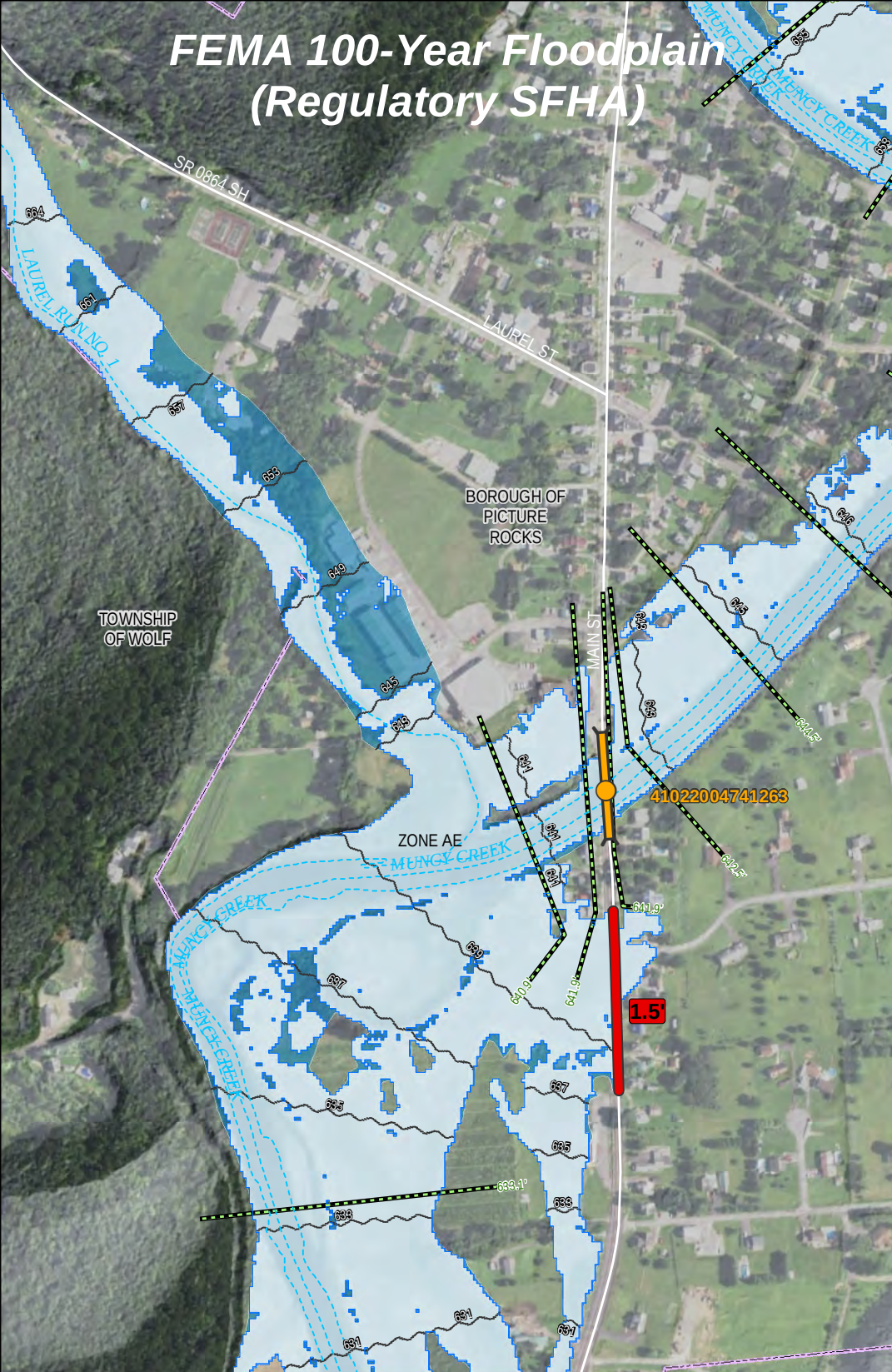
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

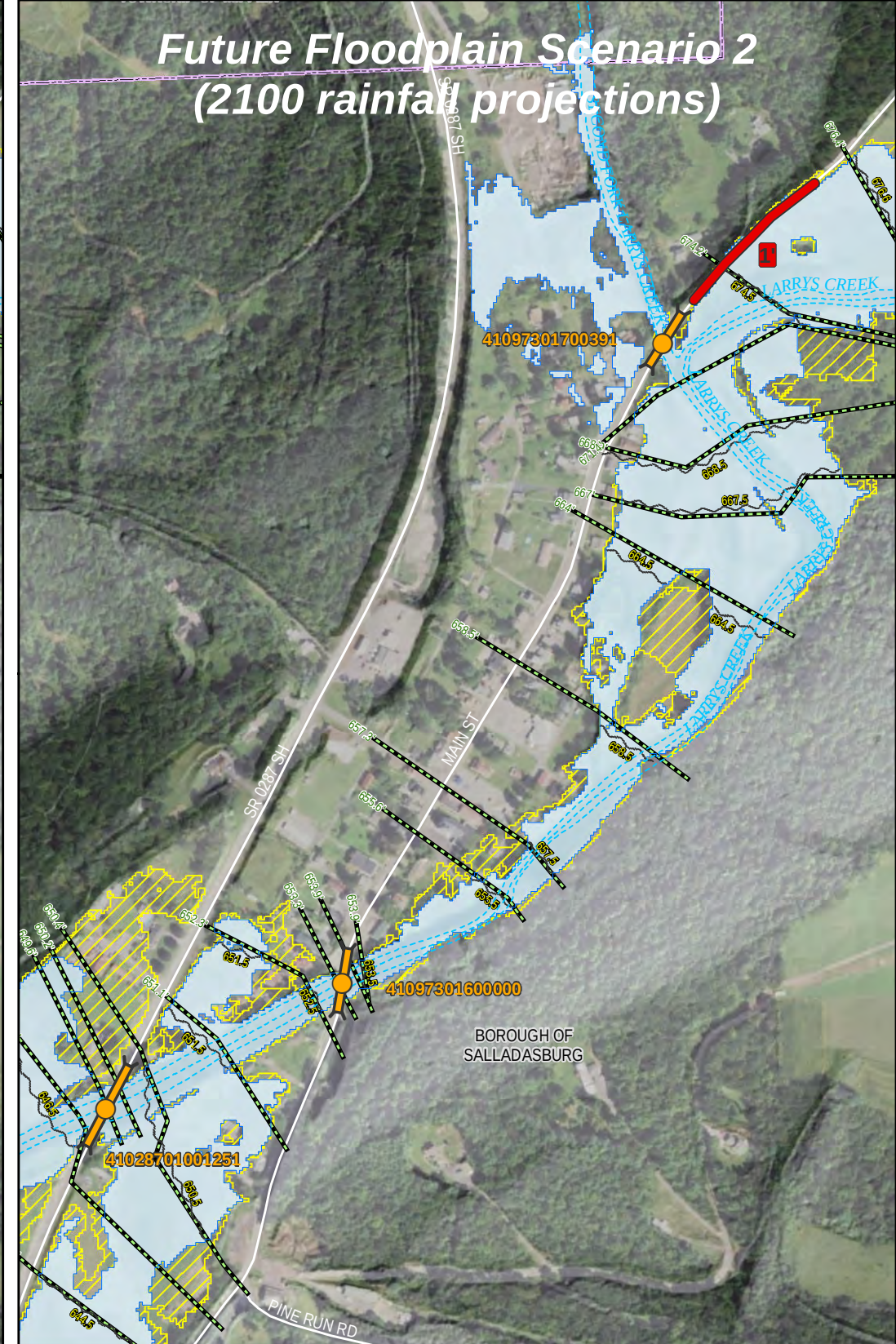
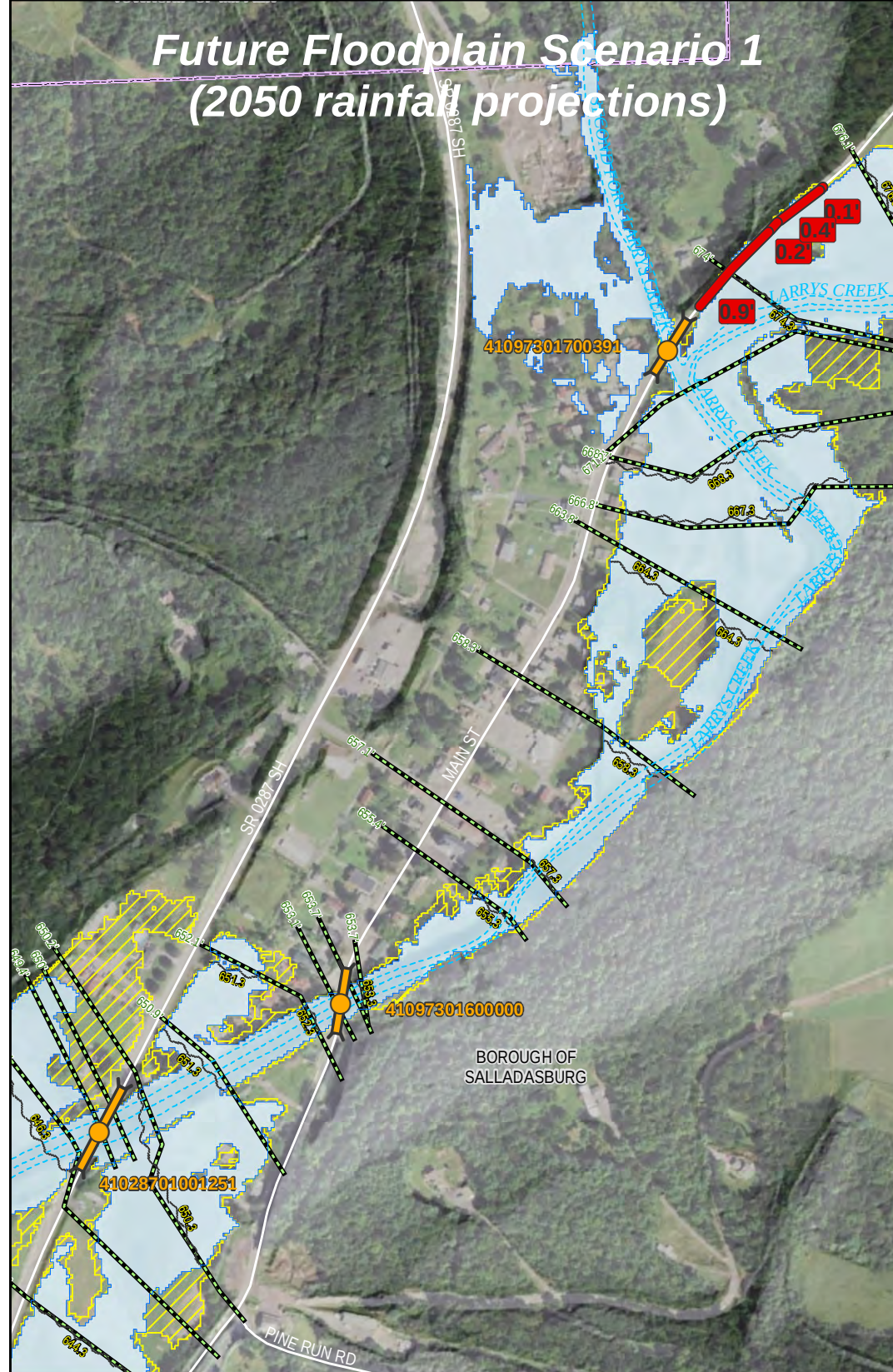
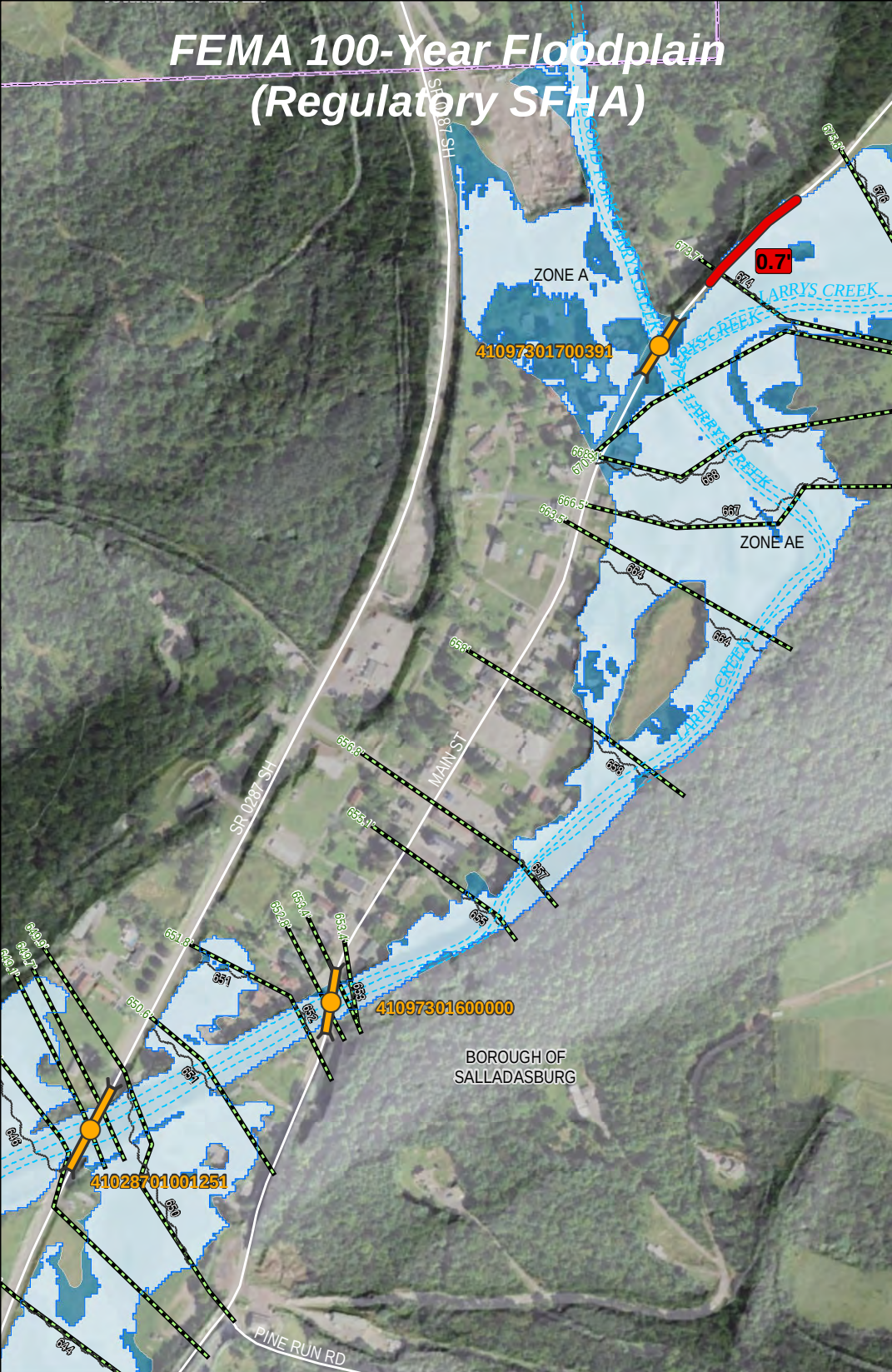
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis
Lycoming County, PA
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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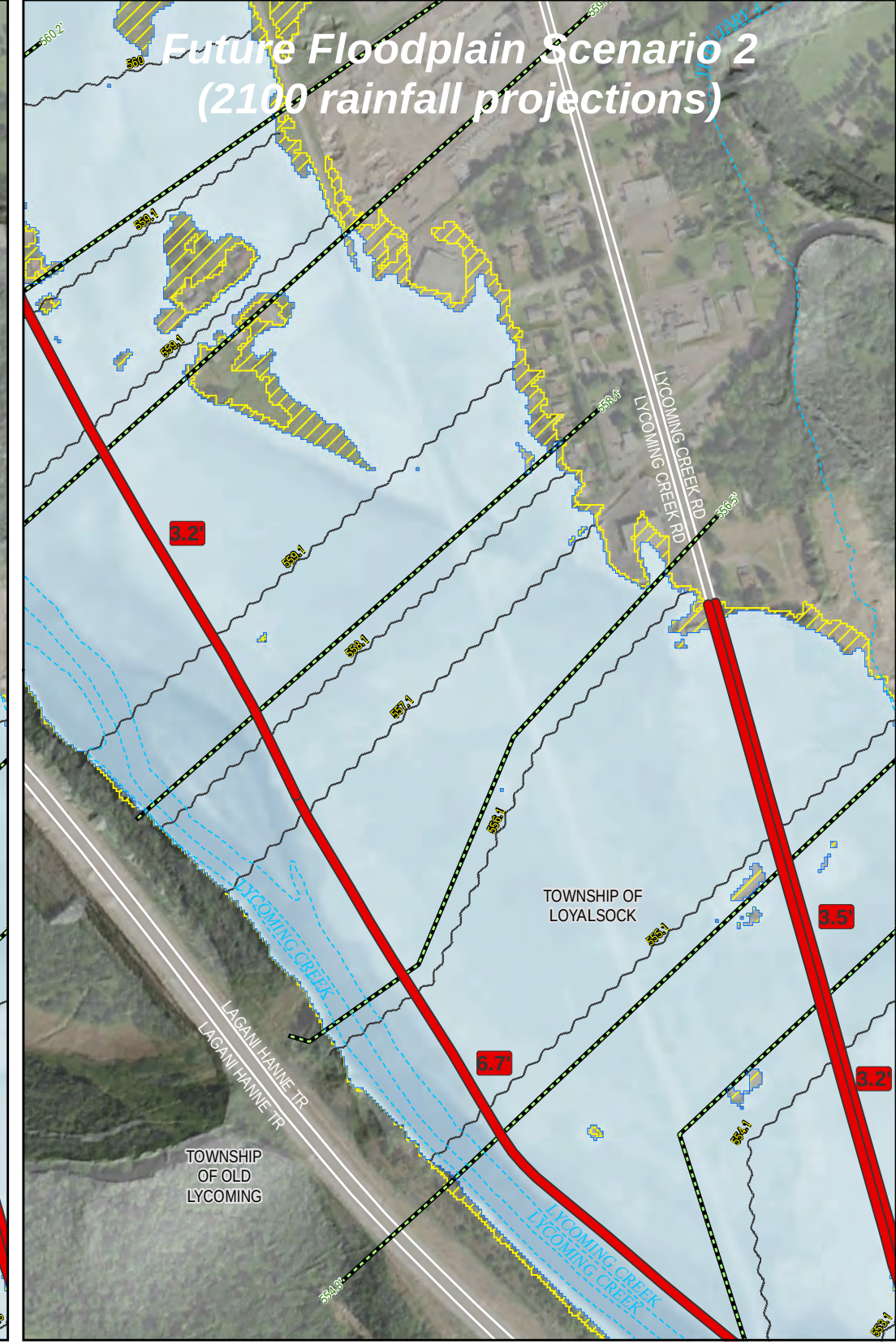
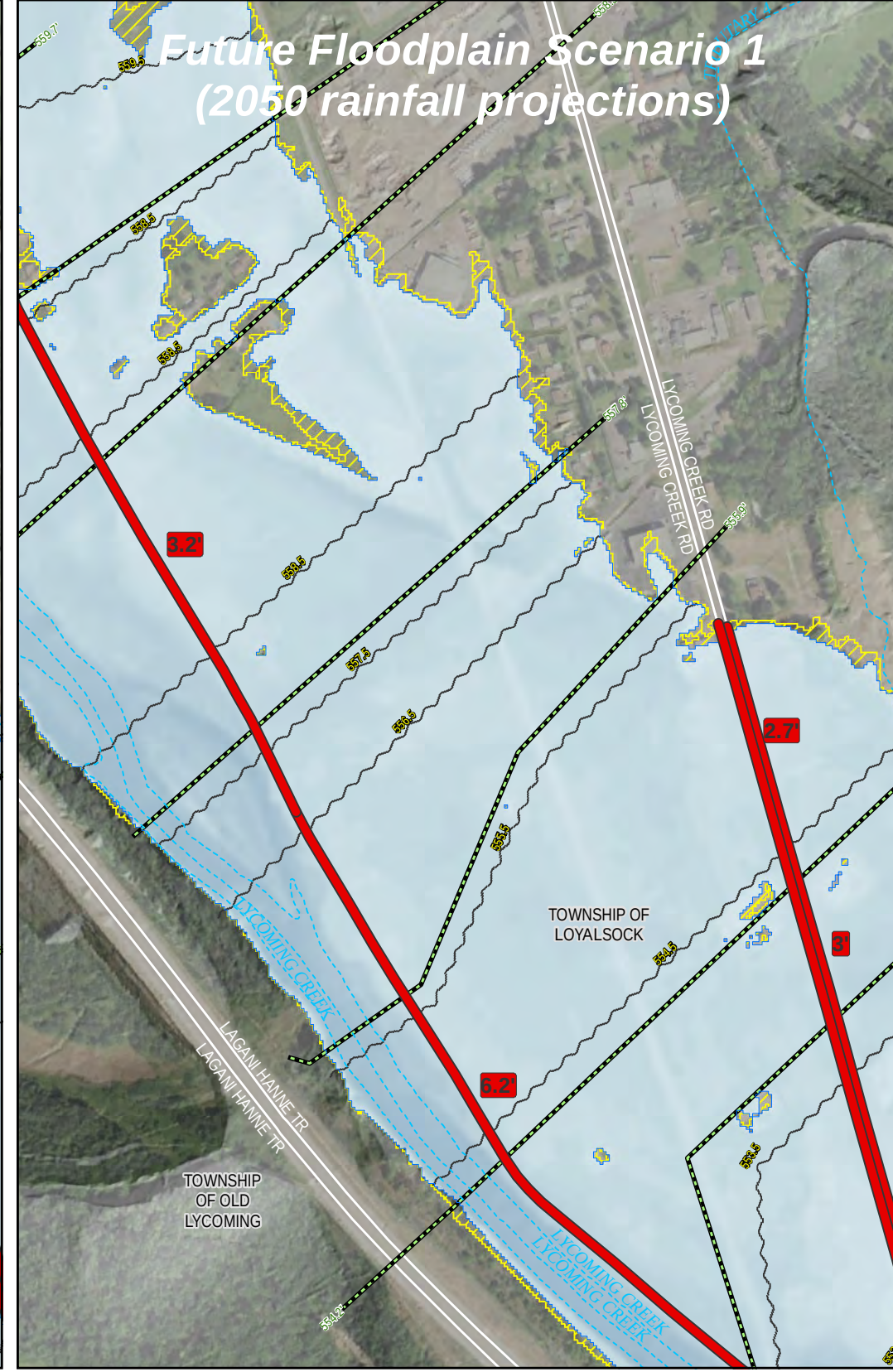
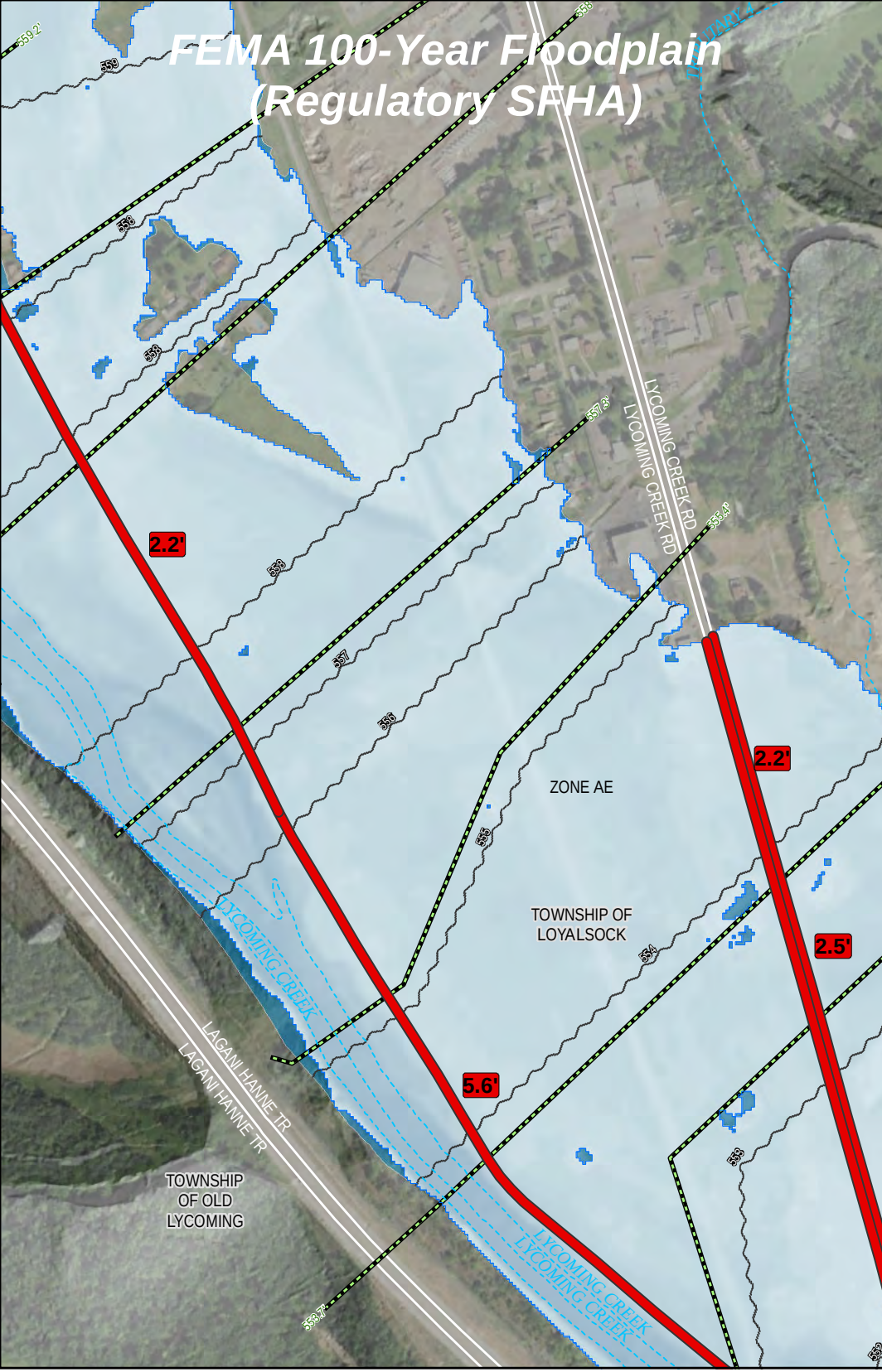
Michael Baker INTERNATIONAL

LOCATOR MAP

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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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- Bridge Centerlines
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- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

- (Based on Depth Grid Boundary)
- Existing Conditions SFHA Extents

FUTURE CONDITIONS

- (Based on Depth Grid Boundary)
- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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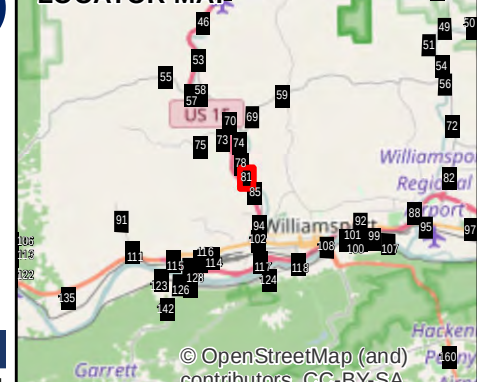


DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

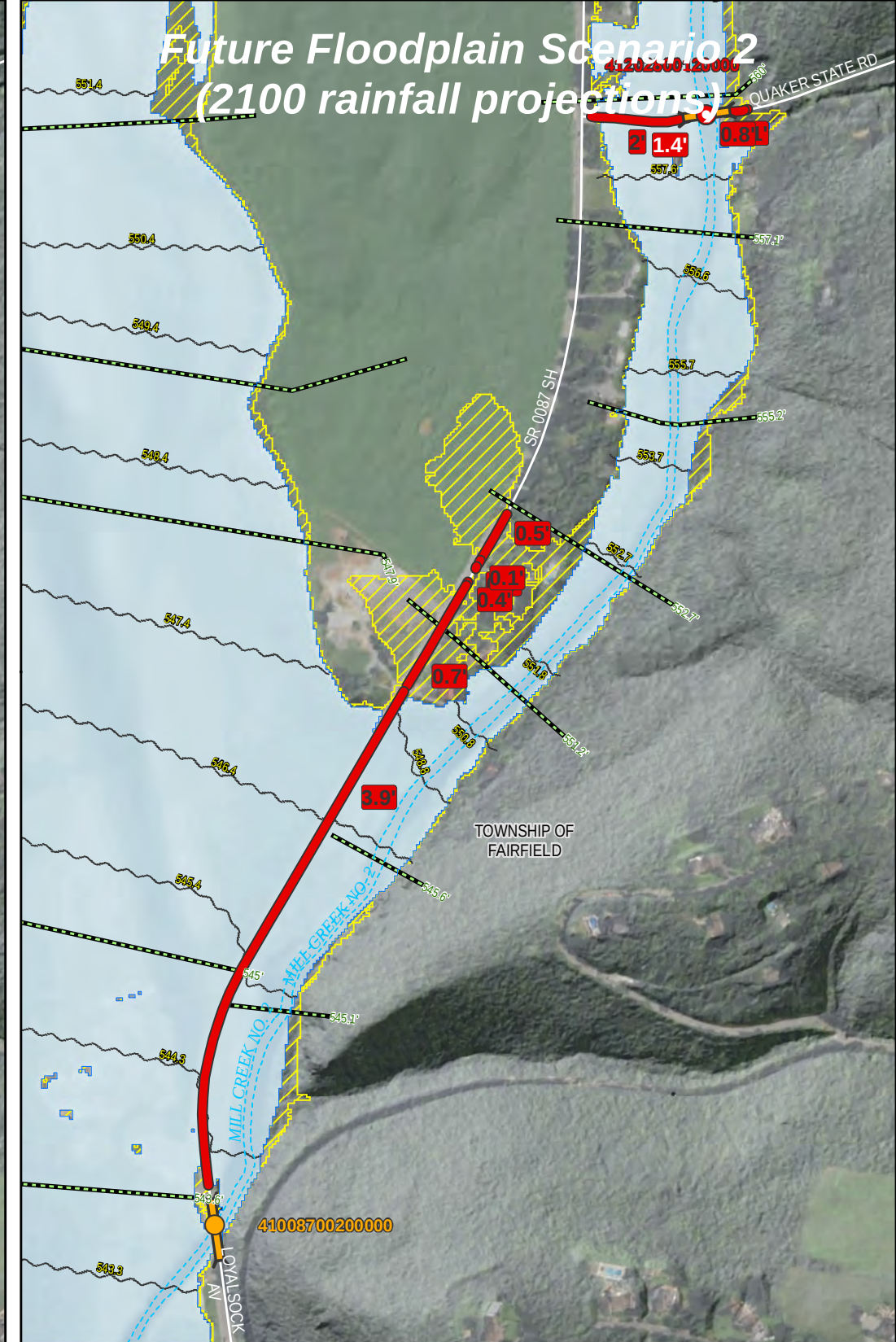
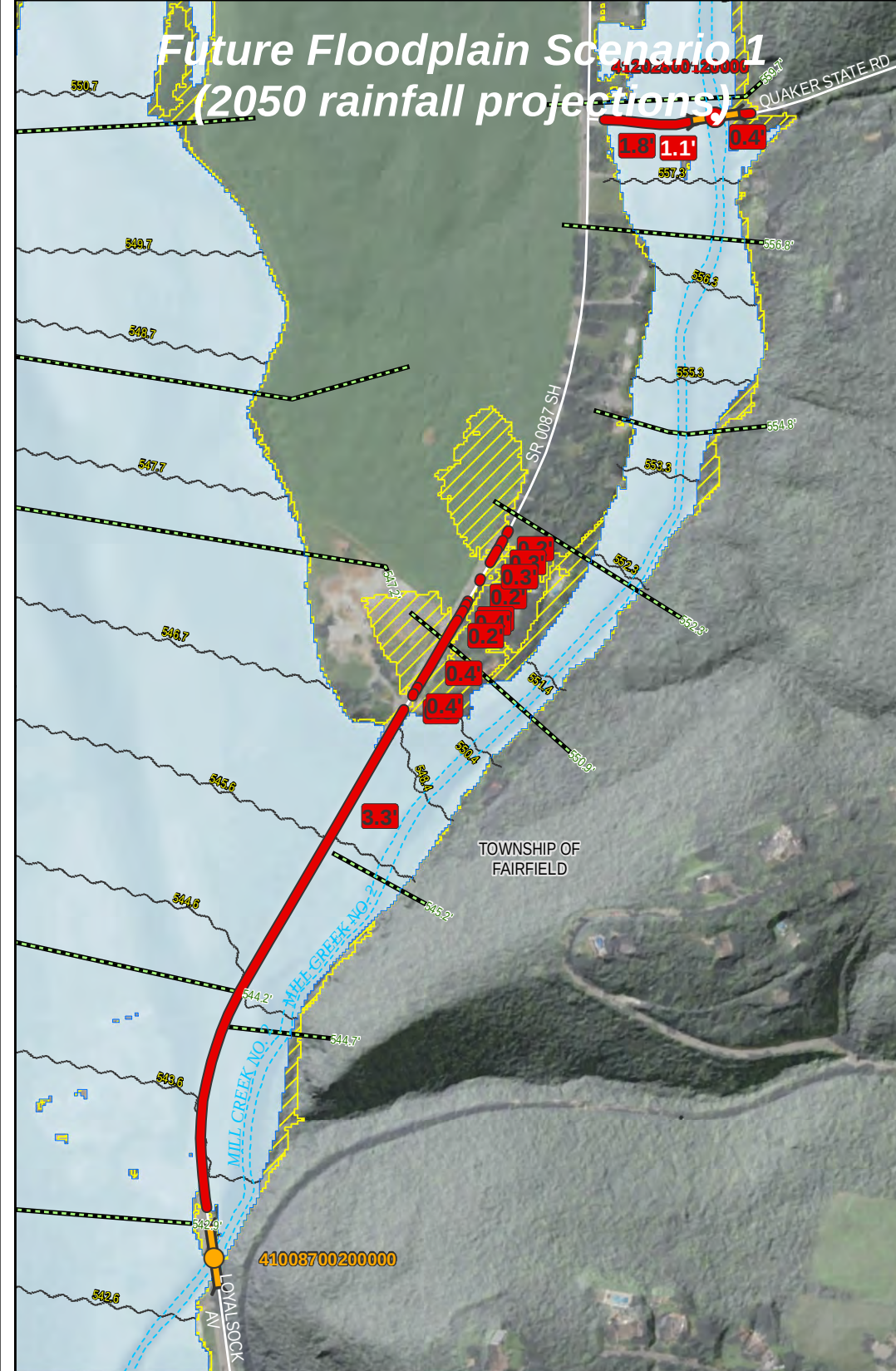
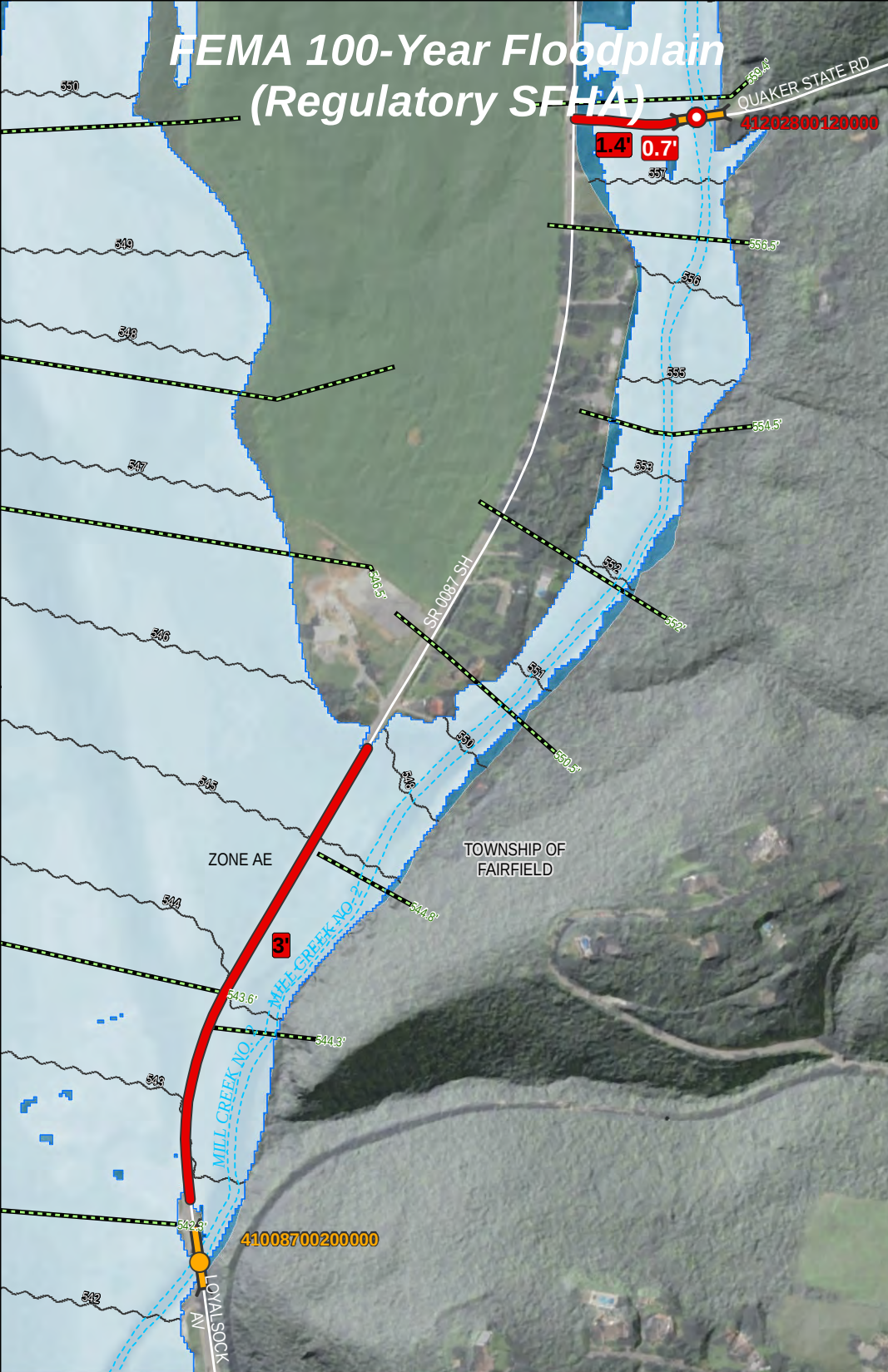
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
INTERNATIONAL**

LOCATOR MAP



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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. 60DY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

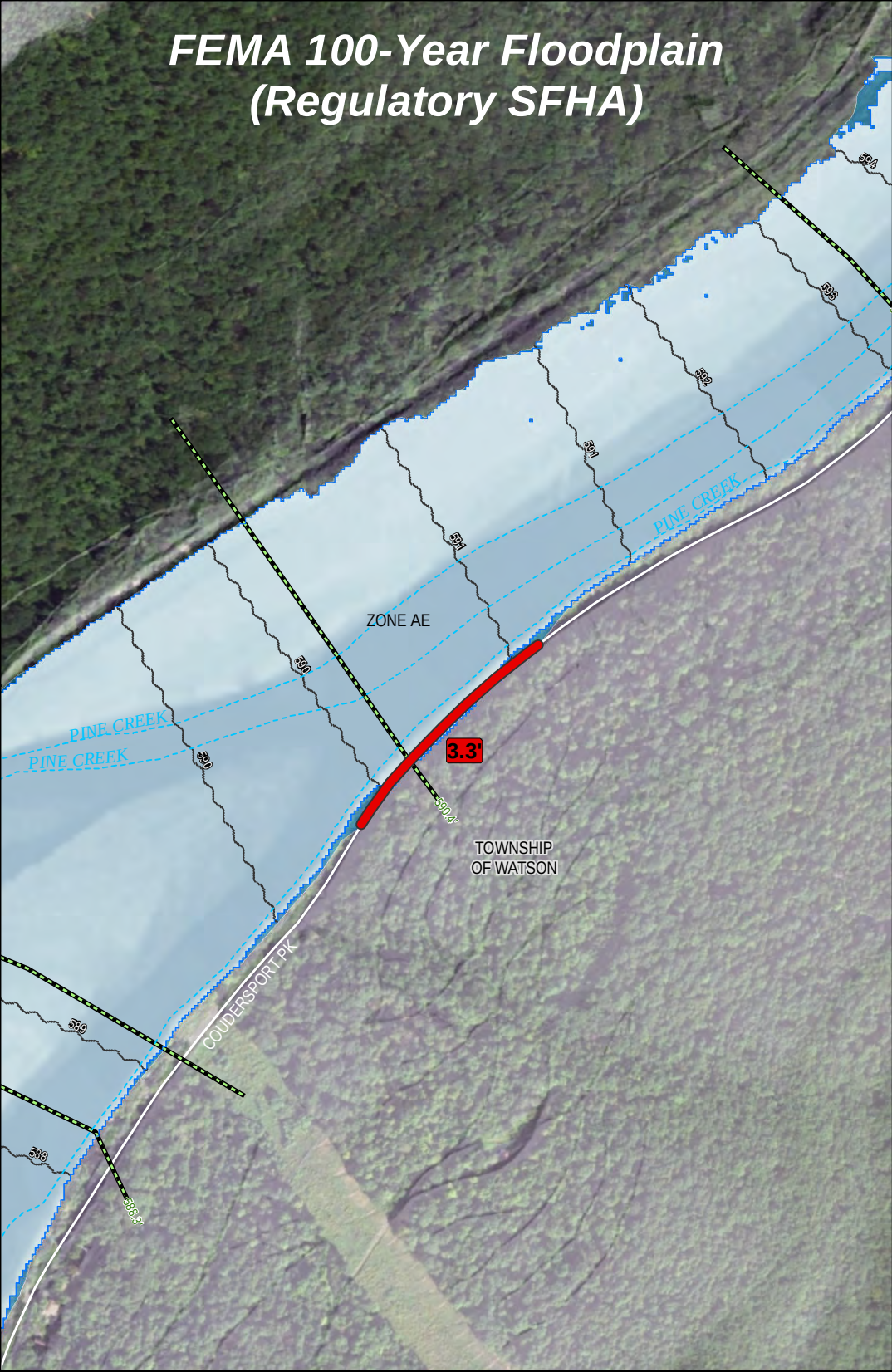
Sheet 82 of 163

DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

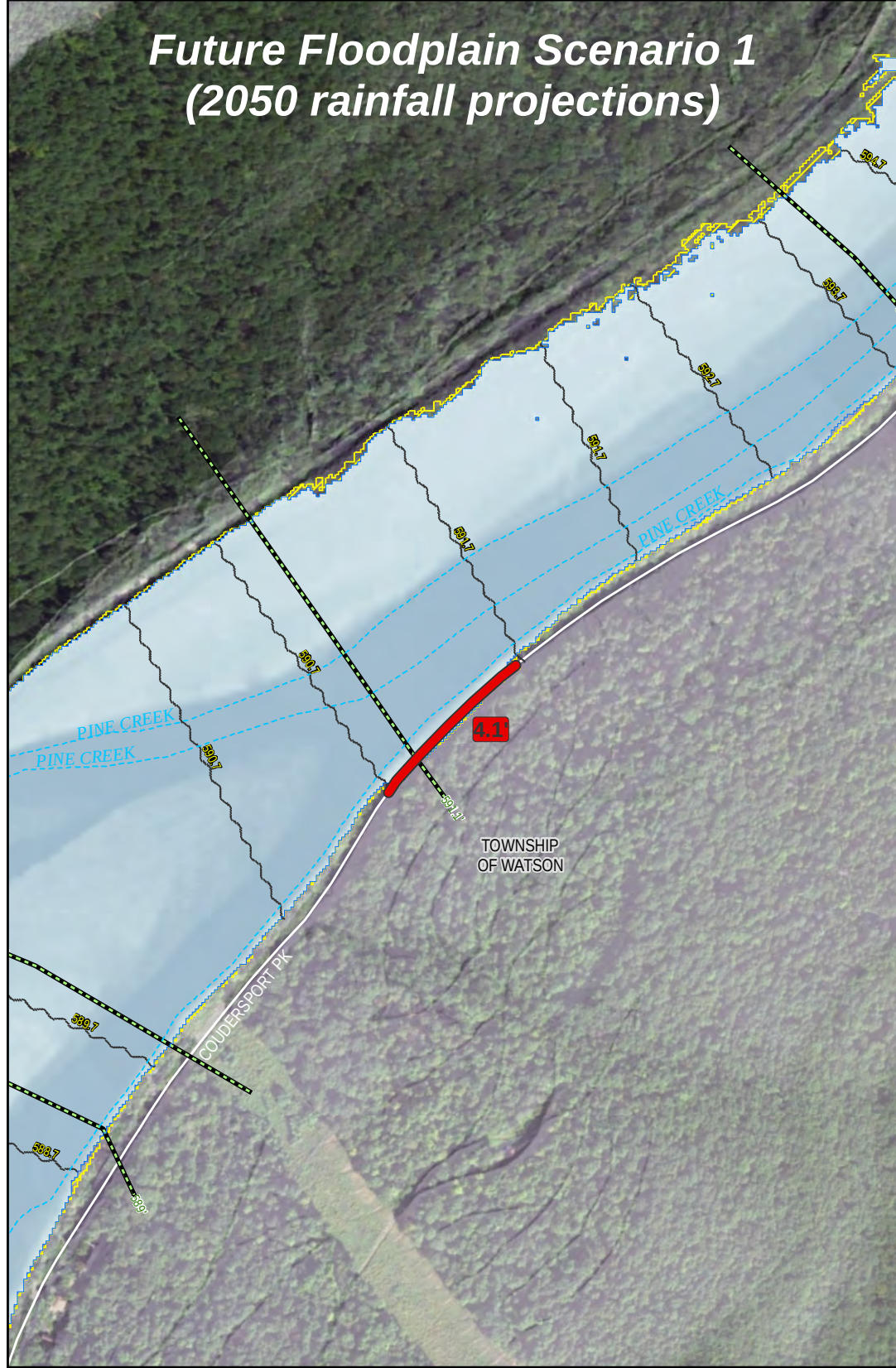
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

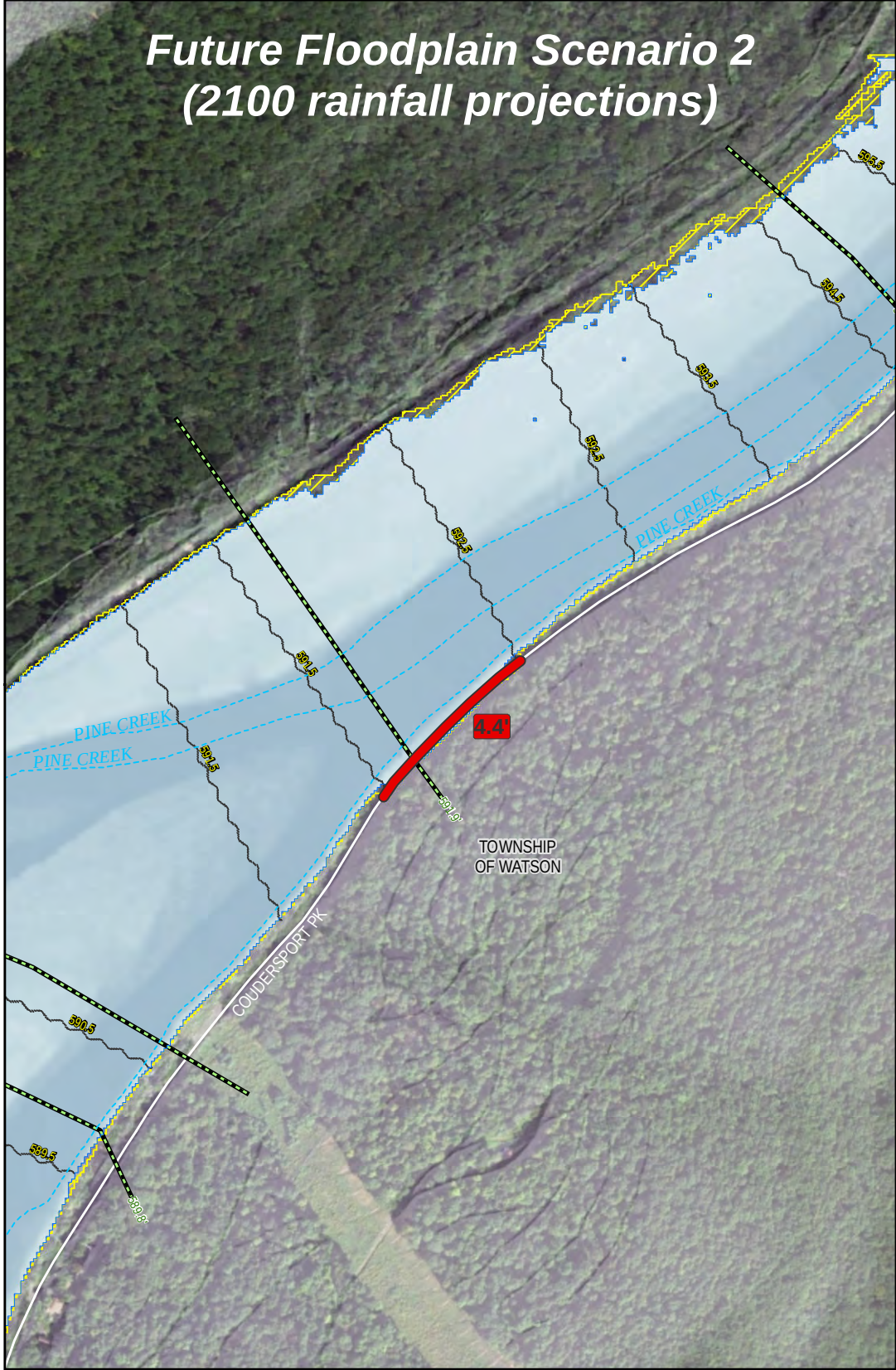
FEMA 100-Year Floodplain
(Regulatory SFHA)



Future Floodplain Scenario 1
(2050 rainfall projections)



Future Floodplain Scenario 2
(2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. 328'
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- Bridge Centerlines
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FEMA FLOODPLAIN

- FEMA Stream Centerline
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EXISTING CONDITIONS

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- Existing Conditions SFHA Extents
- FUTURE CONDITIONS
- (Based on Depth Grid Boundary)
- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



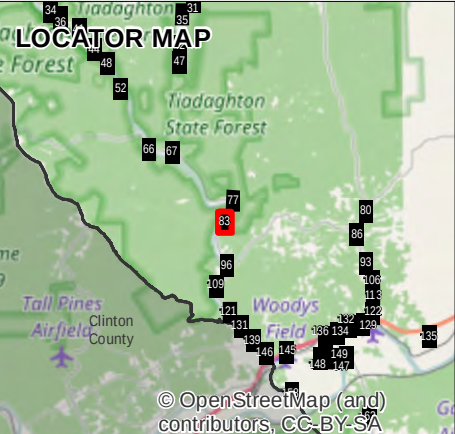
Flood Vulnerability Analysis
Lycoming County, PA
(Planning Level Assessment)
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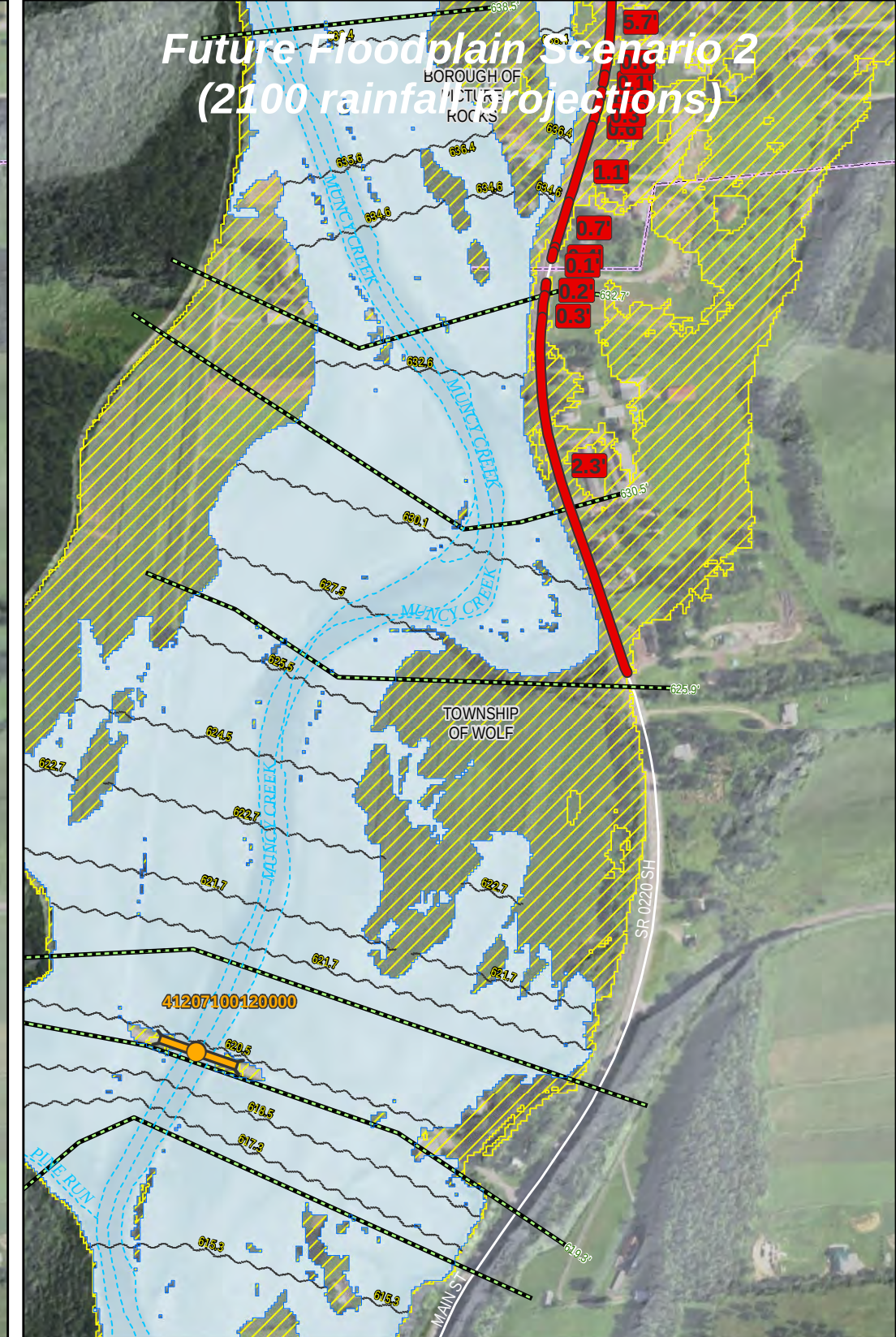
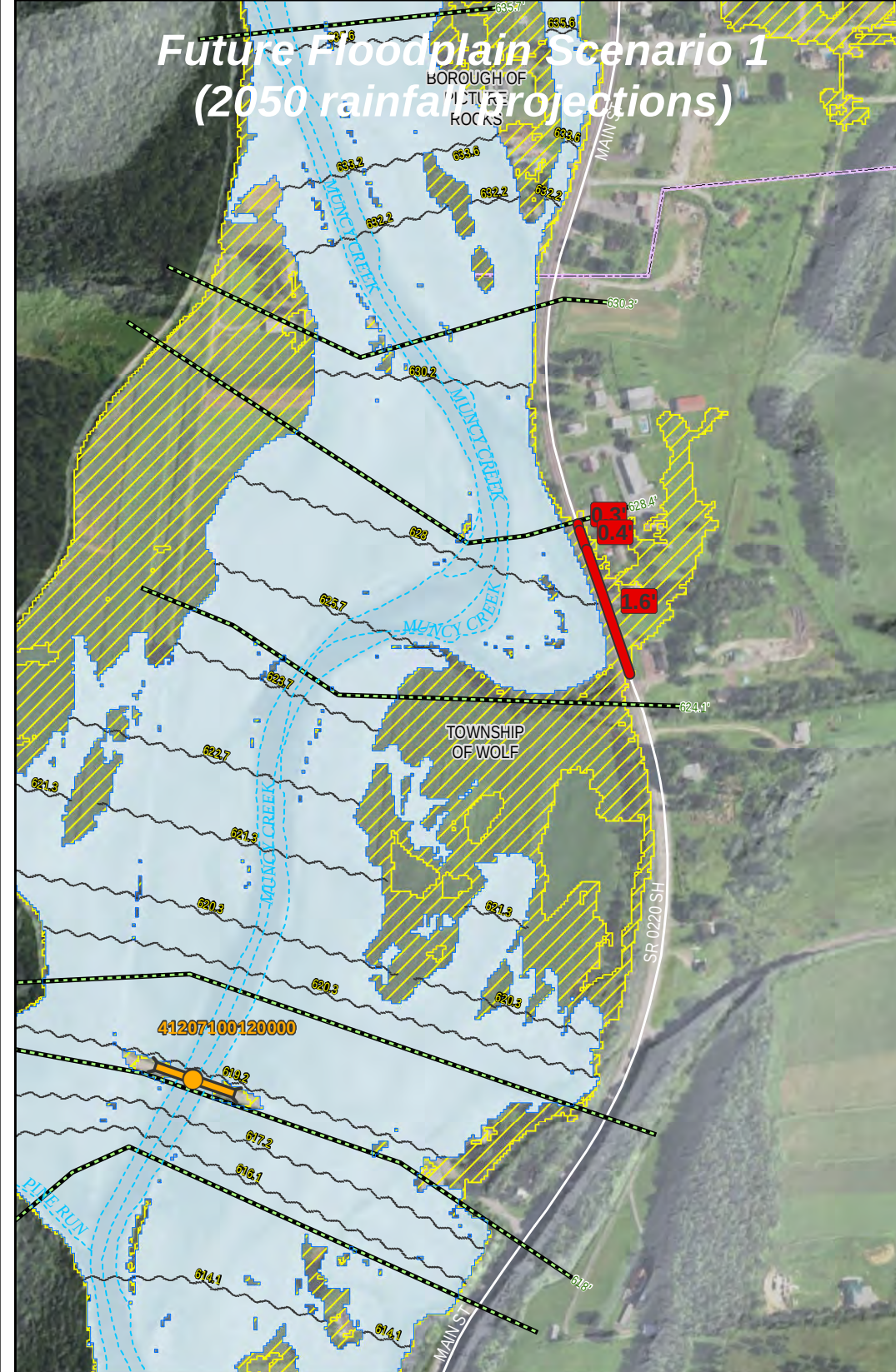
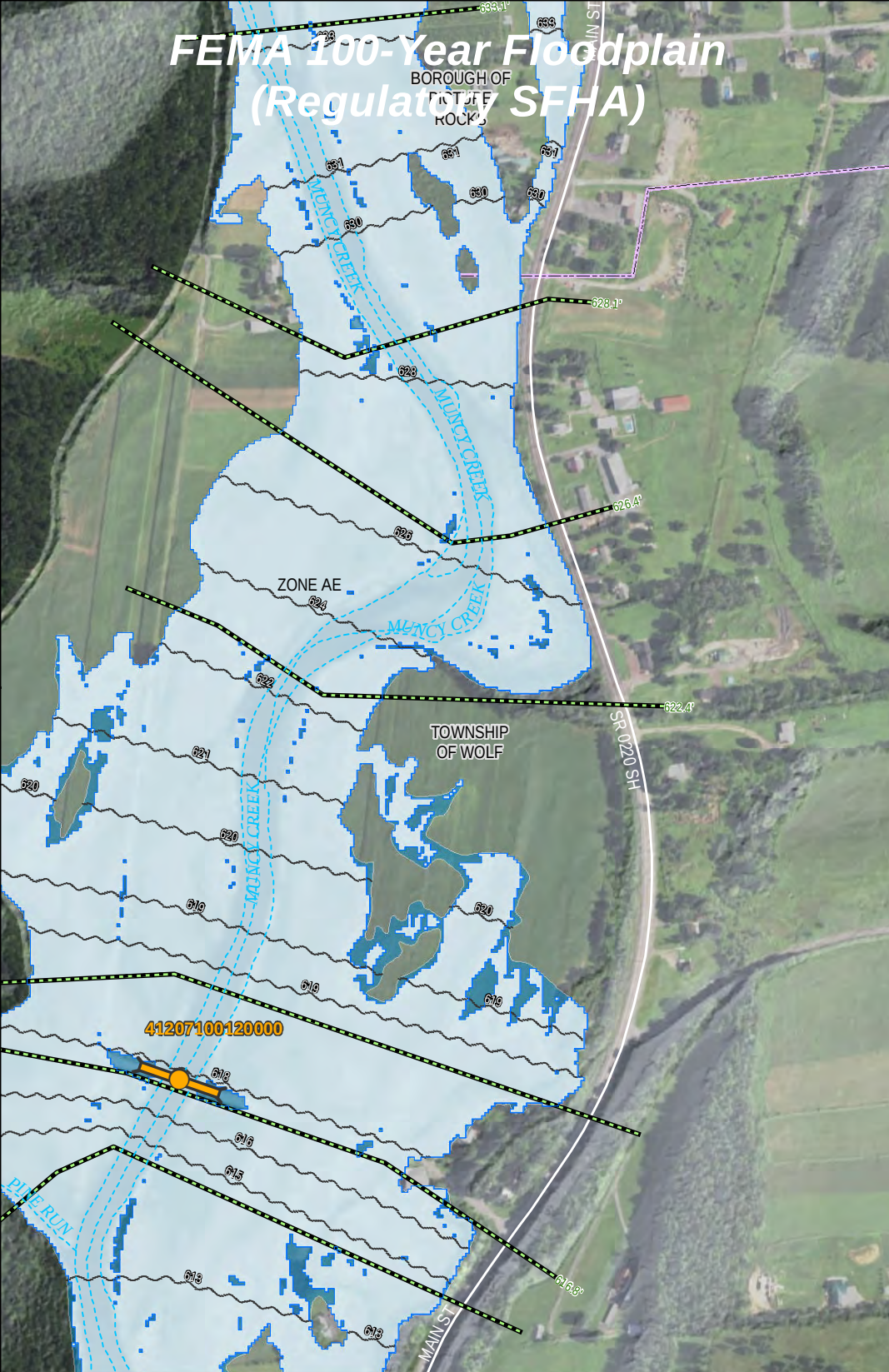
Sheet 83 of 163



DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
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Vertical Datum: North American Vertical Datum 1988

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Bridge and Roadway Data Provided by: Pennsylvania DOT





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

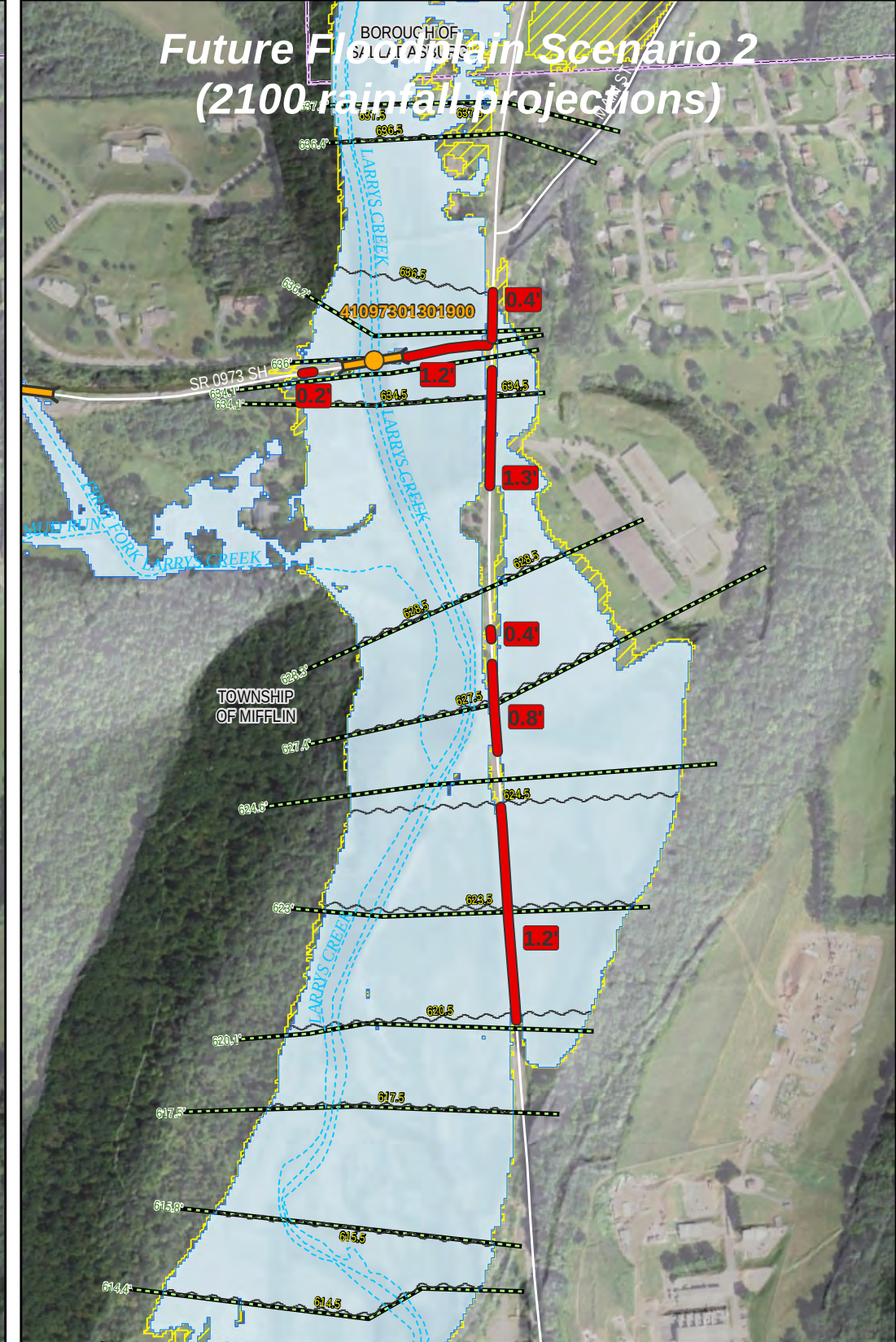
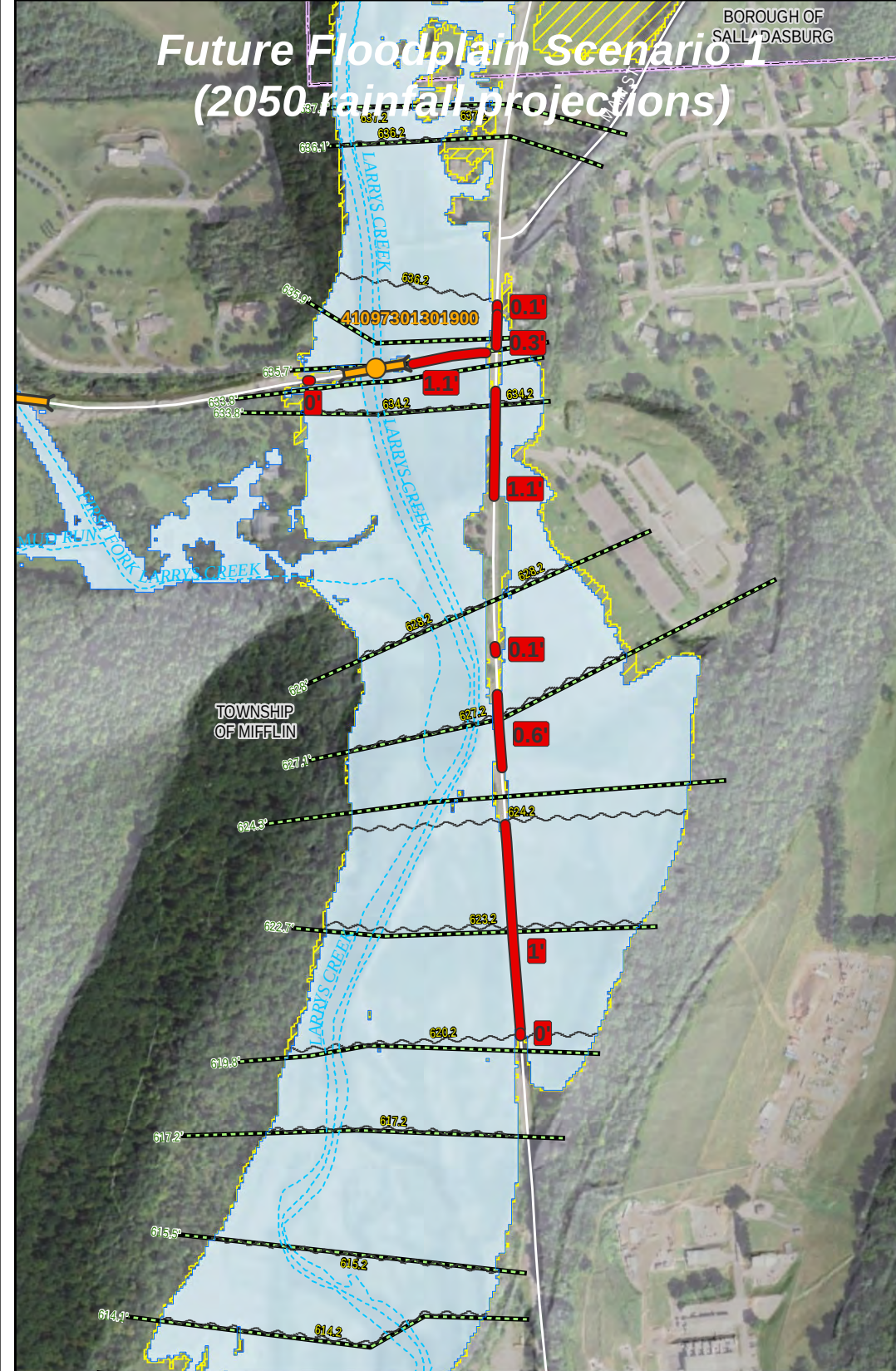
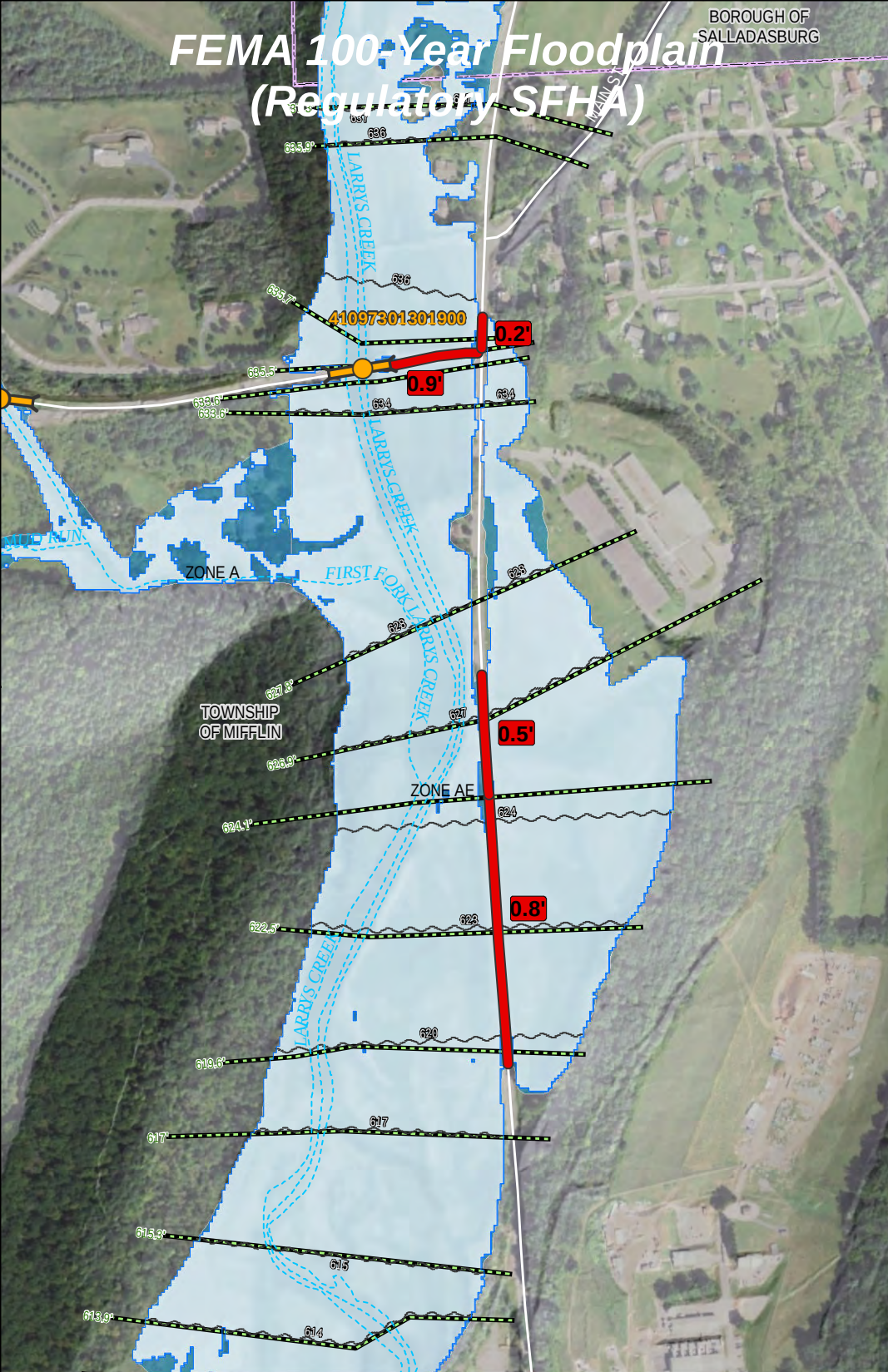
Sheet 84 of 163

Michael Baker INTERNATIONAL

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

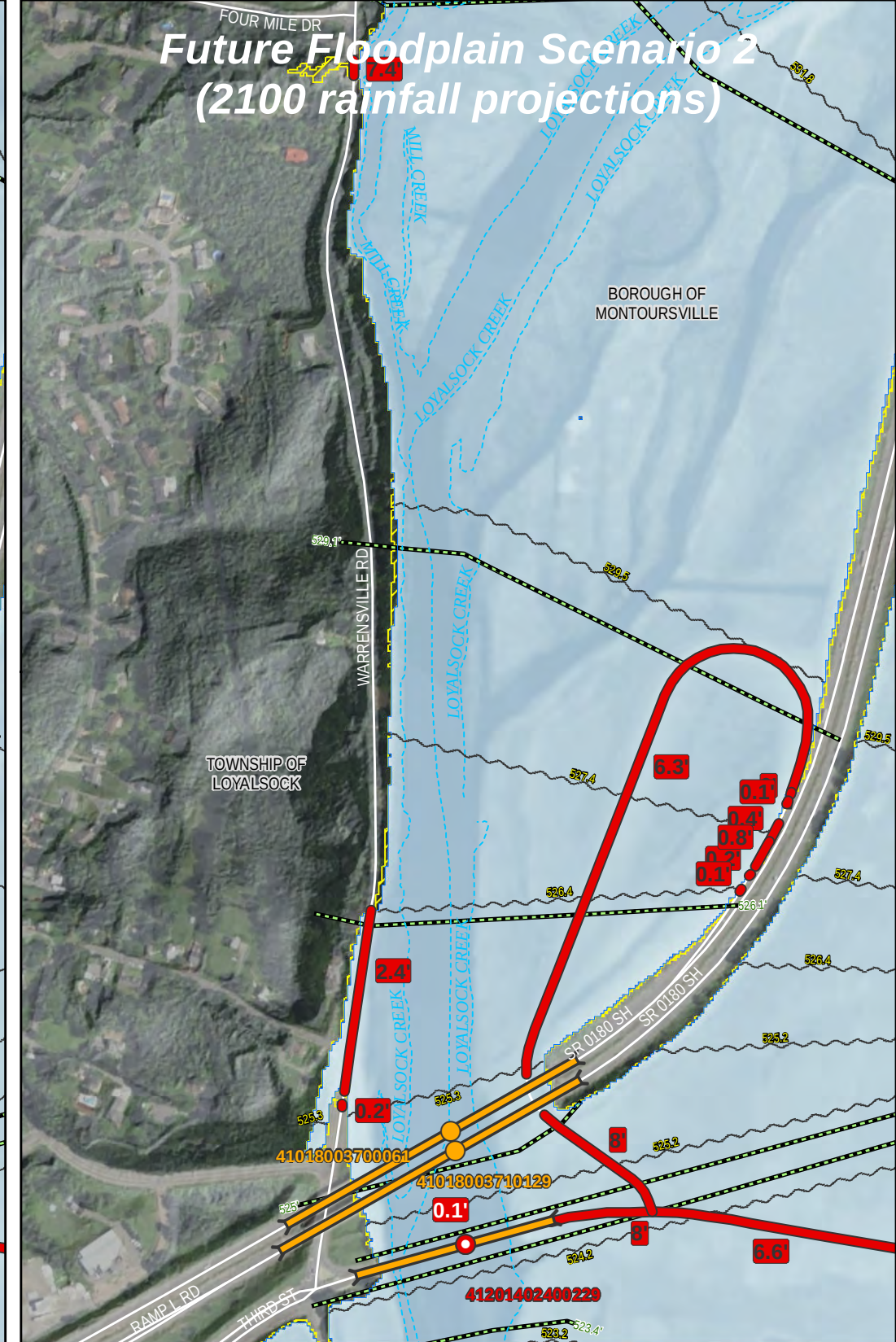
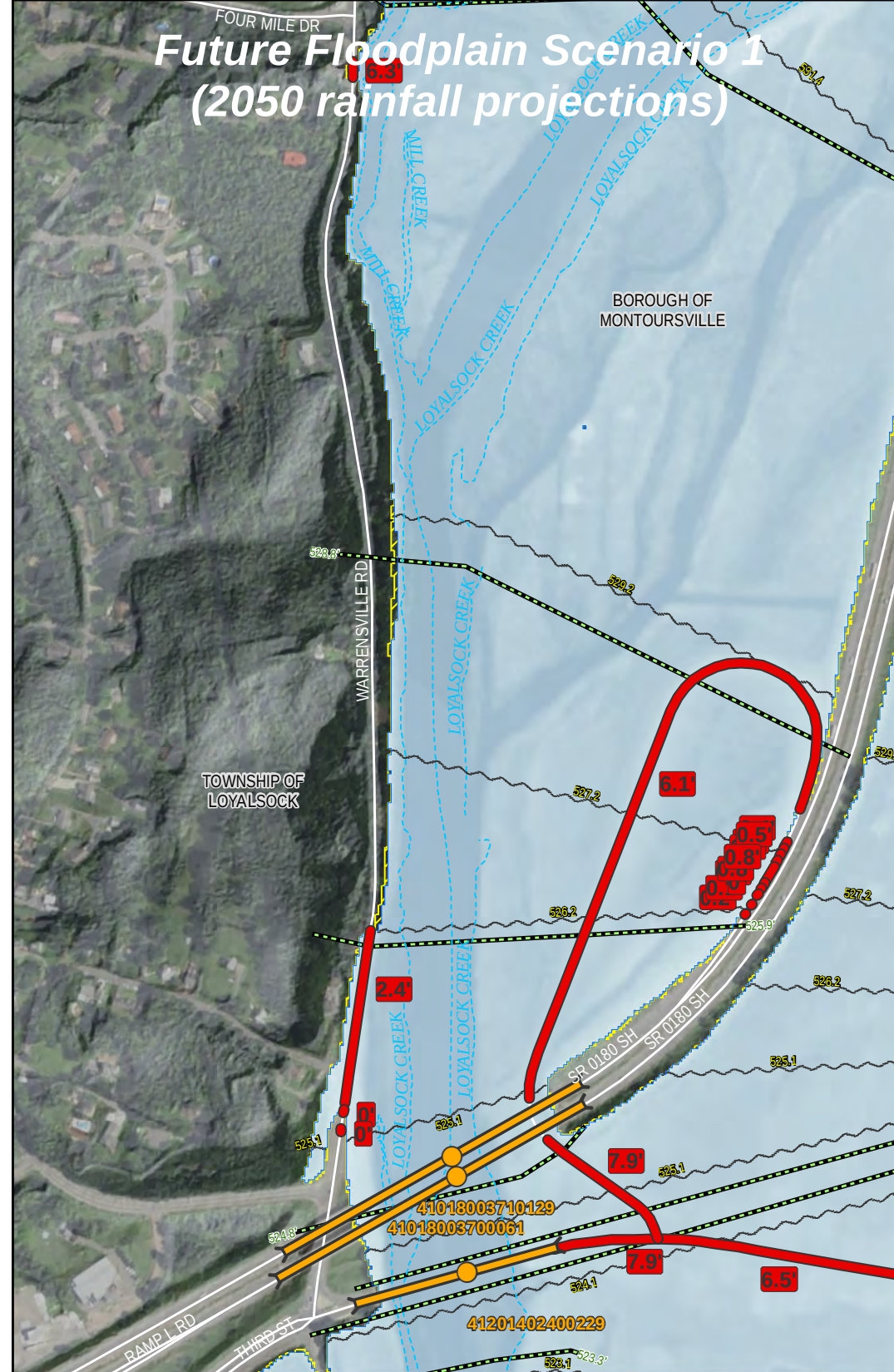
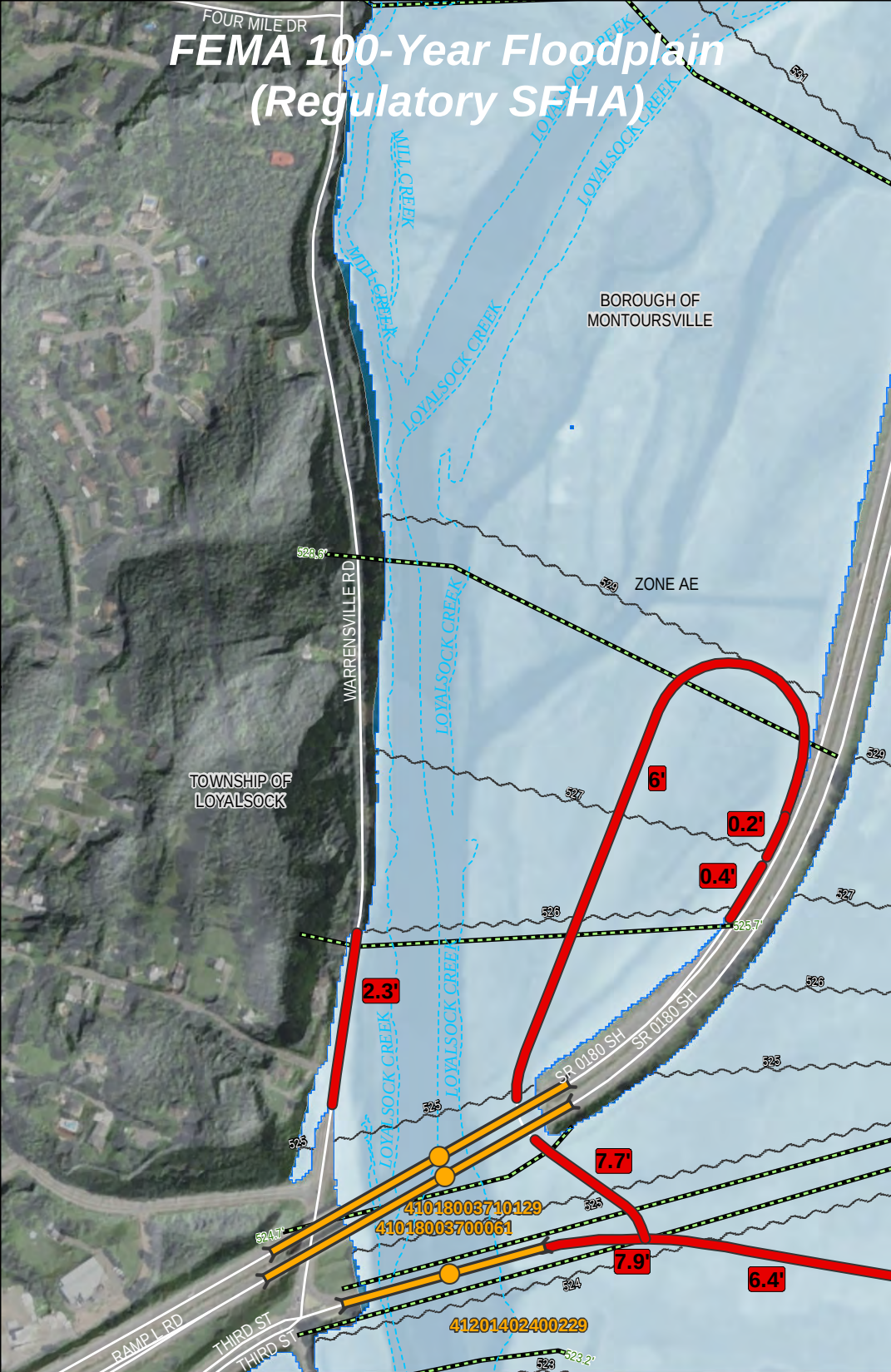
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

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- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

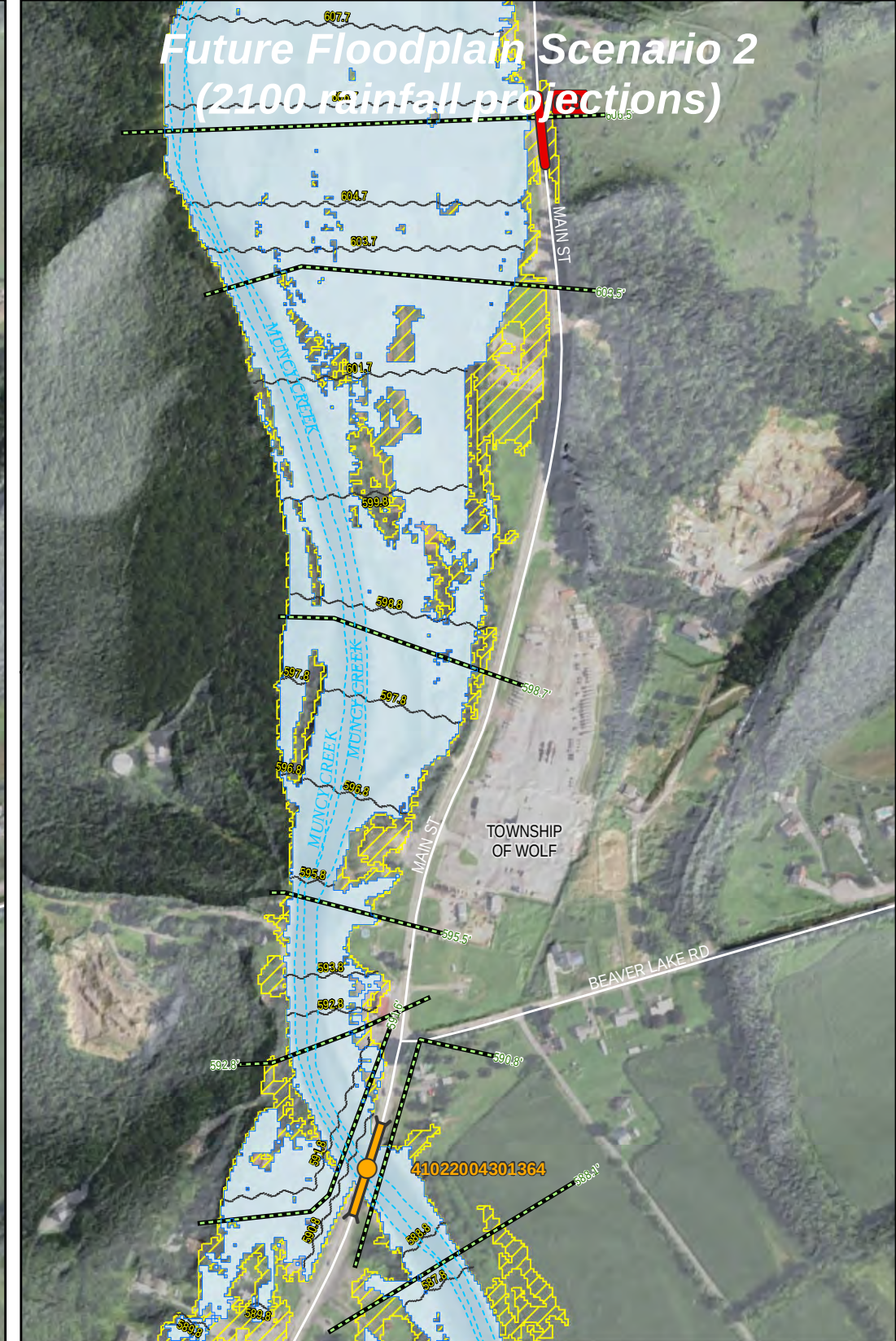
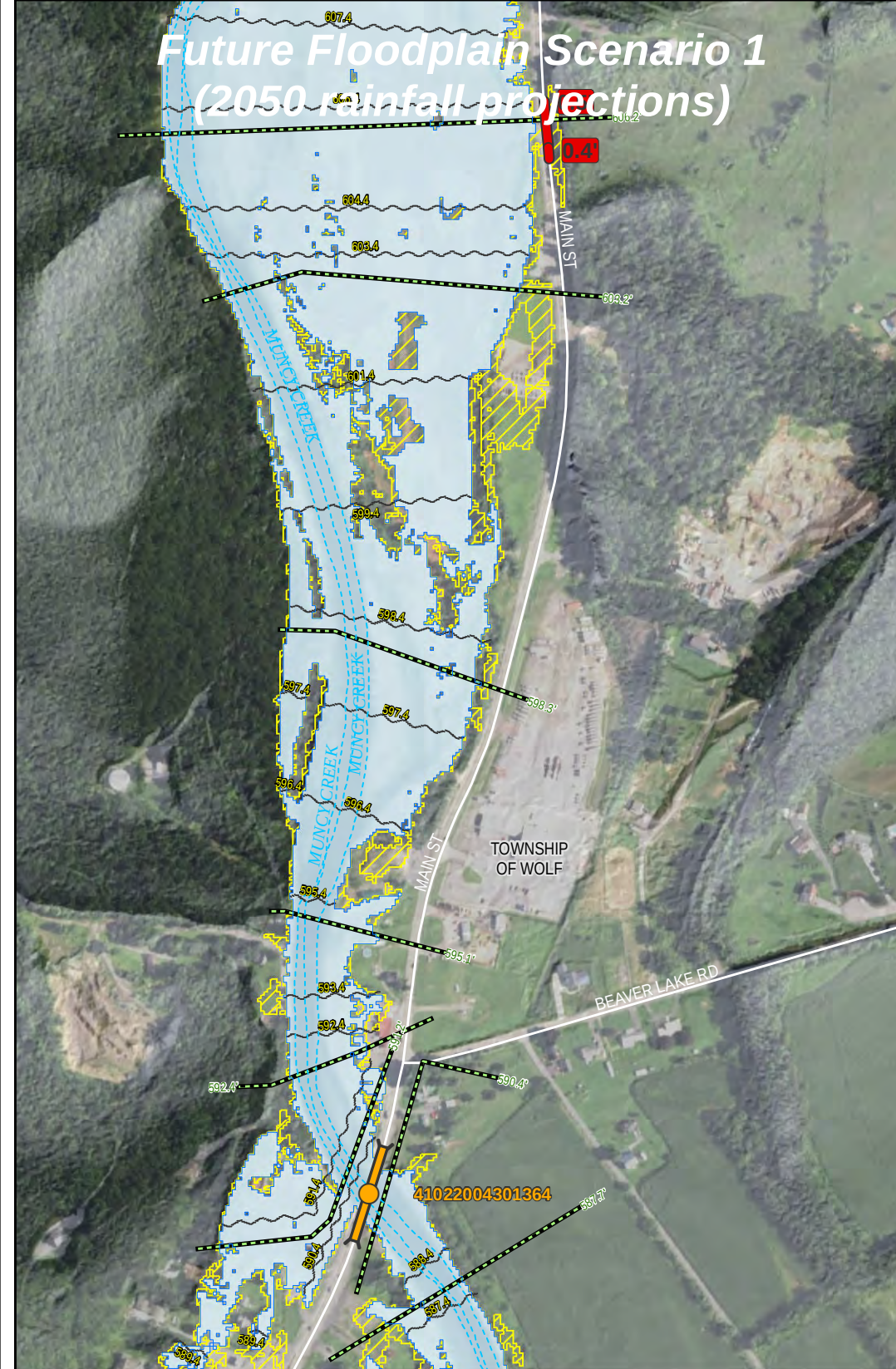
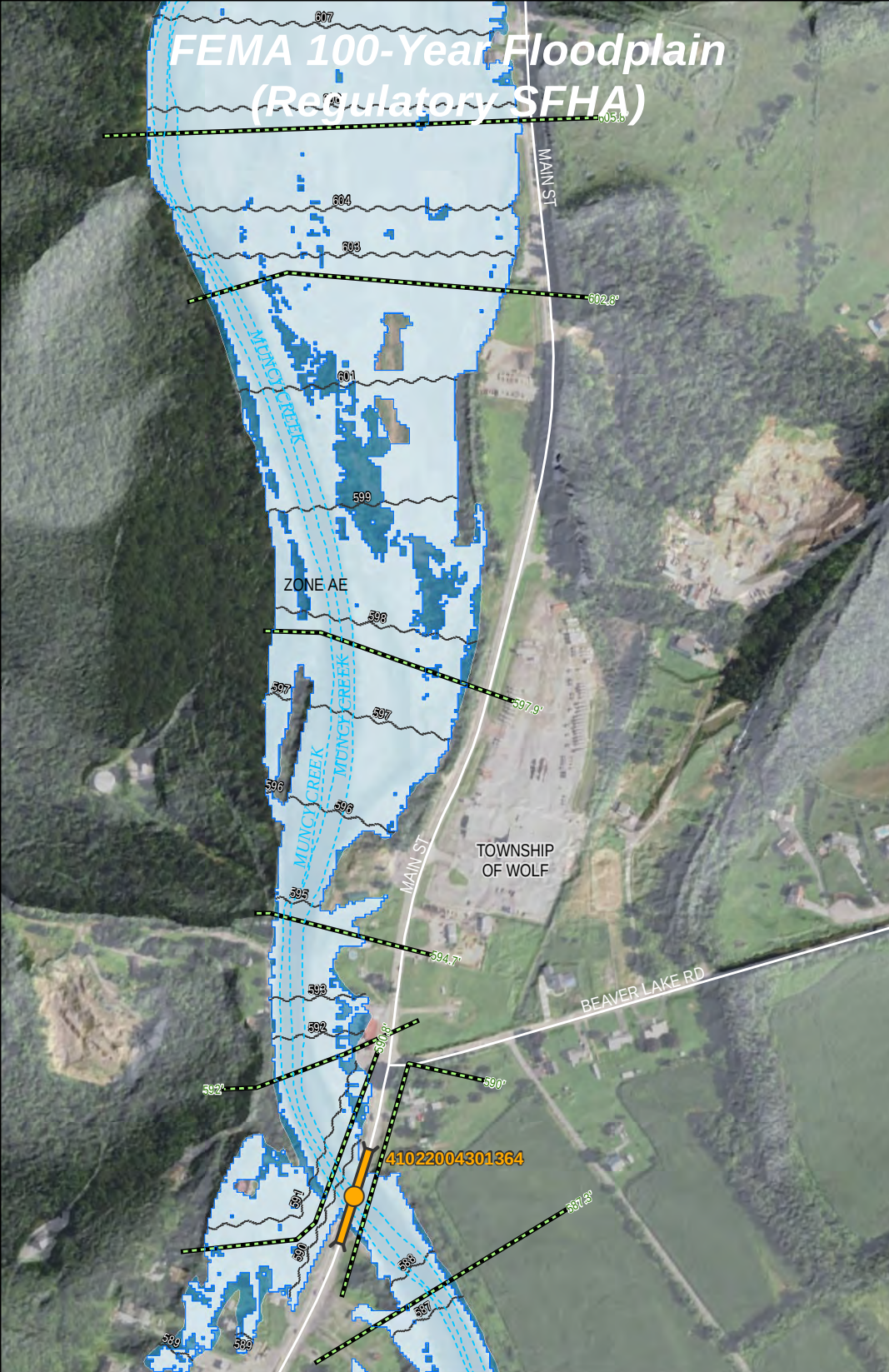
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(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
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Projection: Lambert Conformal Conic
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

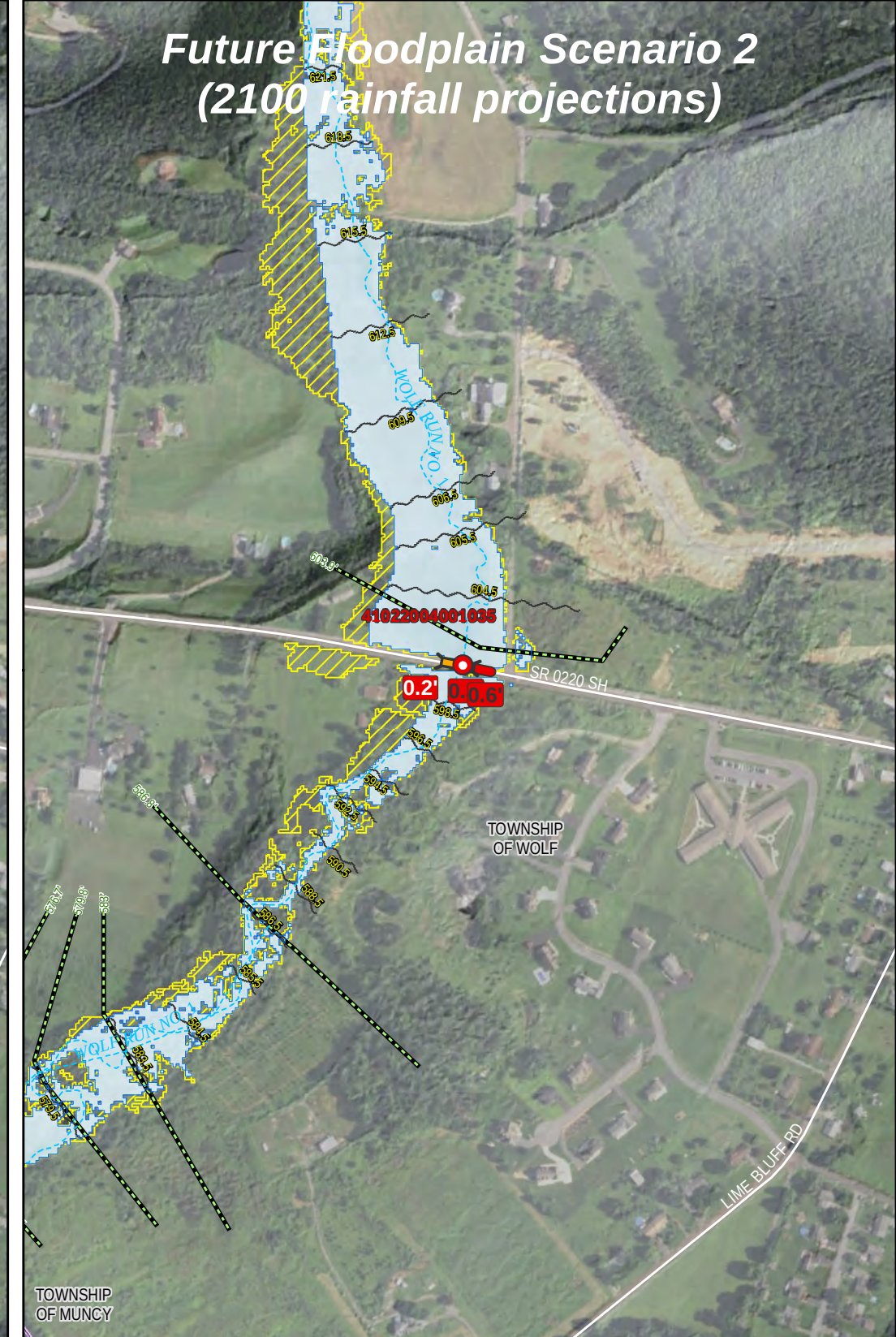
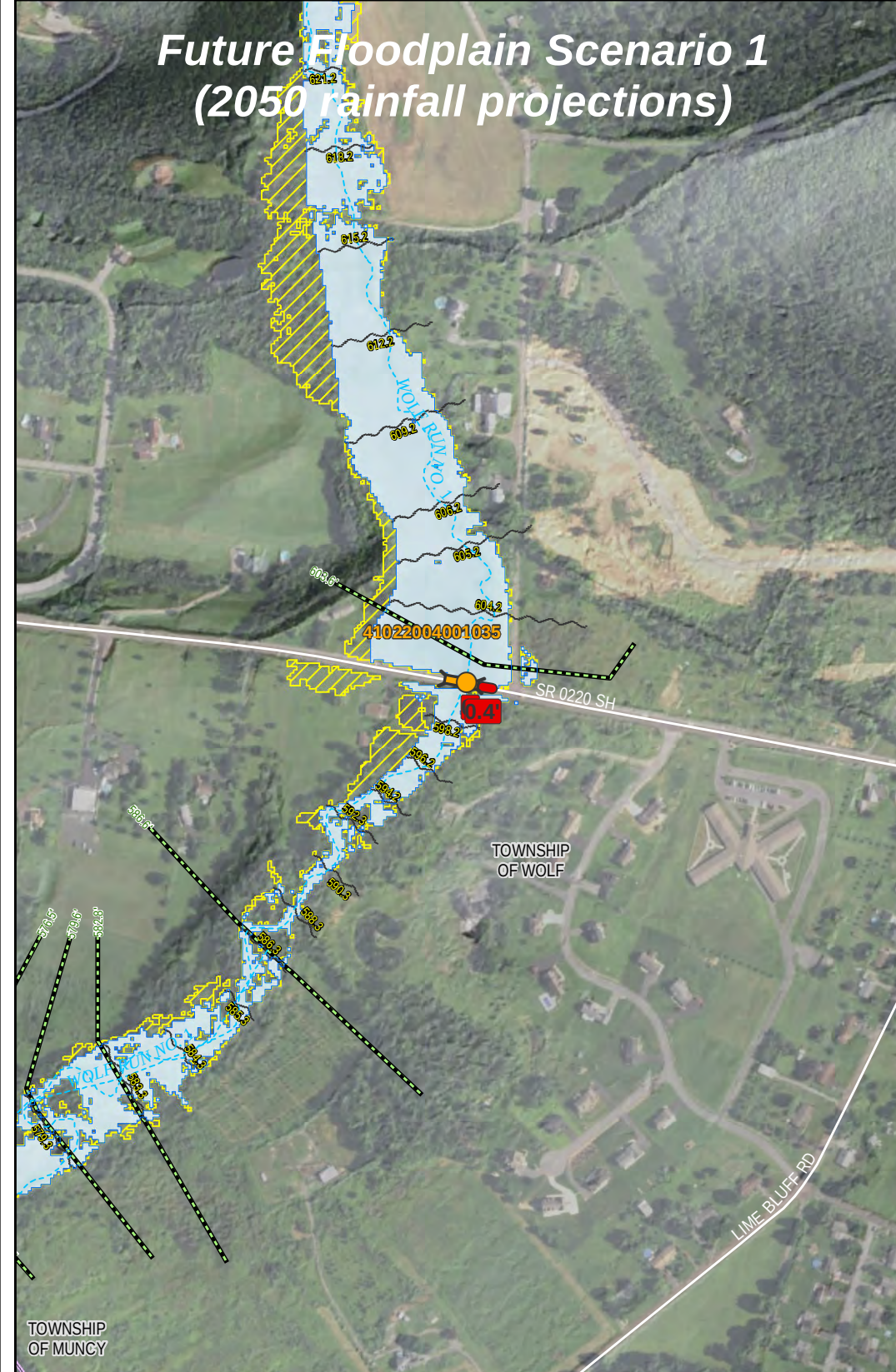
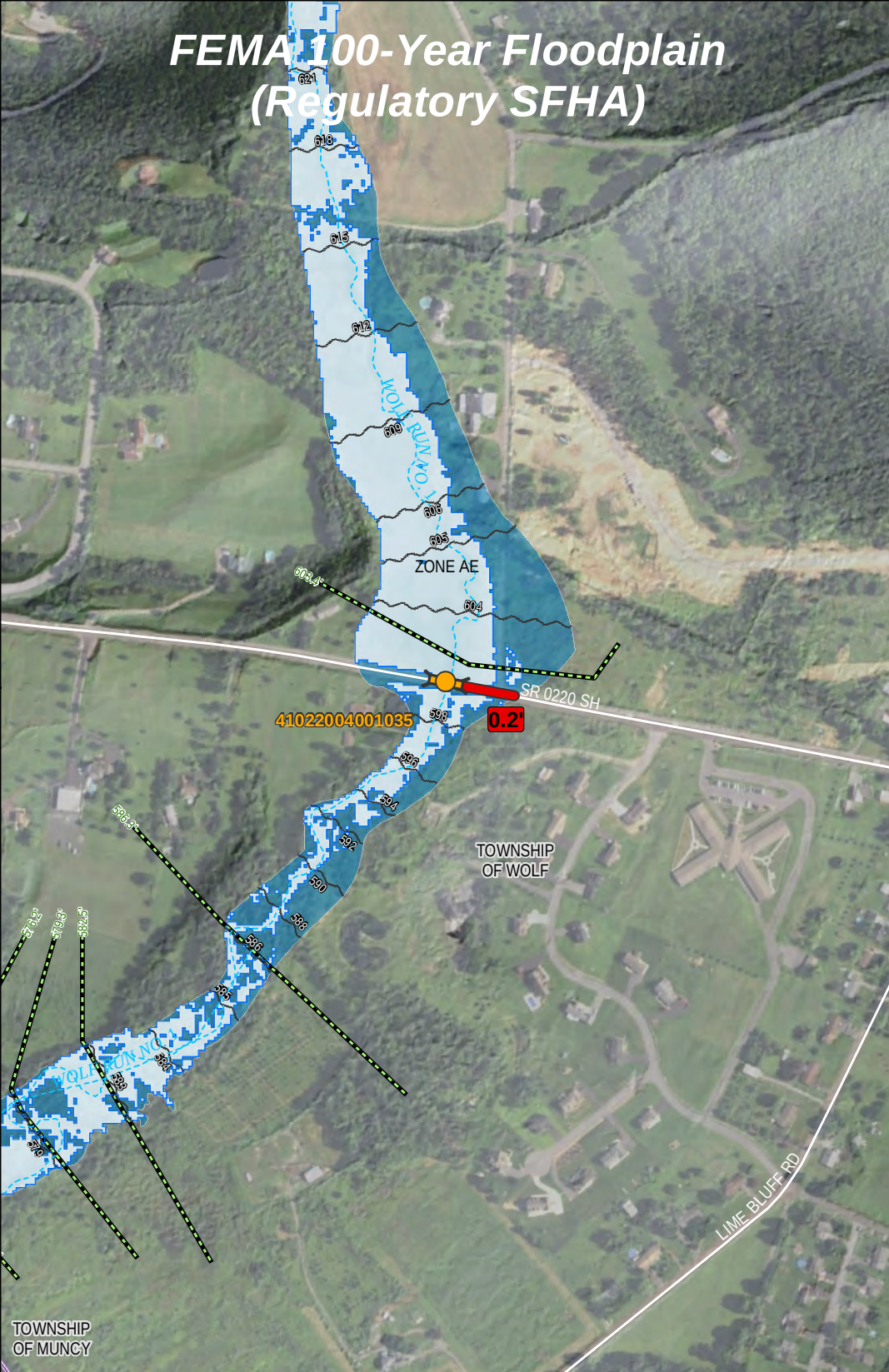
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

Sheet 89 of 163

DATA FRAME PROPERTIES:
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VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

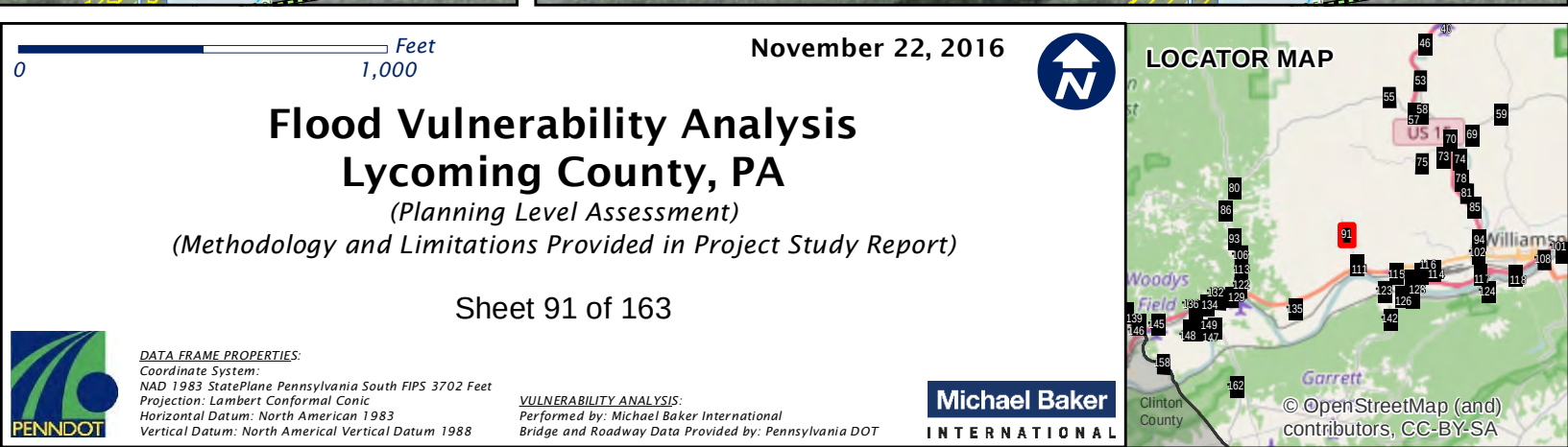
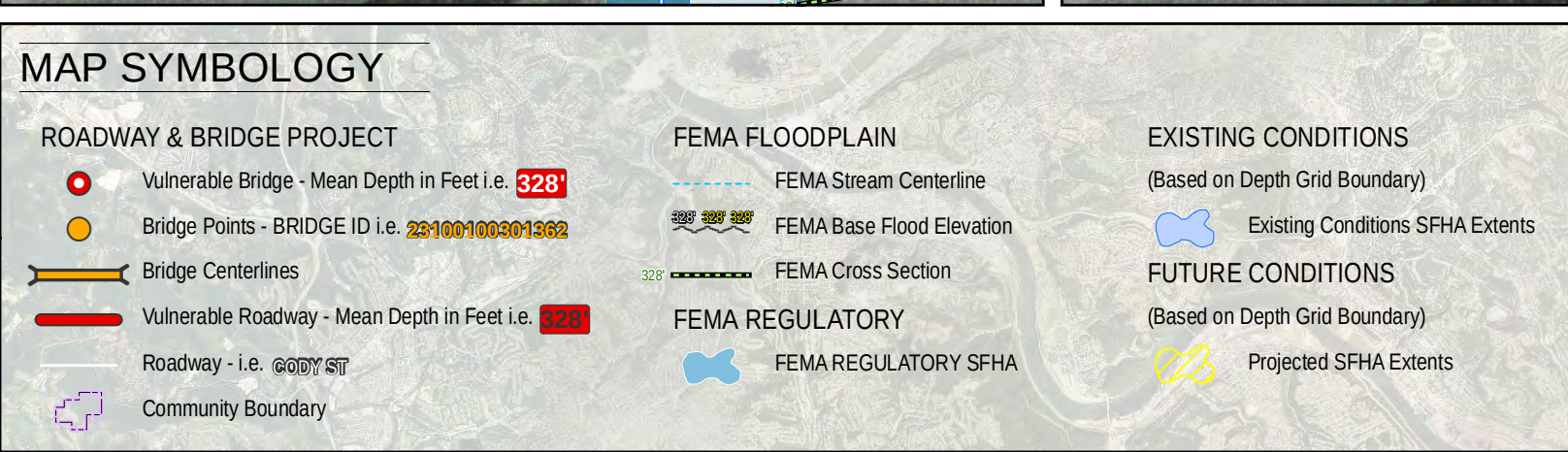
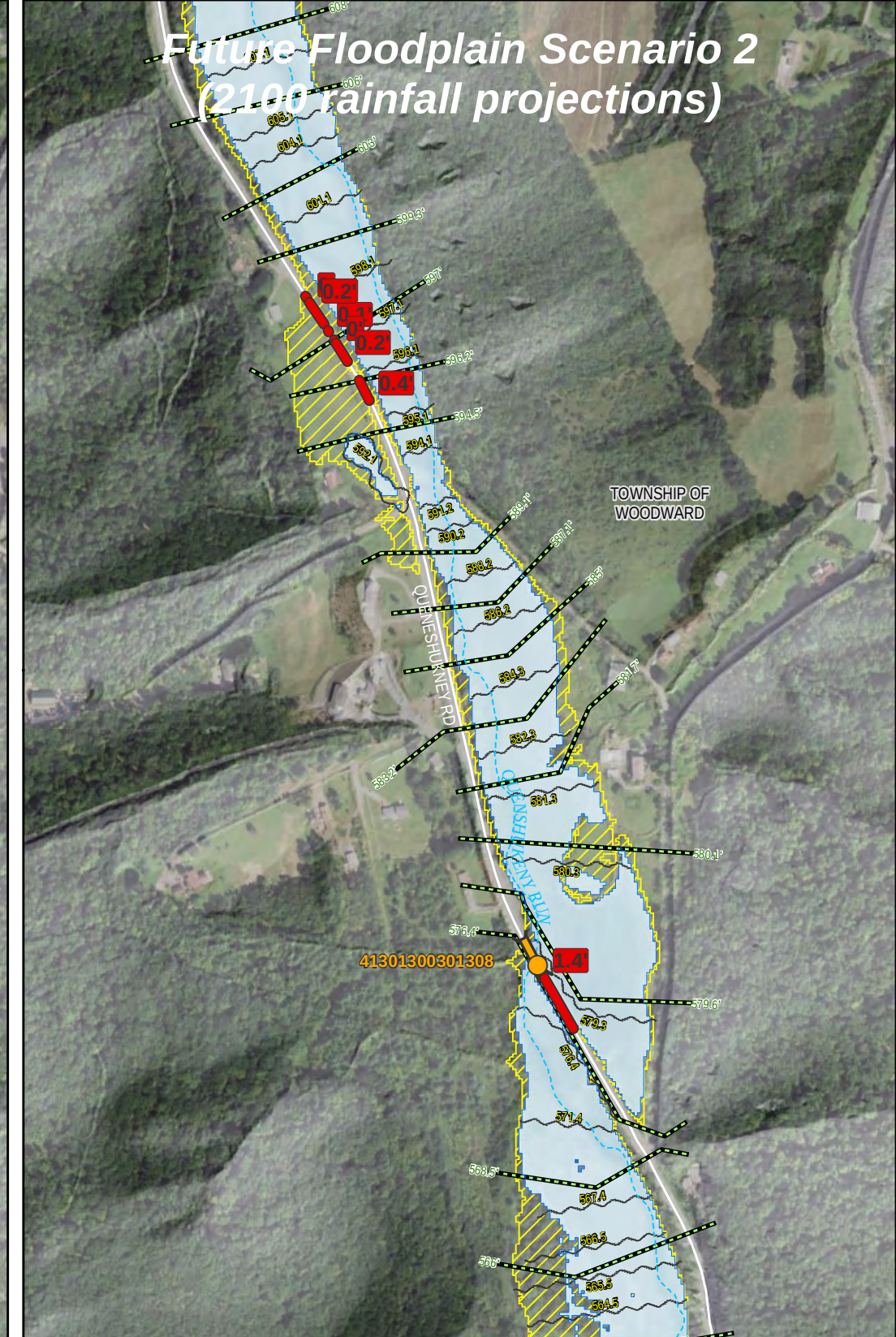
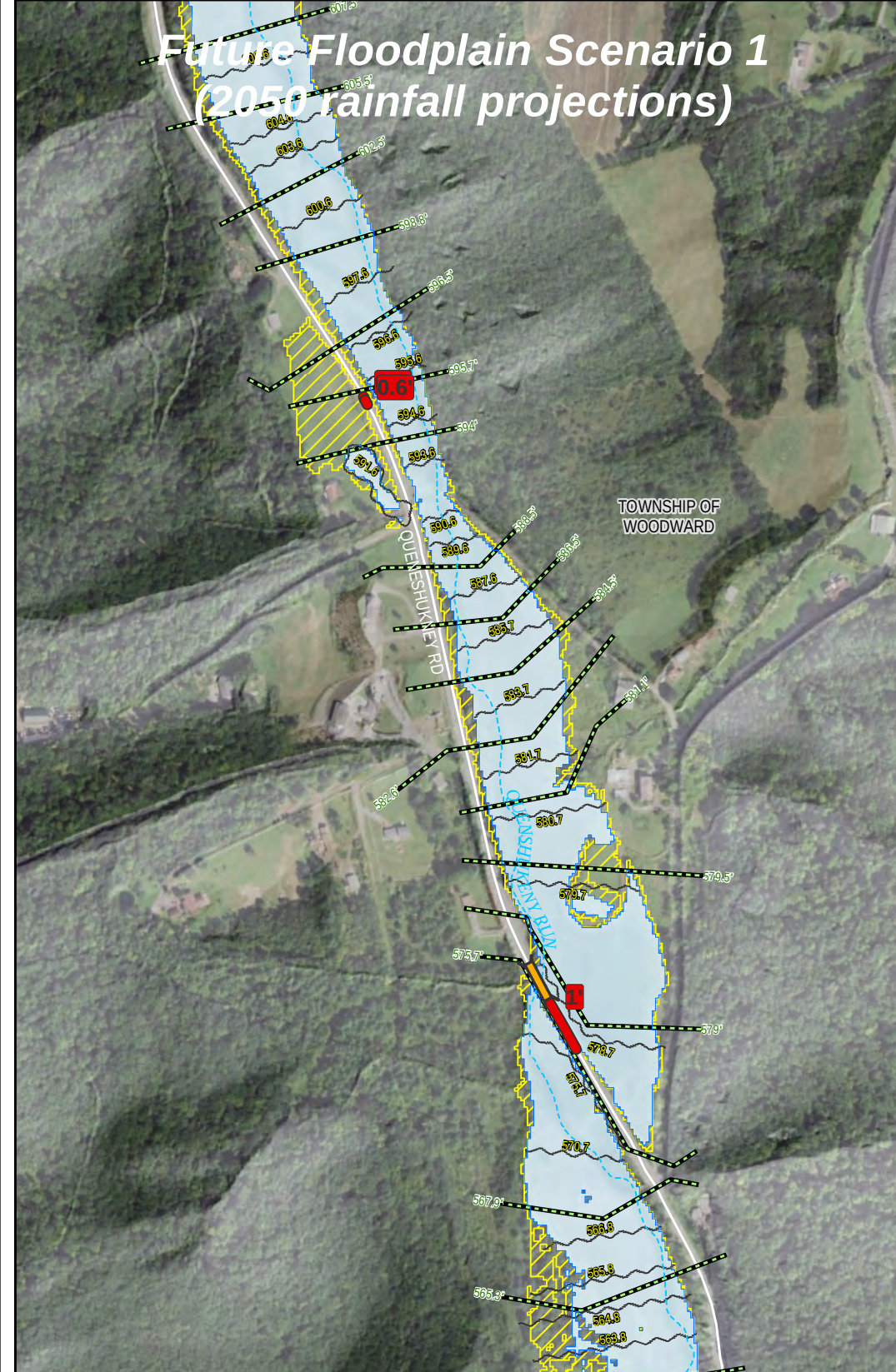
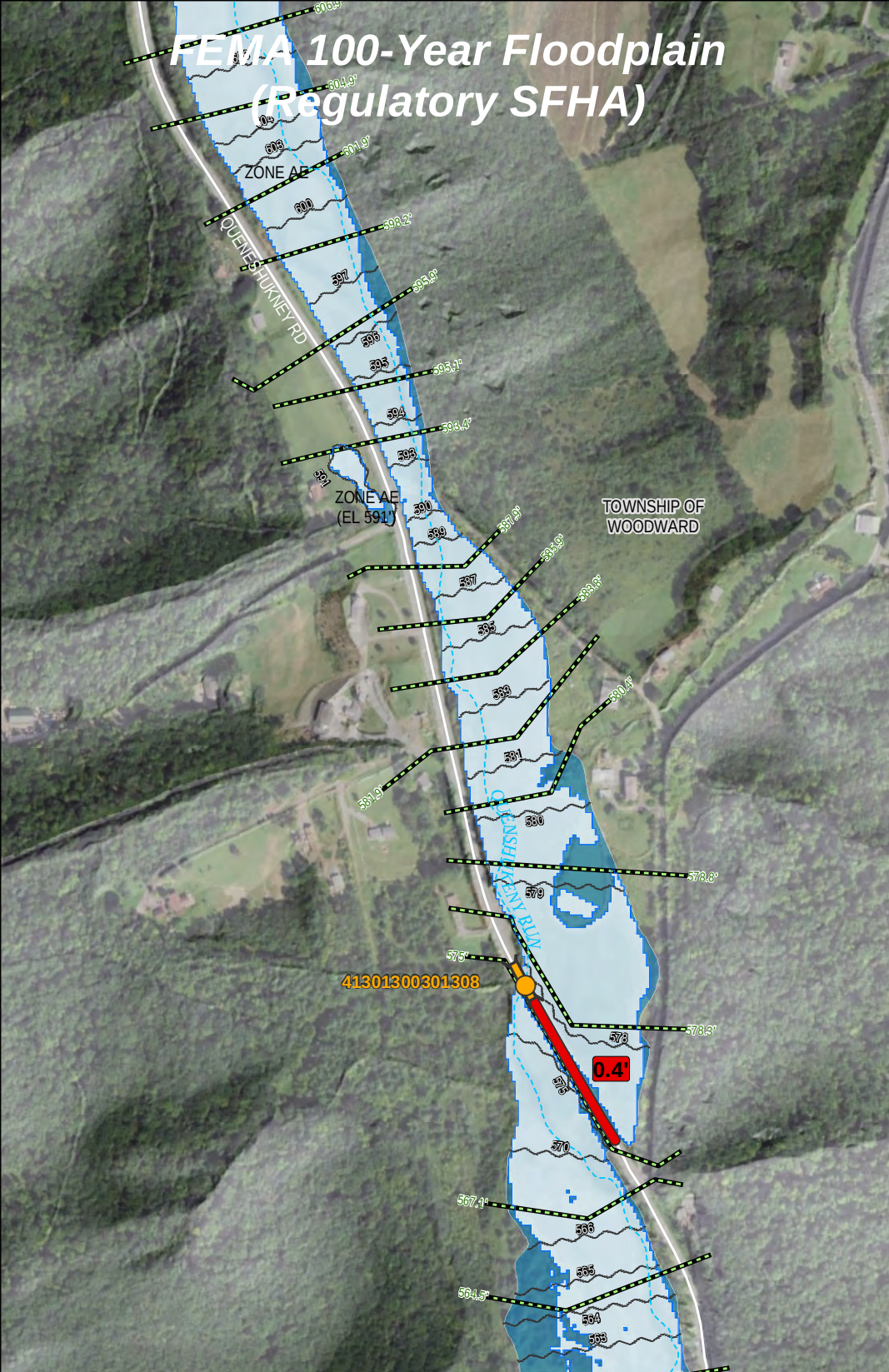
Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

Sheet 90 of 163

Michael Baker INTERNATIONAL

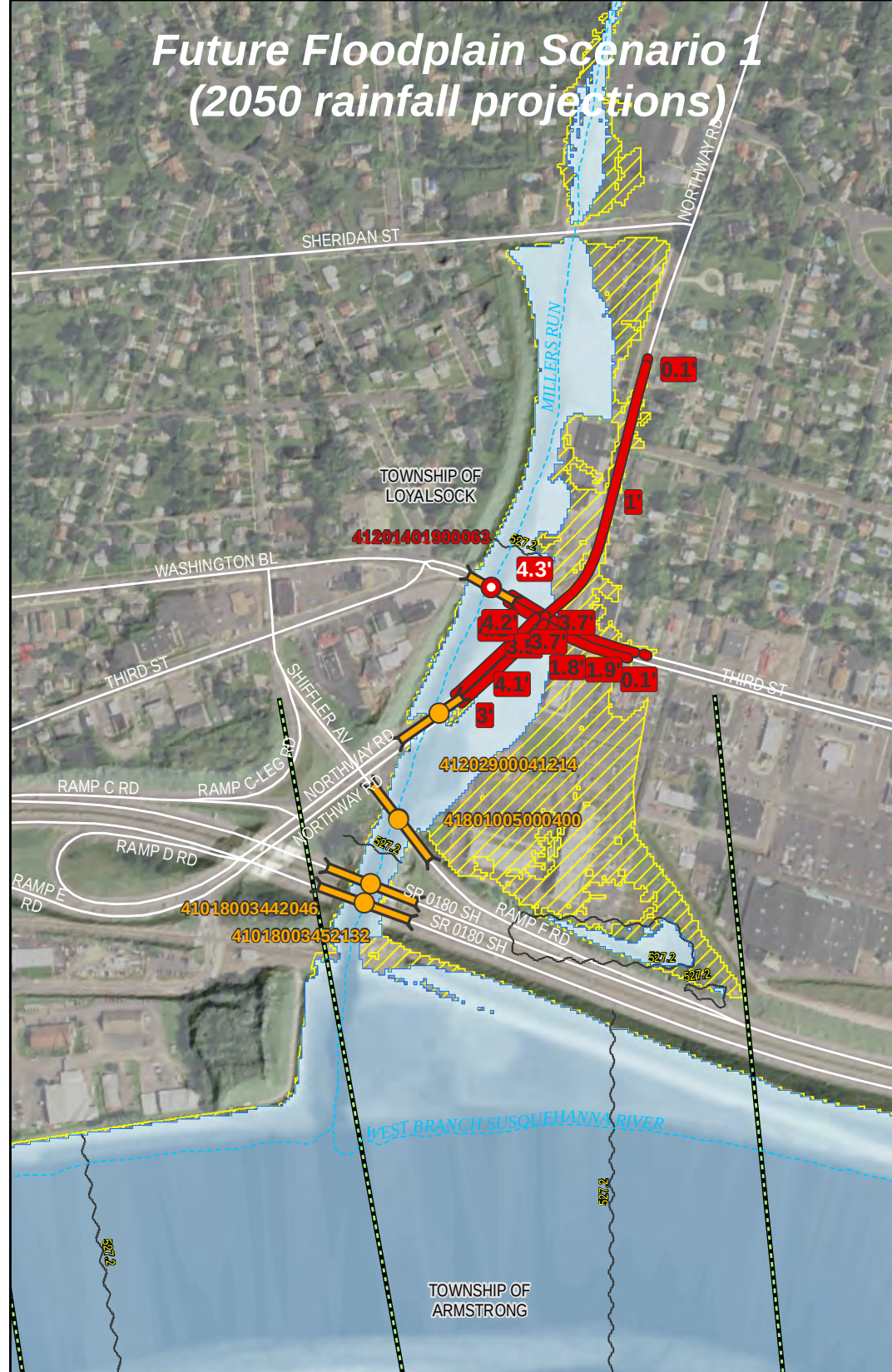
LOCATOR MAP



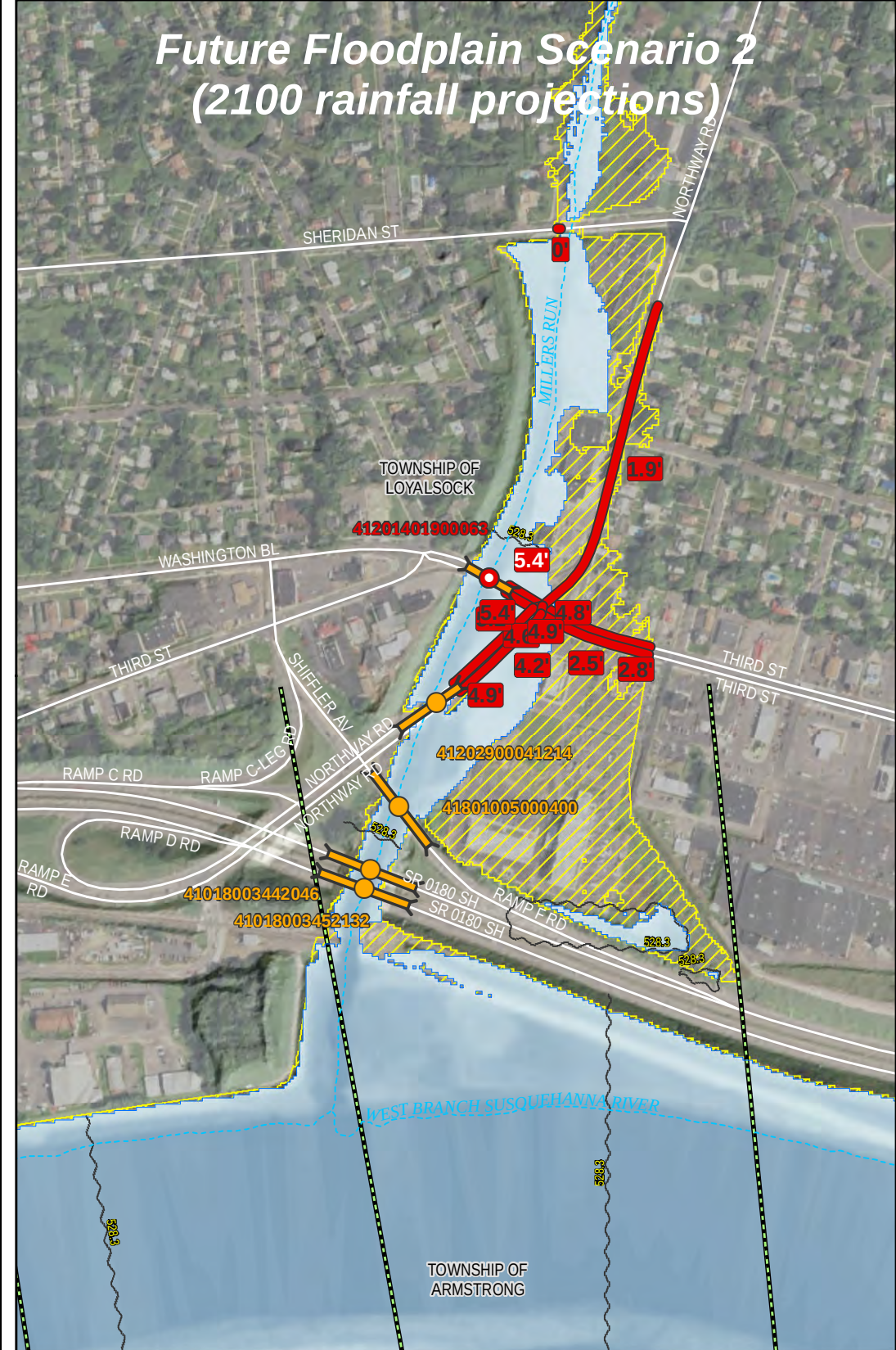
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT

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FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

- (Based on Depth Grid Boundary)
- Existing Conditions SFHA Extents

FUTURE CONDITIONS

- (Based on Depth Grid Boundary)
- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

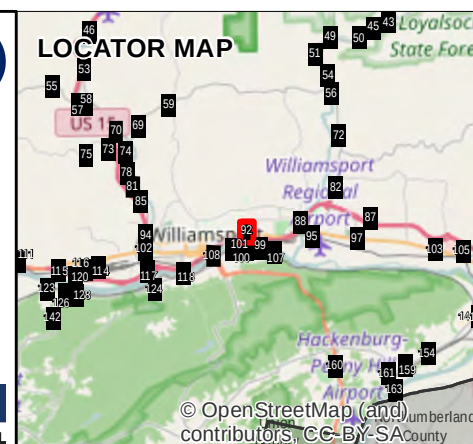
Sheet 92 of 163

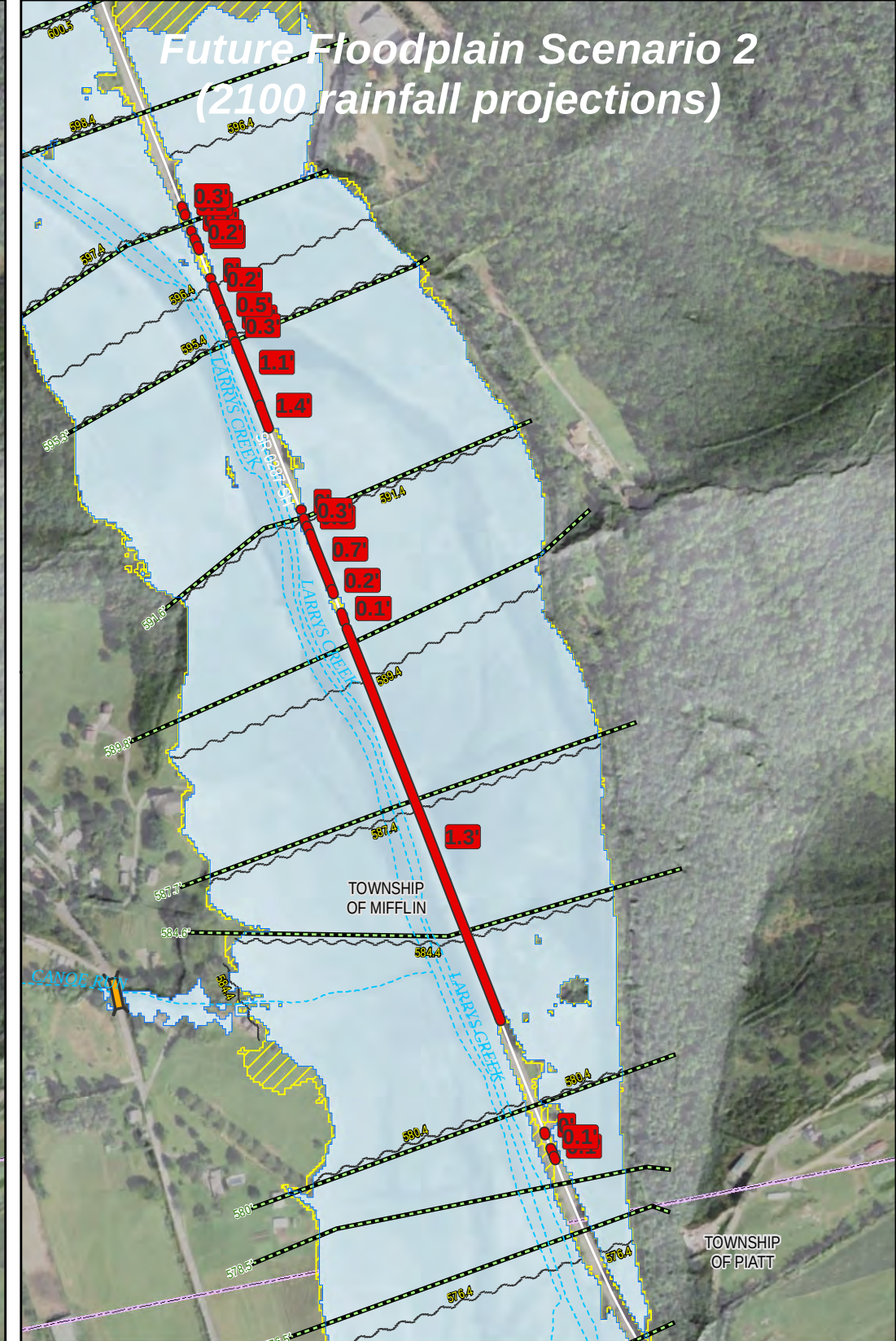
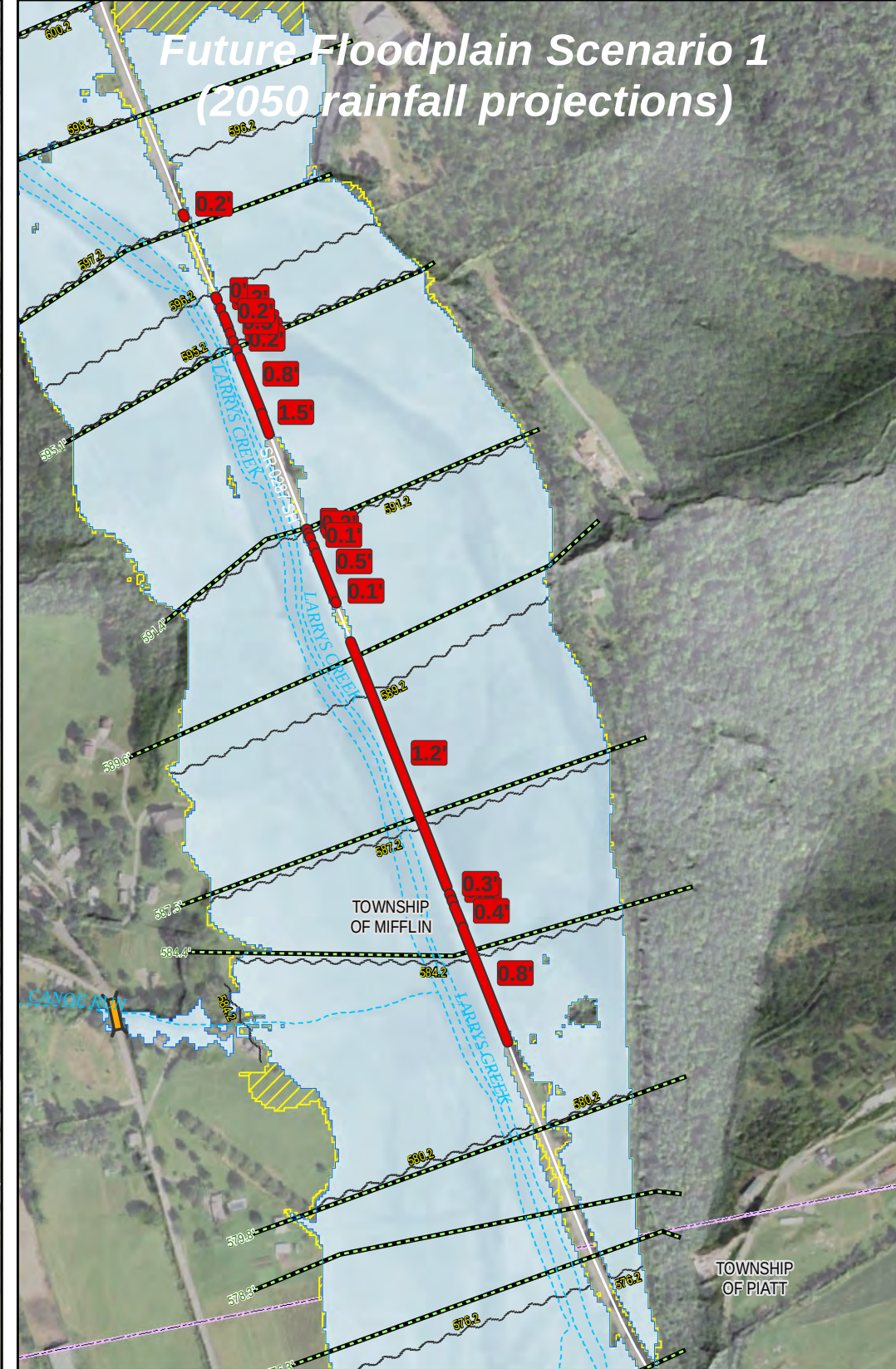
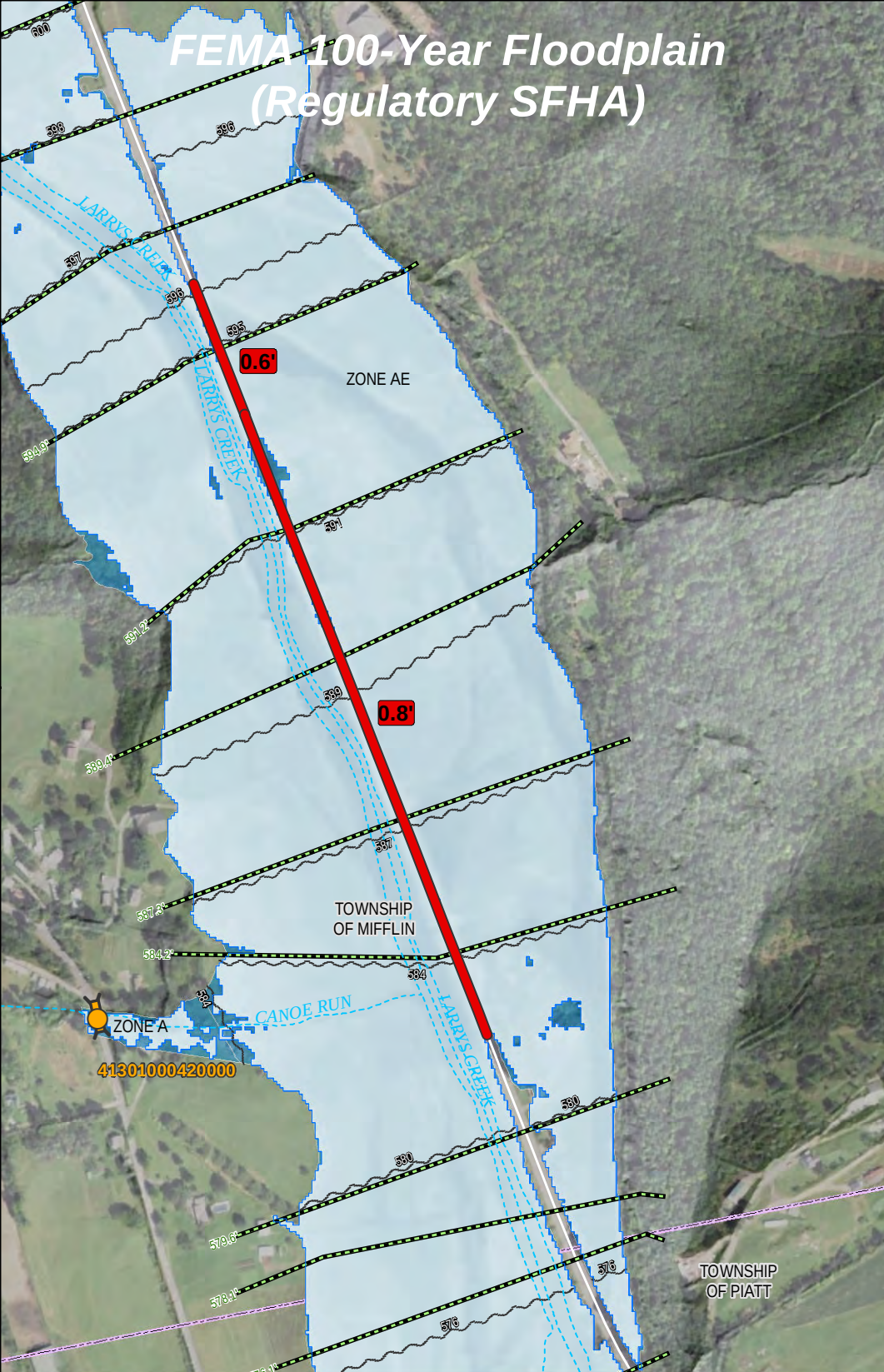


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

Michael Baker
INTERNATIONAL





MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
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Community Boundary		

November 22, 2016

Flood Vulnerability Analysis

Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

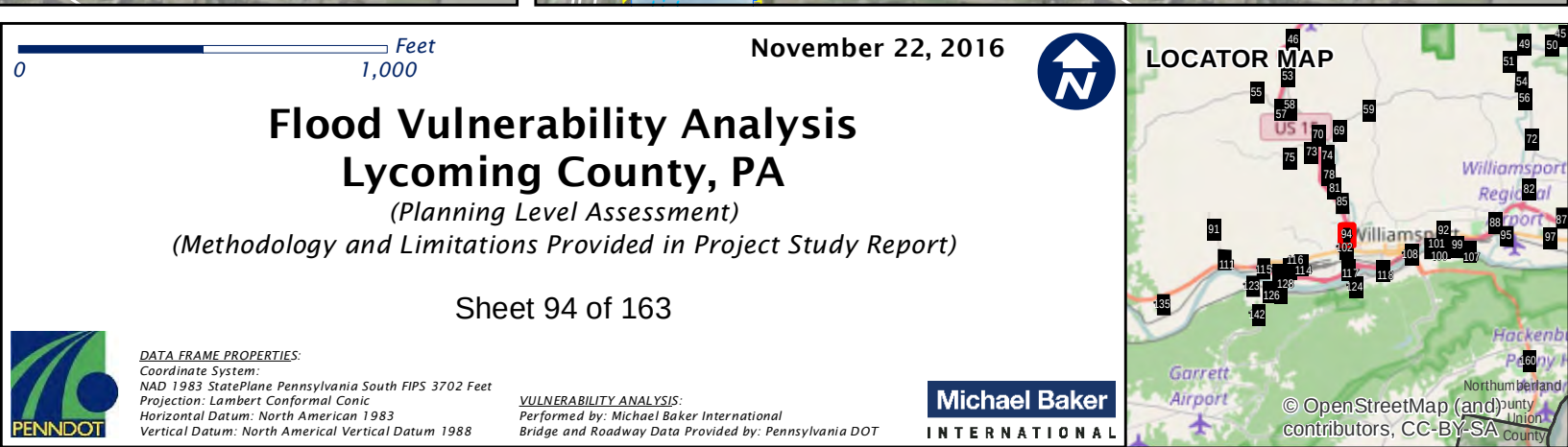
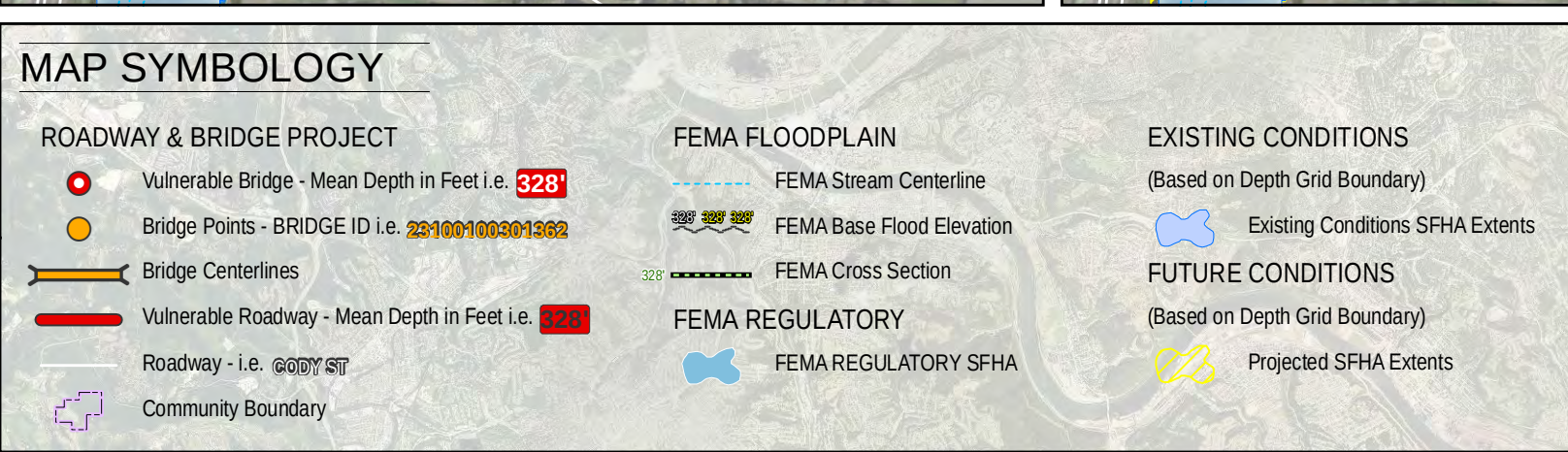
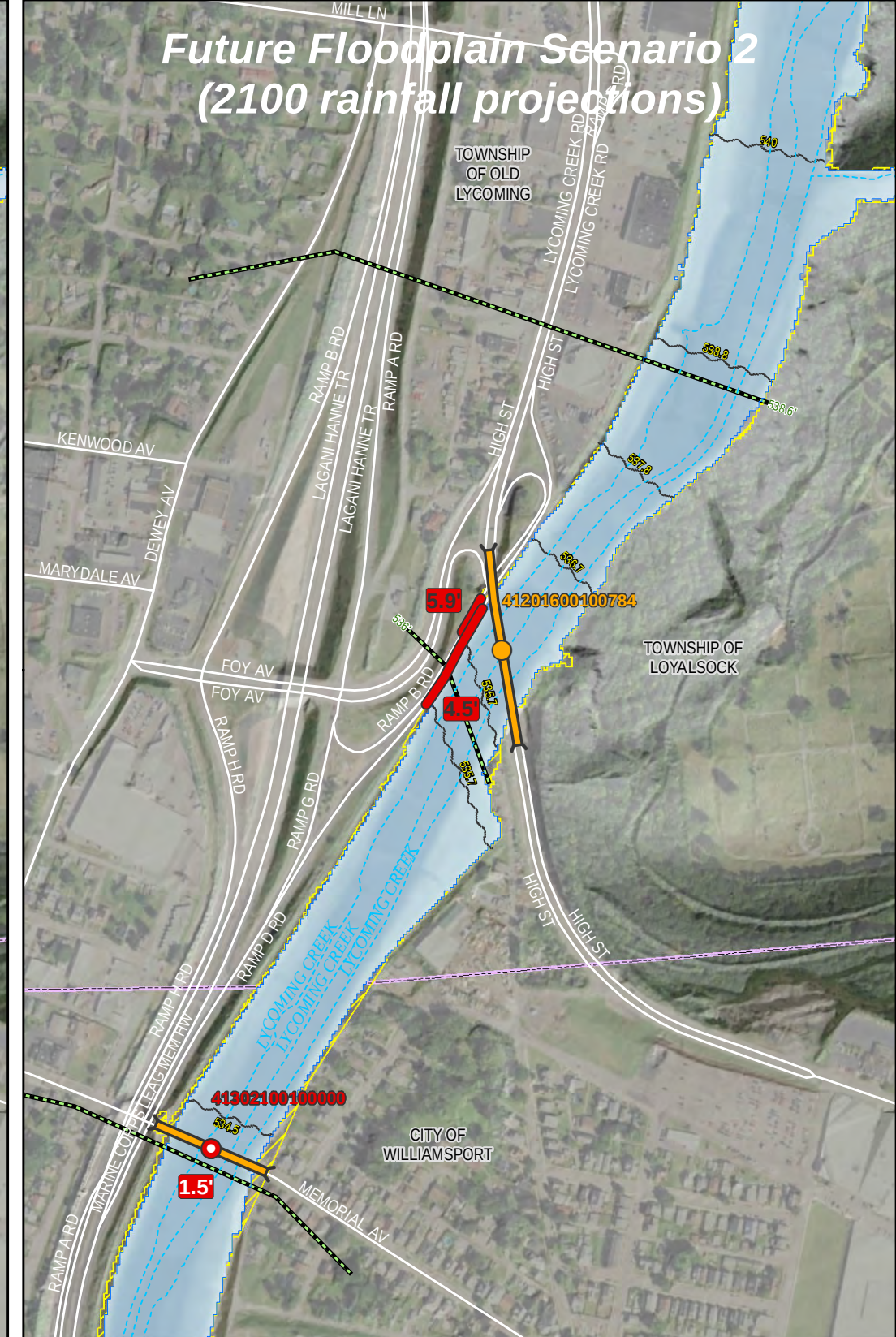
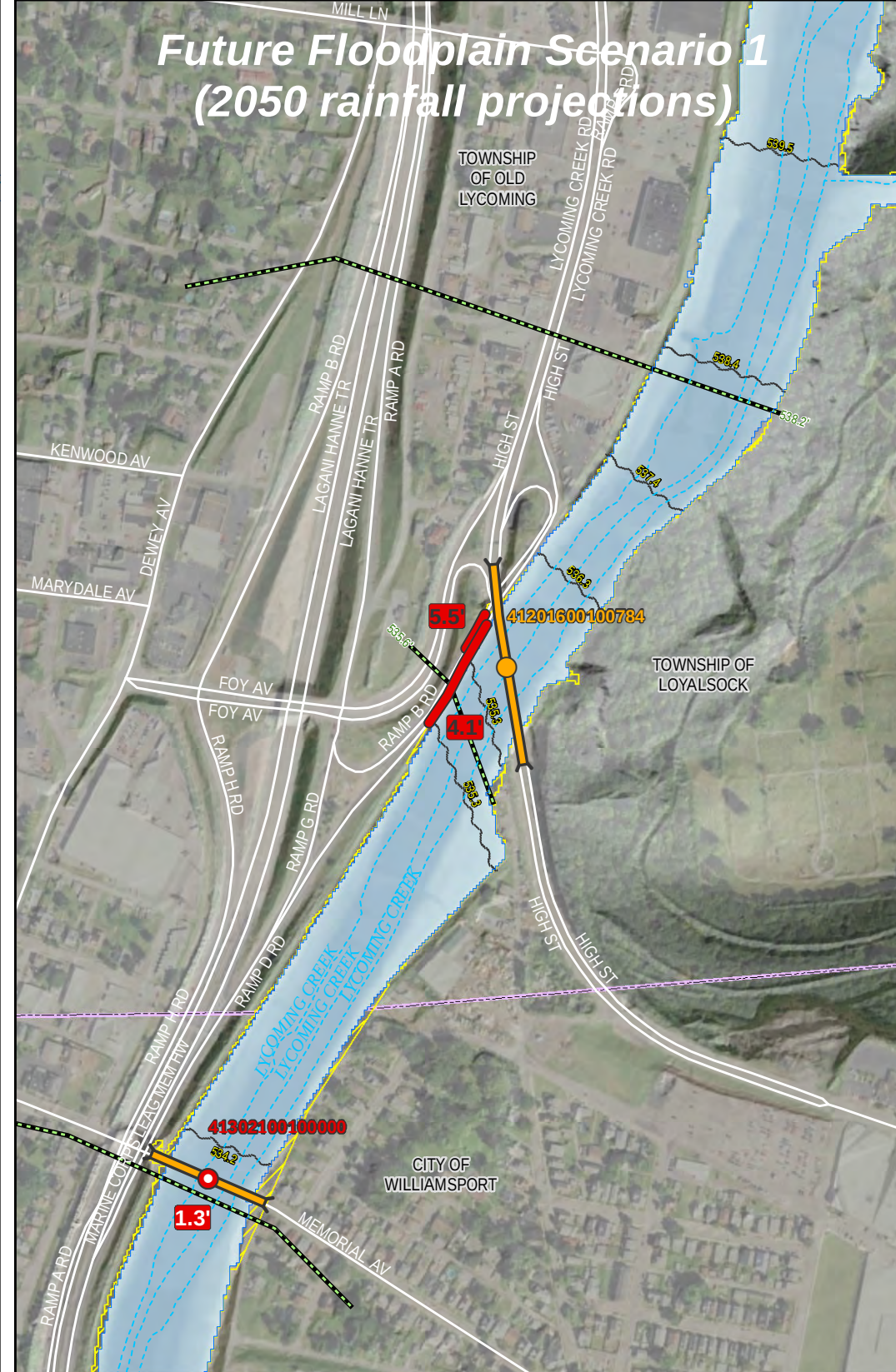
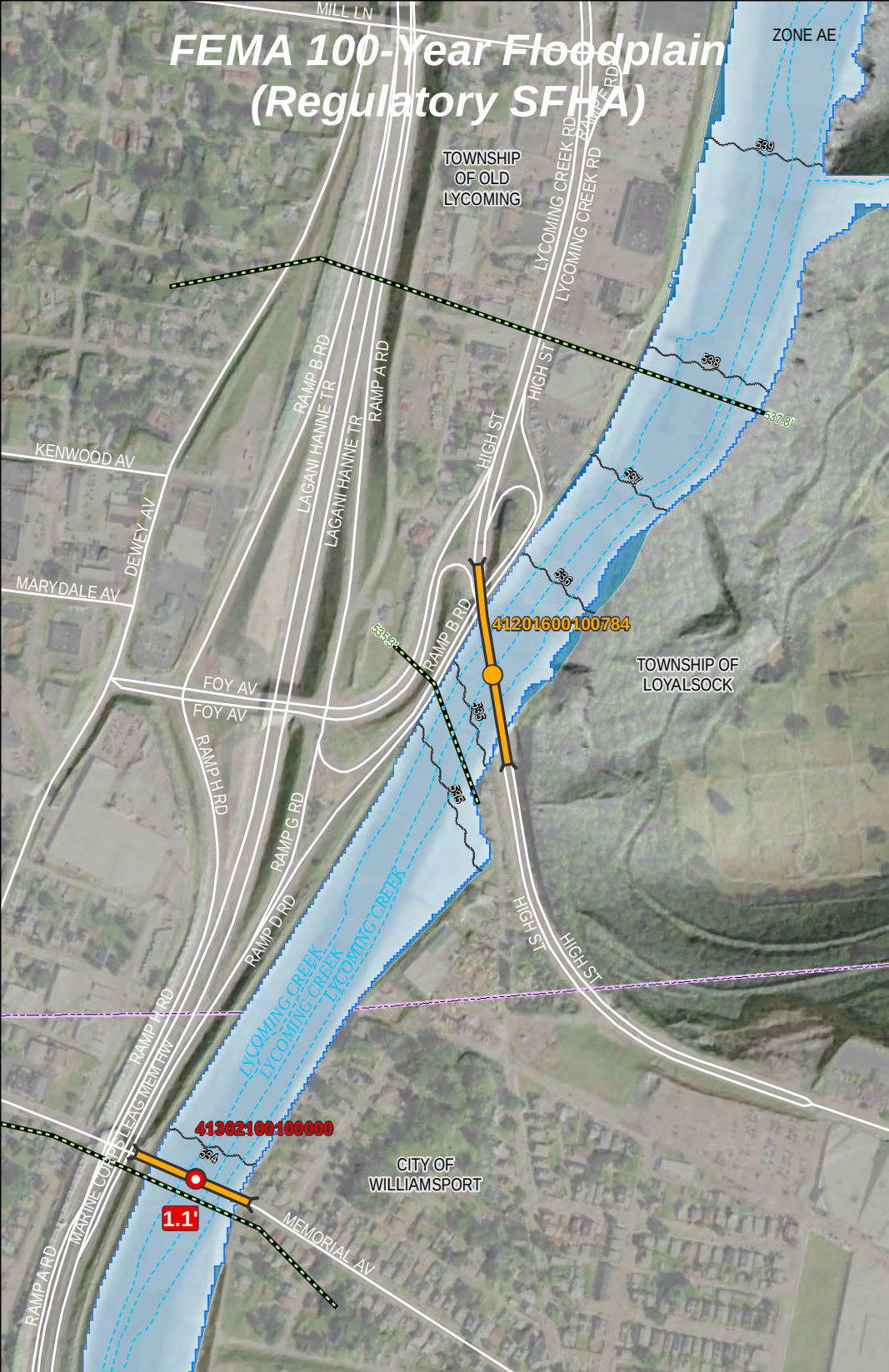
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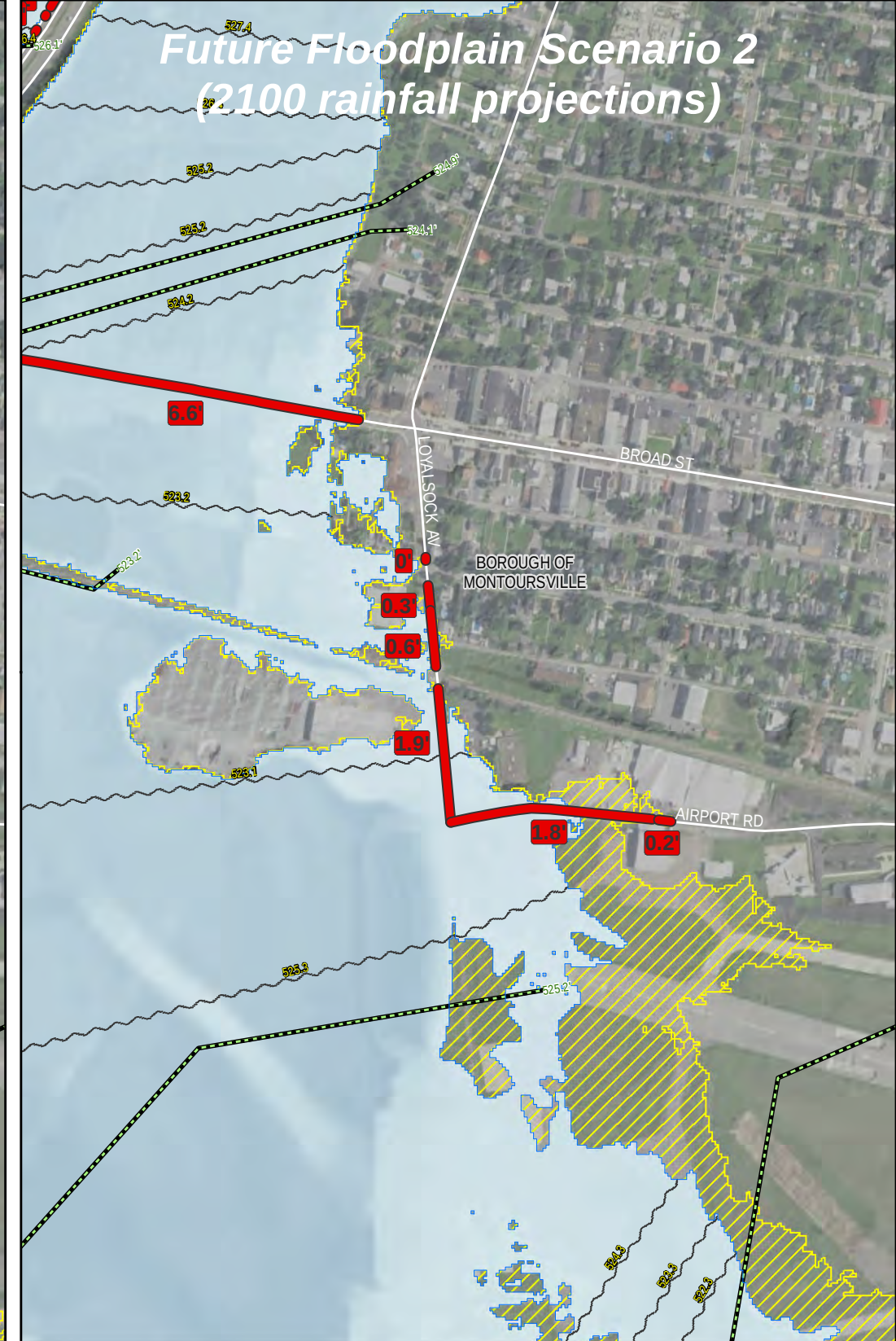
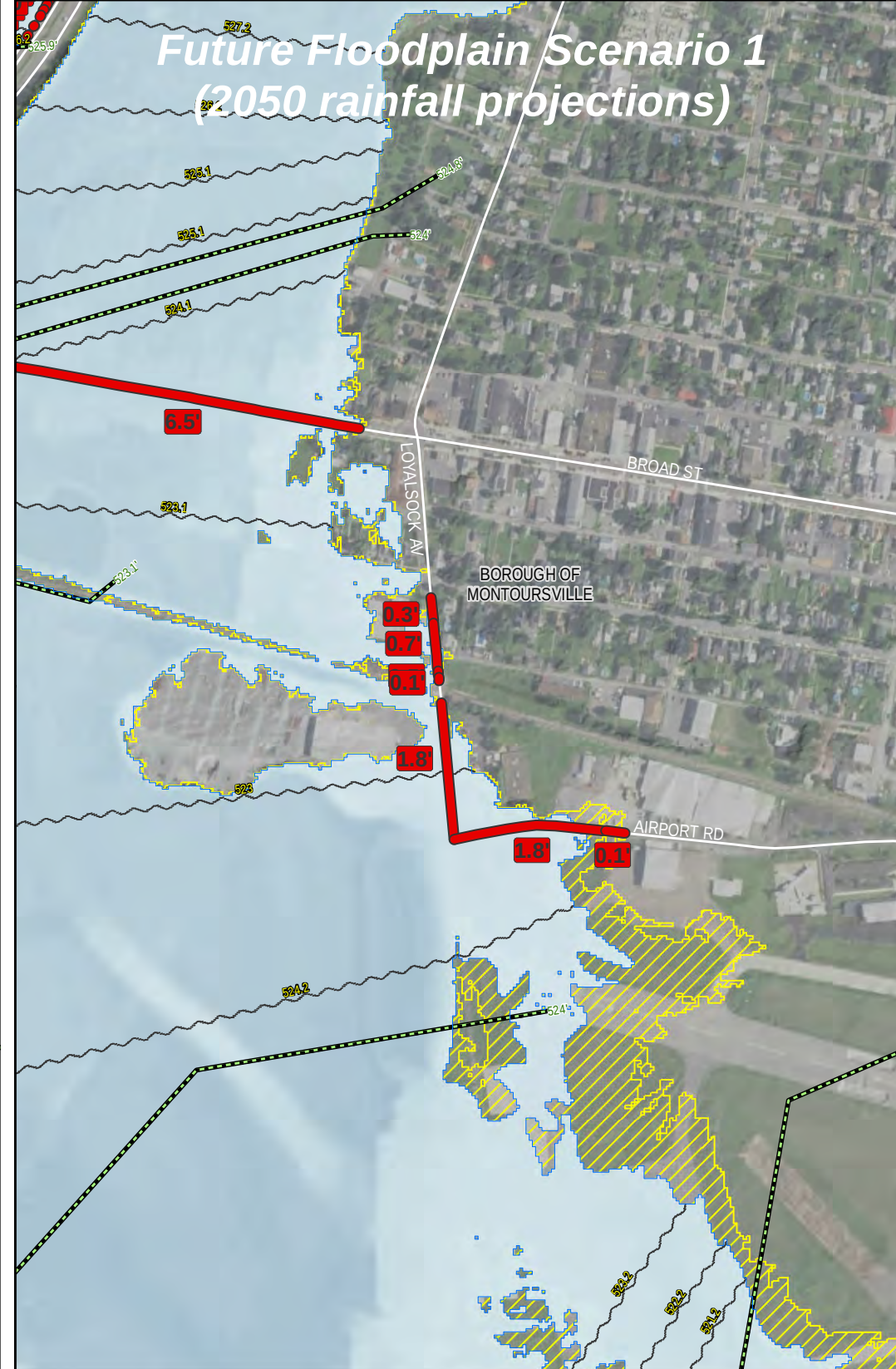
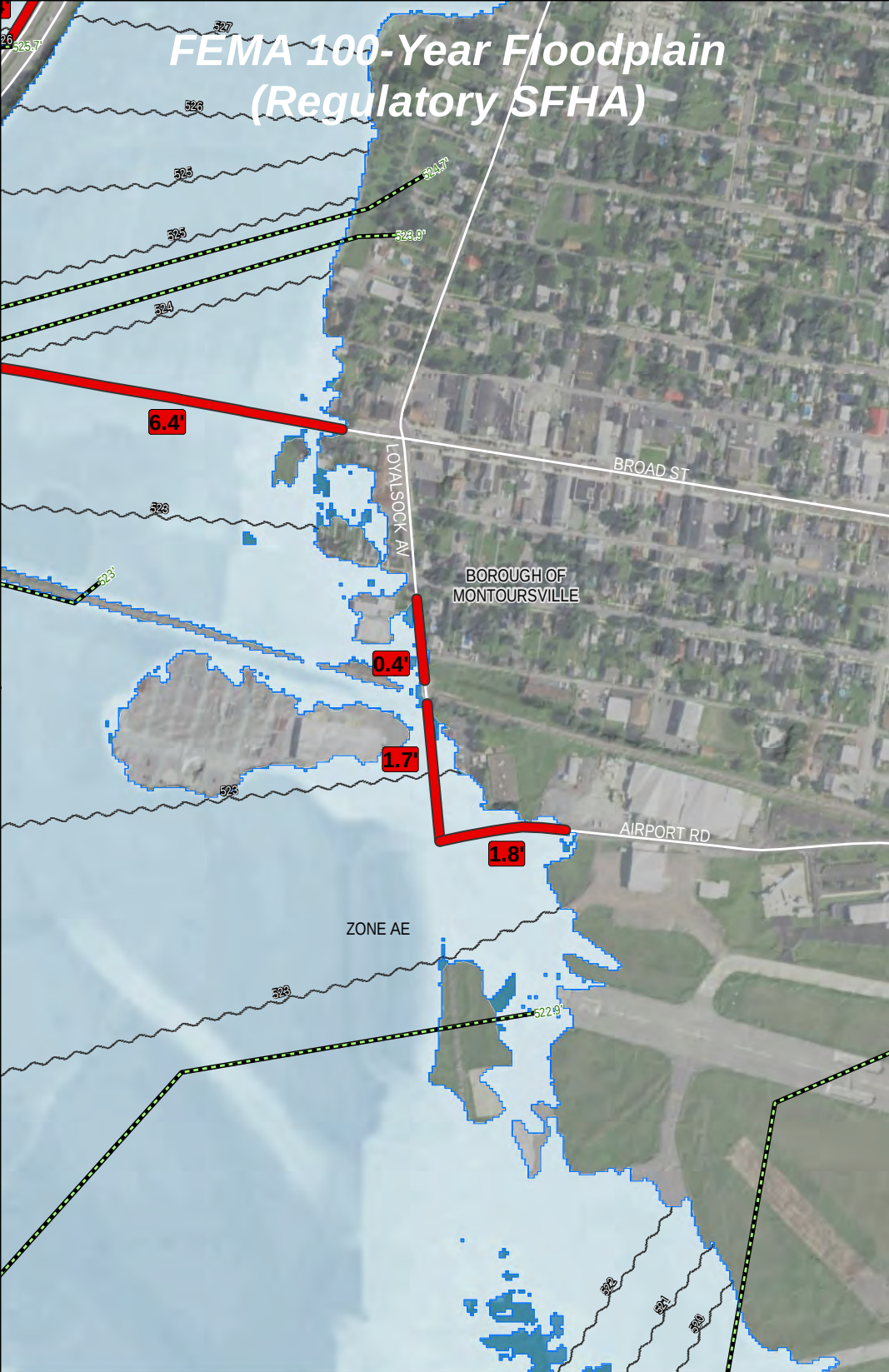
Michael Baker INTERNATIONAL

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT





MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

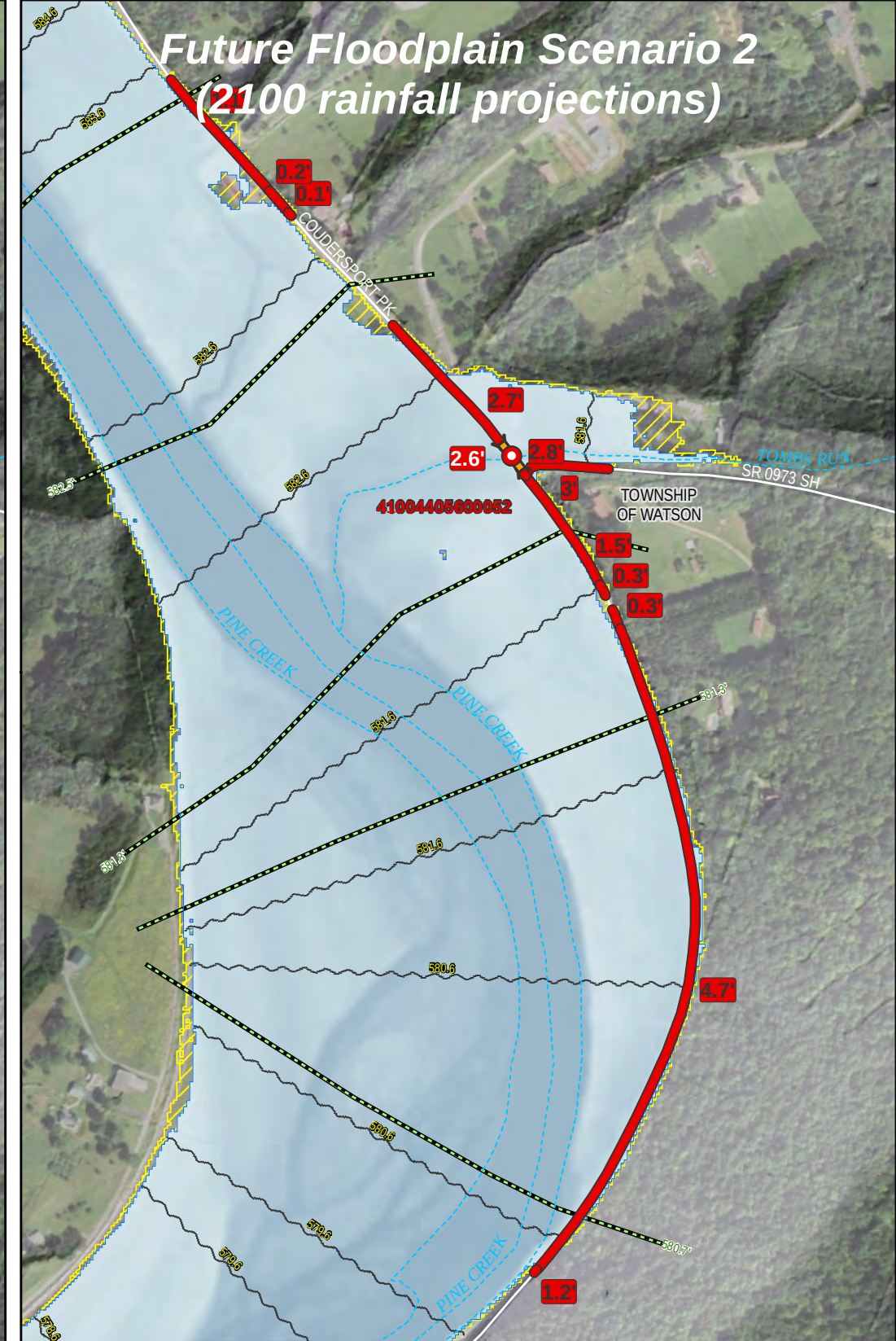
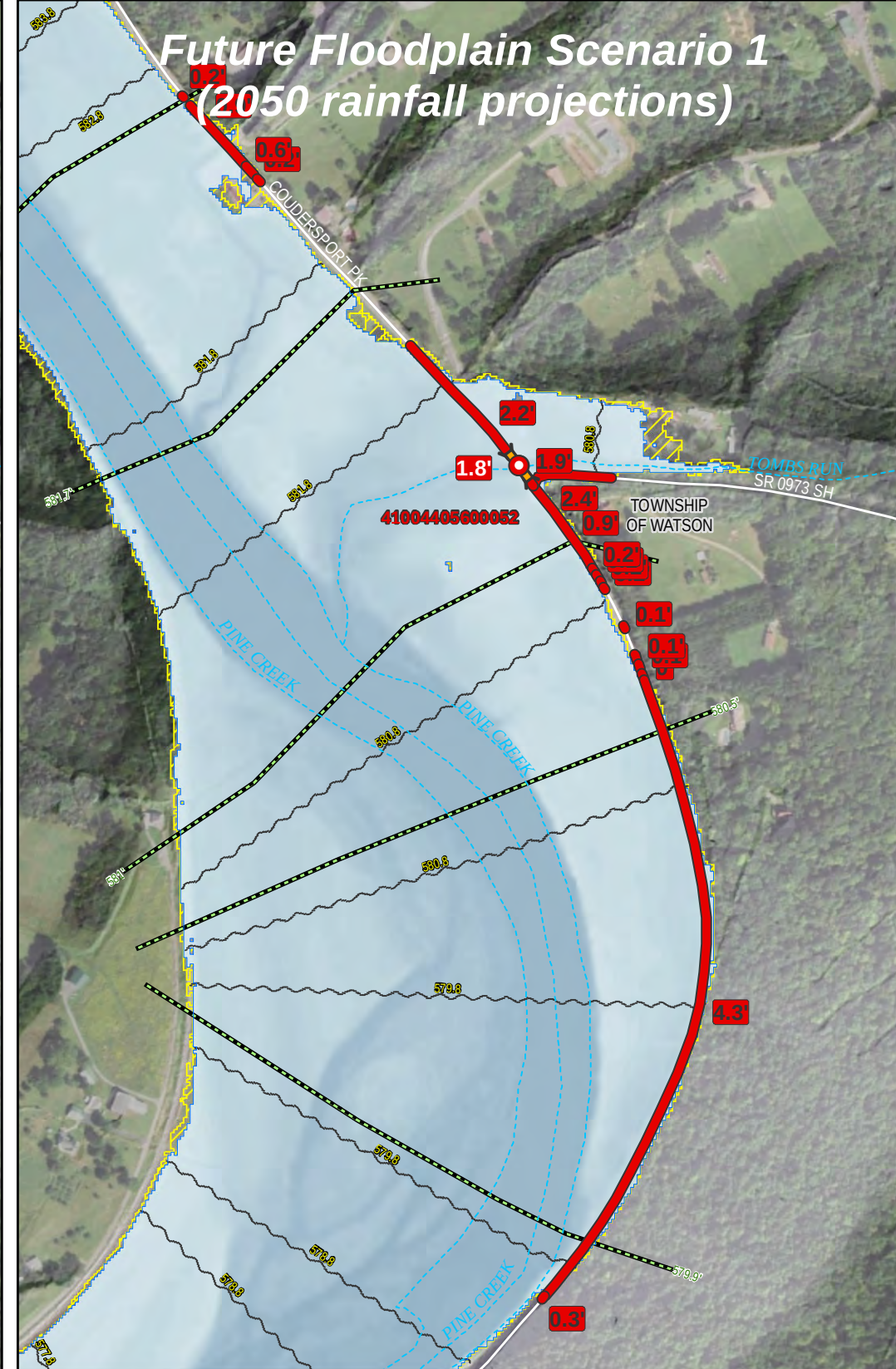
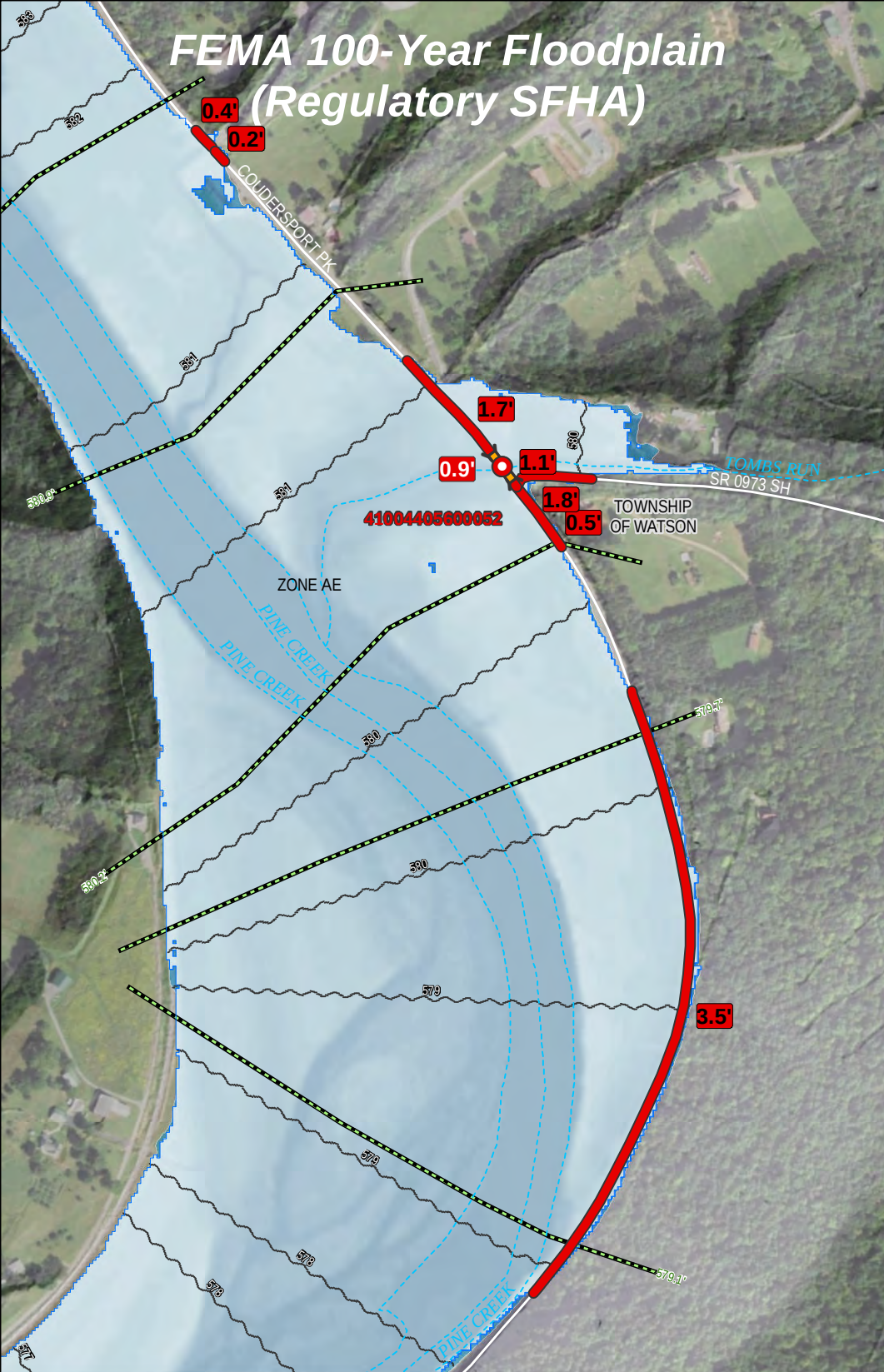
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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VULNERABILITY ANALYSIS:
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LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

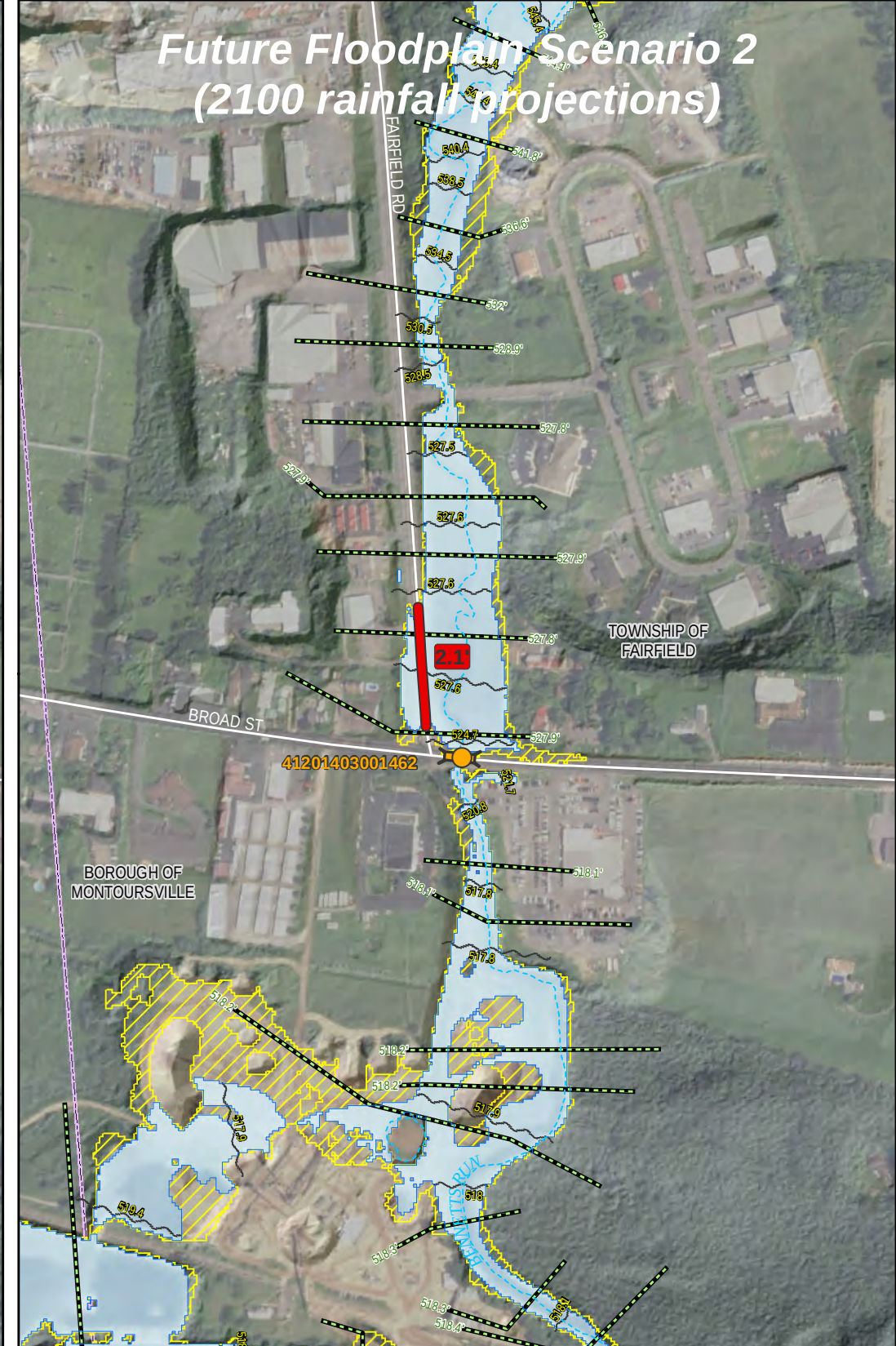
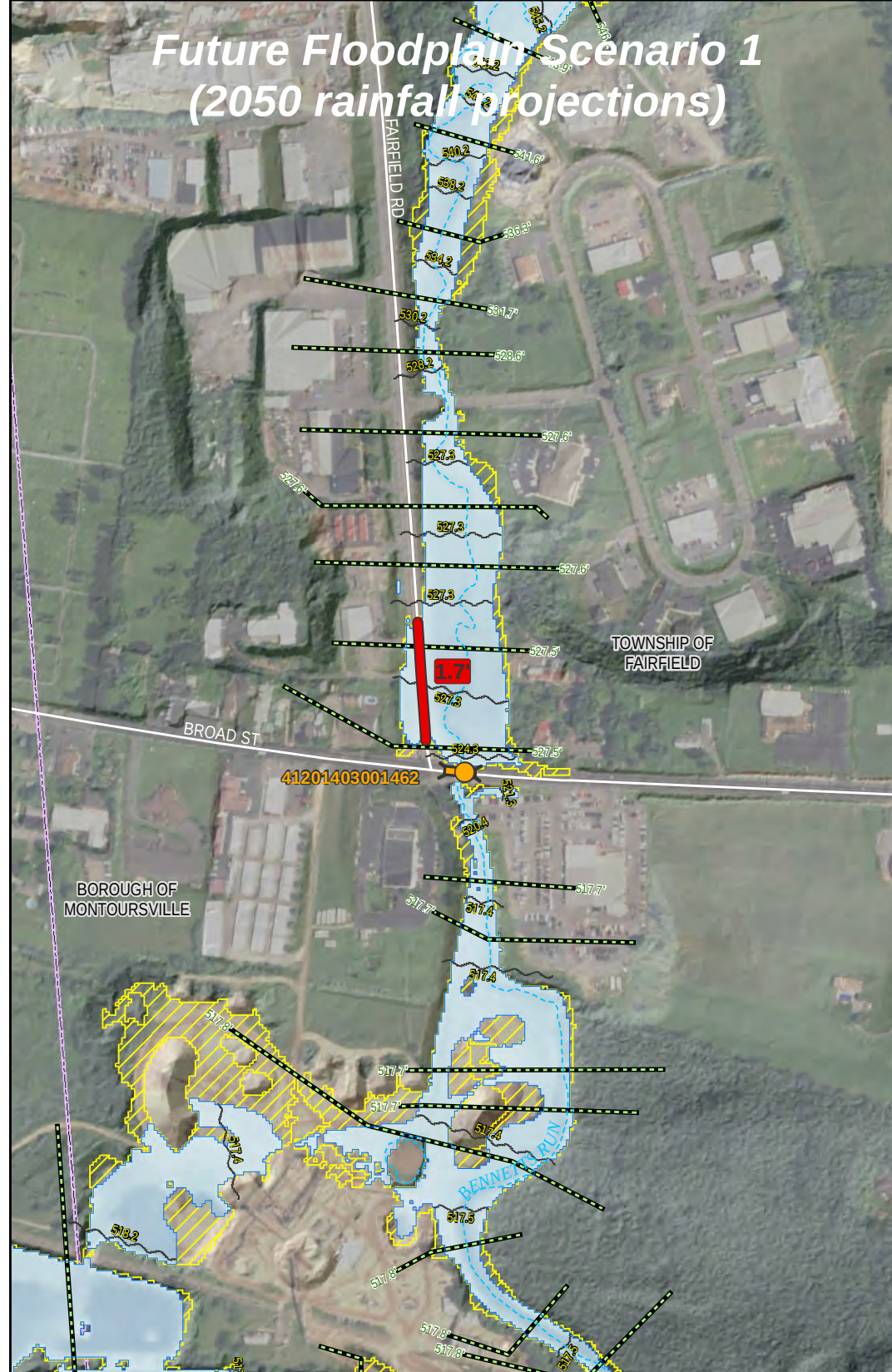
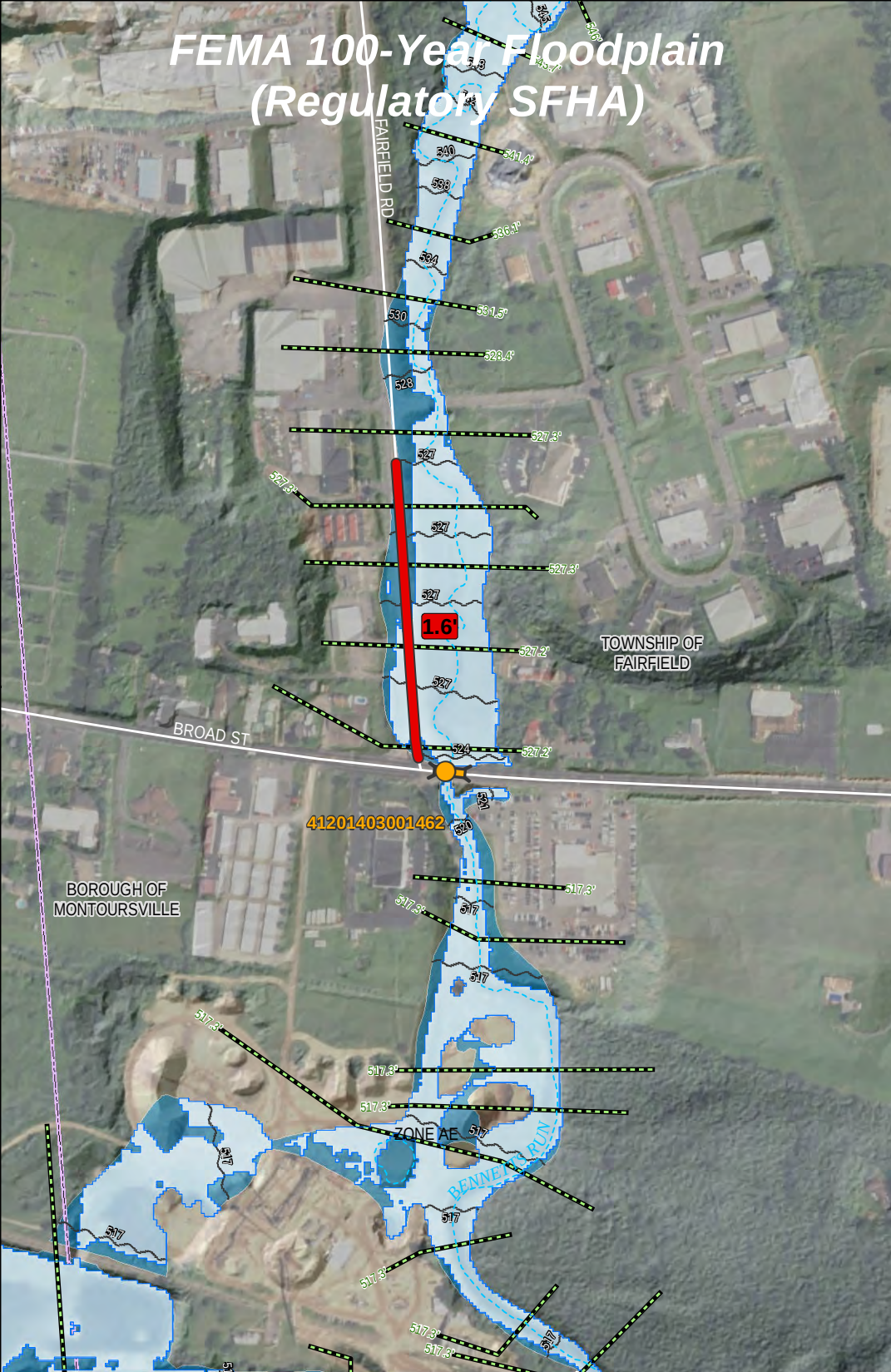
Sheet 96 of 163

Michael Baker INTERNATIONAL

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
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FEMA FLOODPLAIN

- FEMA Stream Centerline
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- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

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November 22, 2016

Flood Vulnerability Analysis

Lycoming County, PA

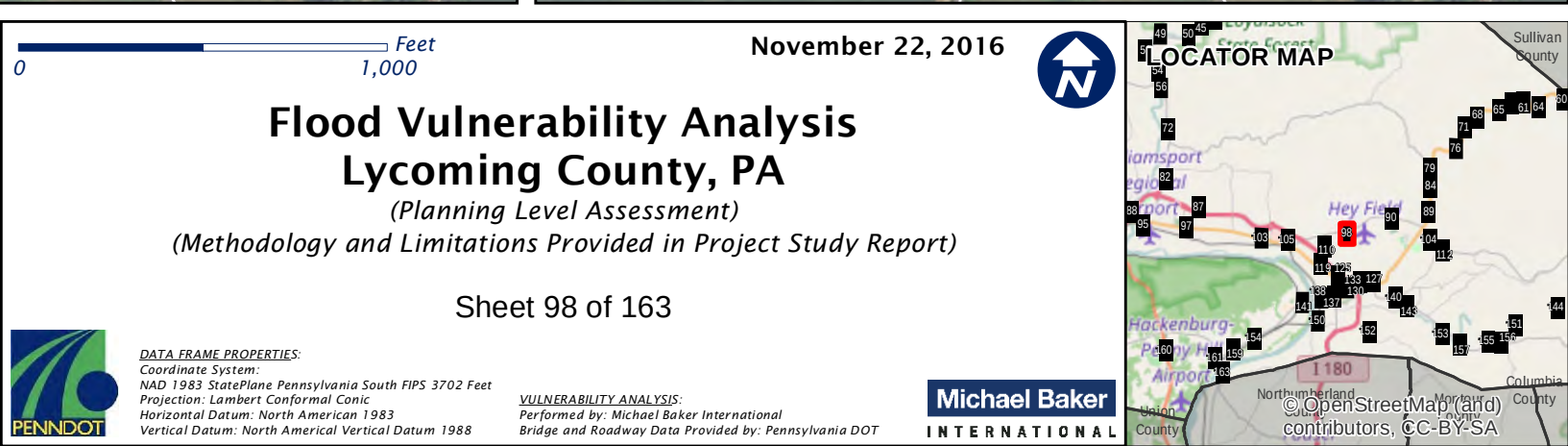
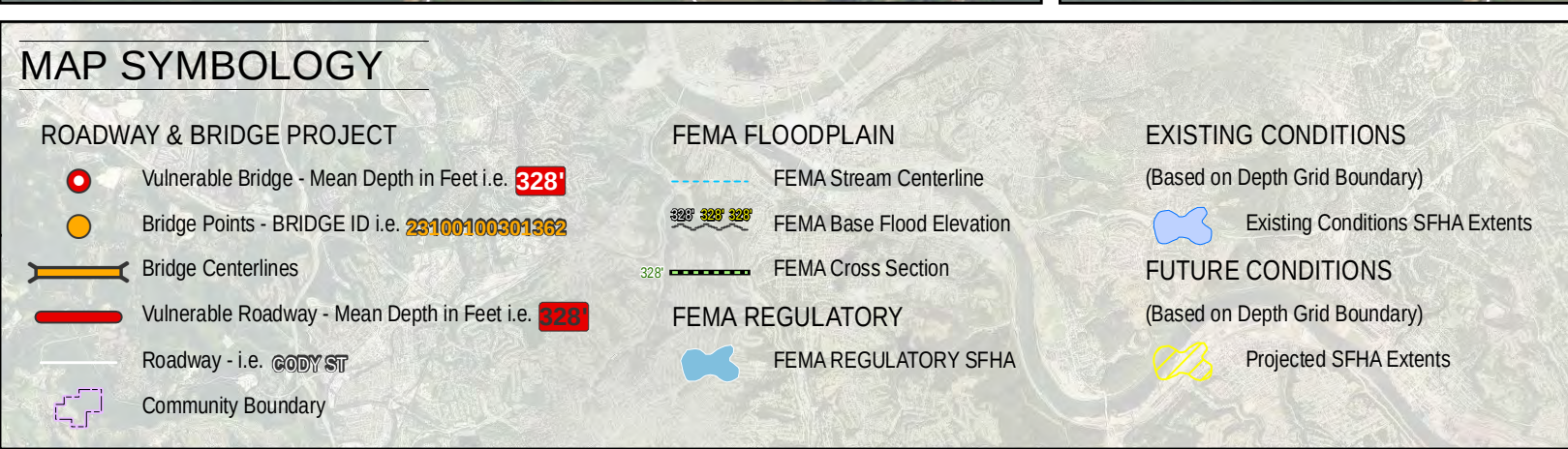
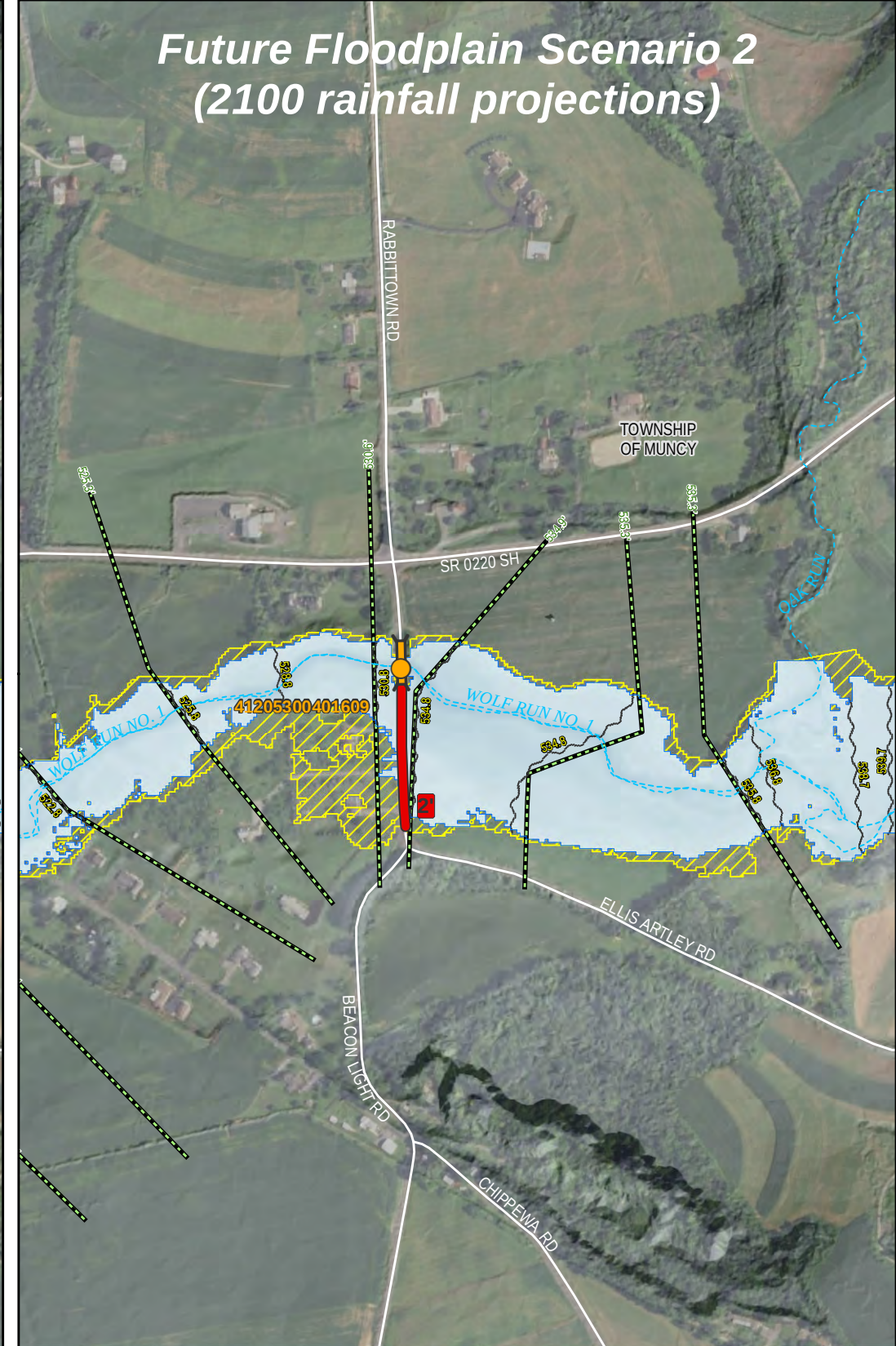
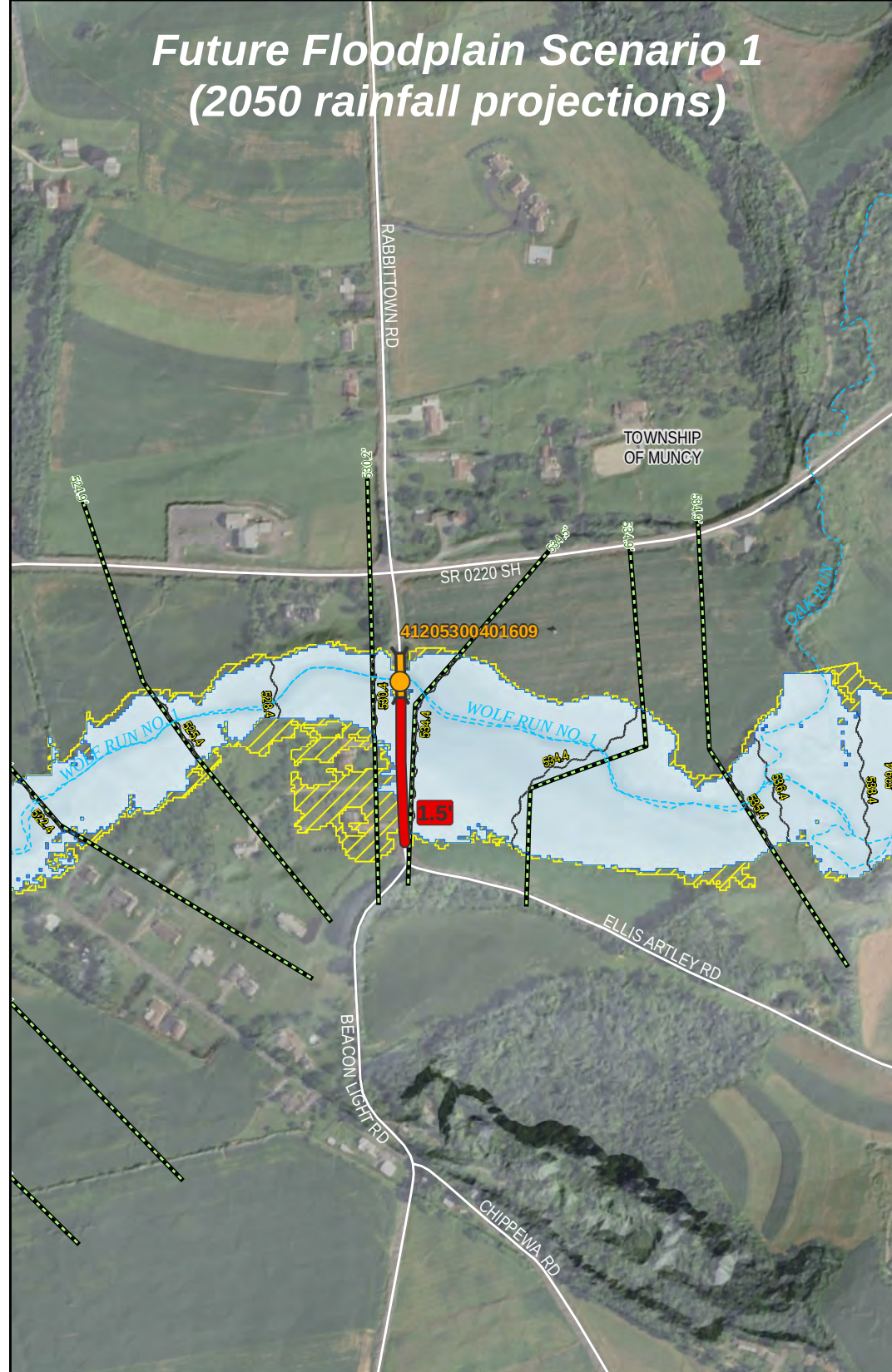
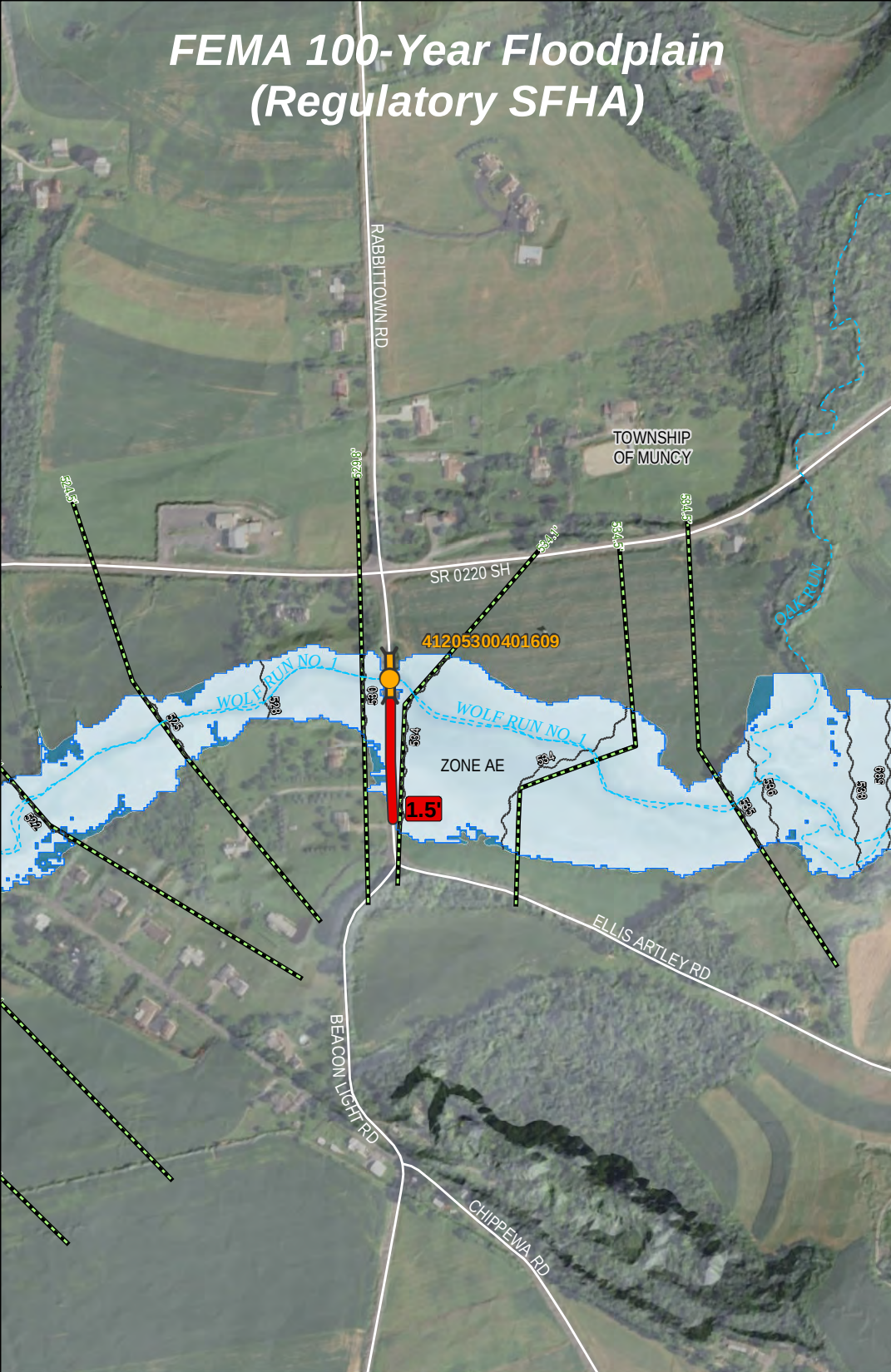
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(Methodology and Limitations Provided in Project Study Report)

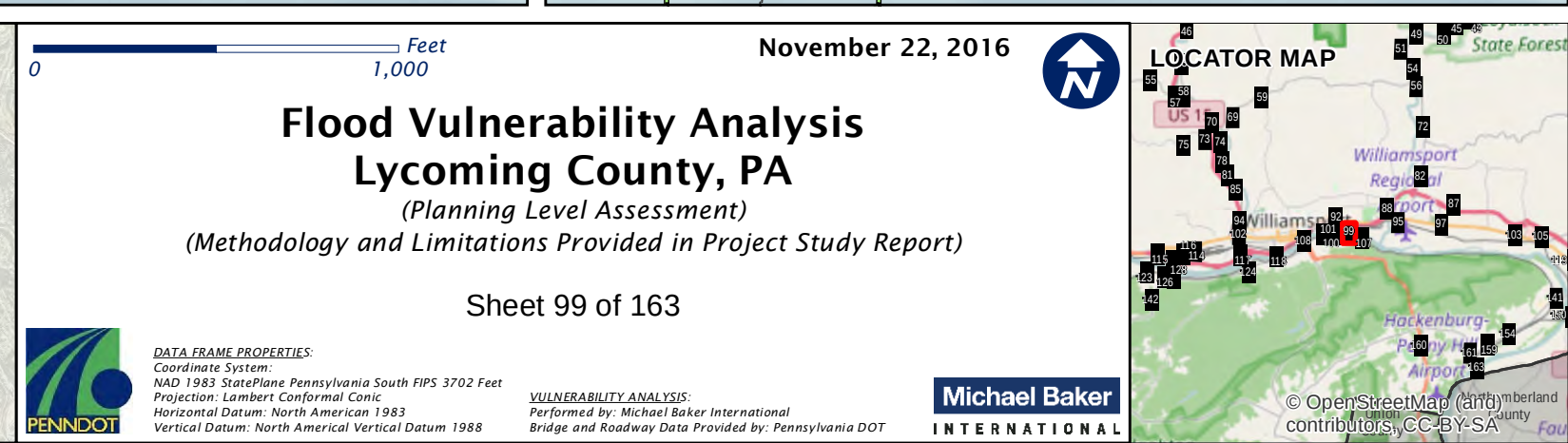
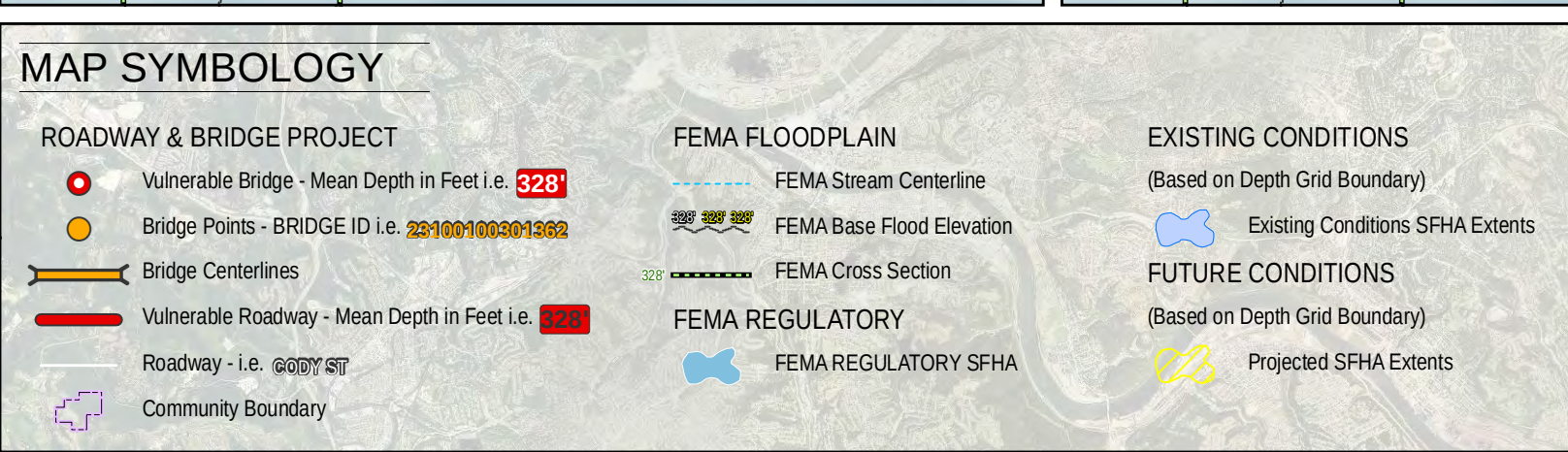
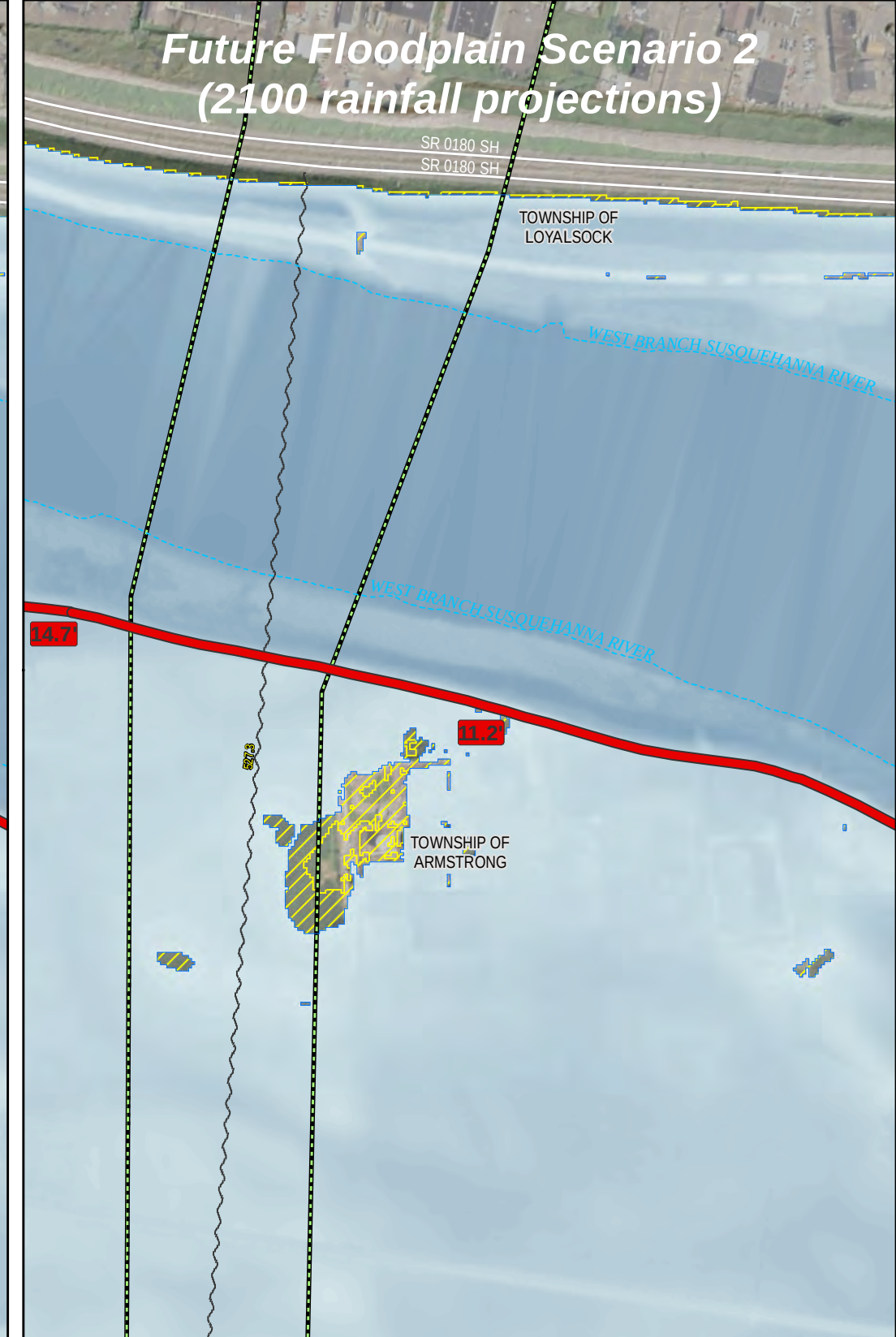
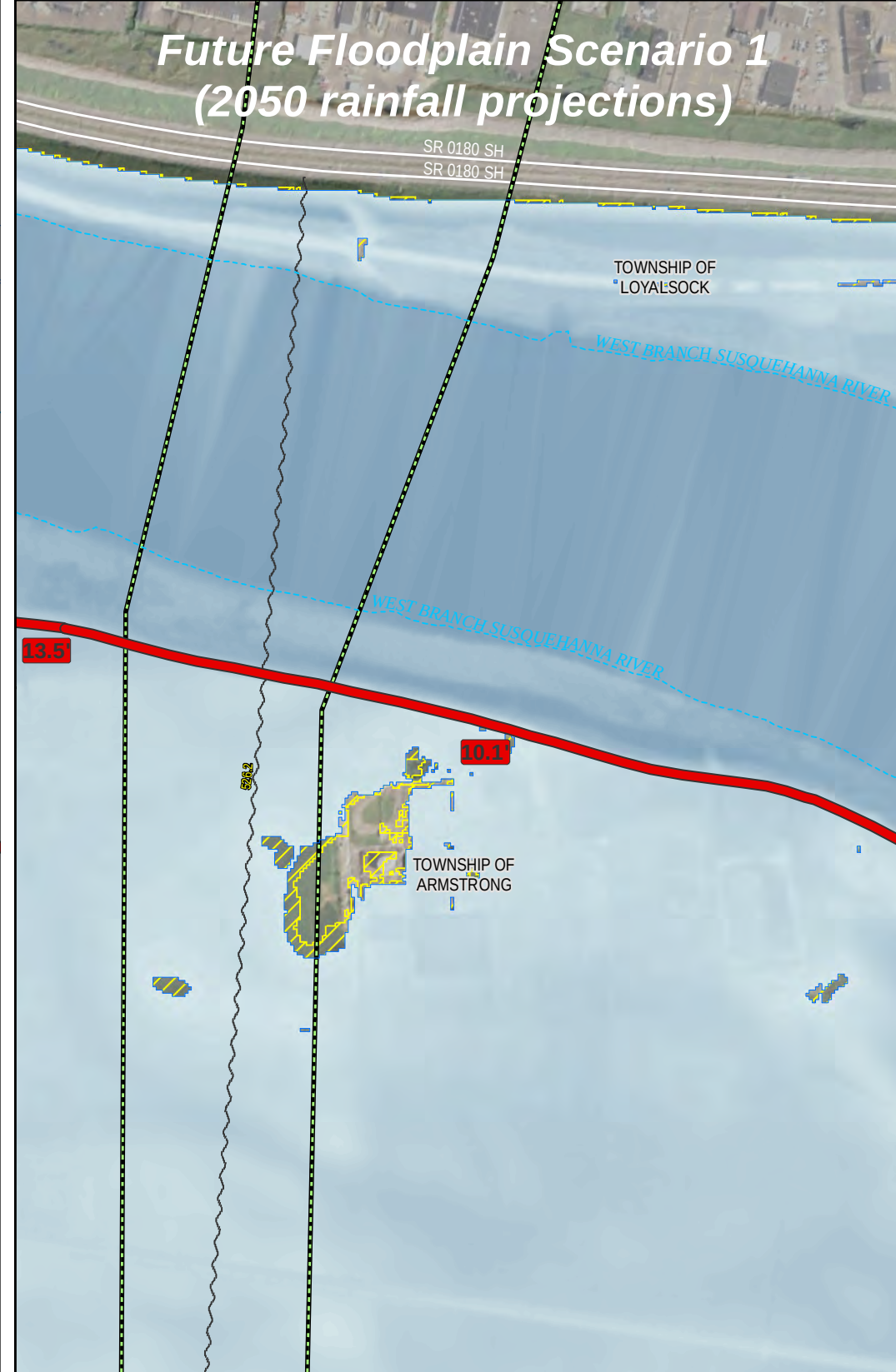
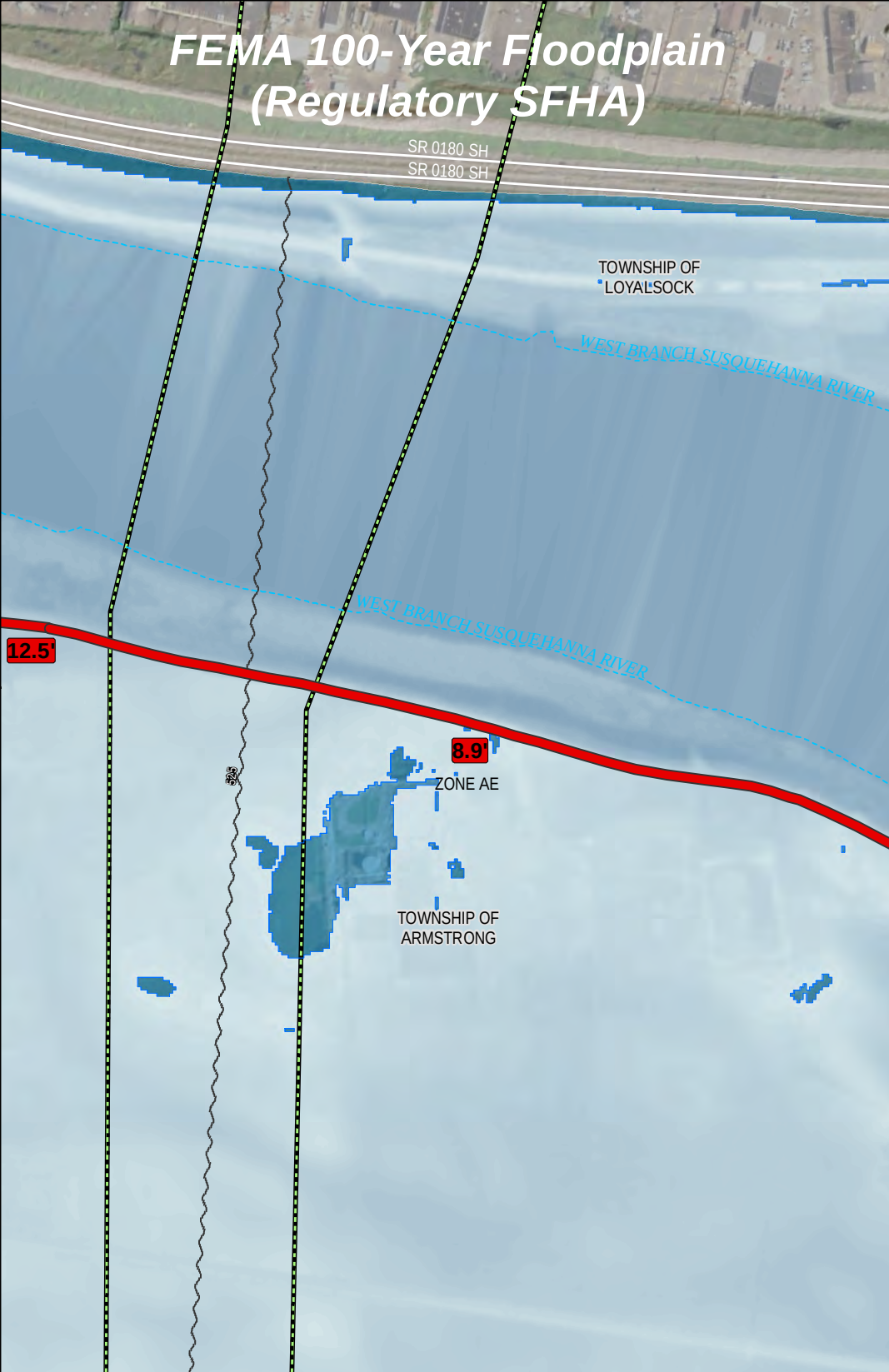
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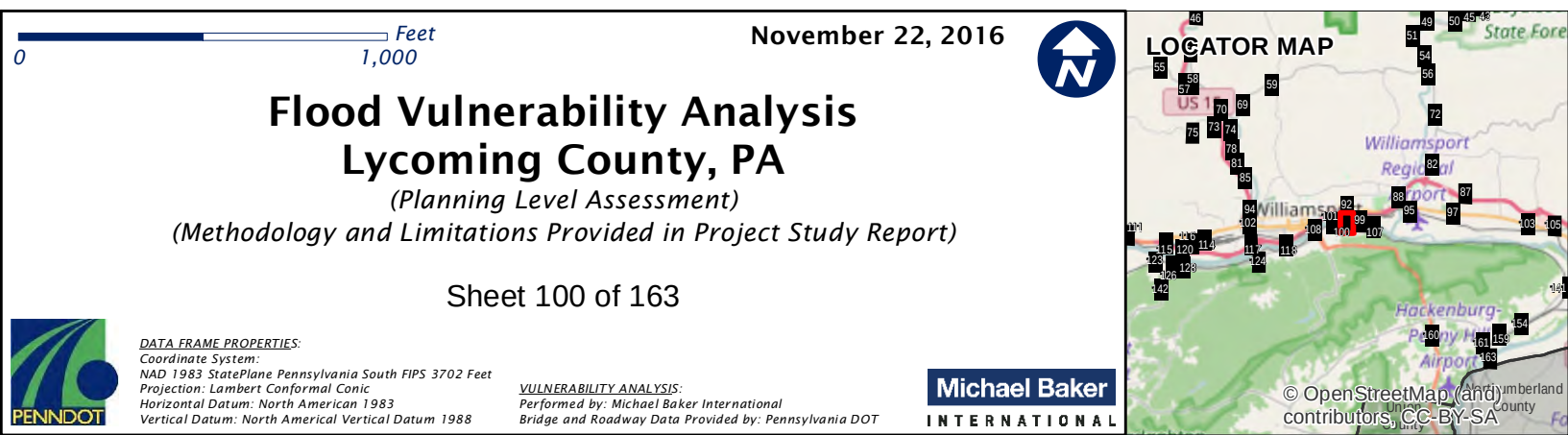
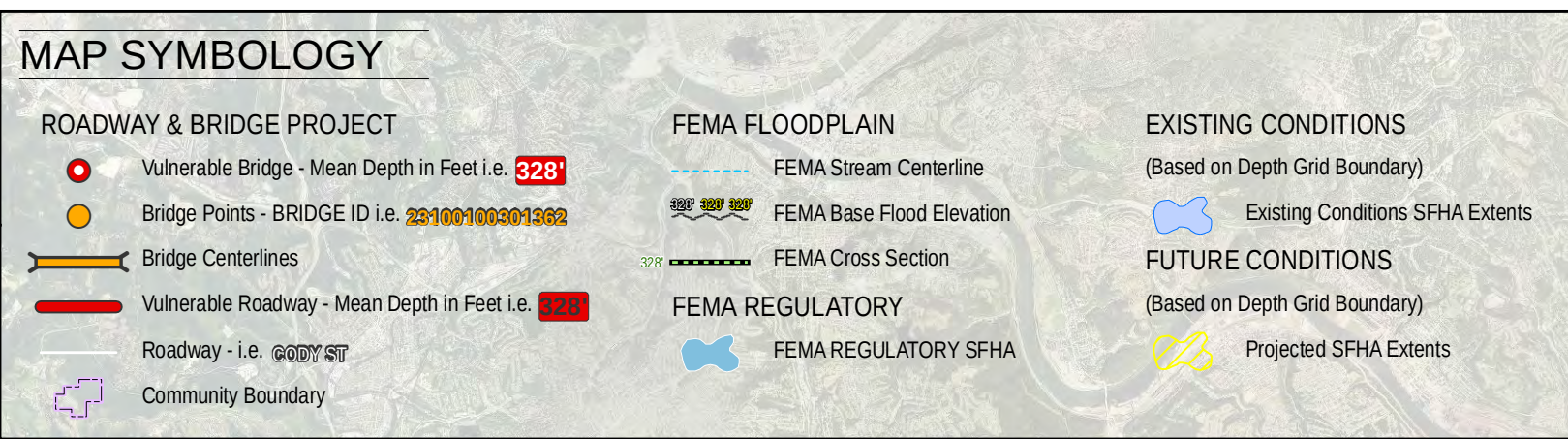
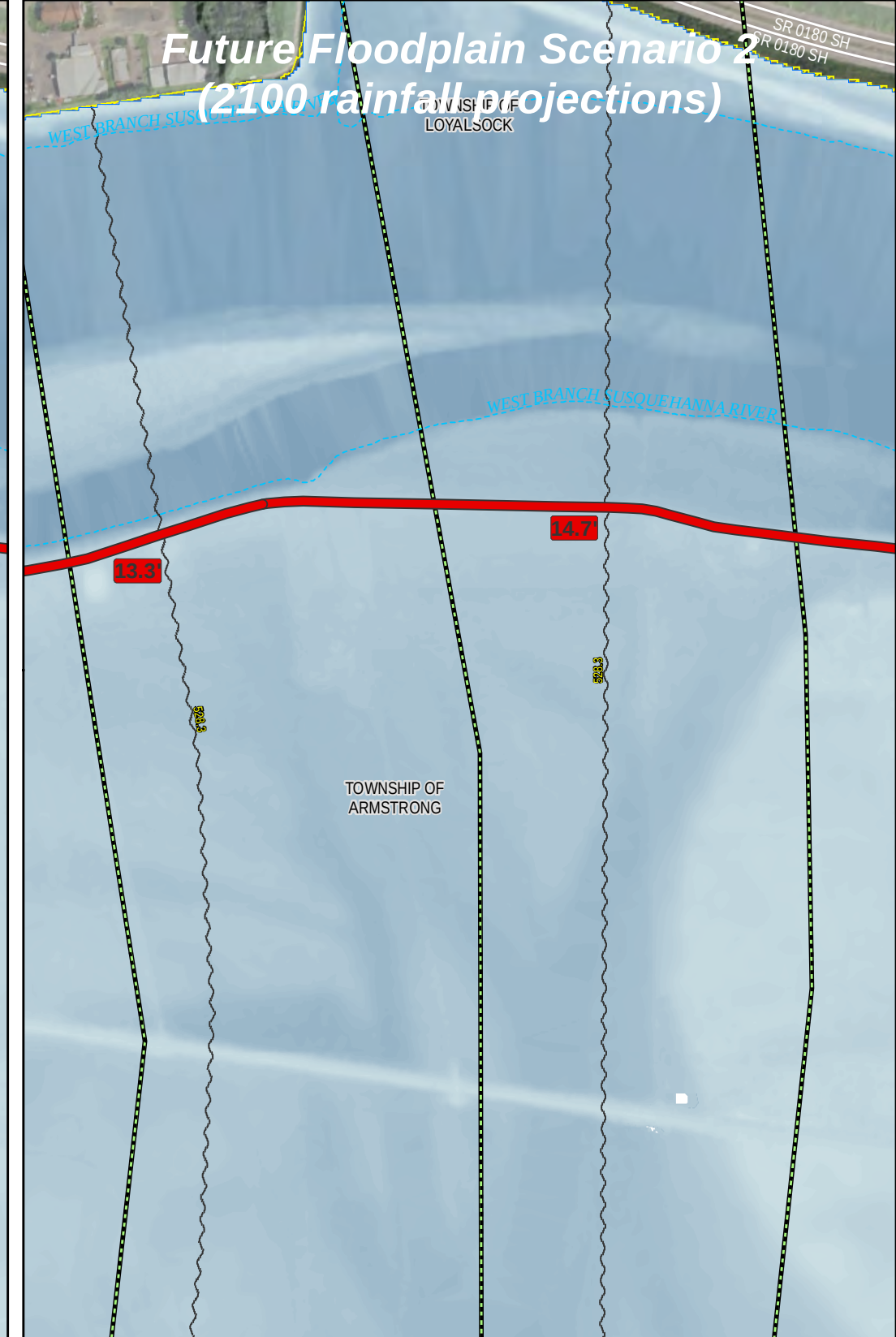
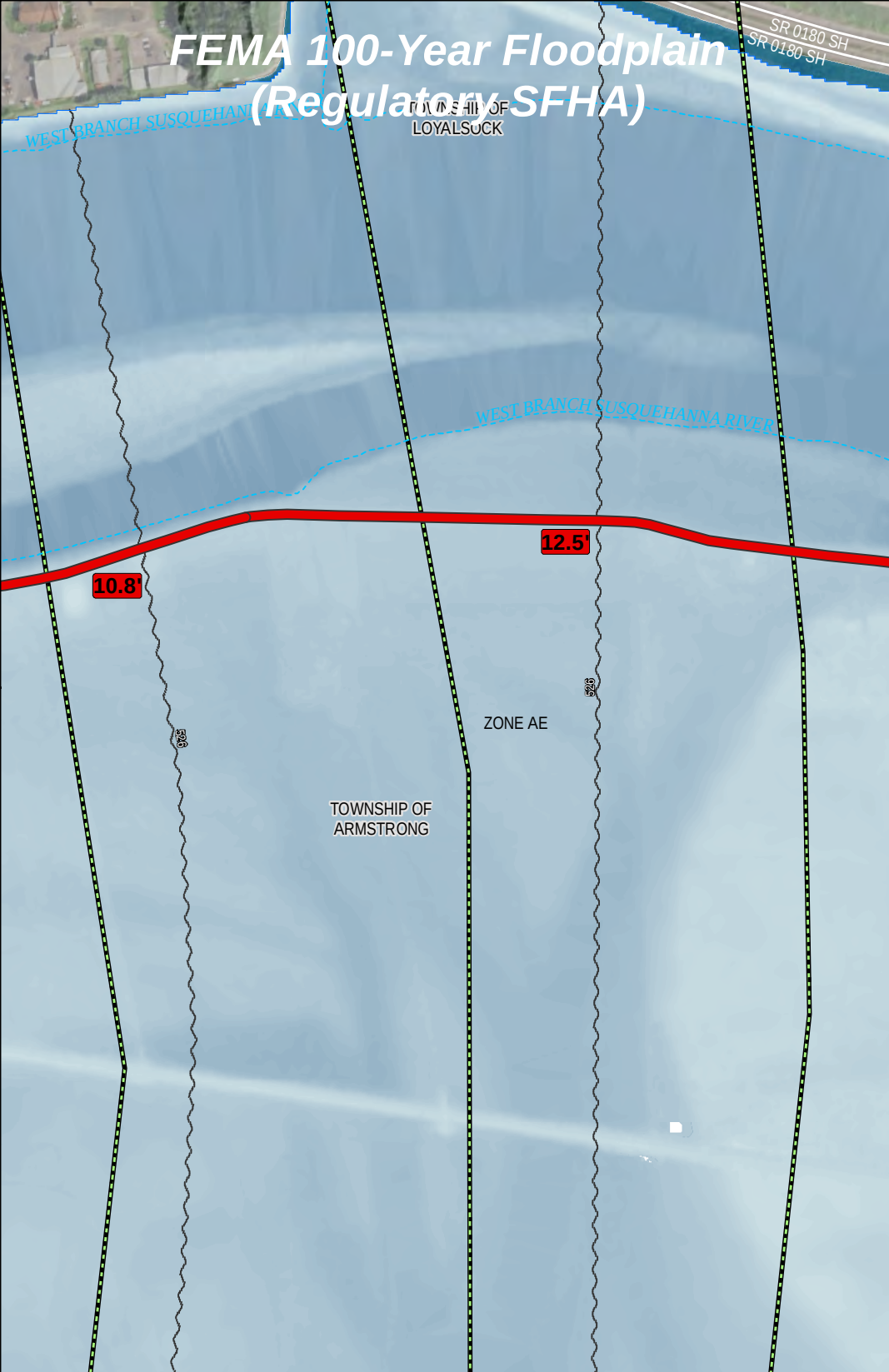
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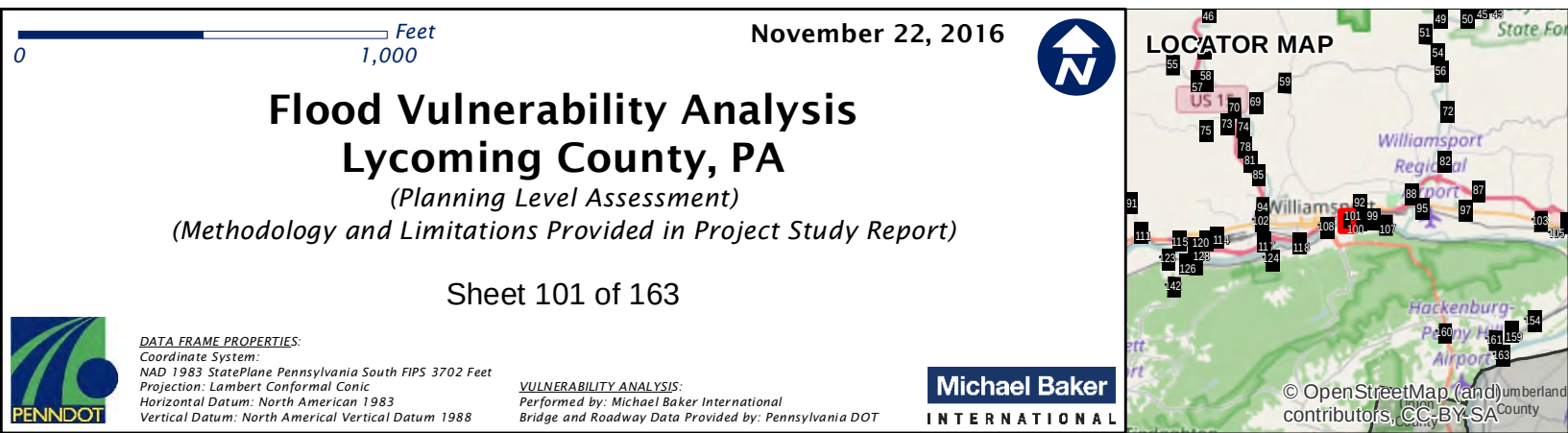
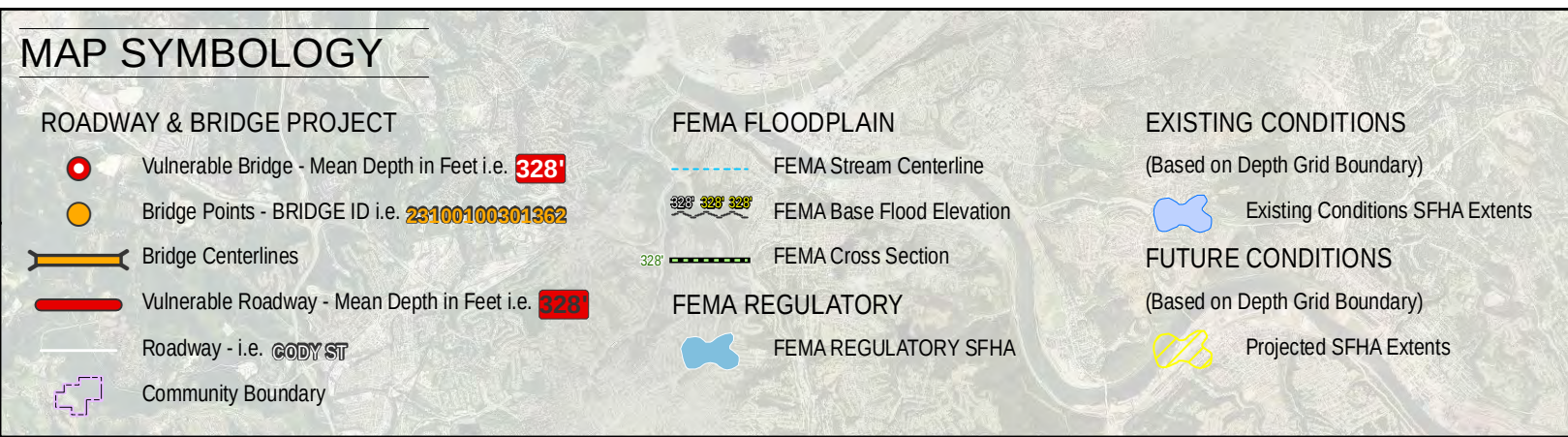
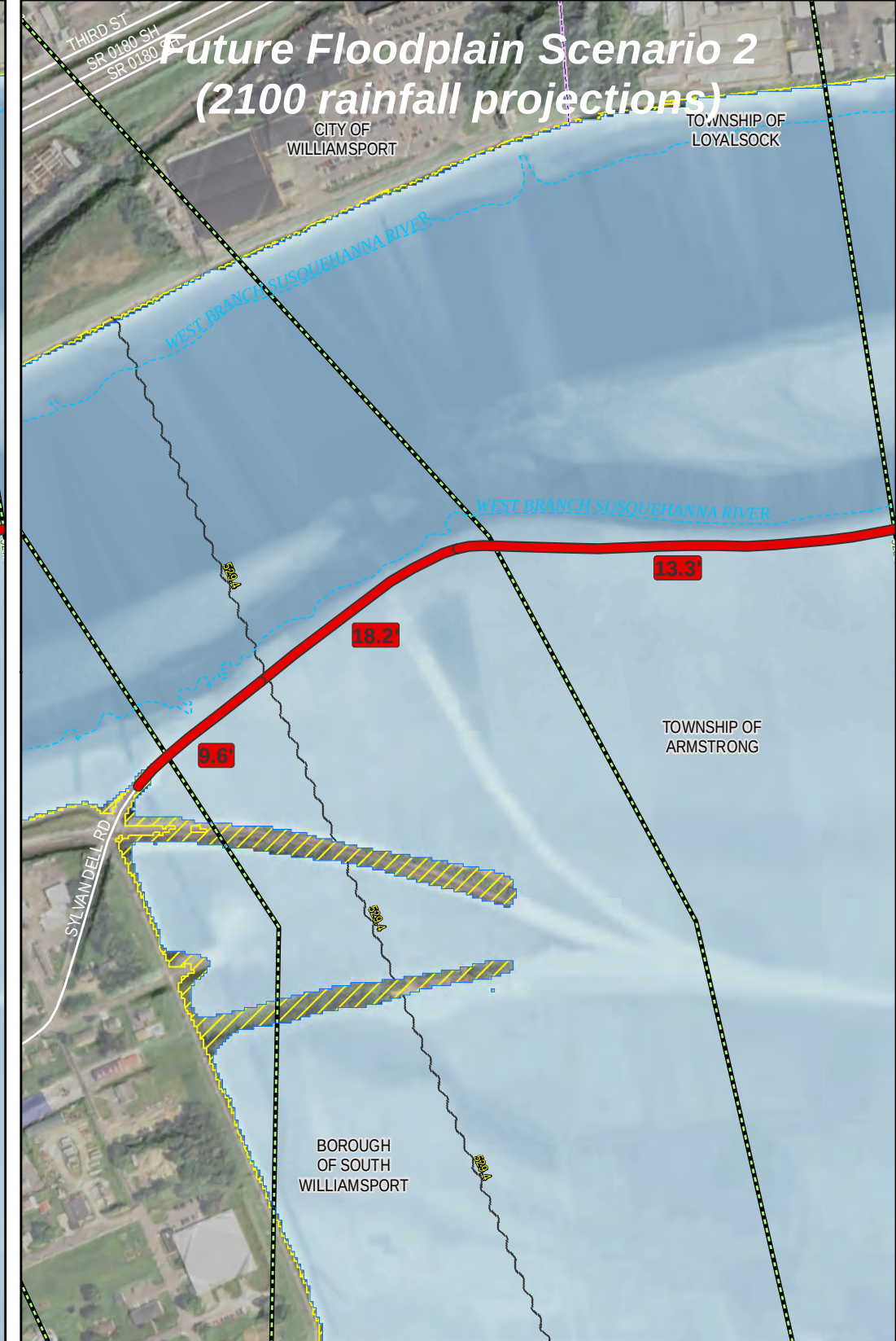
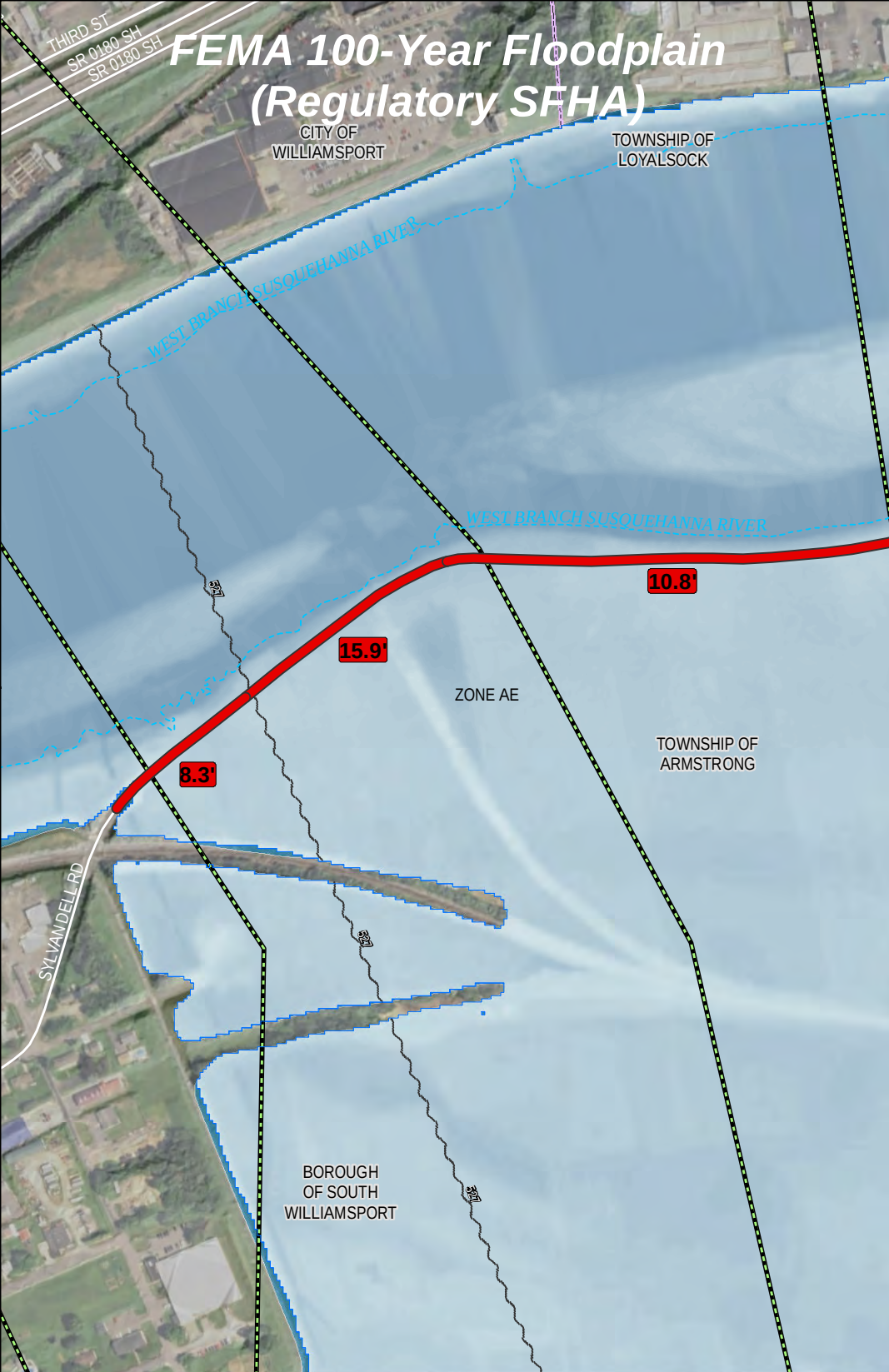
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

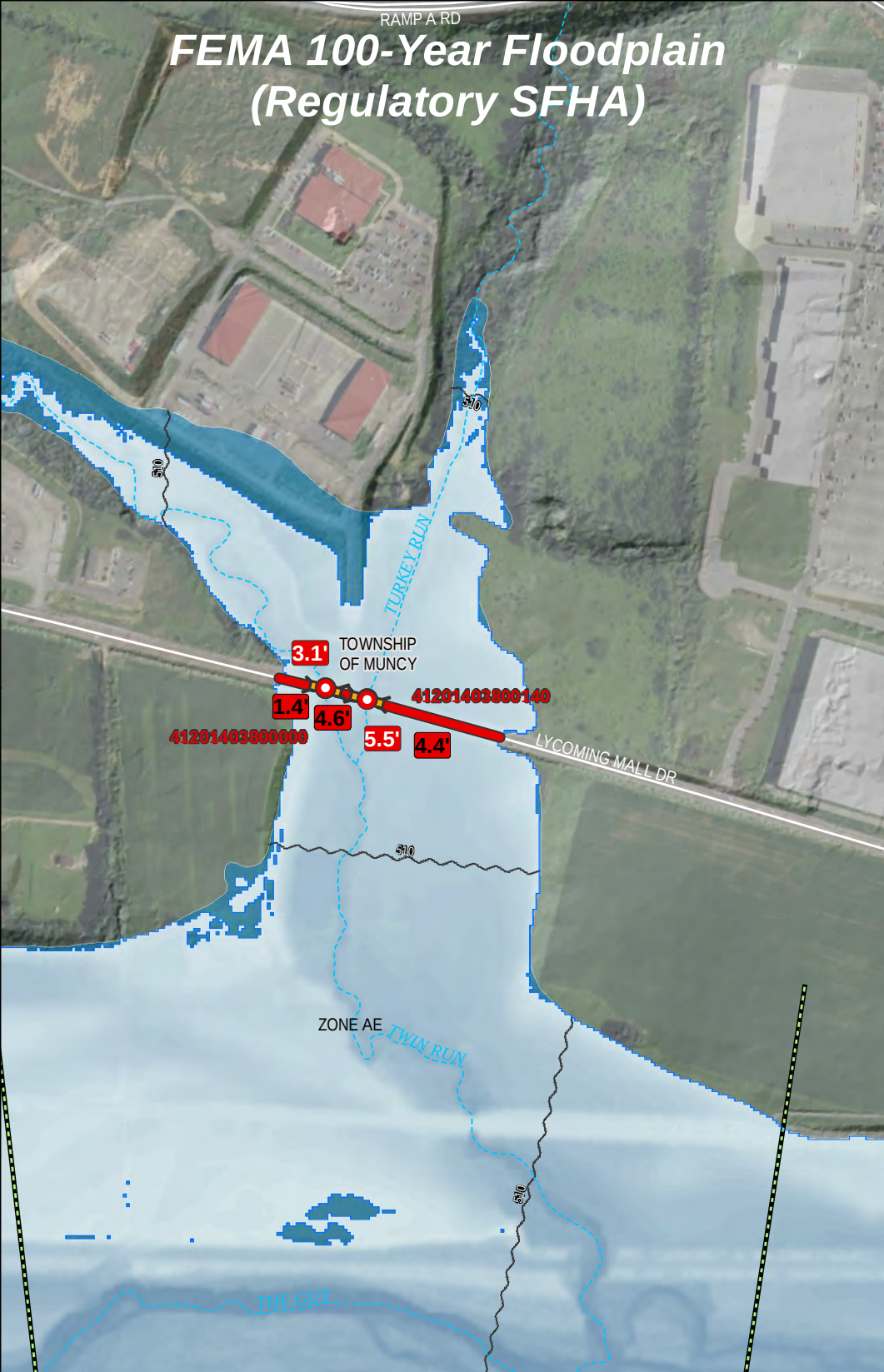
LOCATOR MAP











MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

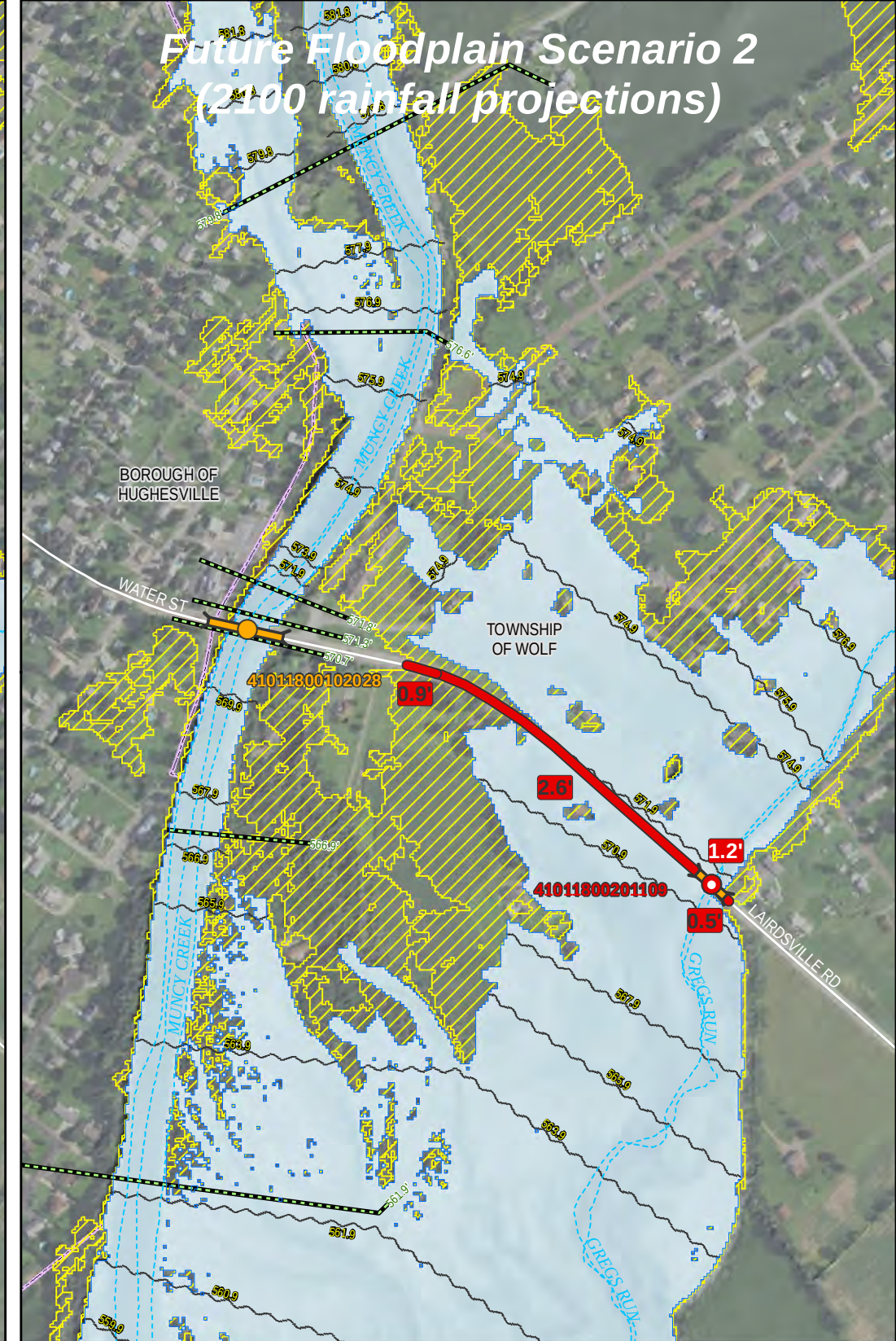
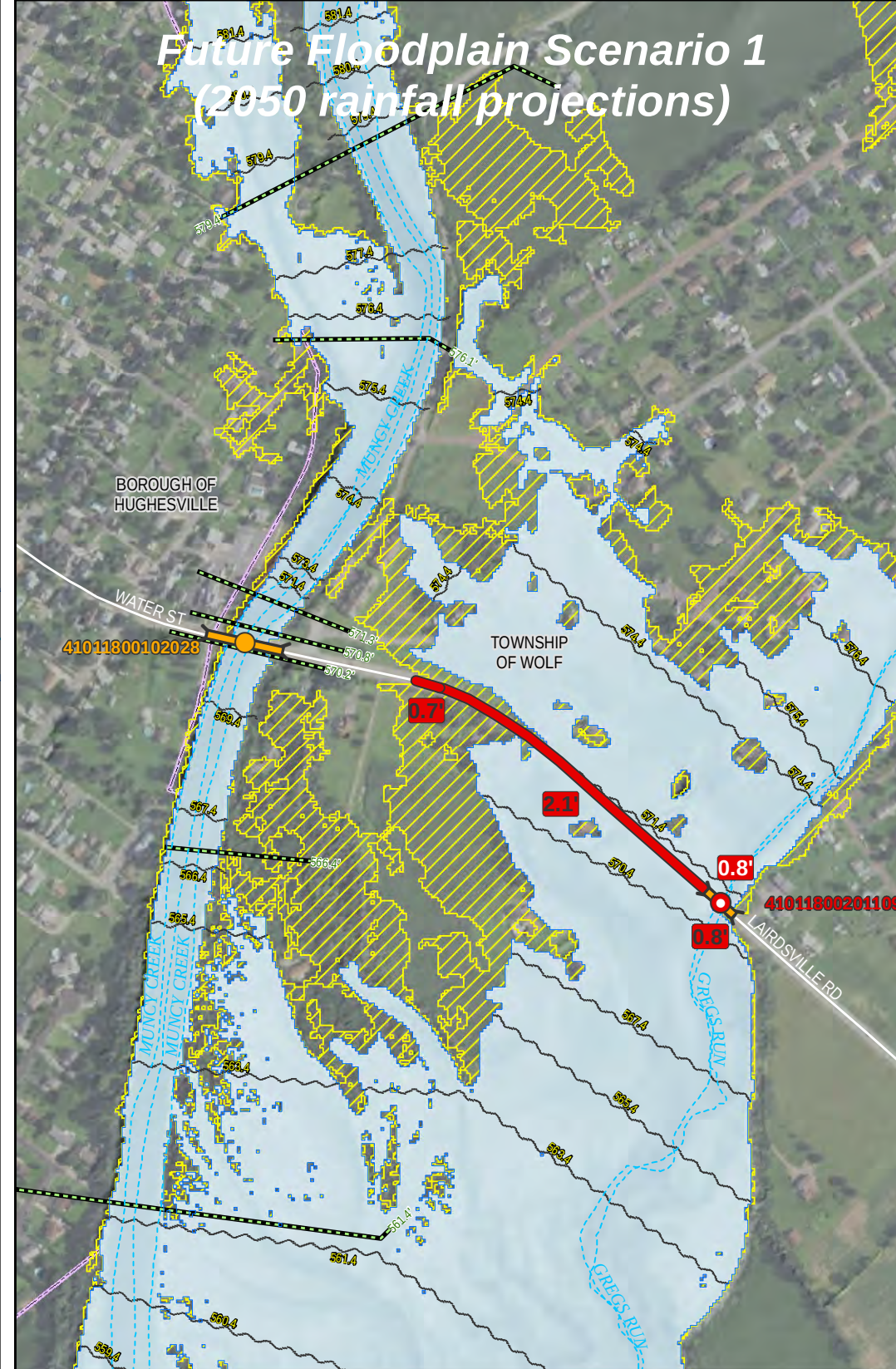
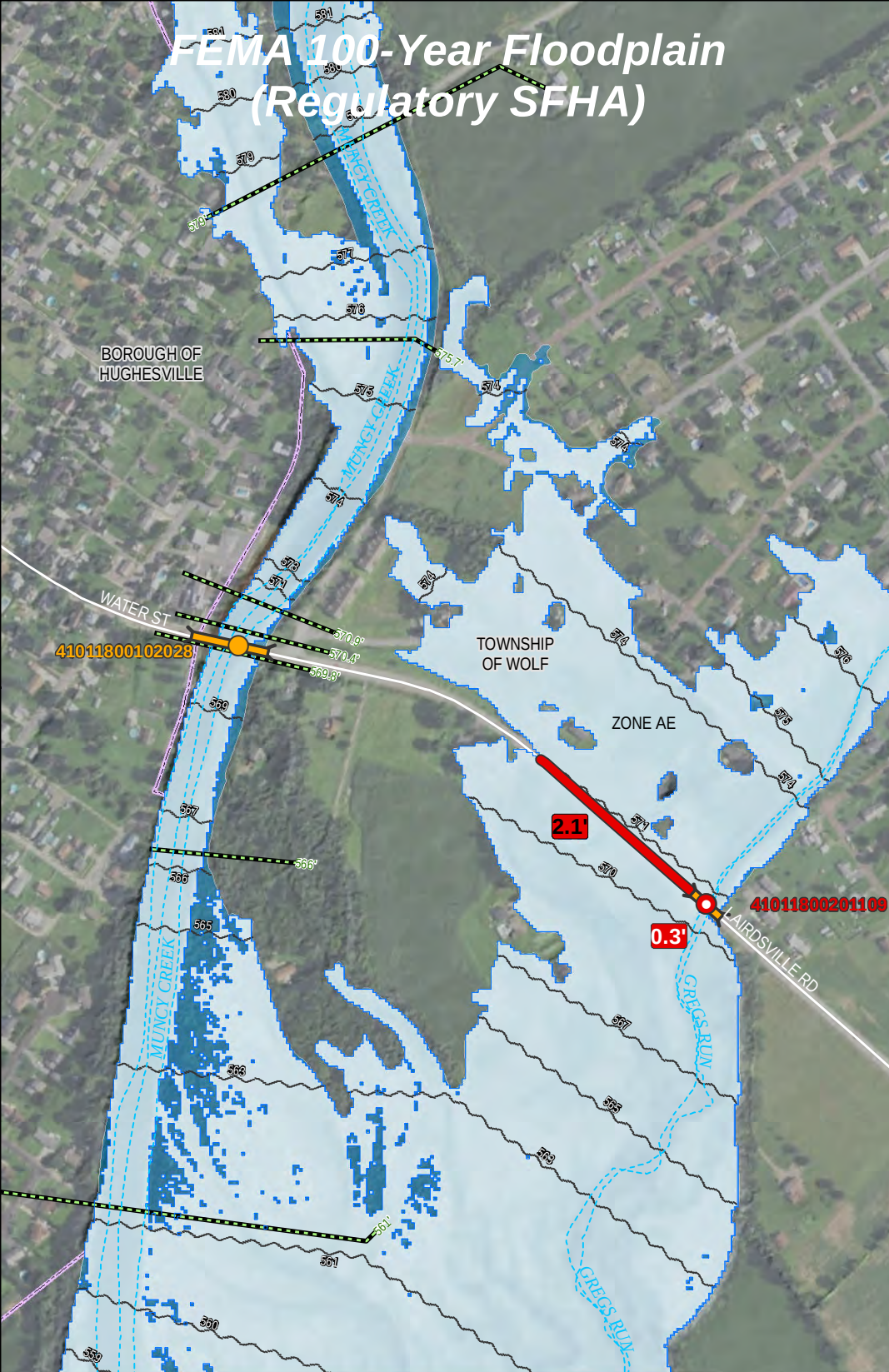
Sheet 103 of 163

PENNDOT

Michael Baker INTERNATIONAL

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 3.28'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 3.28'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

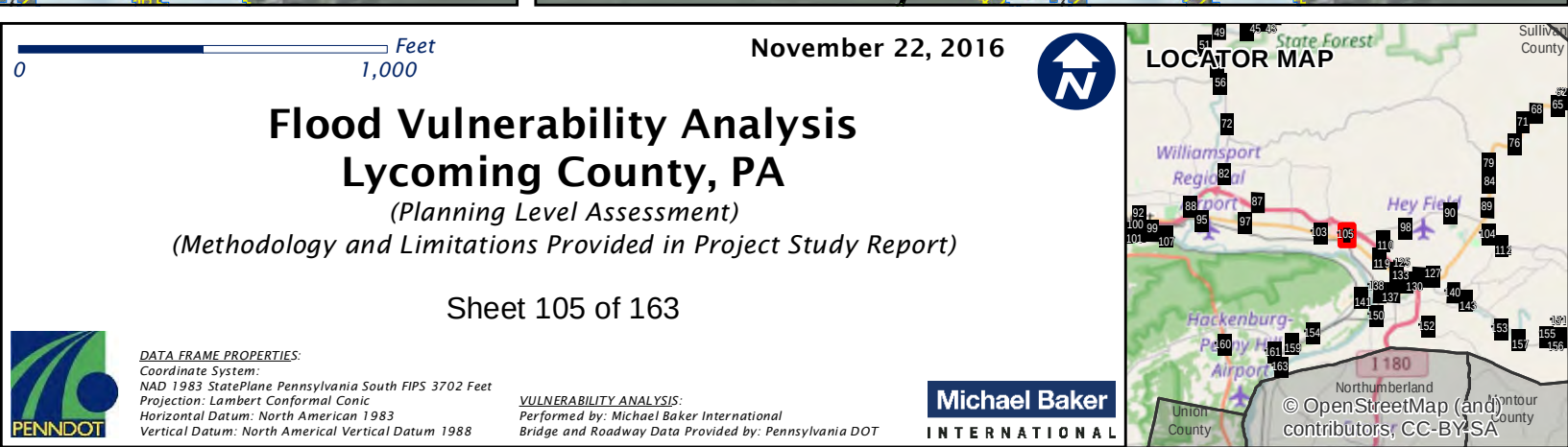
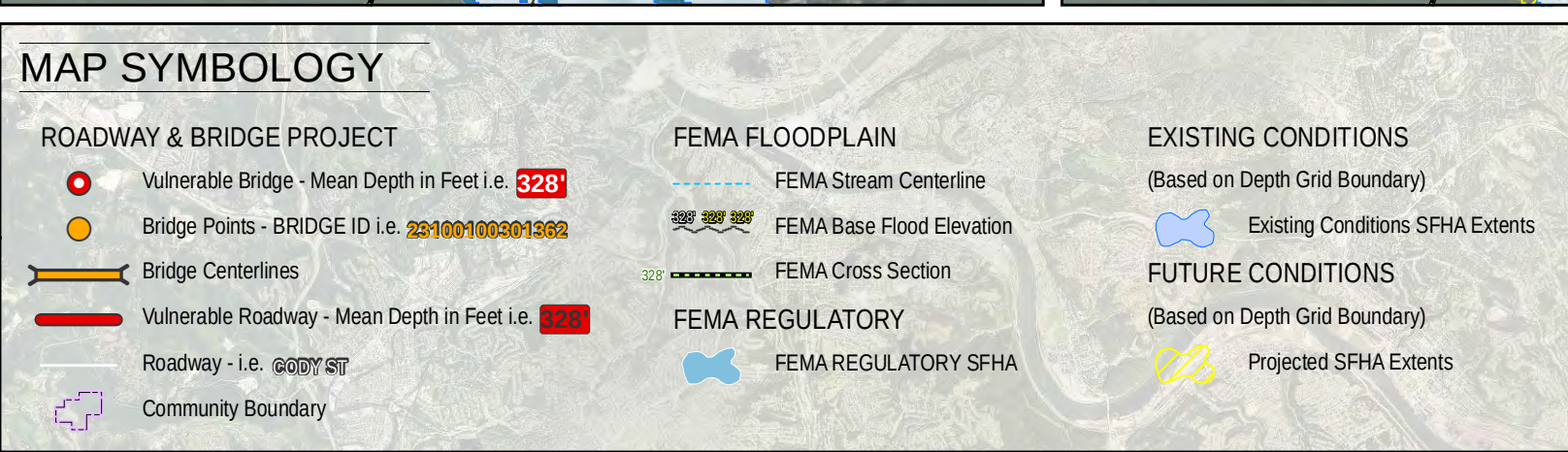
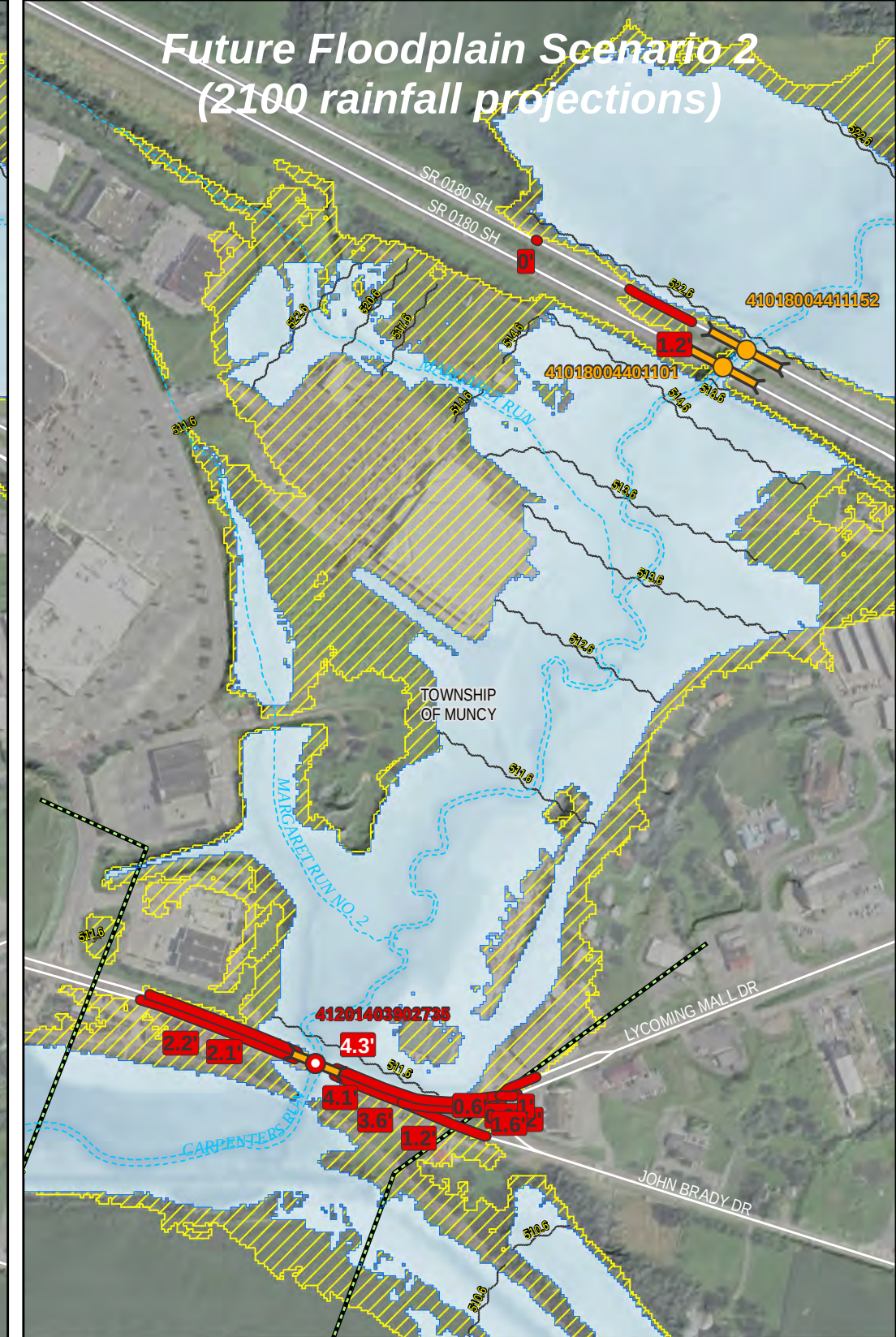
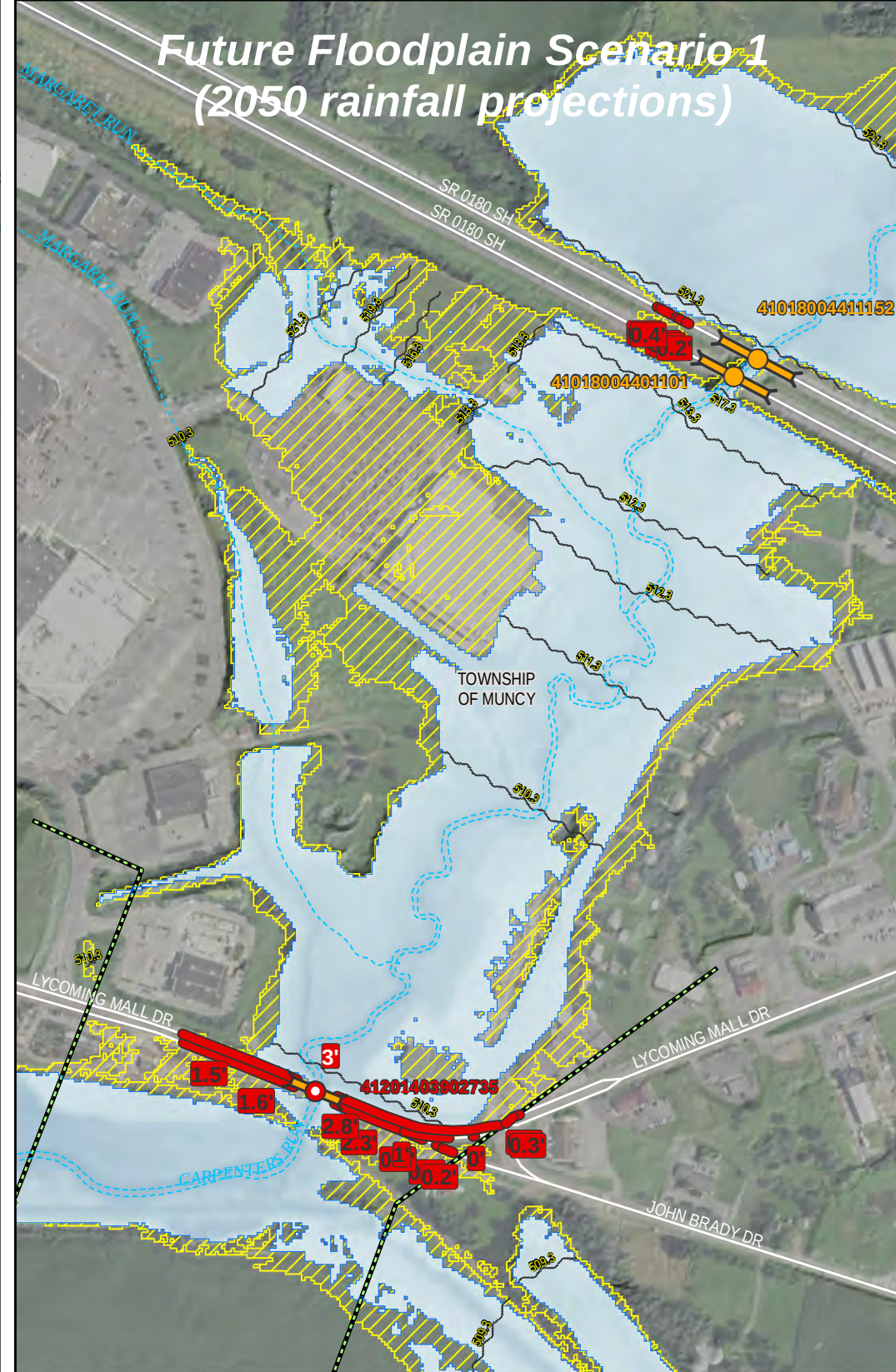
Sheet 104 of 163

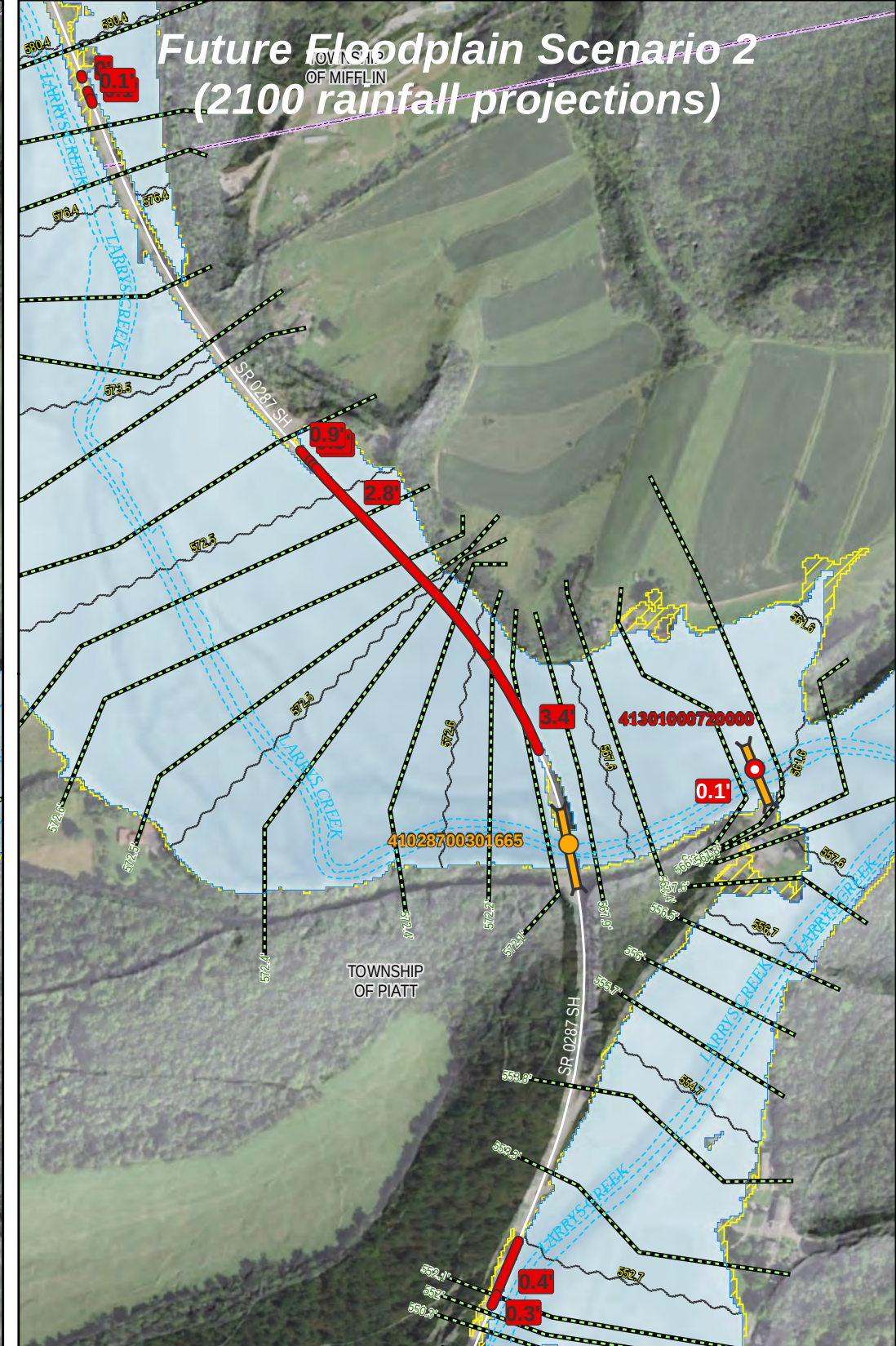
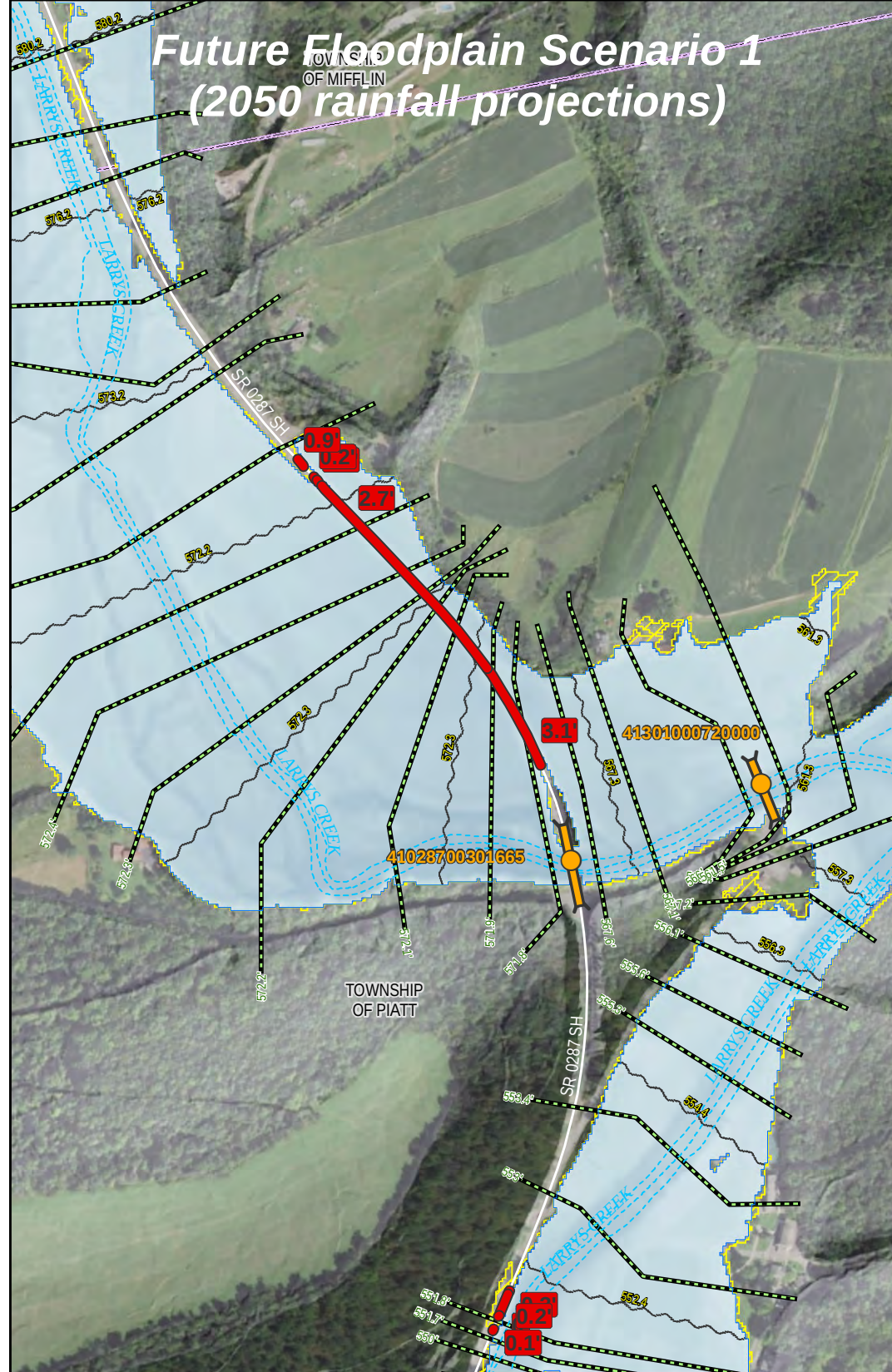
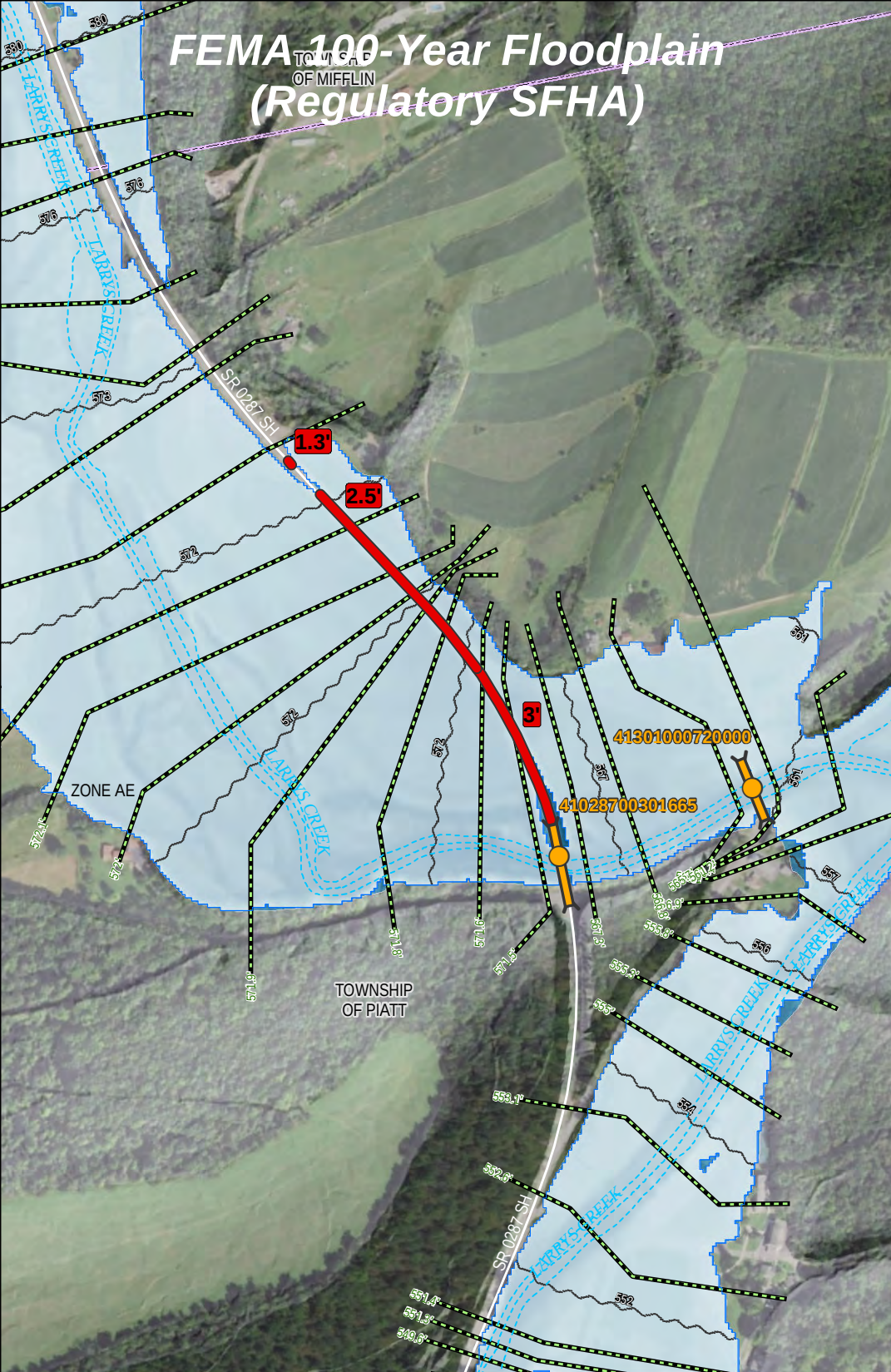
Michael Baker INTERNATIONAL

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP





MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 3.28'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 3.28'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

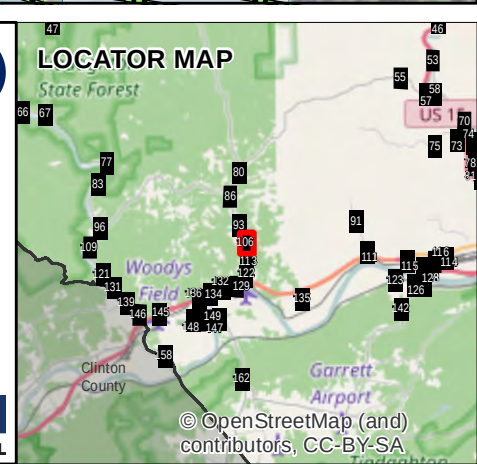
Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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PENNDOT

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LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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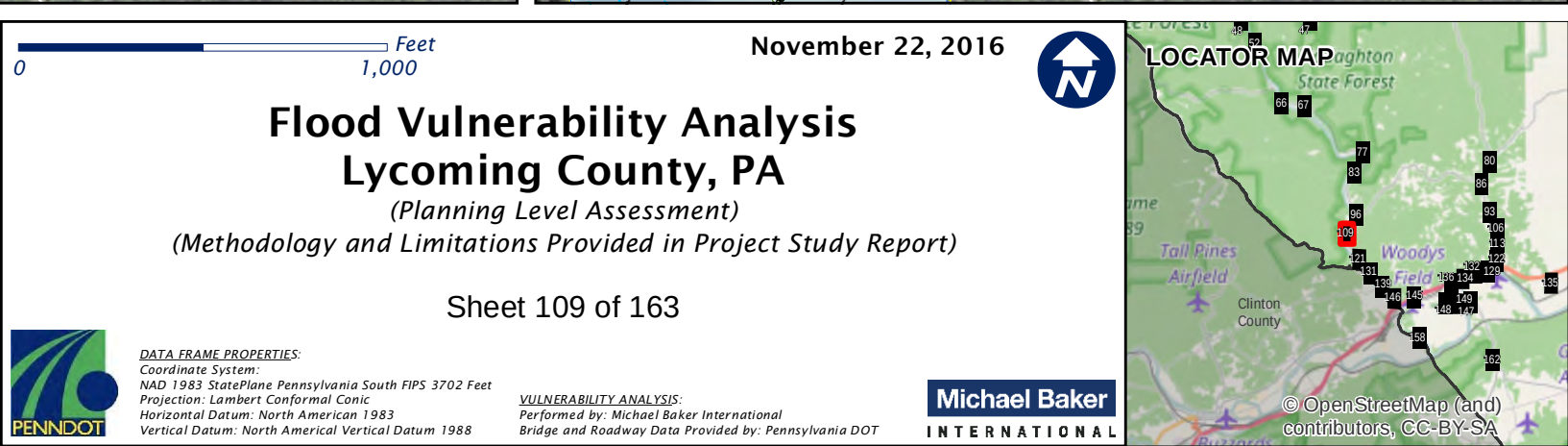
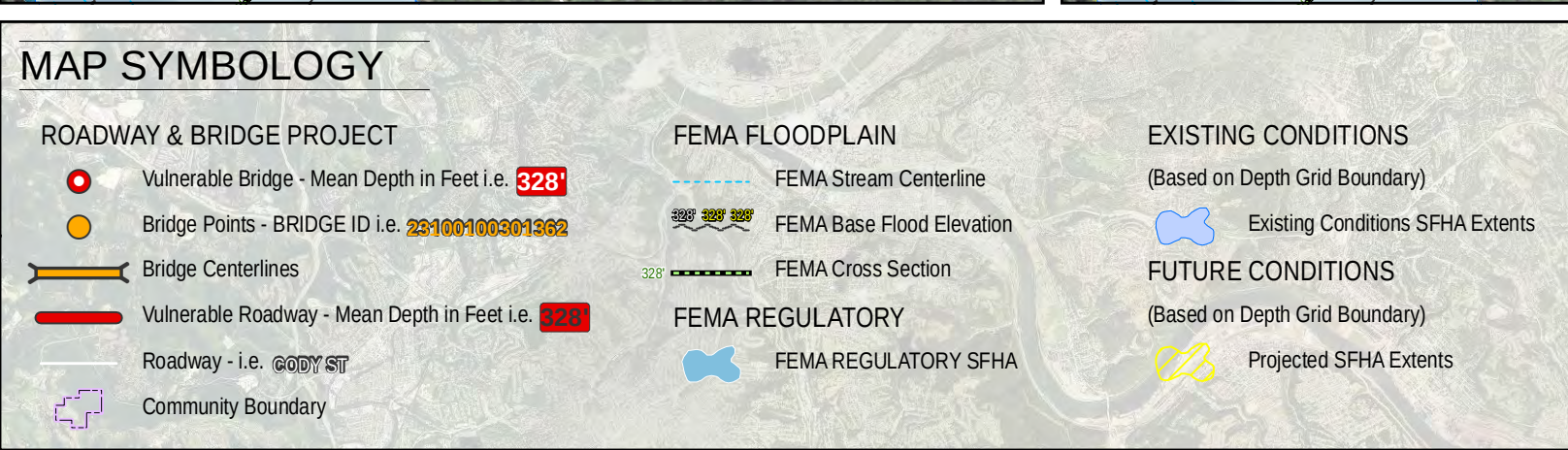
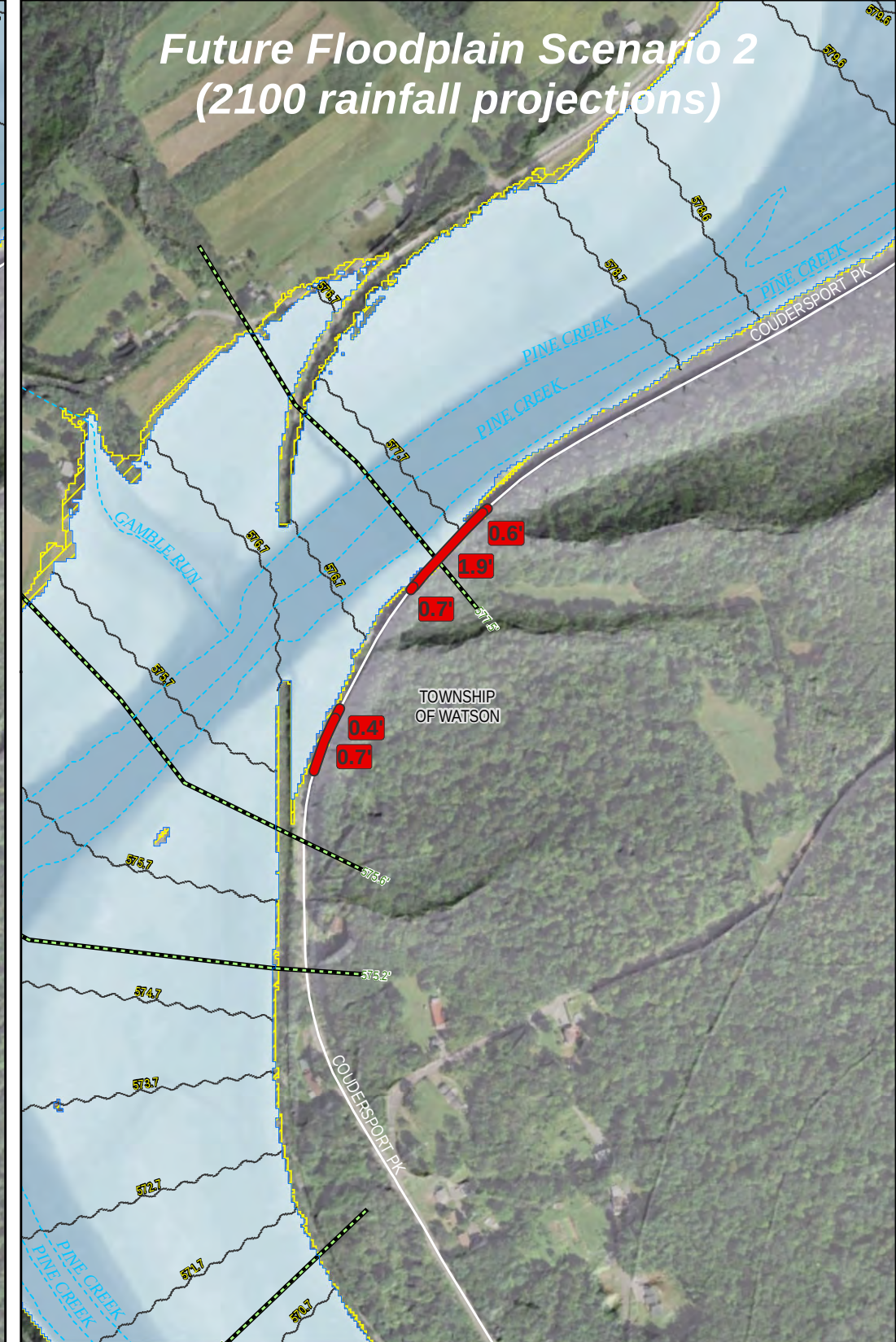
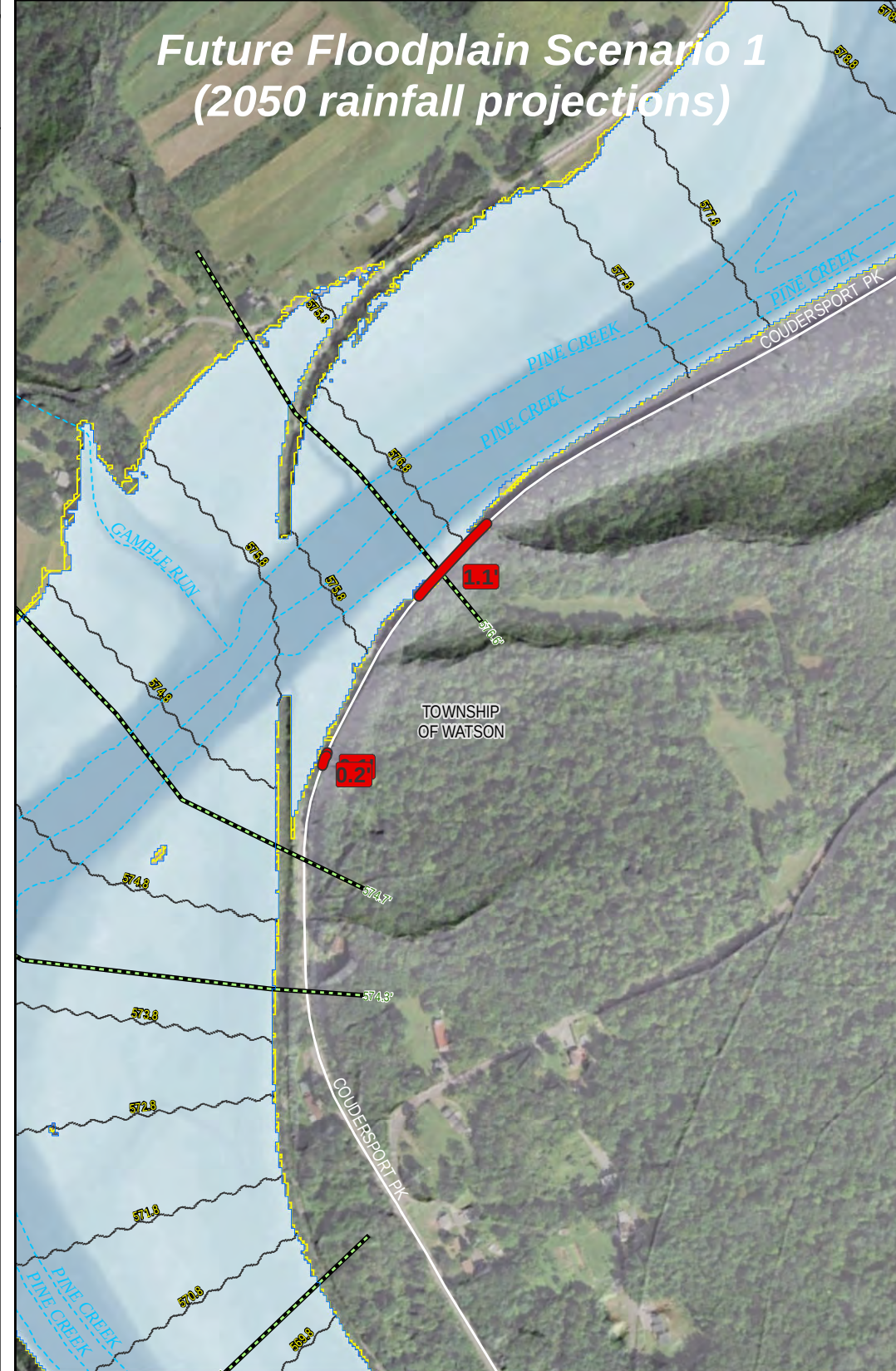
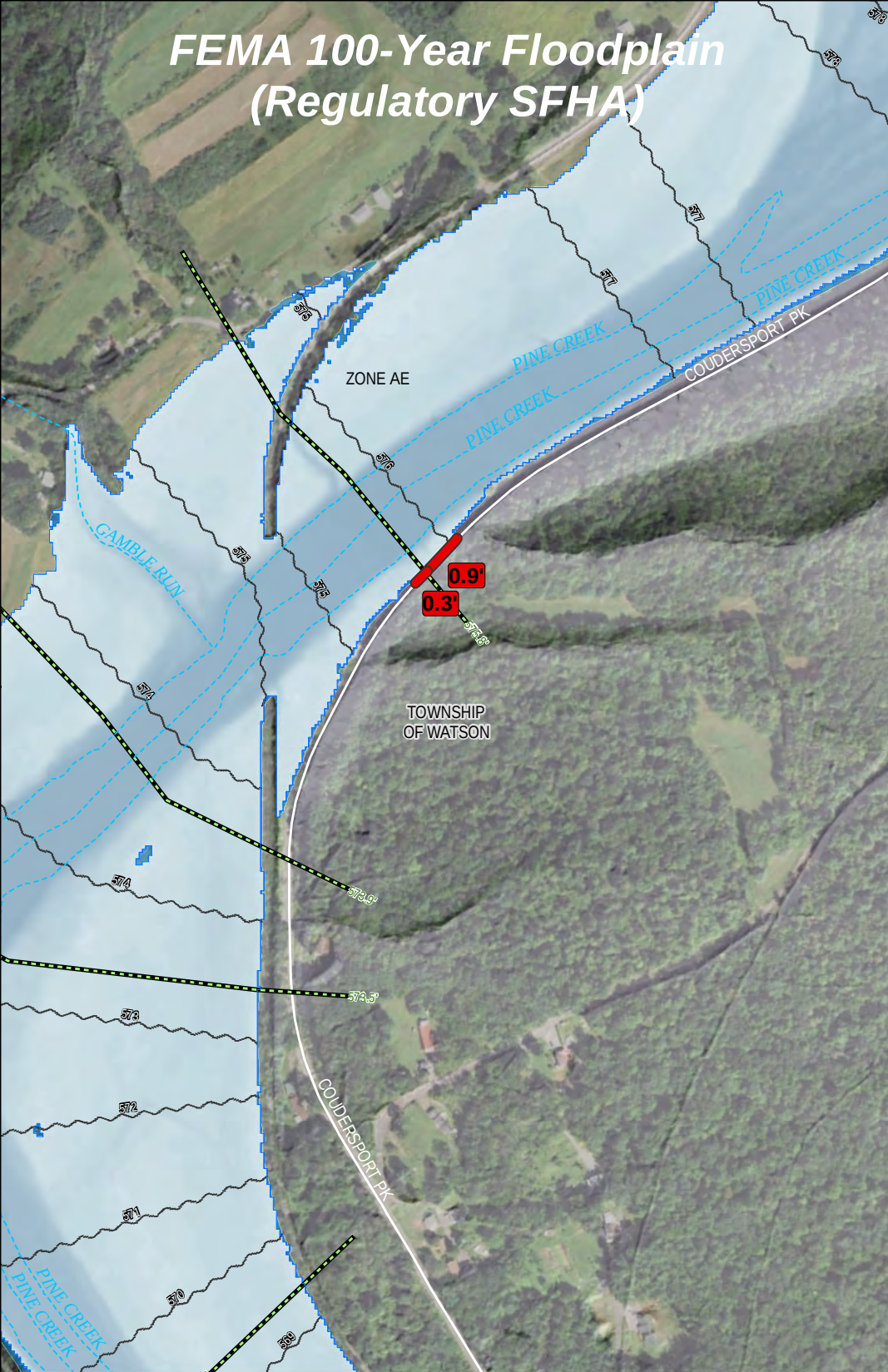
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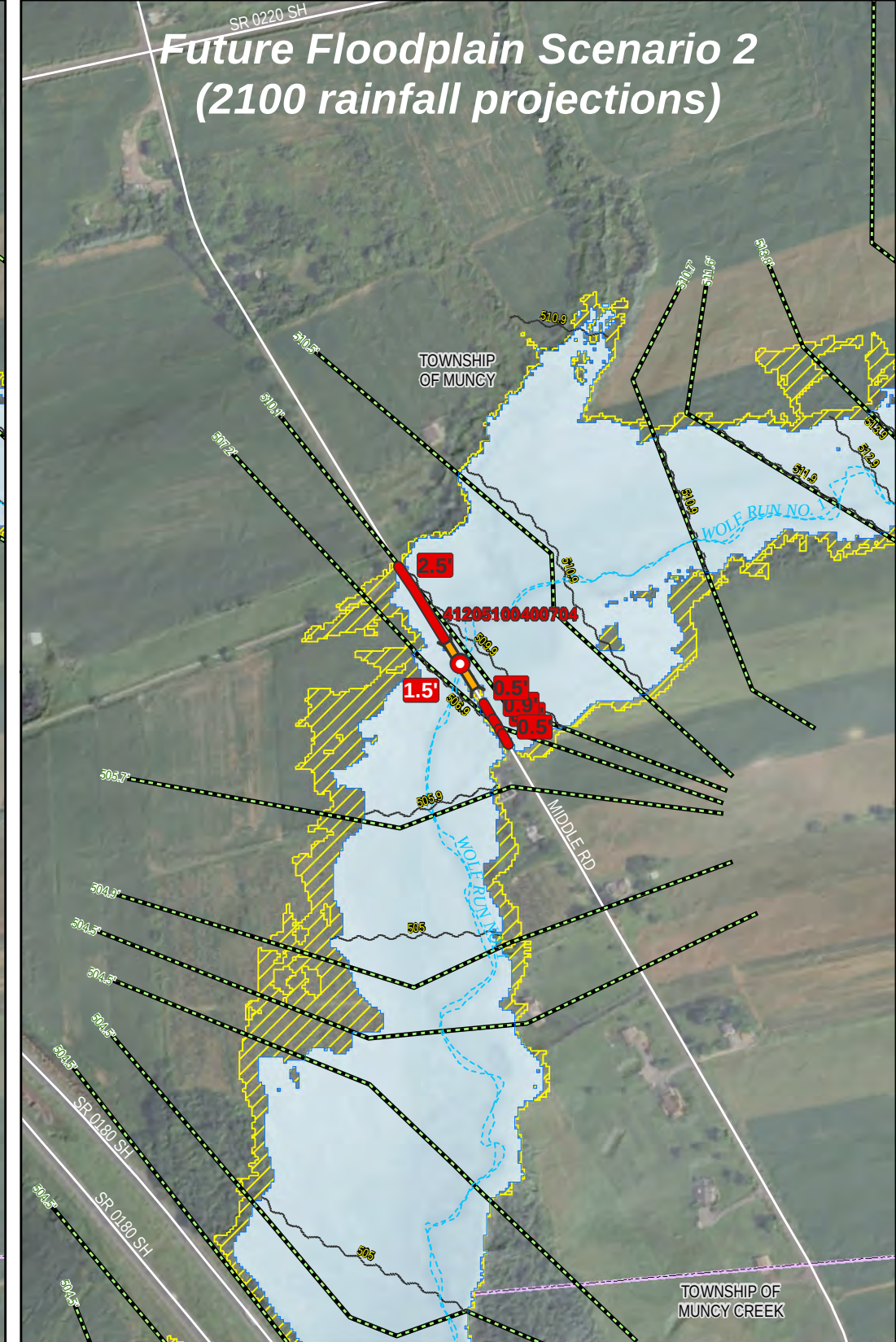
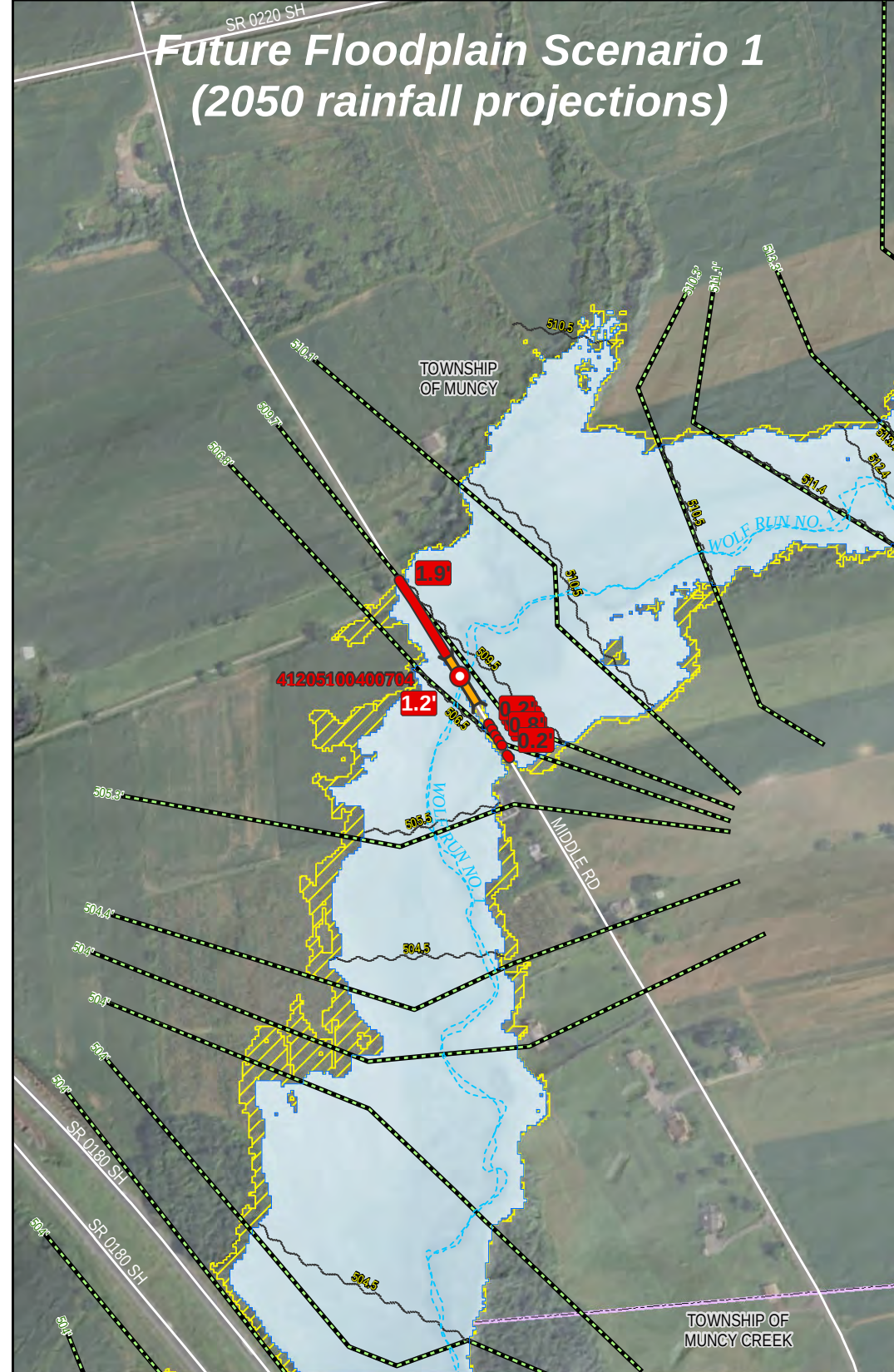
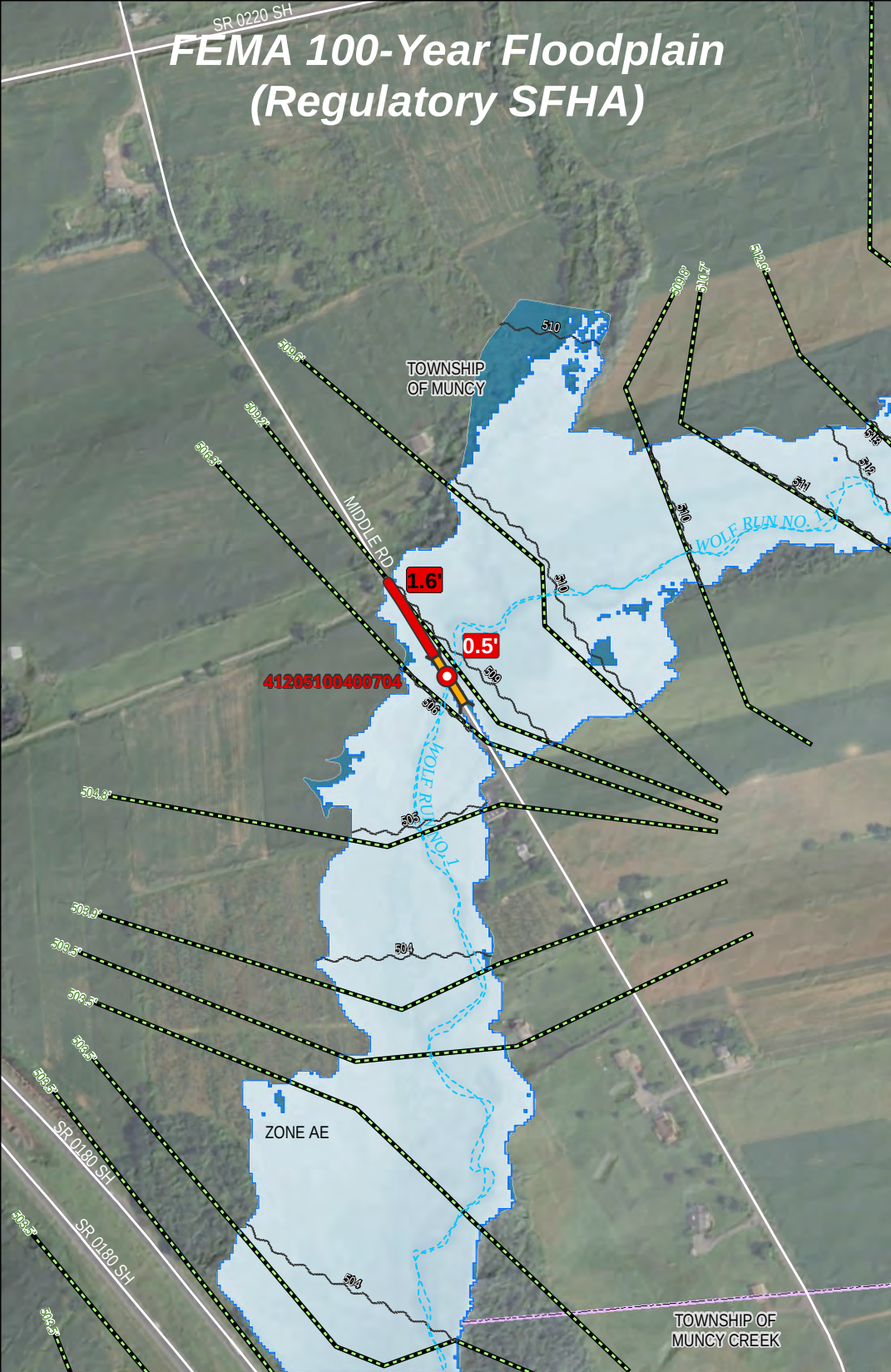
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
INTERNATIONAL**

LOCATOR MAP





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

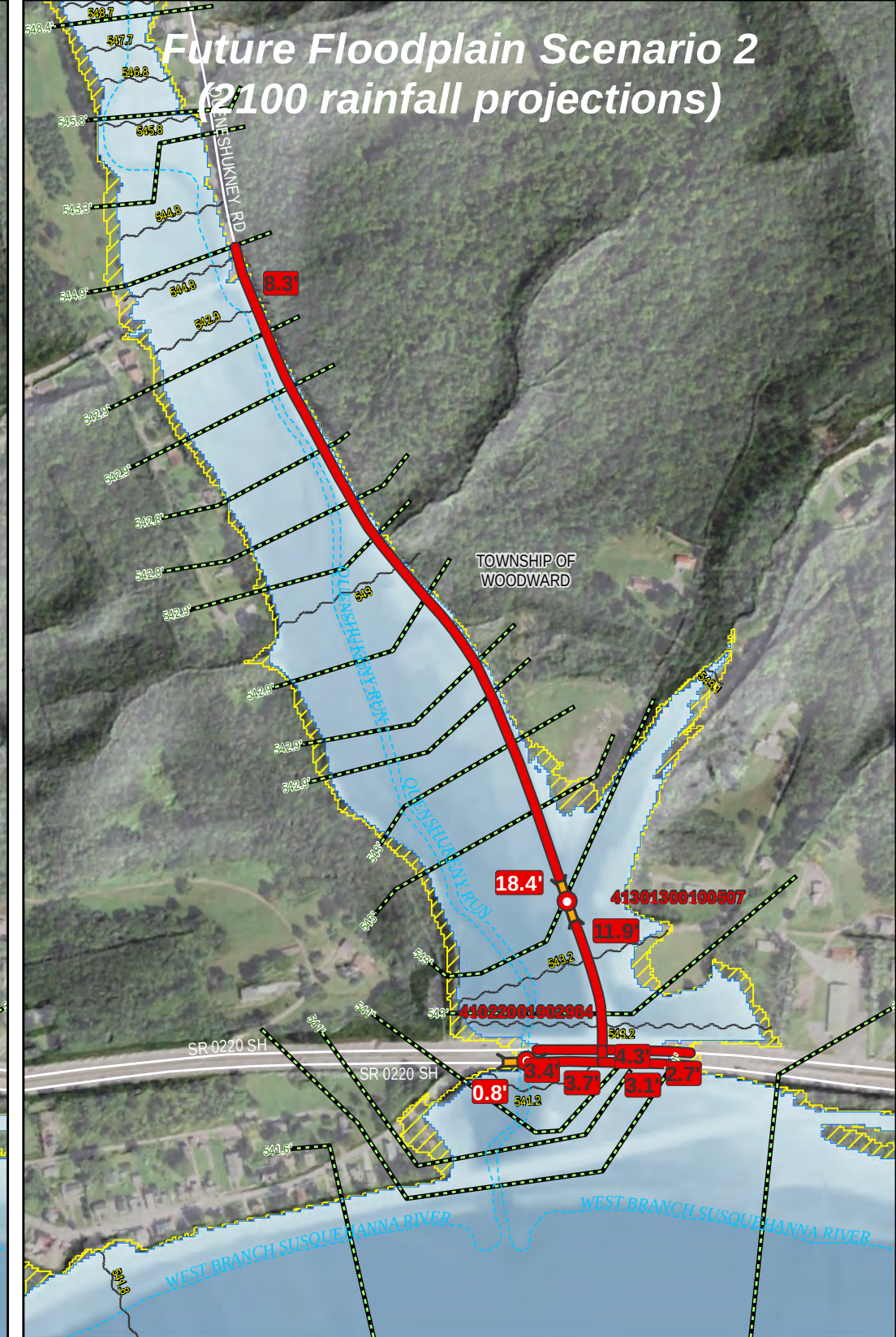
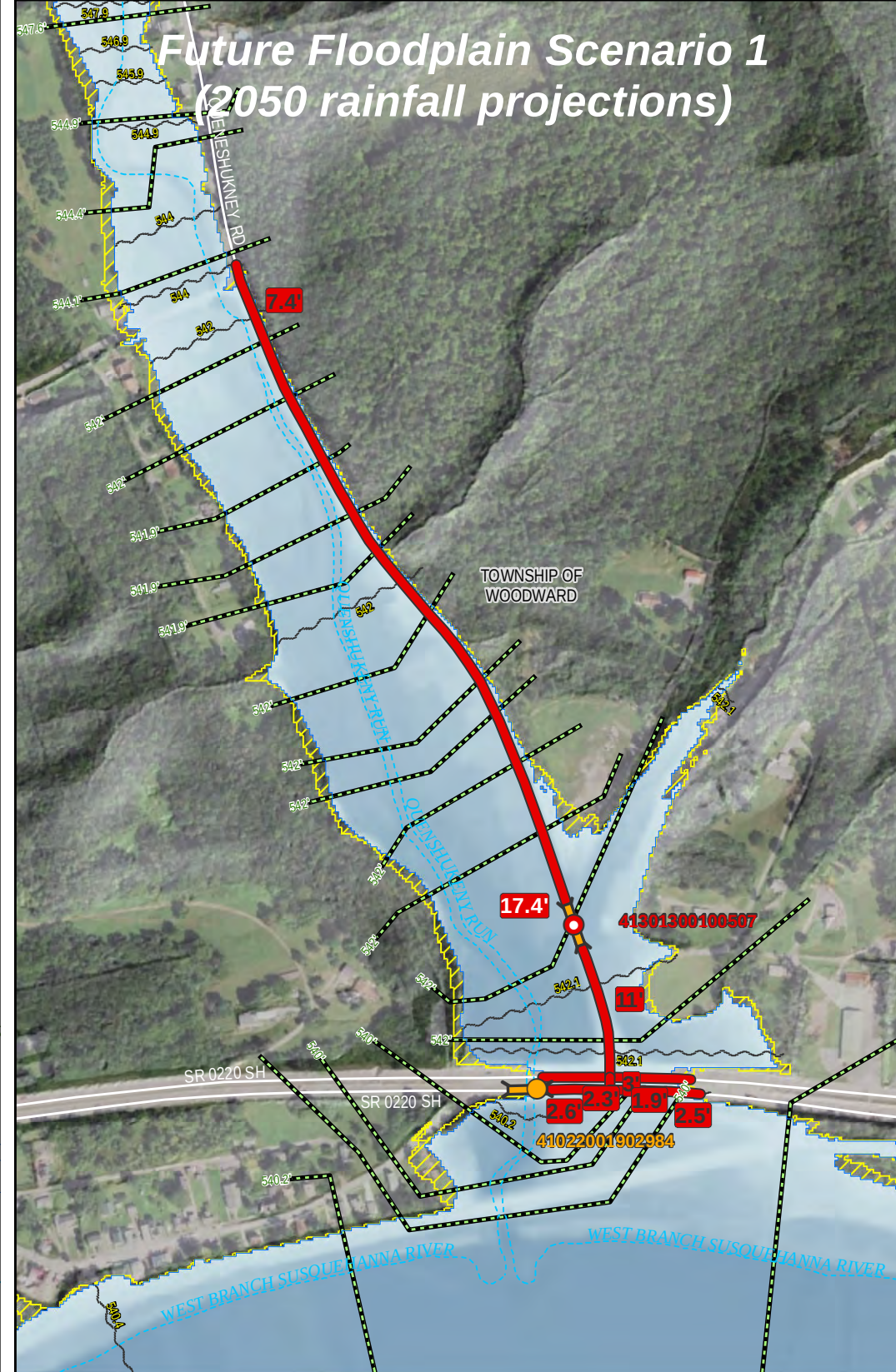
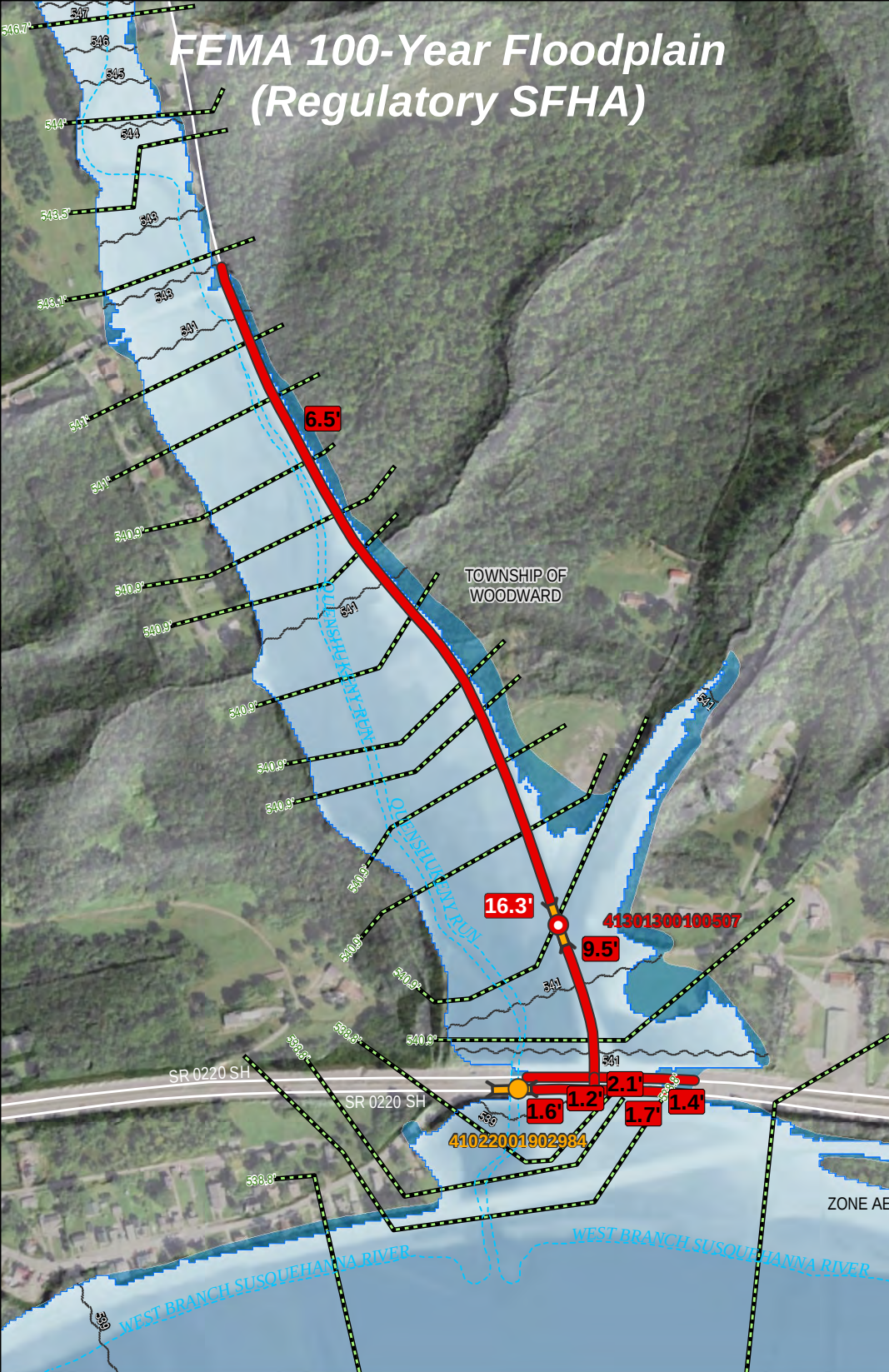
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LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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Performed by: Michael Baker International
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MAP SYMBOLOGY

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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

0 1,000 Feet

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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November 22, 2016

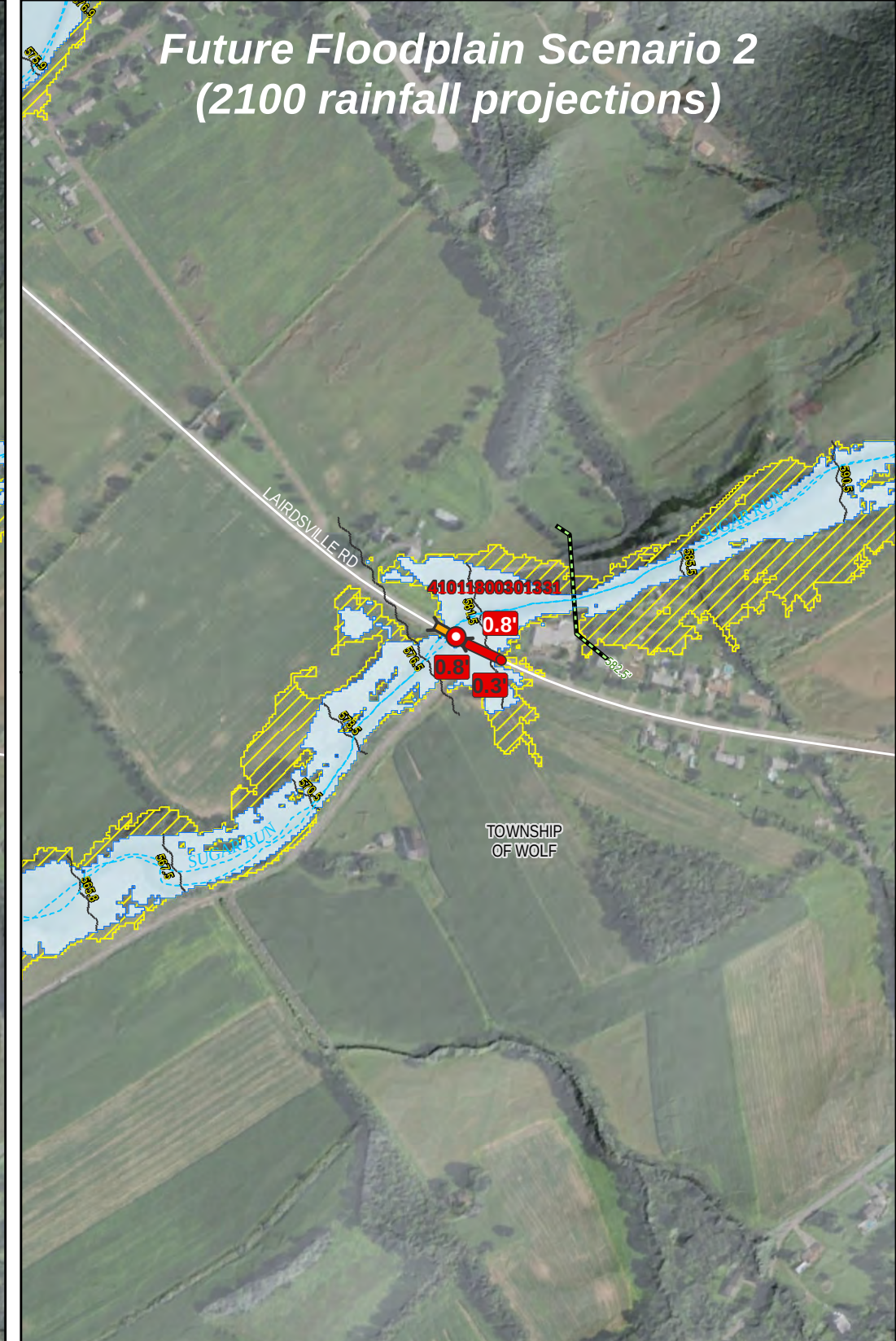
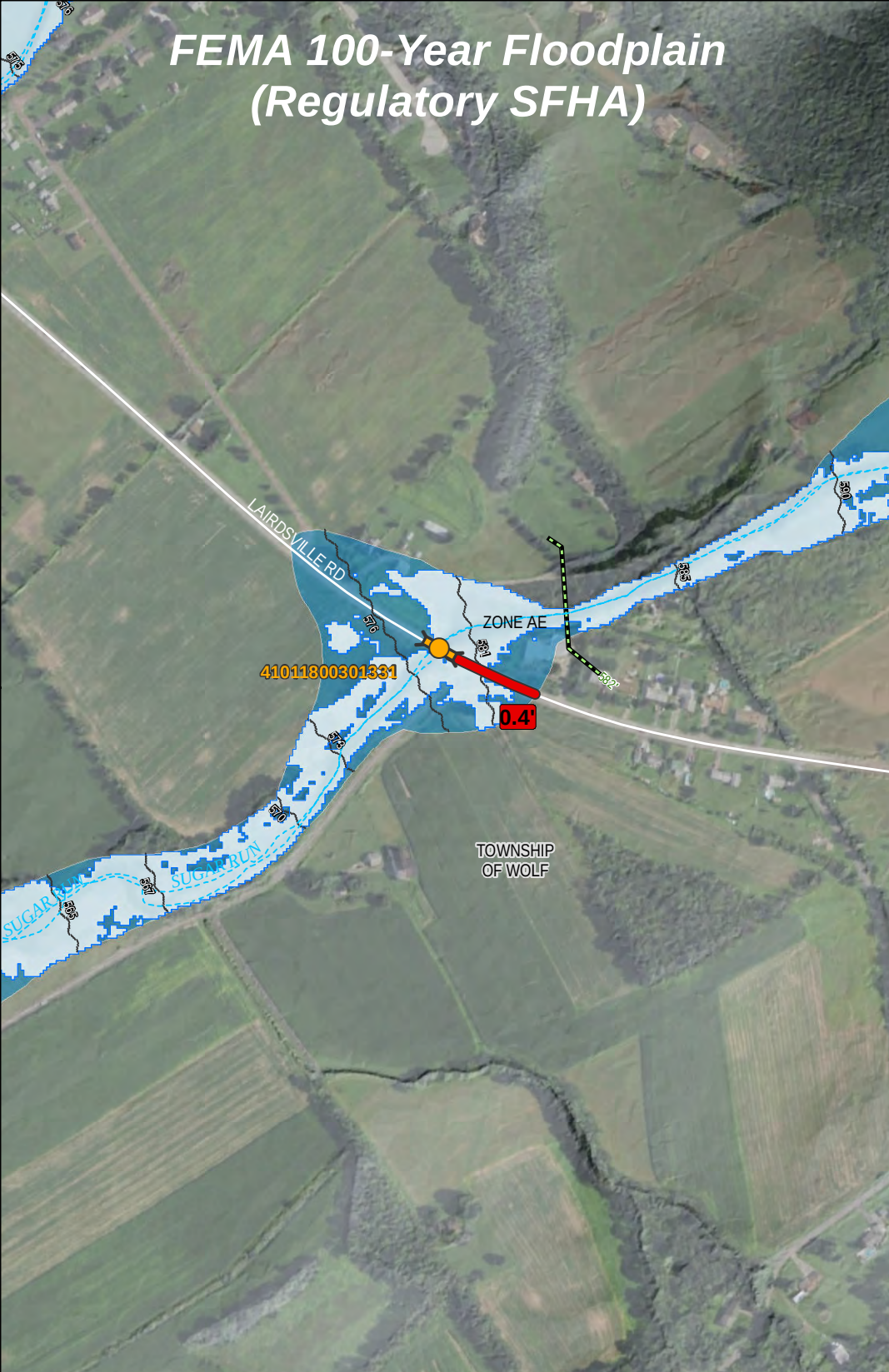
Michael Baker INTERNATIONAL

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

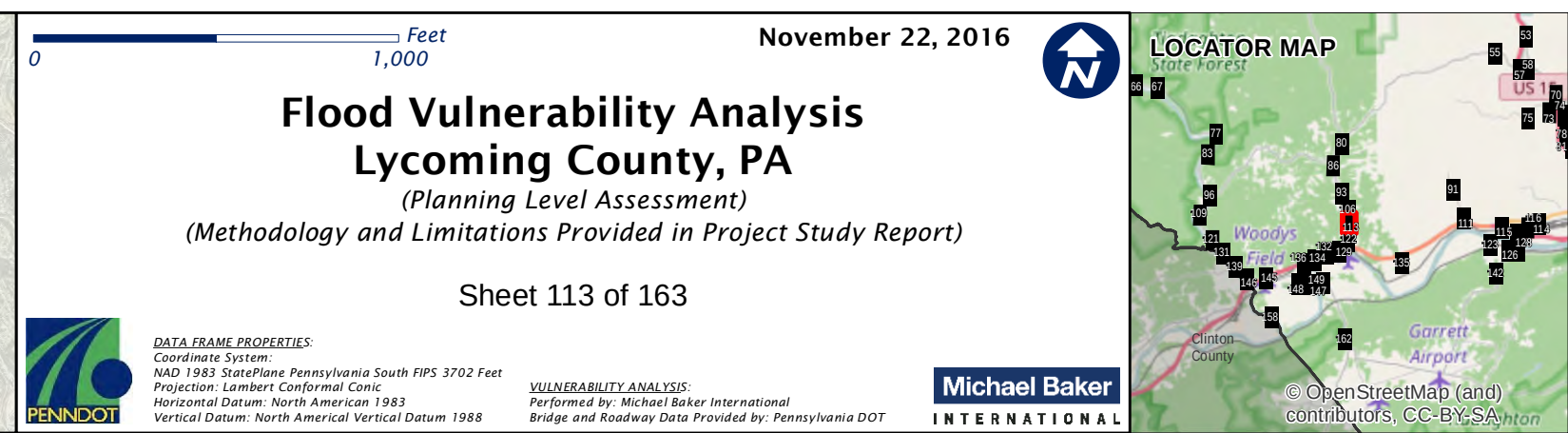
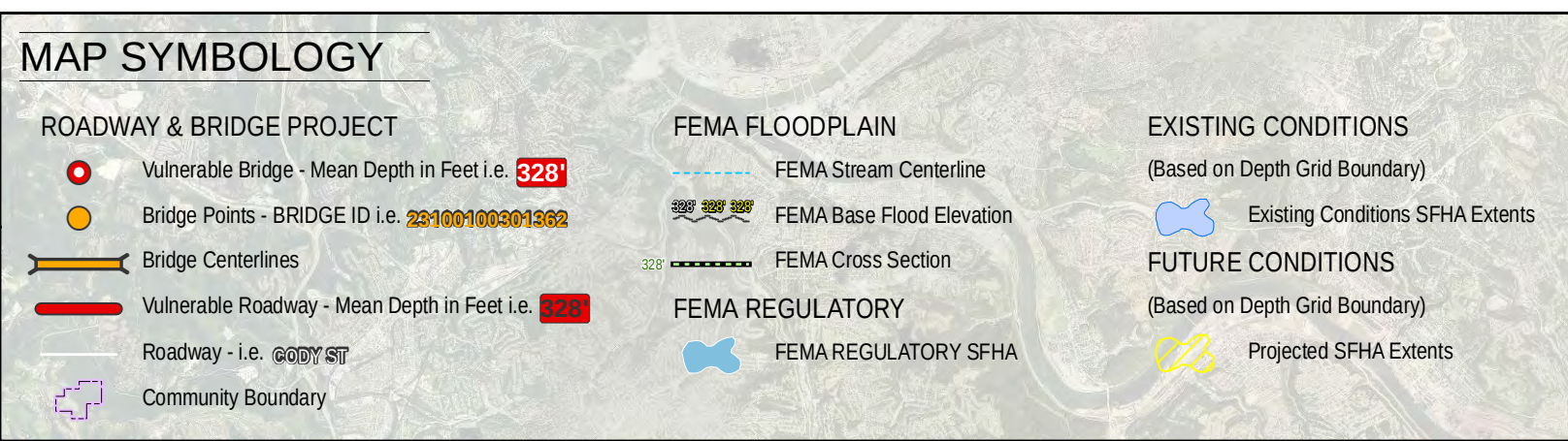
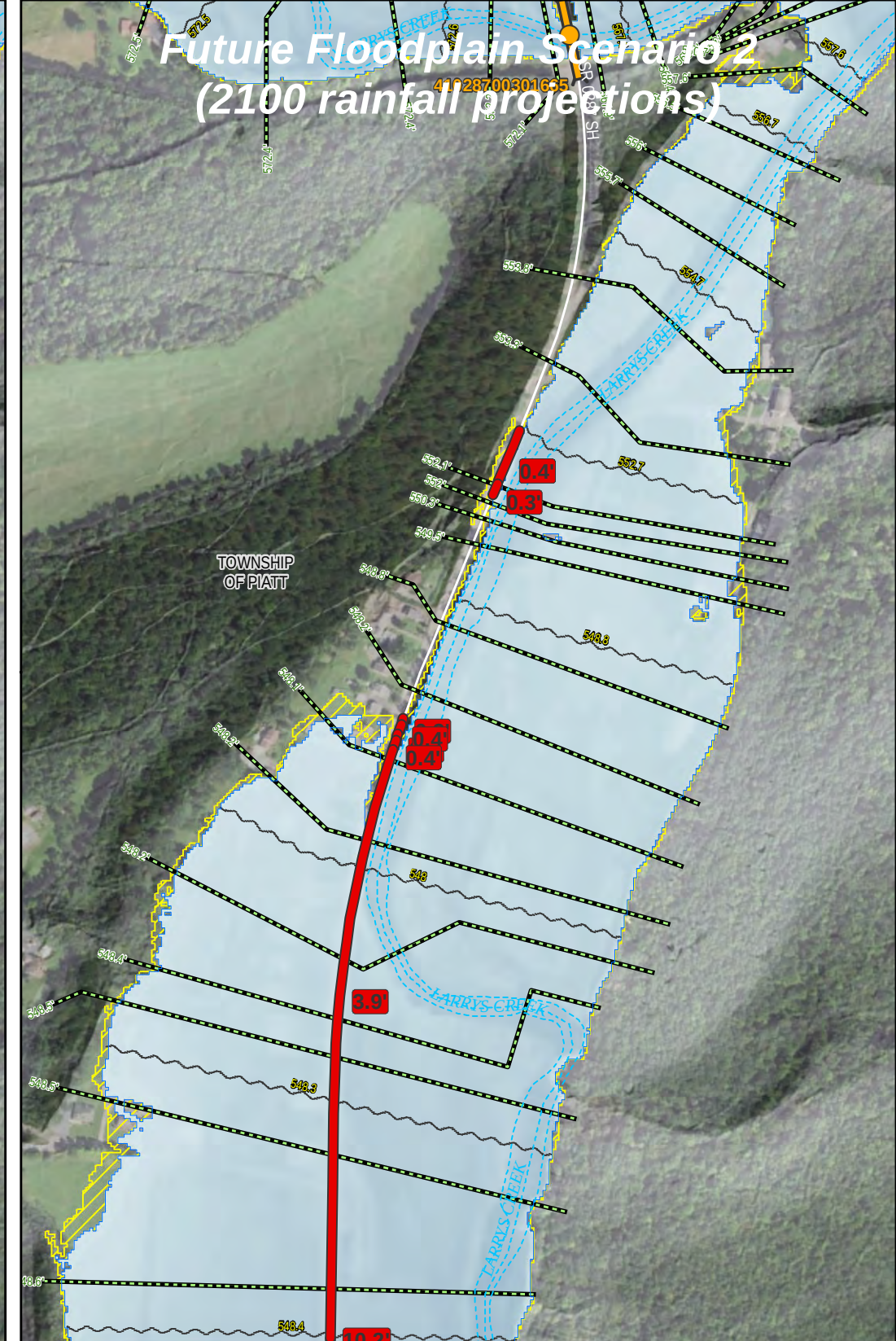
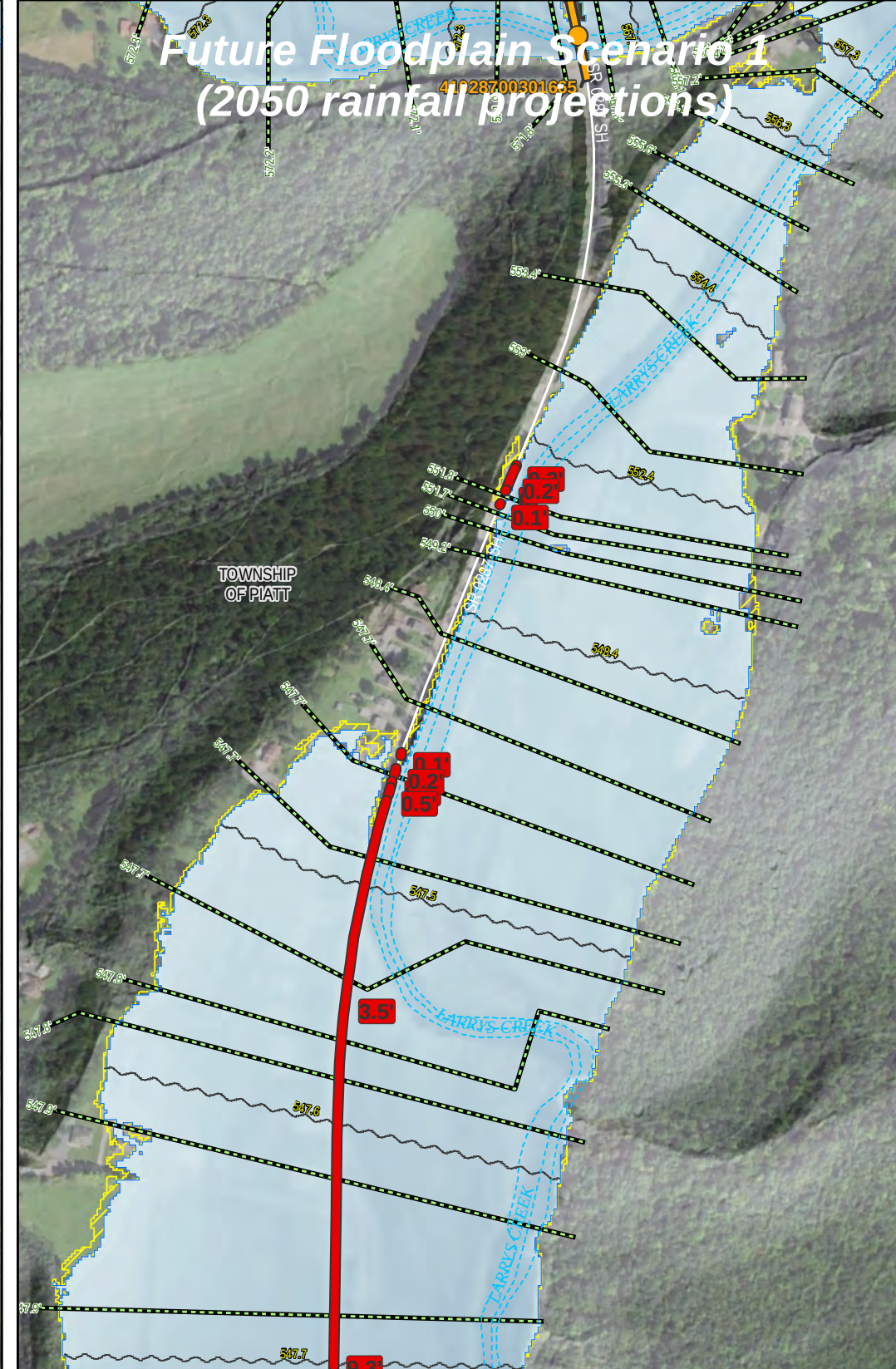
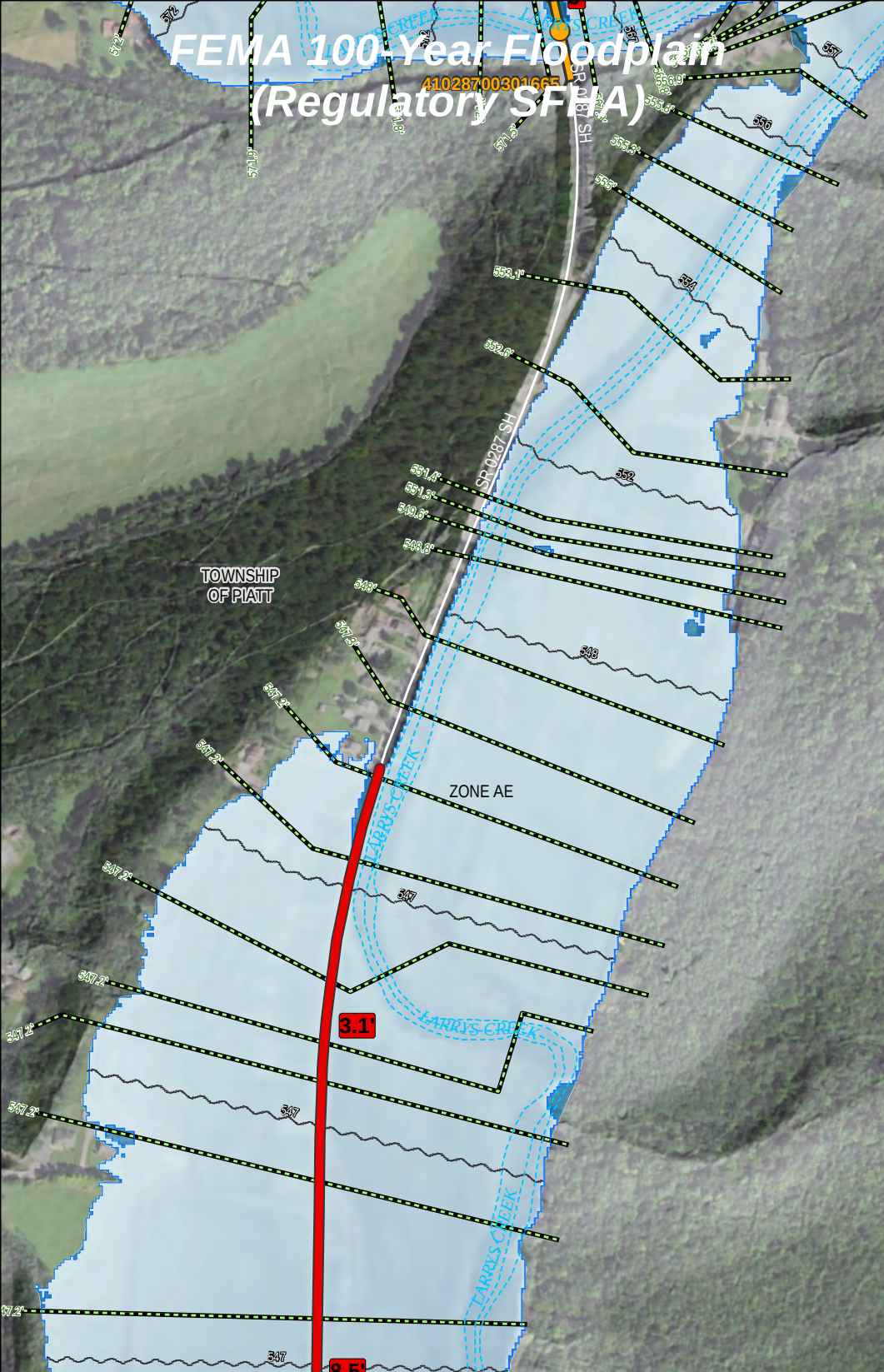
Sheet 112 of 163

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LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

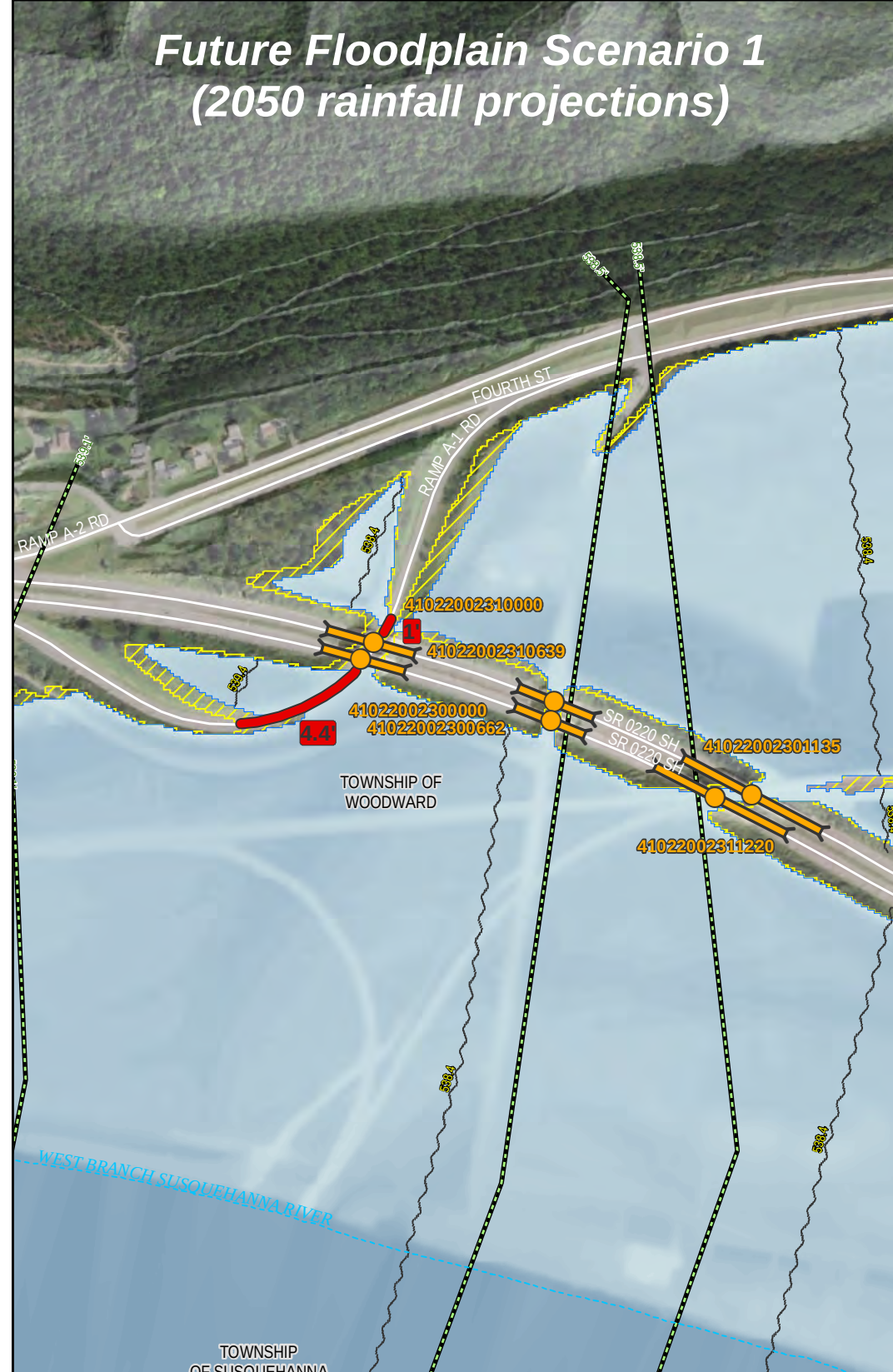
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Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

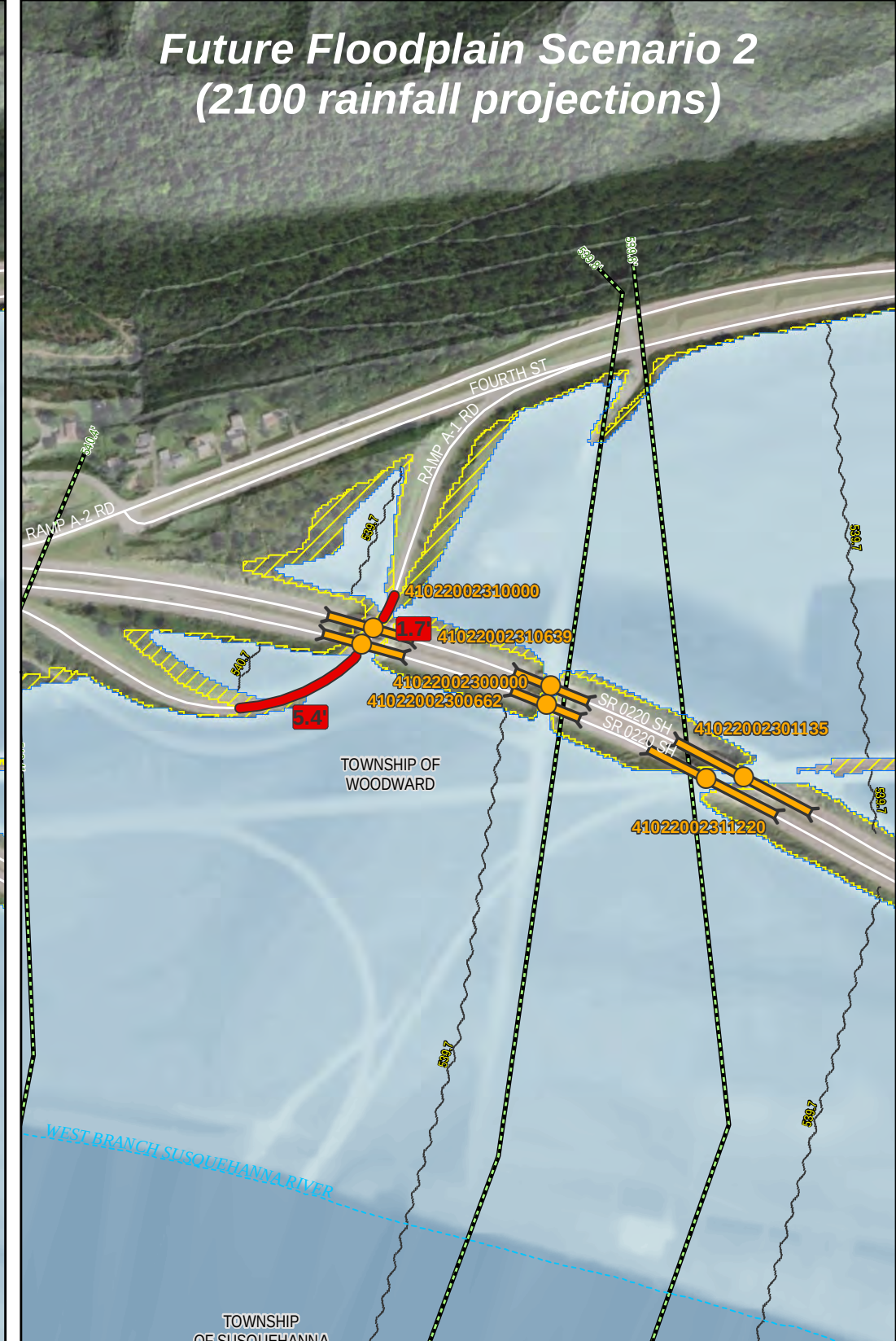
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

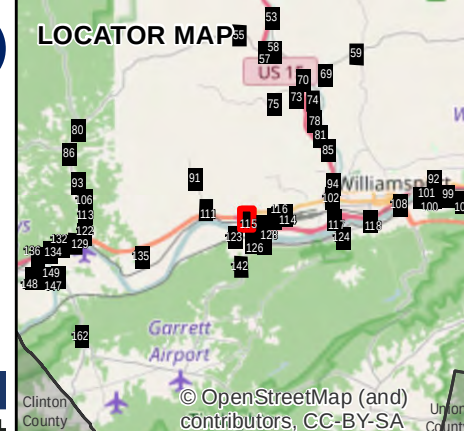
Sheet 115 of 163

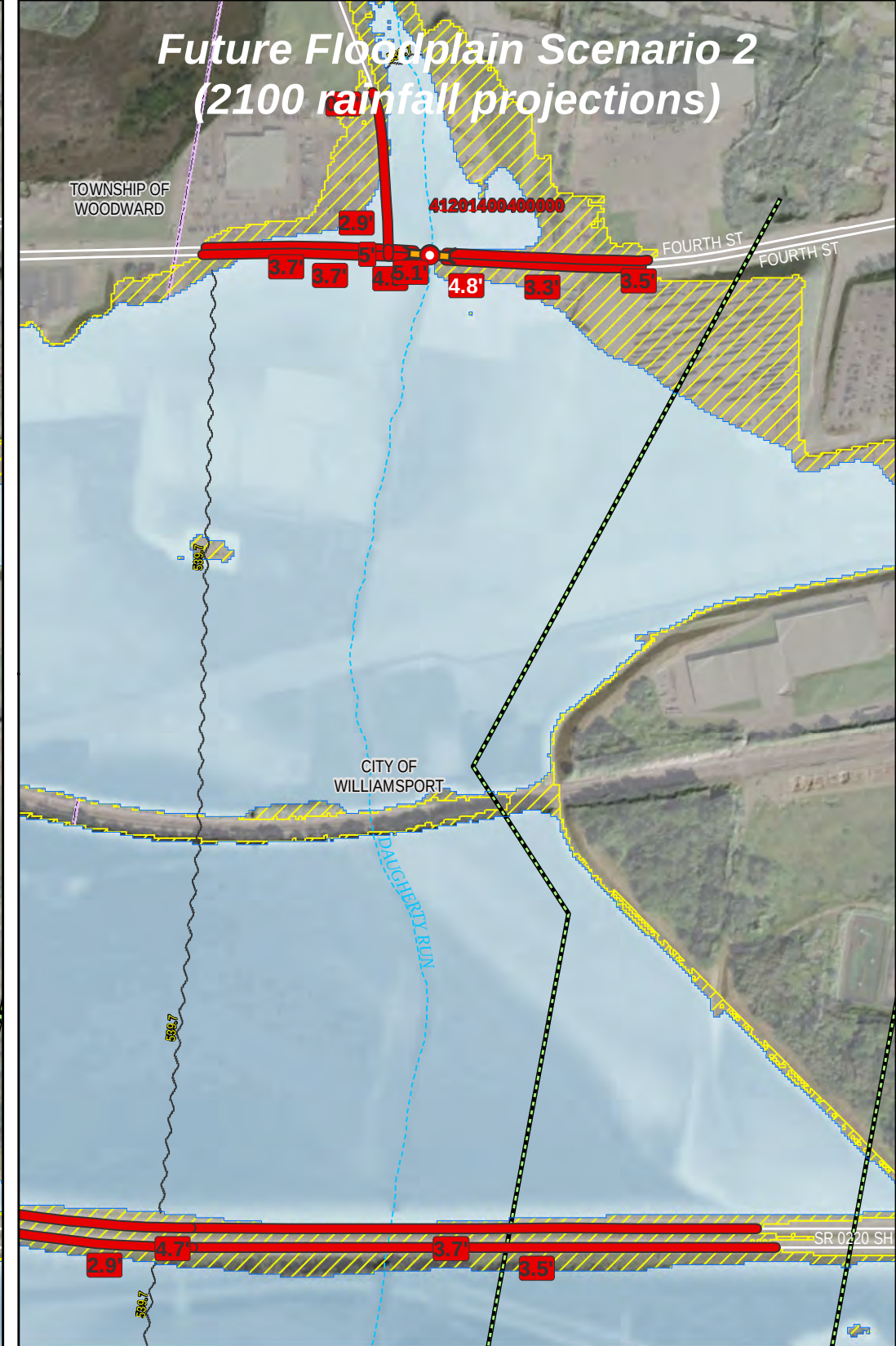
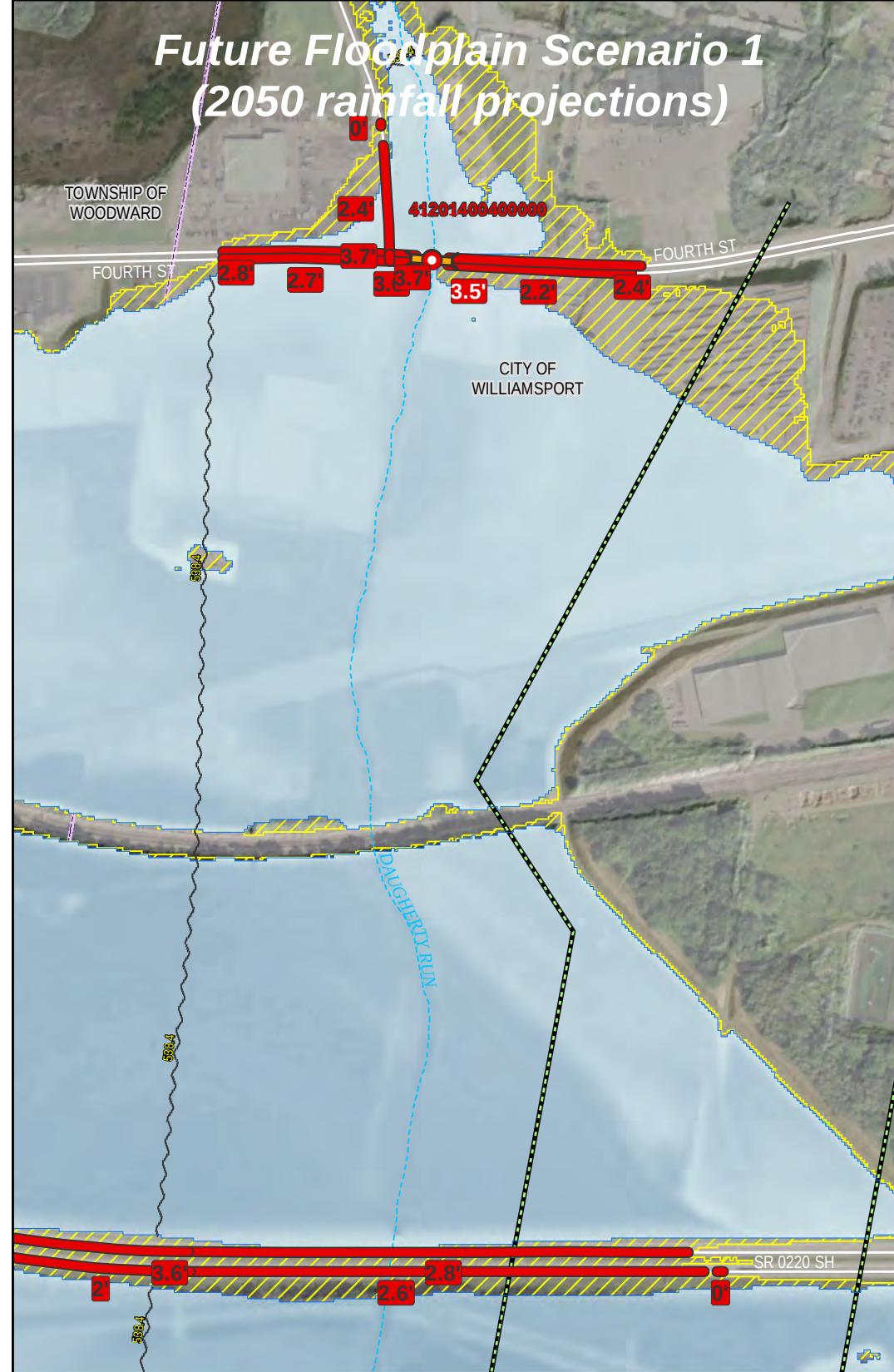
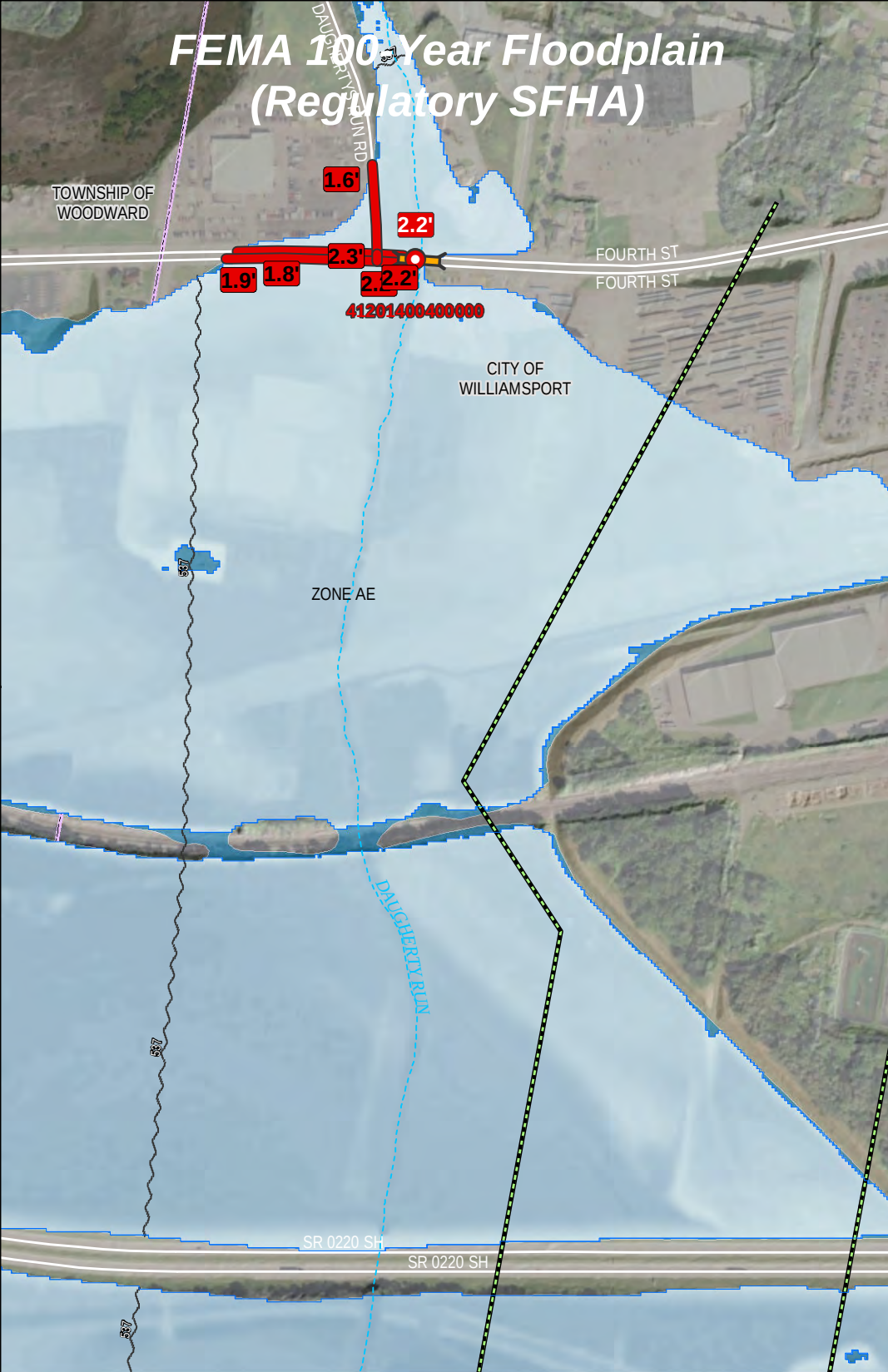


DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

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INTERNATIONAL**





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section
- FEMA REGULATORY
- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents
- FUTURE CONDITIONS
(Based on Depth Grid Boundary)
- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

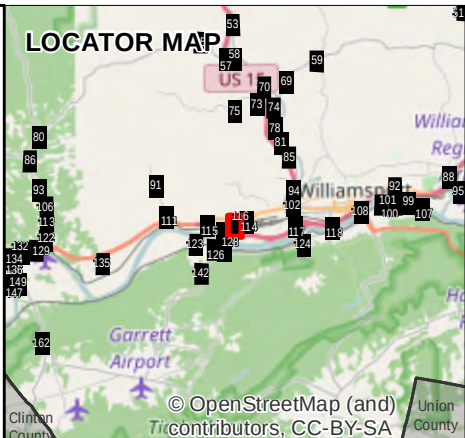
Sheet 116 of 163



DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
INTERNATIONAL**





MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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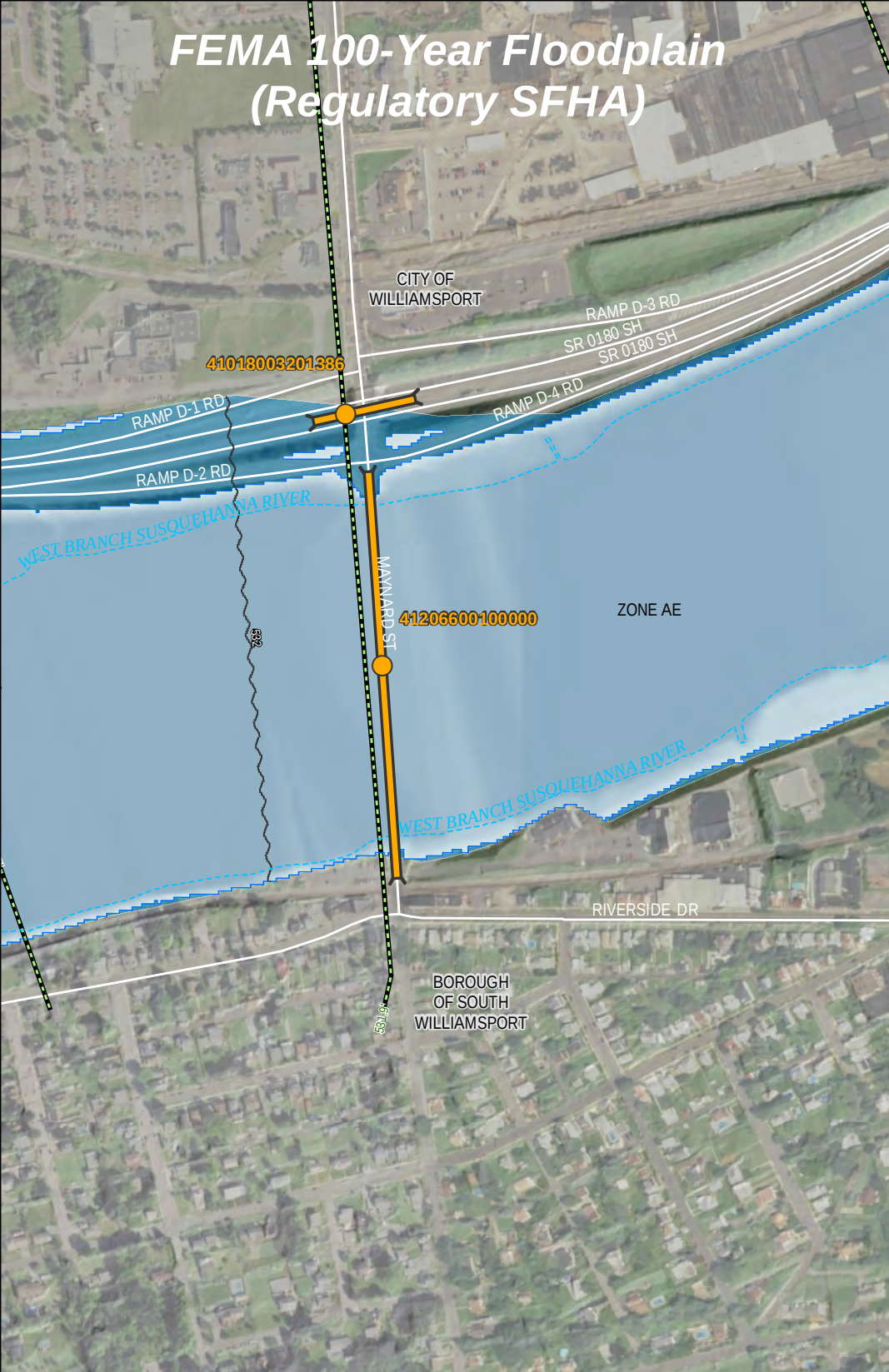
DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
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Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

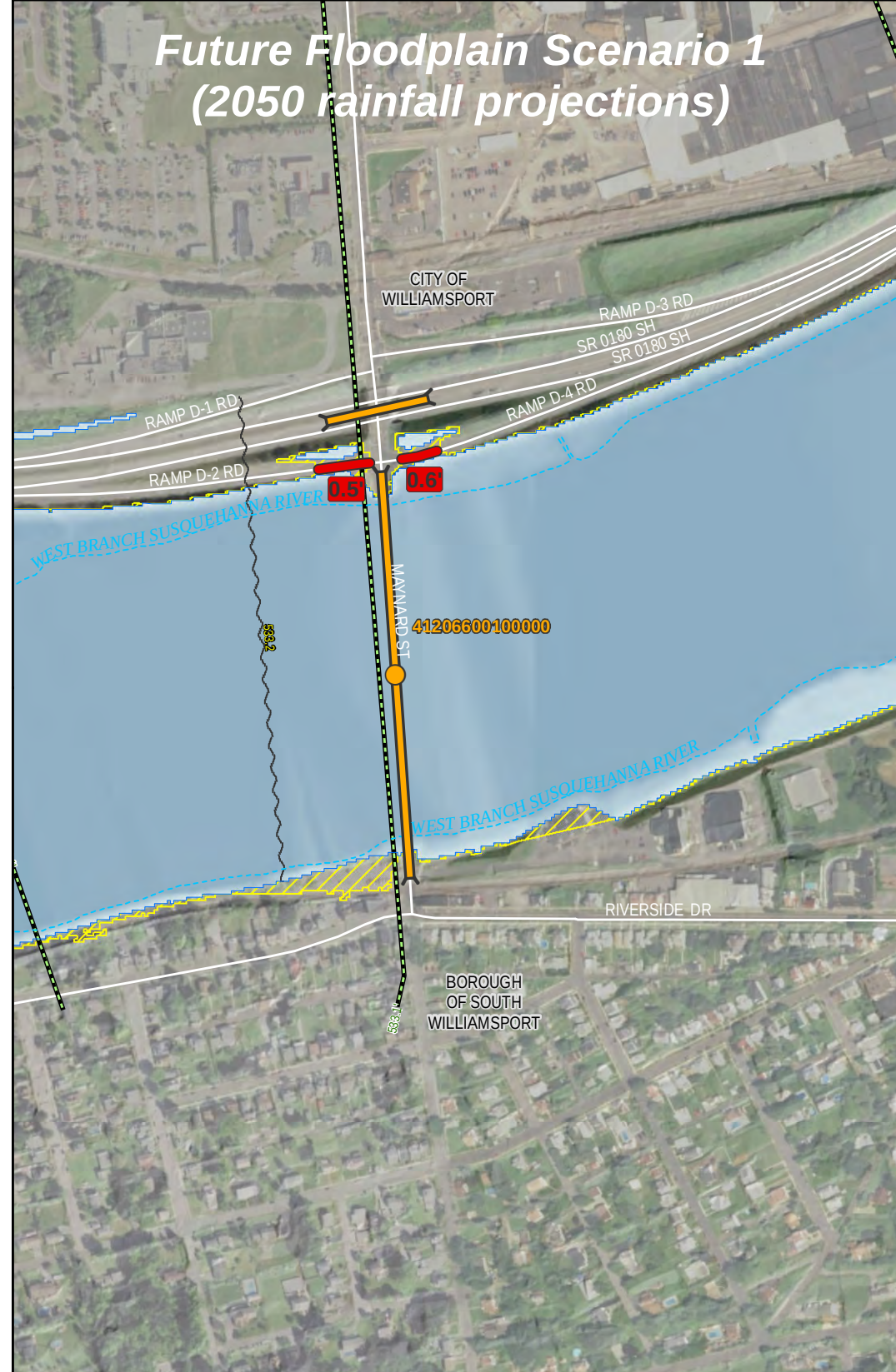
LOCATOR MAP

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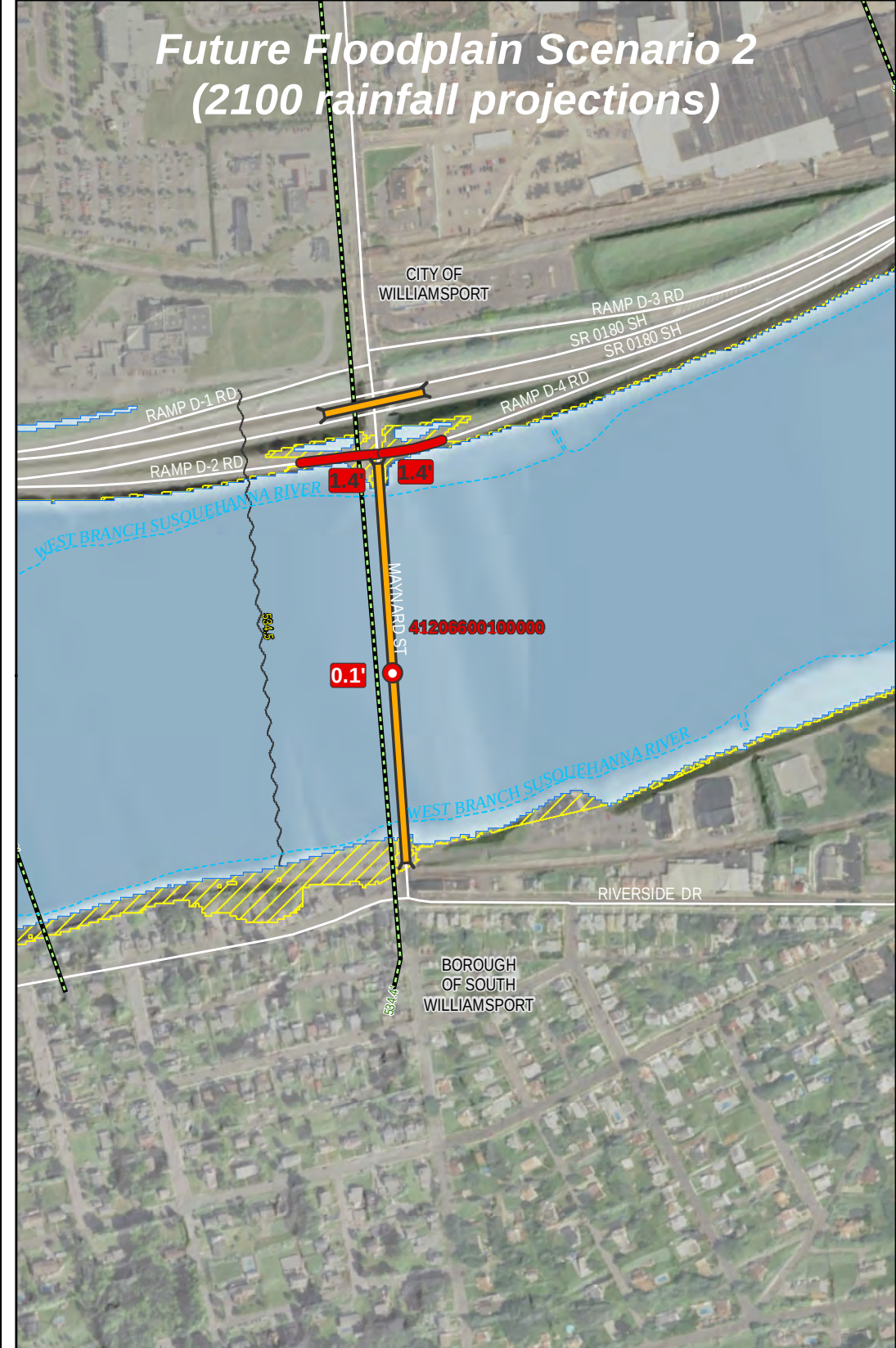
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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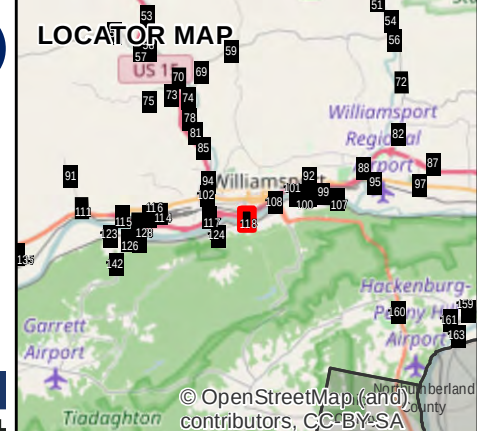


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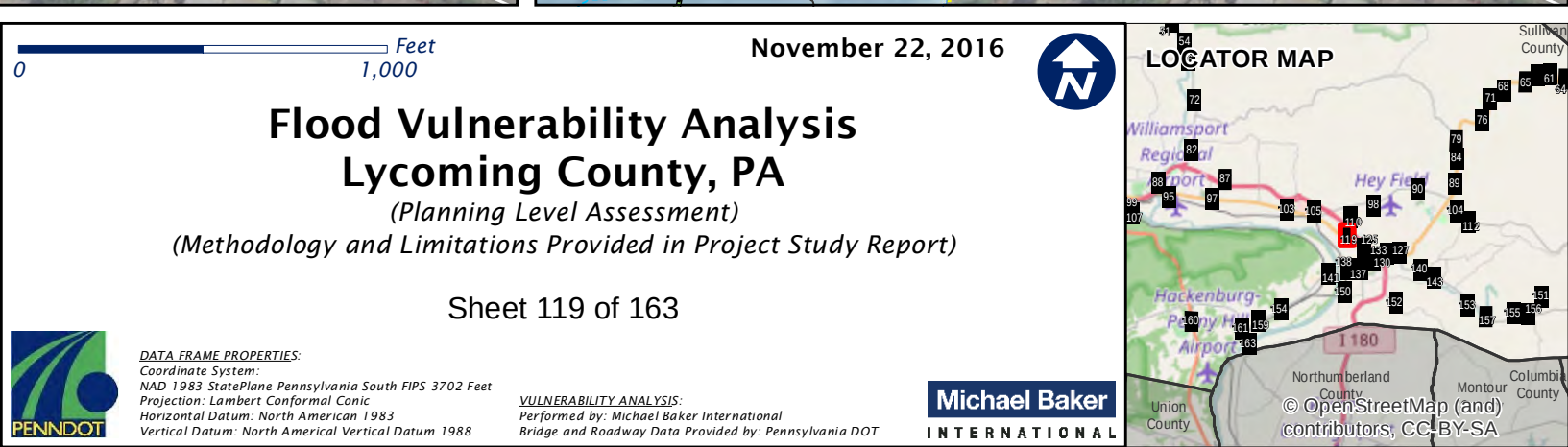
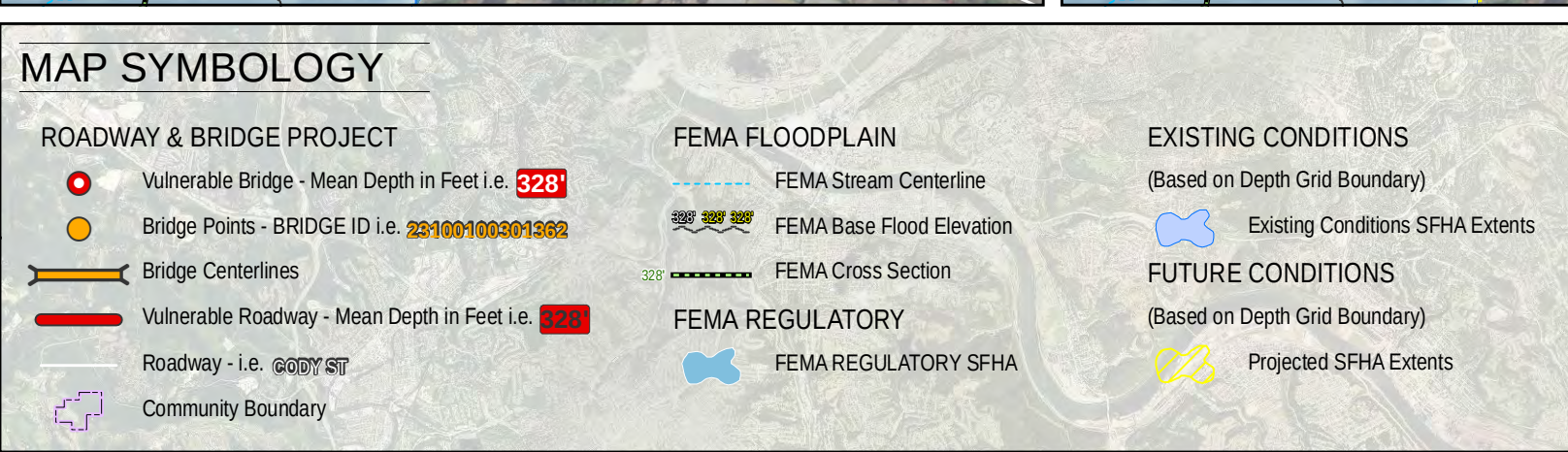
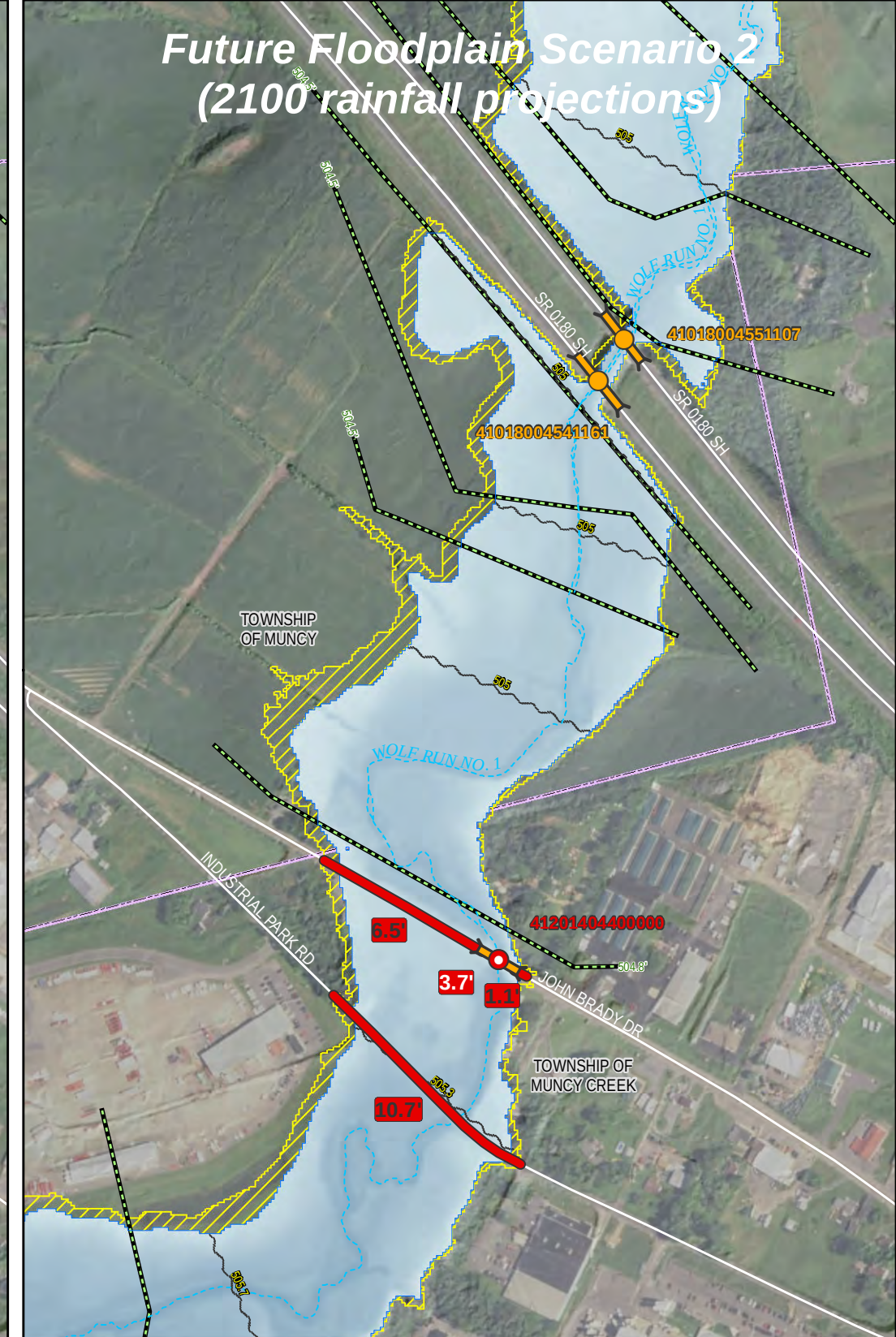
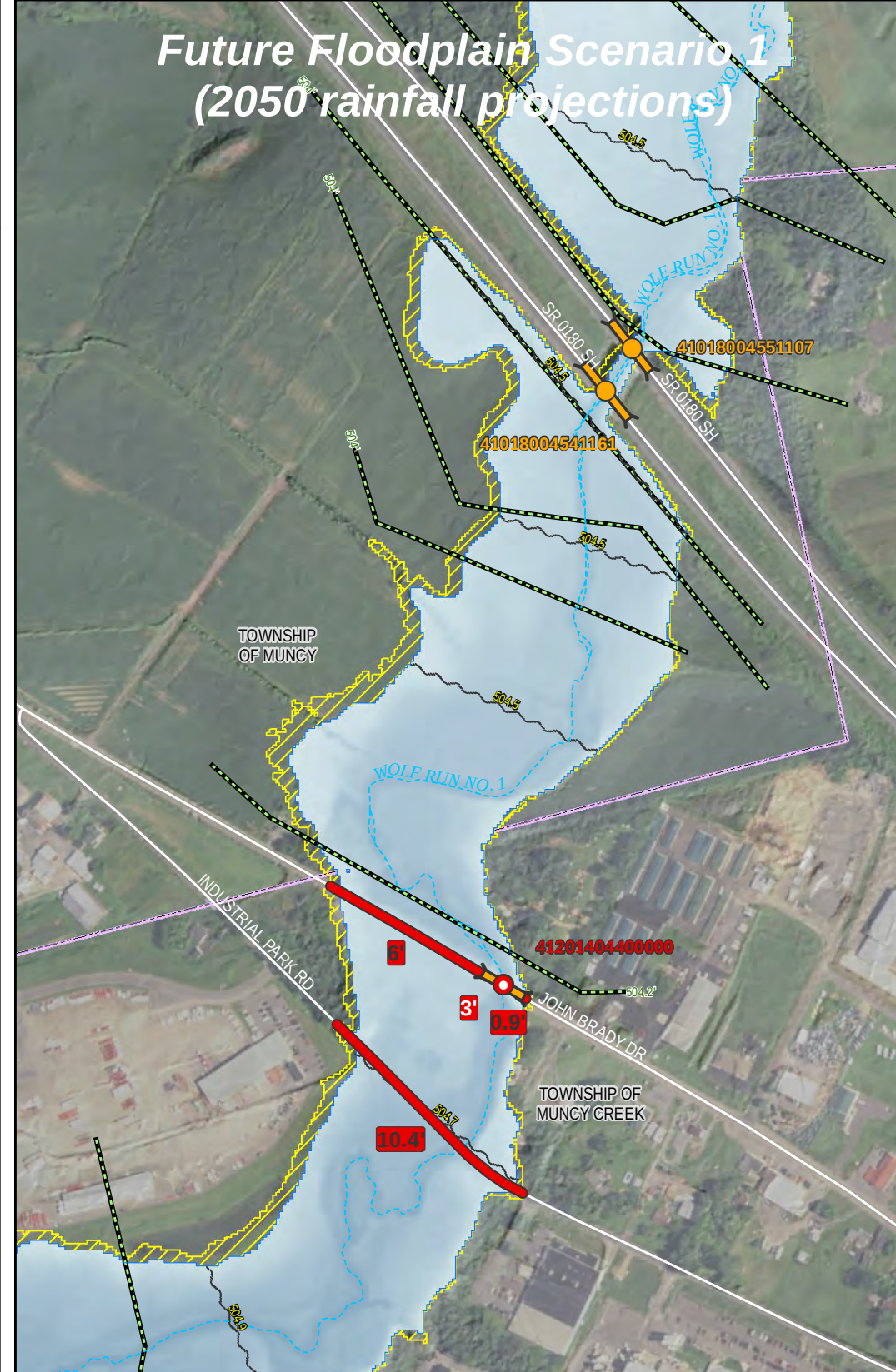
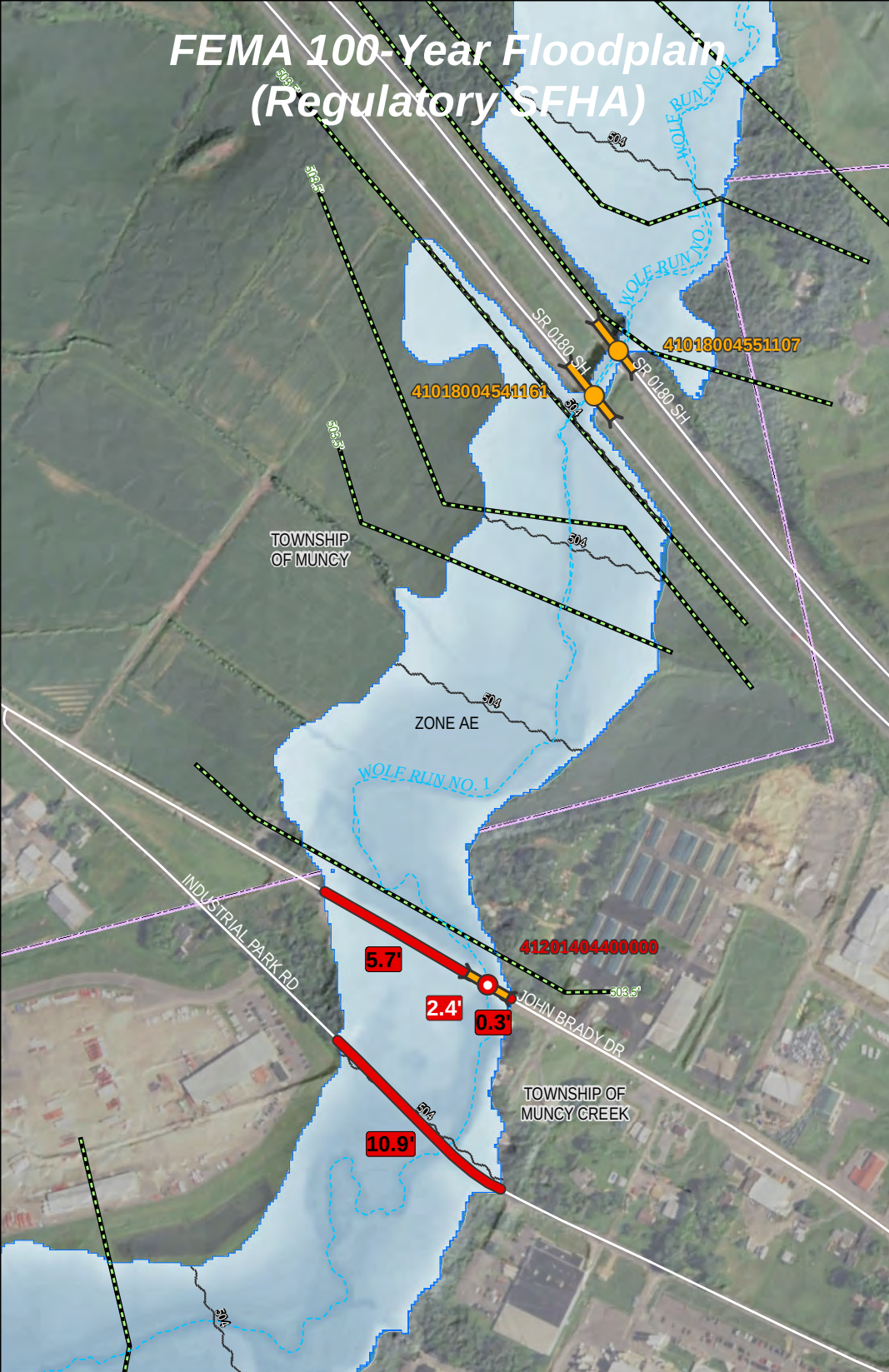
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

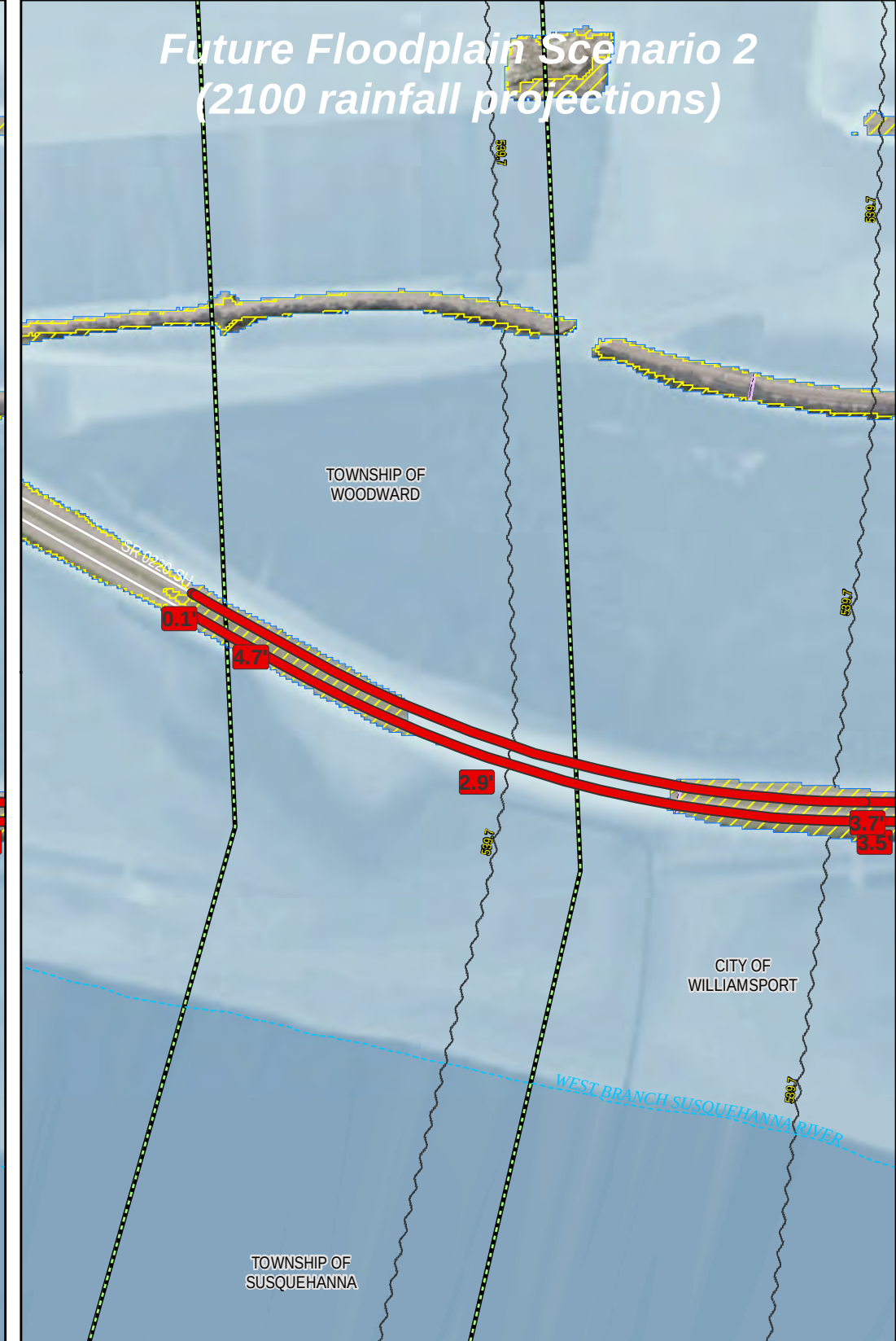
Michael Baker
INTERNATIONAL

LOCATOR MAP



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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis

Lycoming County, PA

(Planning Level Assessment)

(Methodology and Limitations Provided in Project Study Report)

Sheet 120 of 163

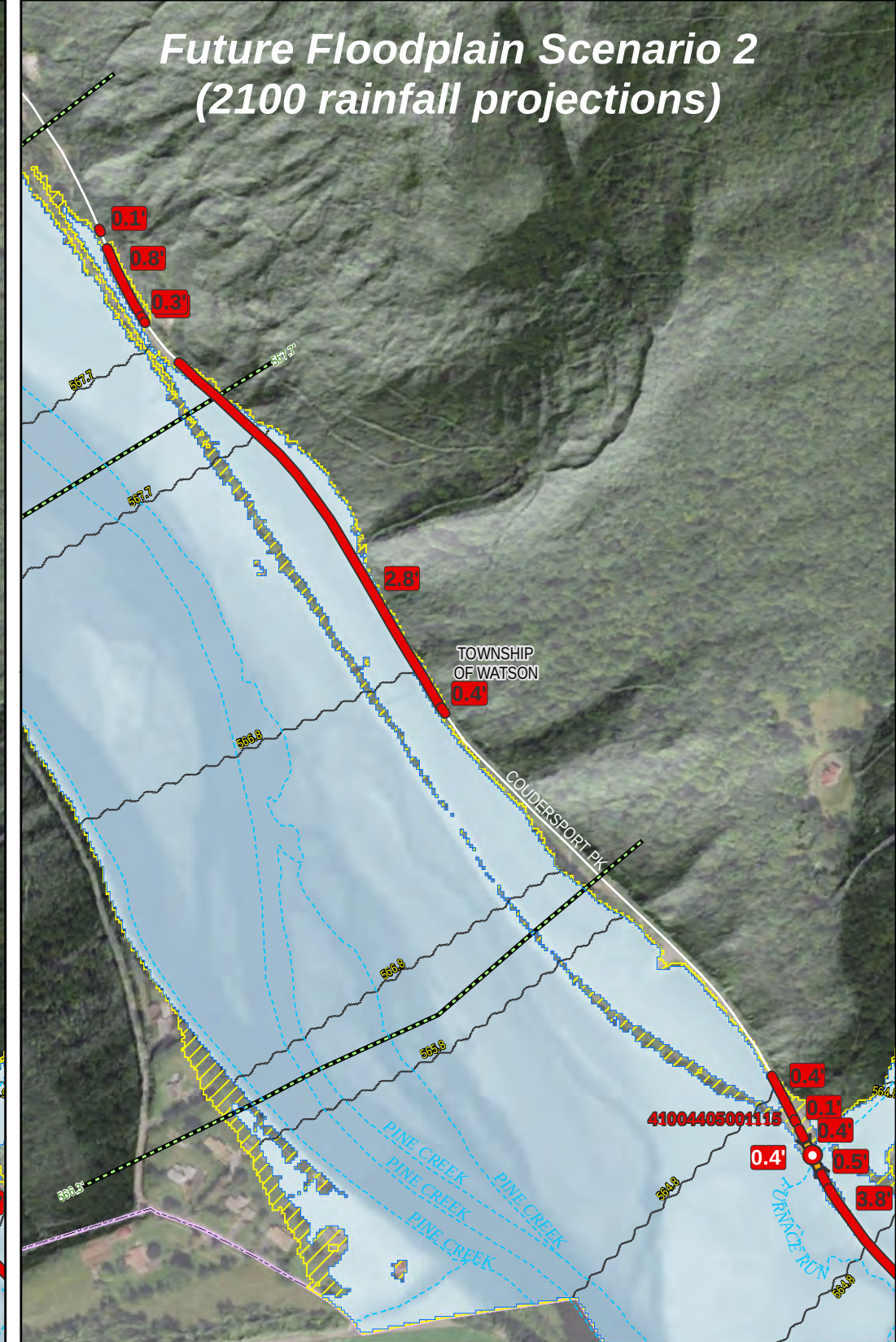
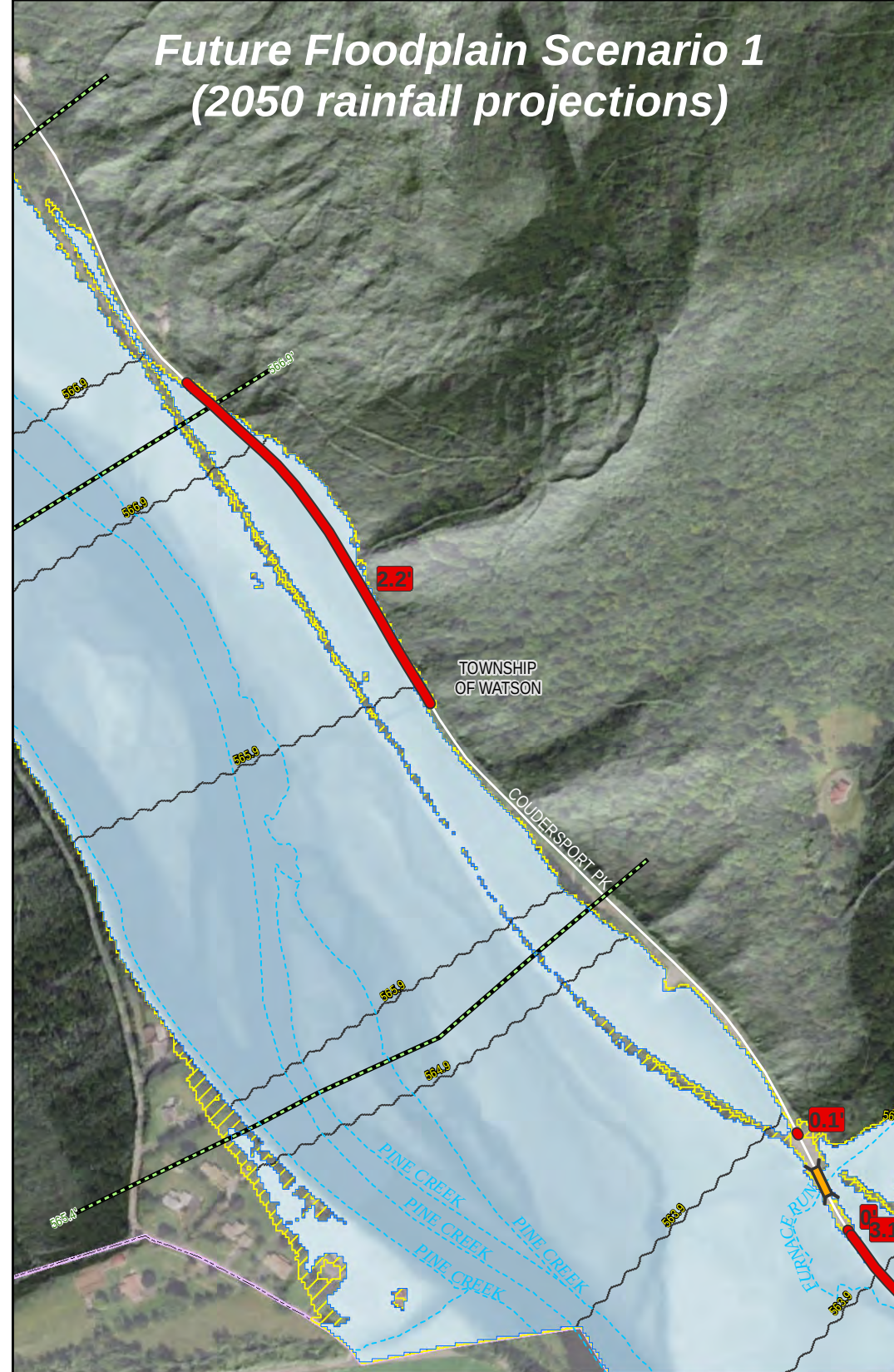
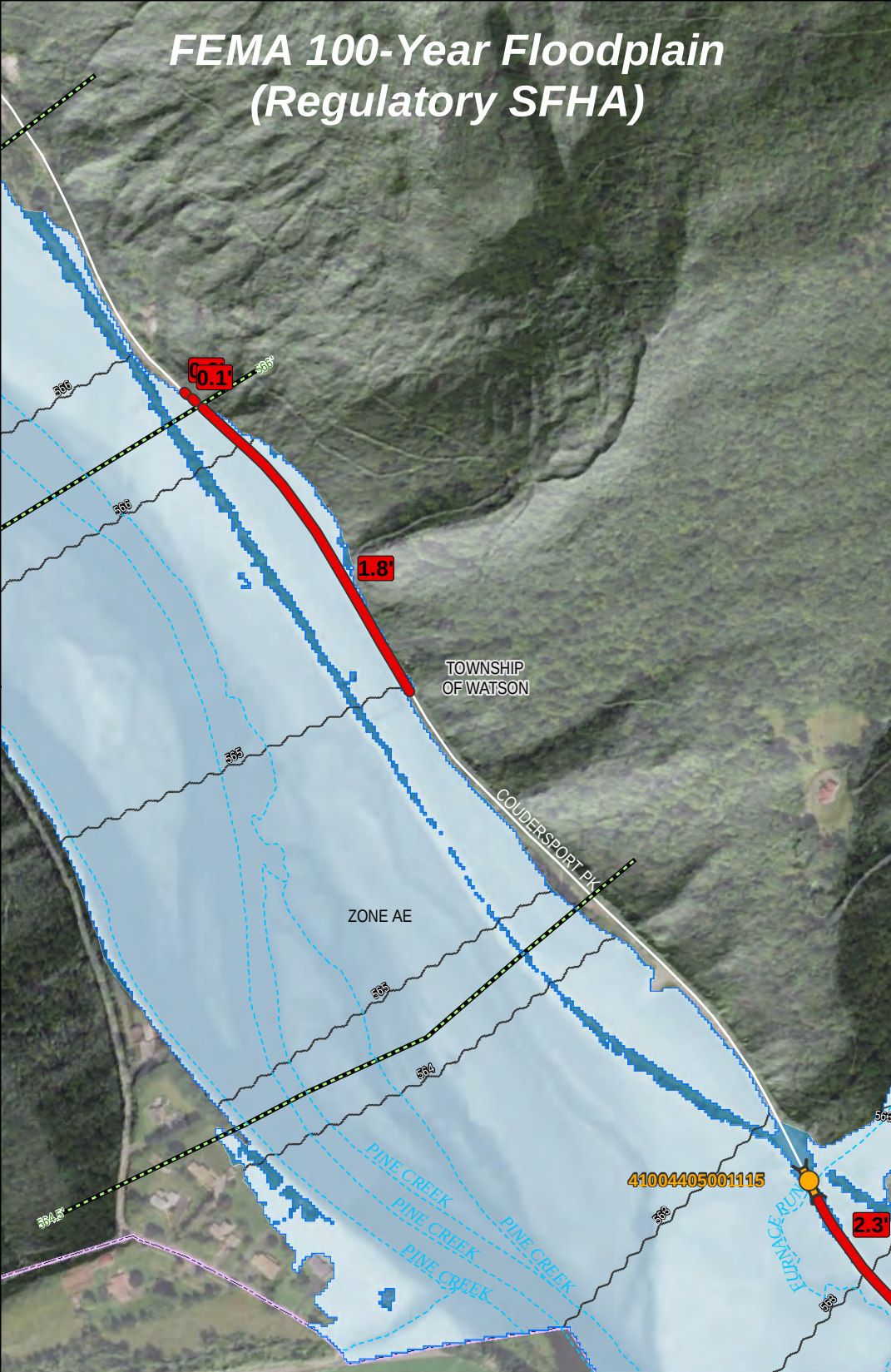
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NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

Michael Baker
INTERNATIONAL

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary
FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA
EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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PENNDOT

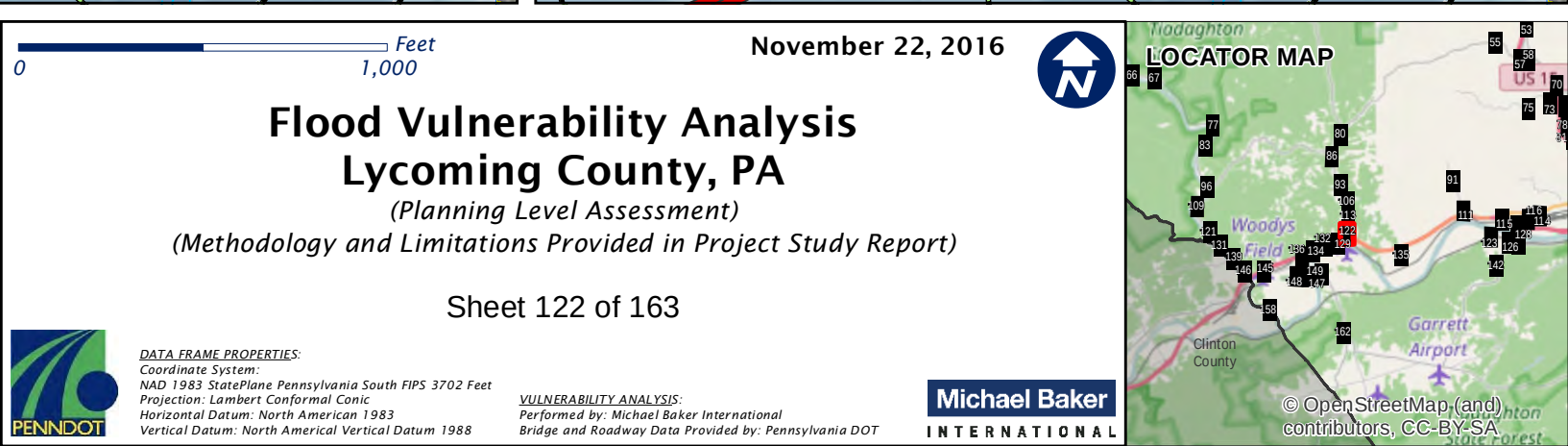
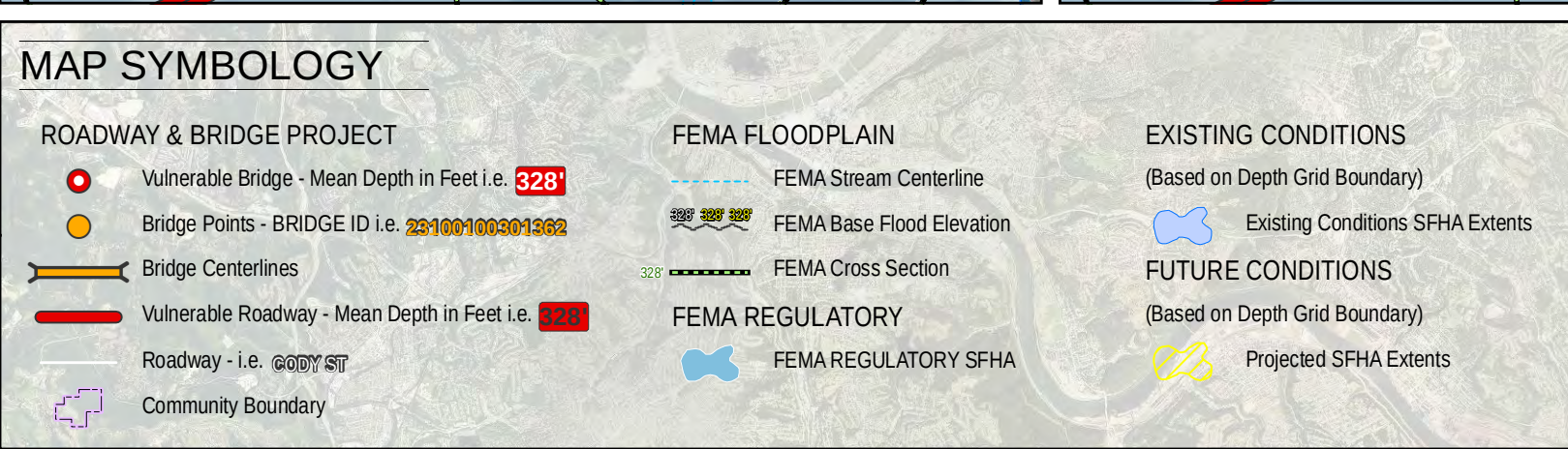
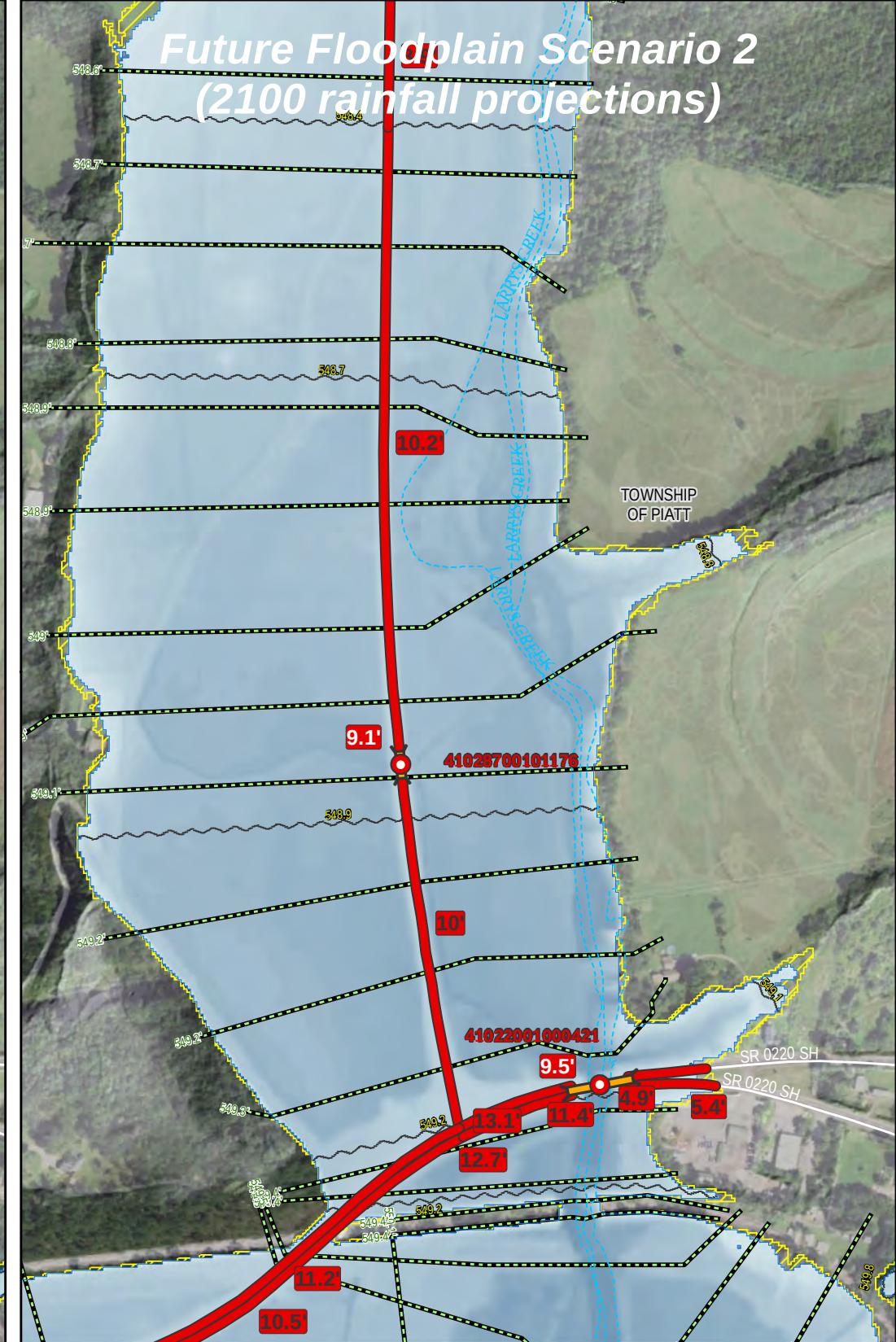
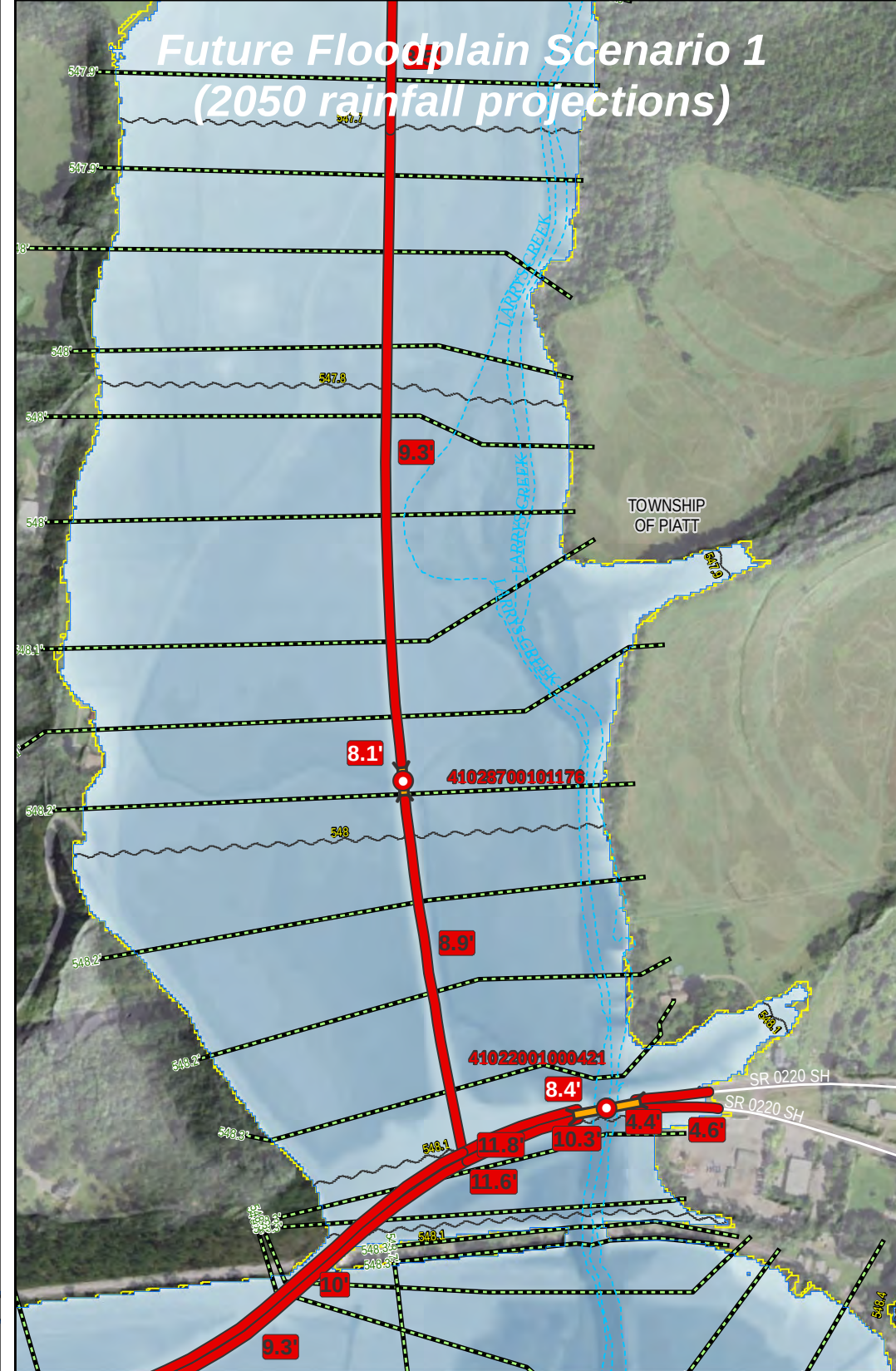
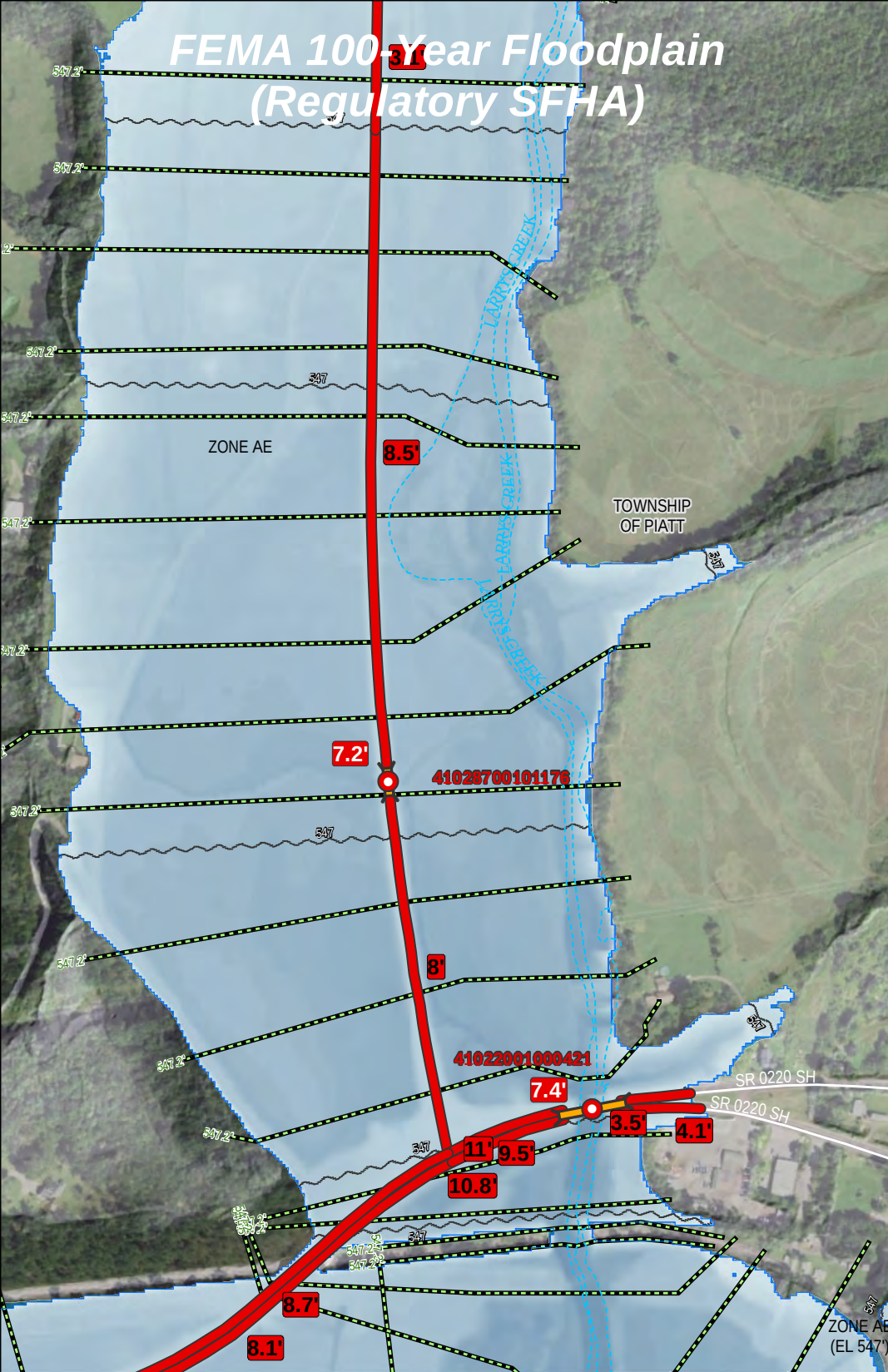
Michael Baker INTERNATIONAL

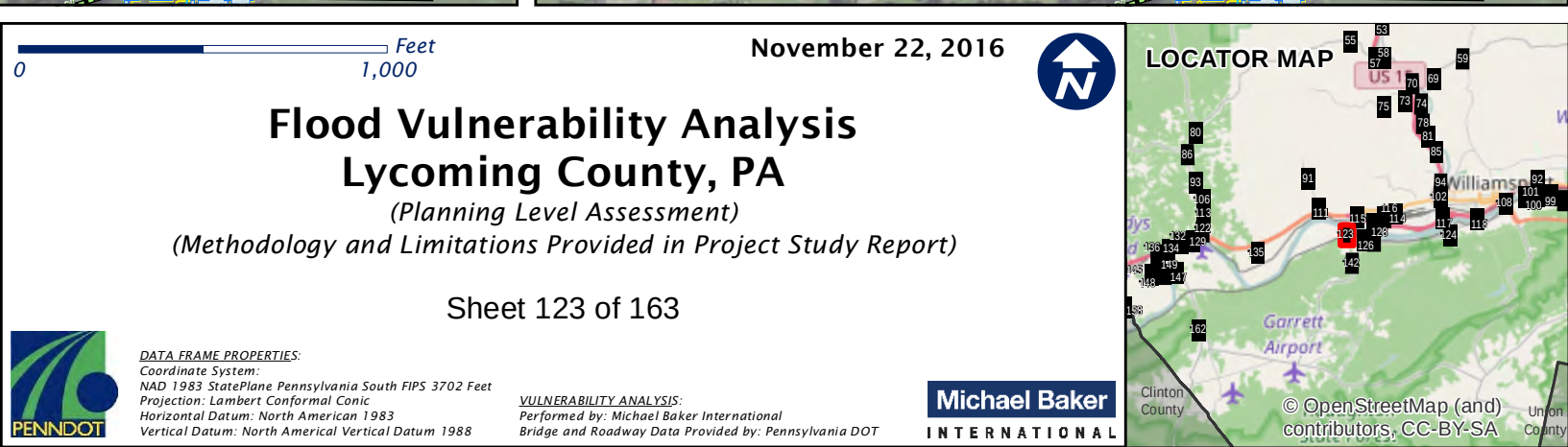
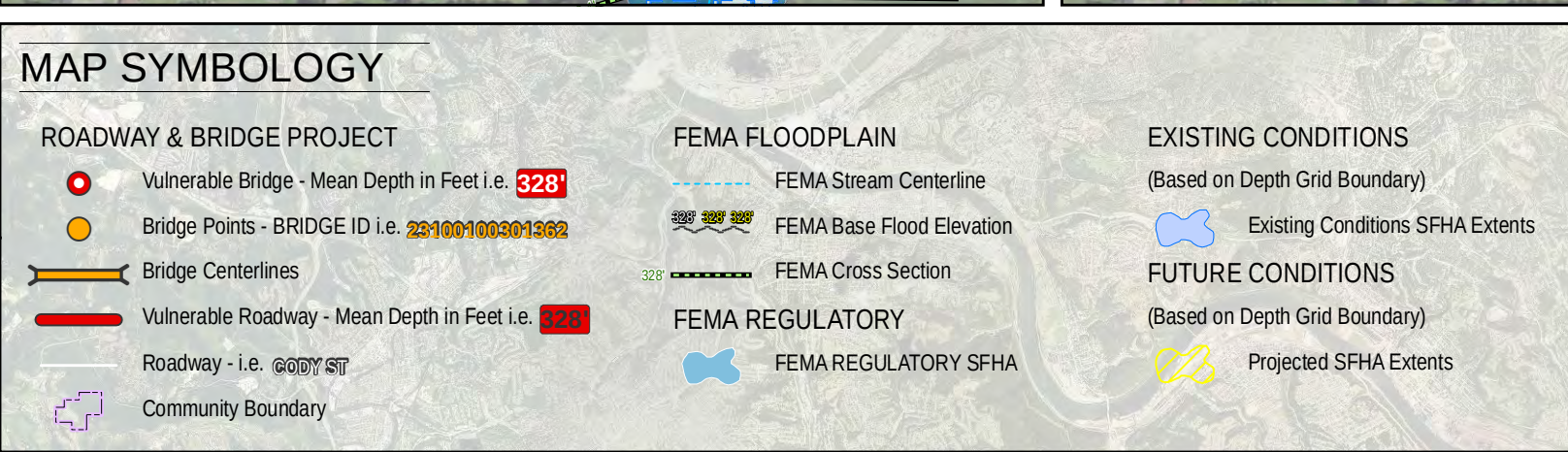
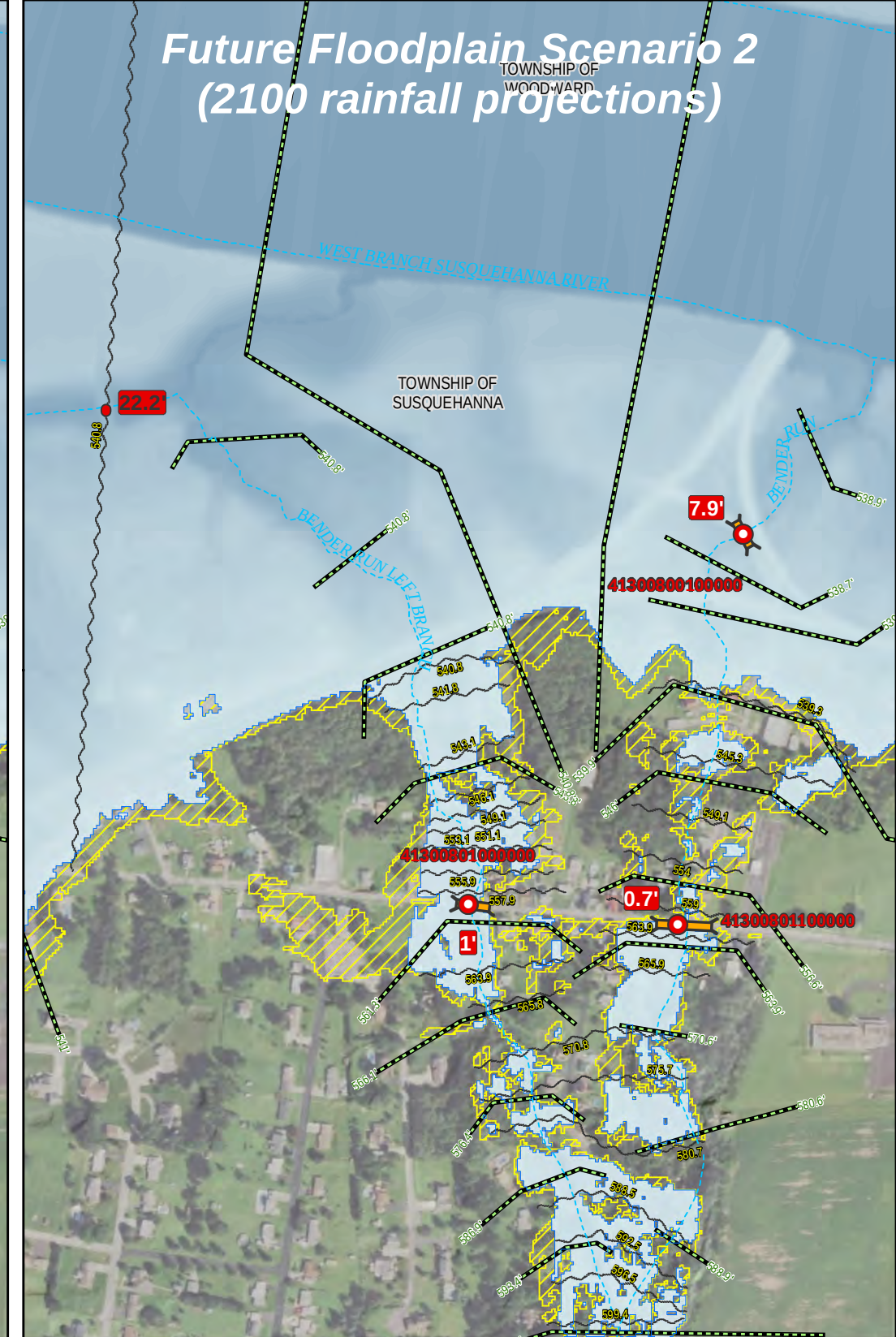
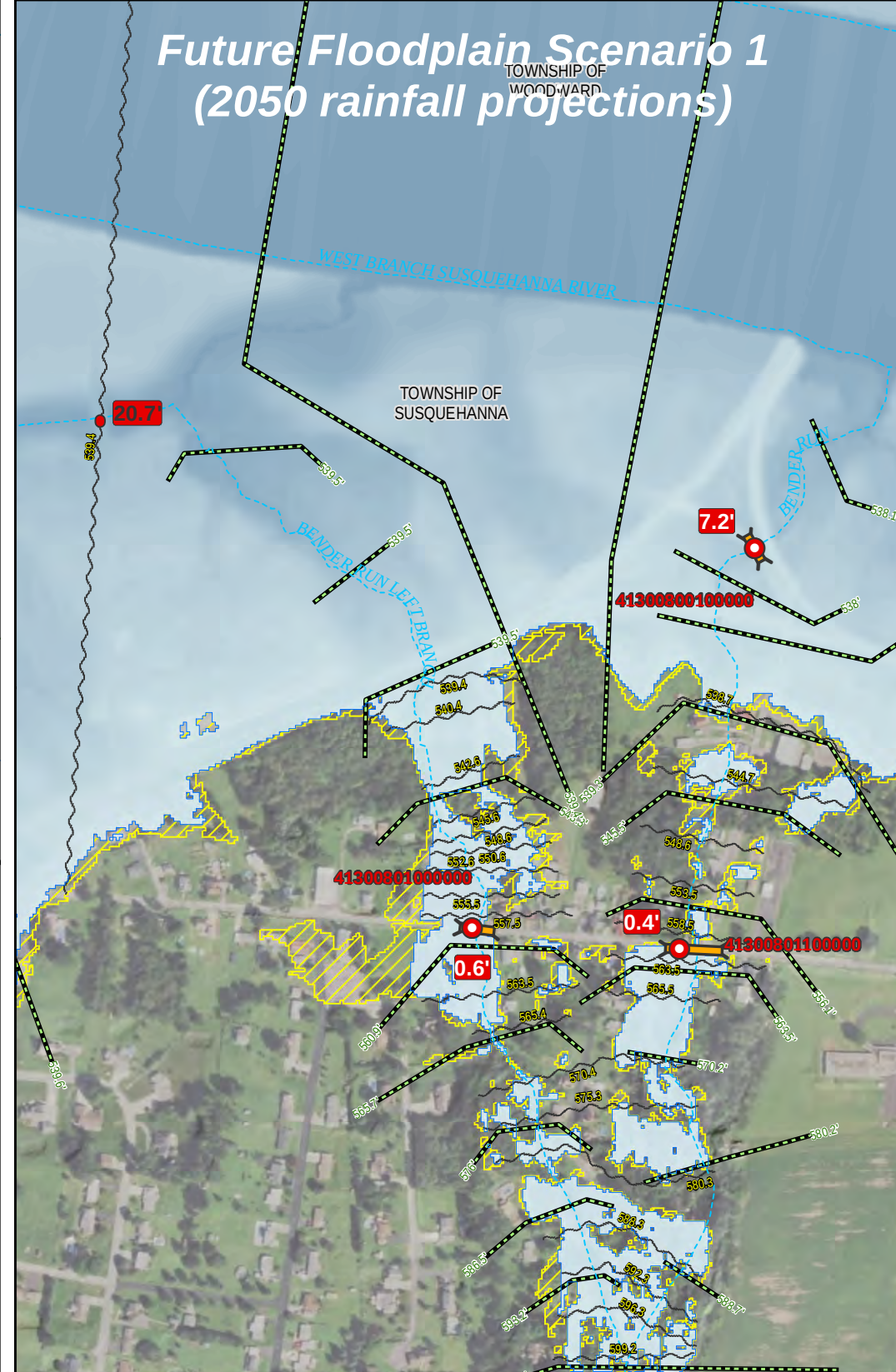
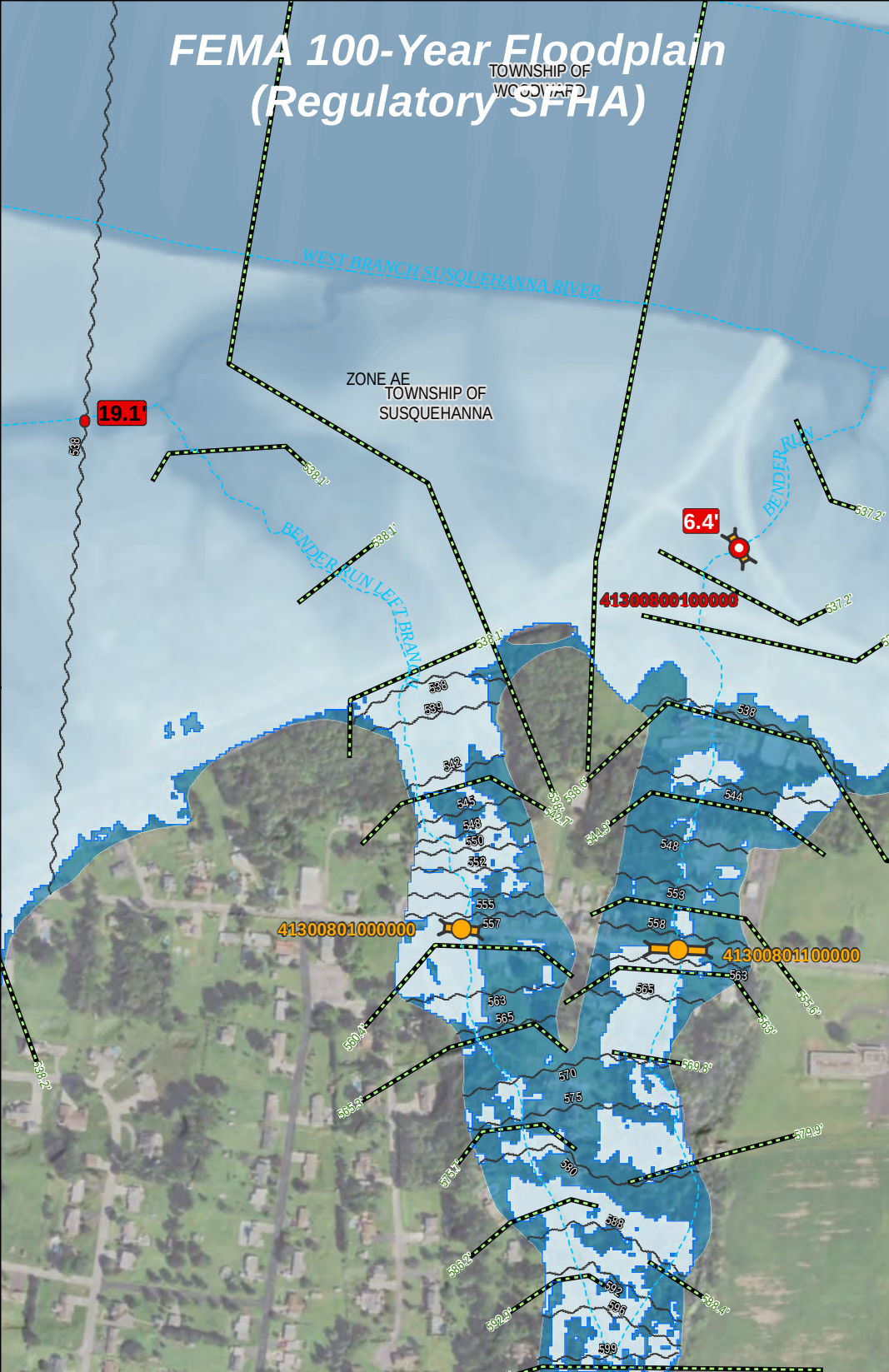
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Vertical Datum: North American Vertical Datum 1988

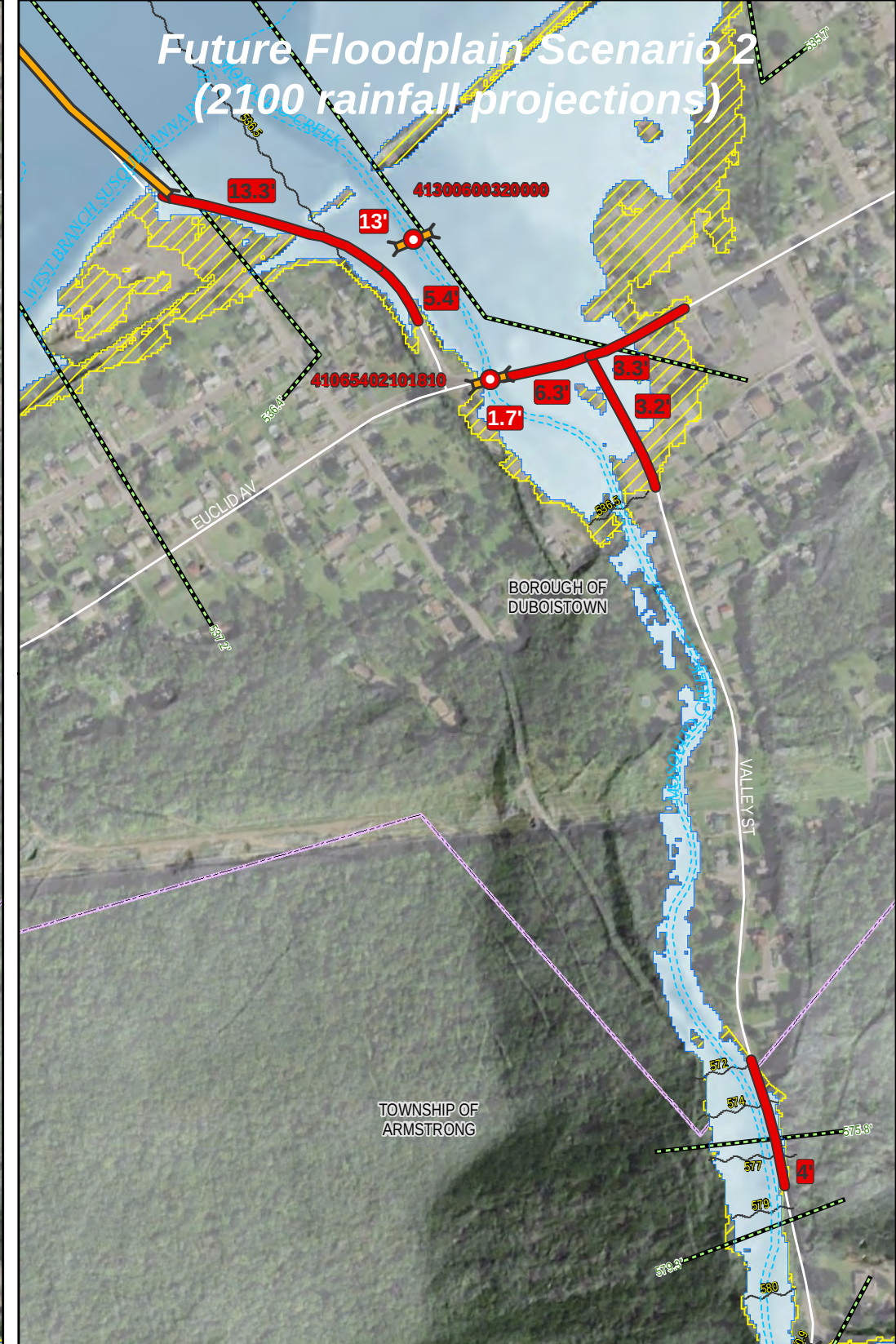
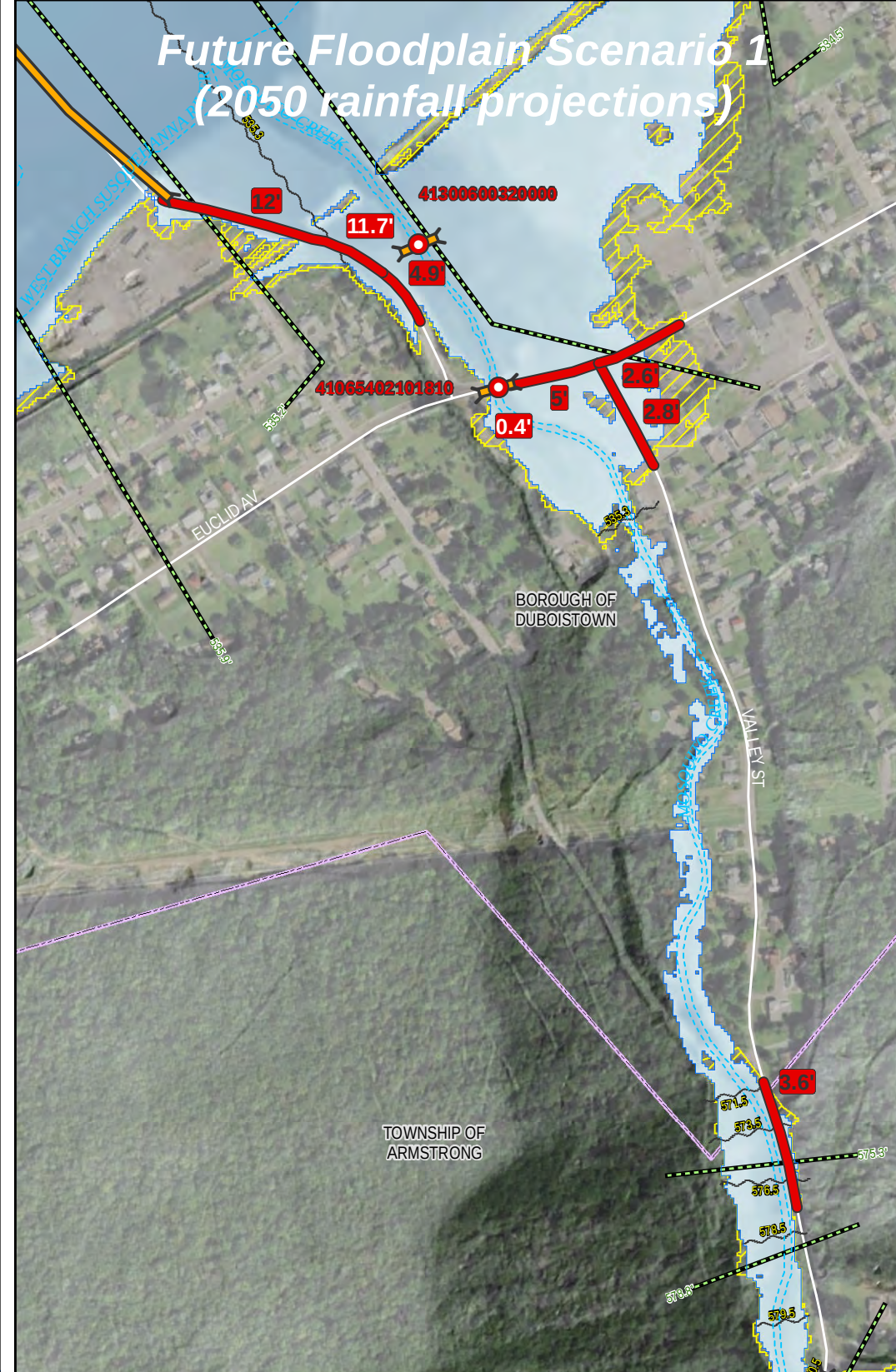
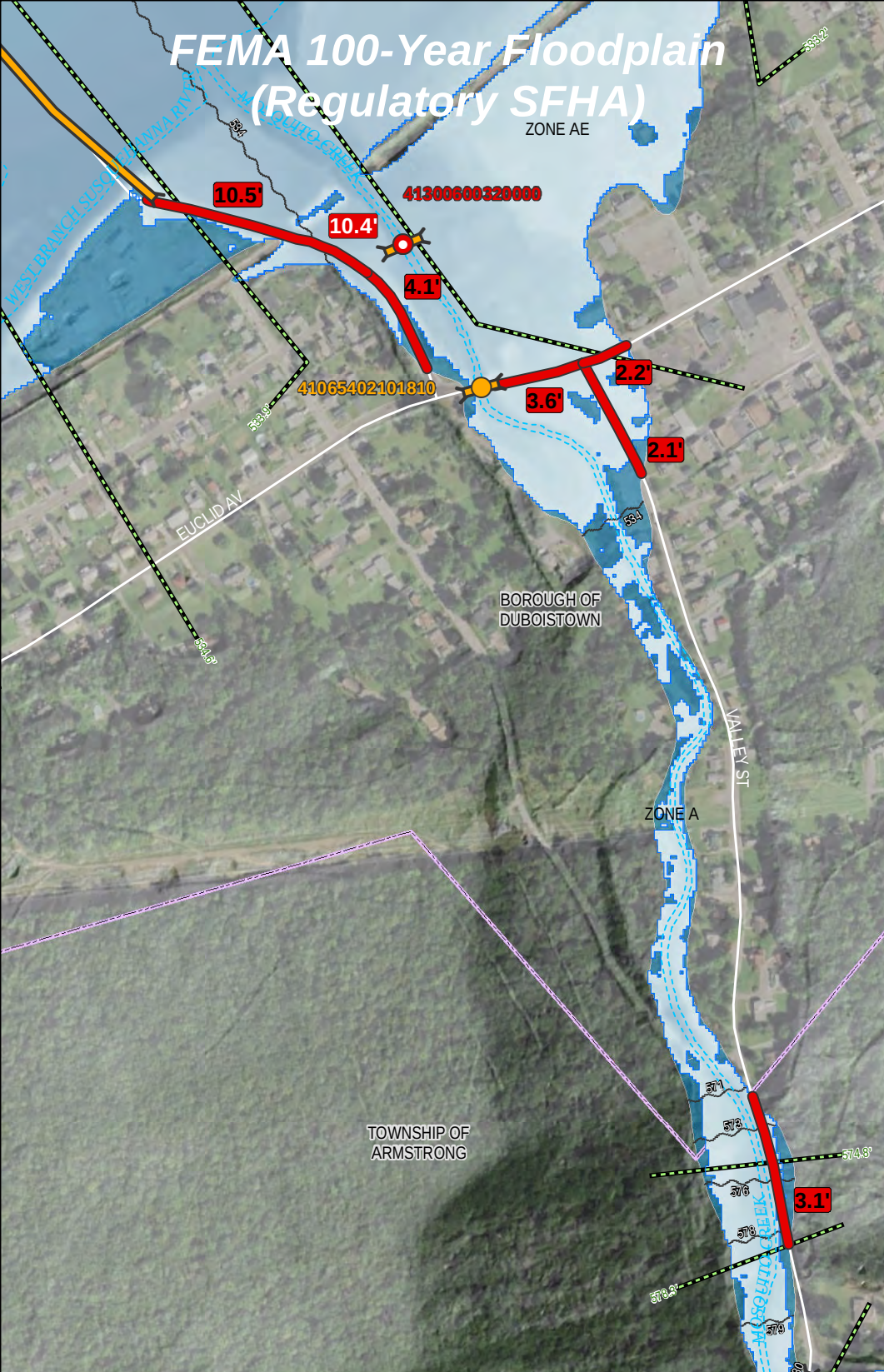
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

 Vulnerable Bridge - Mean Depth in Feet i.e. 328'	 FEMA FLOODPLAIN	 EXISTING CONDITIONS
 Bridge Points - BRIDGE ID i.e. 23100100301362	 FEMA Stream Centerline	 Existing Conditions SFHA Extents
 Bridge Centerlines	 FEMA Base Flood Elevation	 FUTURE CONDITIONS
 Vulnerable Roadway - Mean Depth in Feet i.e. 328'	 FEMA Cross Section	 Projected SFHA Extents
 Roadway - i.e. CODY ST	 FEMA REGULATORY	
 Community Boundary	 FEMA REGULATORY SFHA	



0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis

Lycoming County, PA

(Planning Level Assessment)

(Methodology and Limitations Provided in Project Study Report)

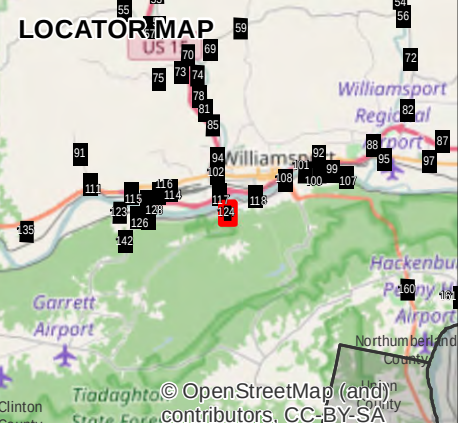
Sheet 124 of 163



DATA FRAME PROPERTIES:
Coordinate System:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

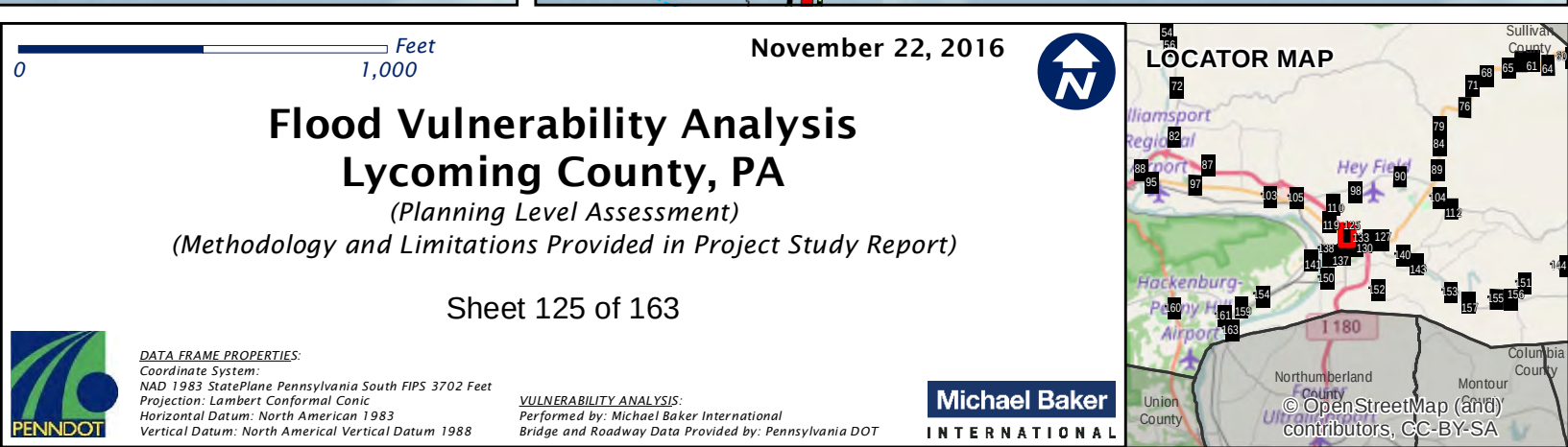
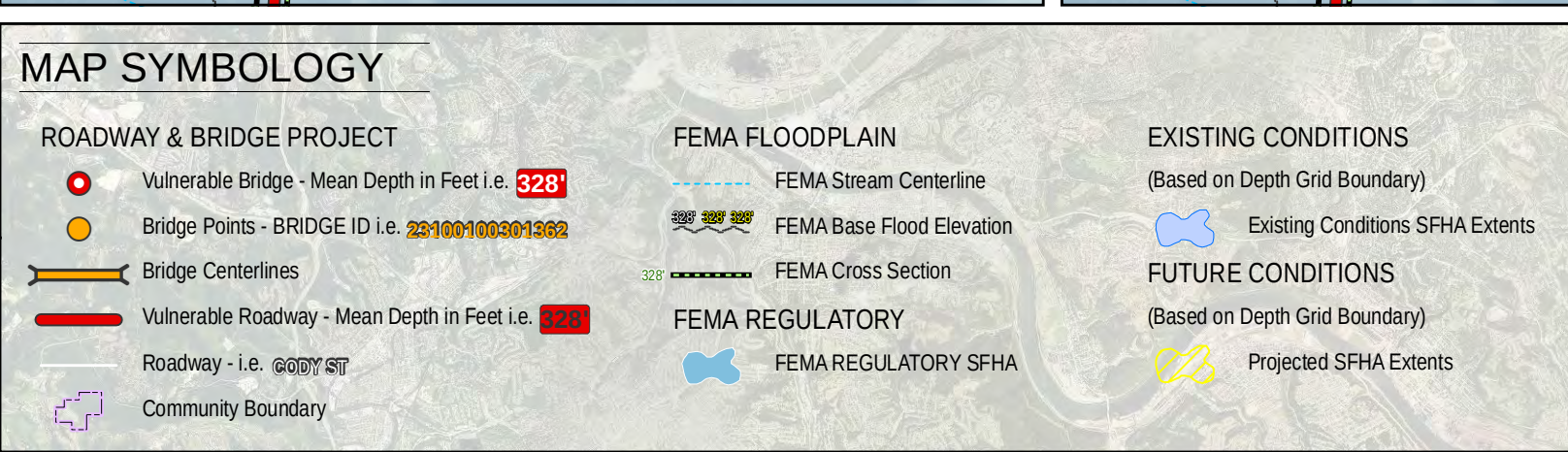
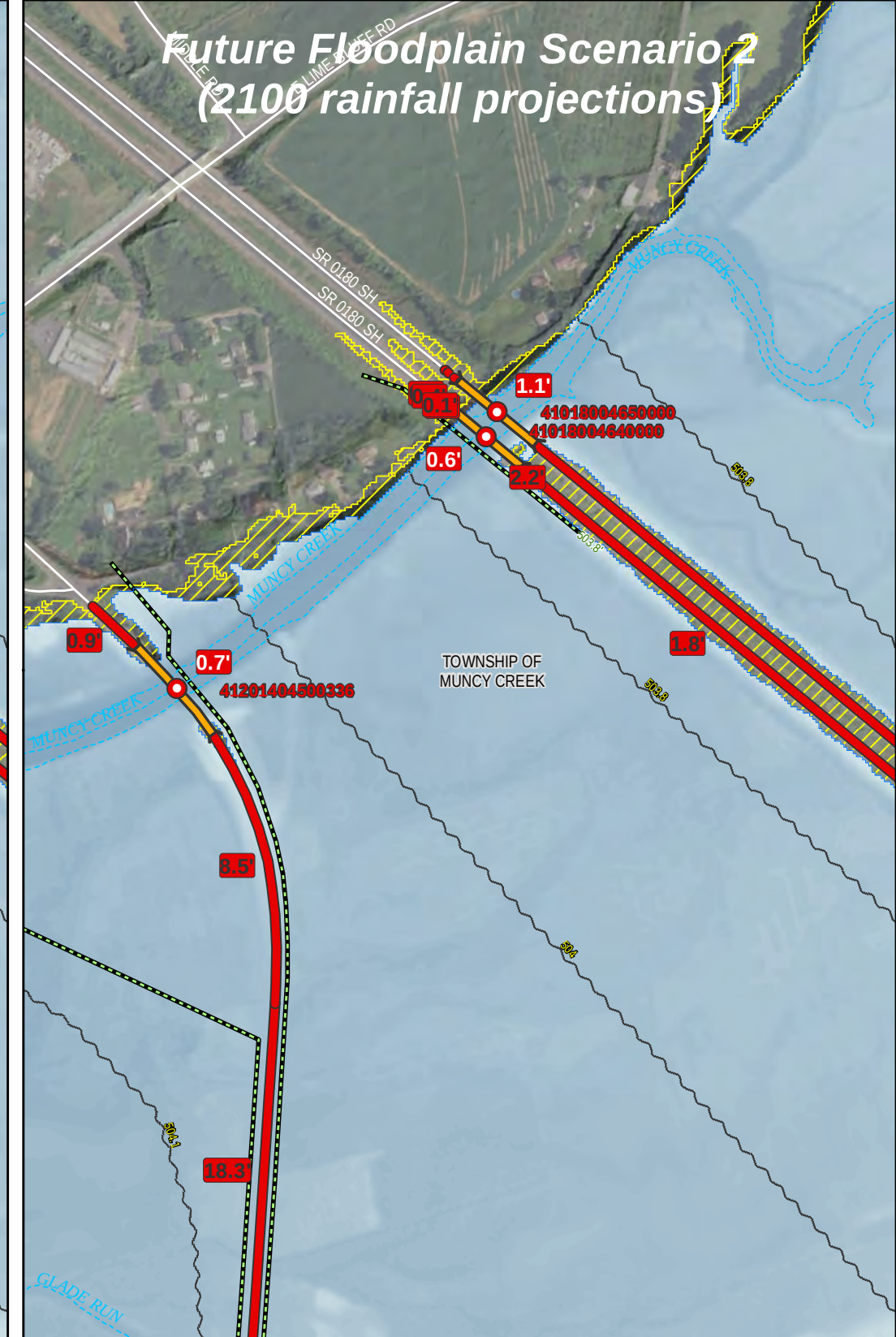
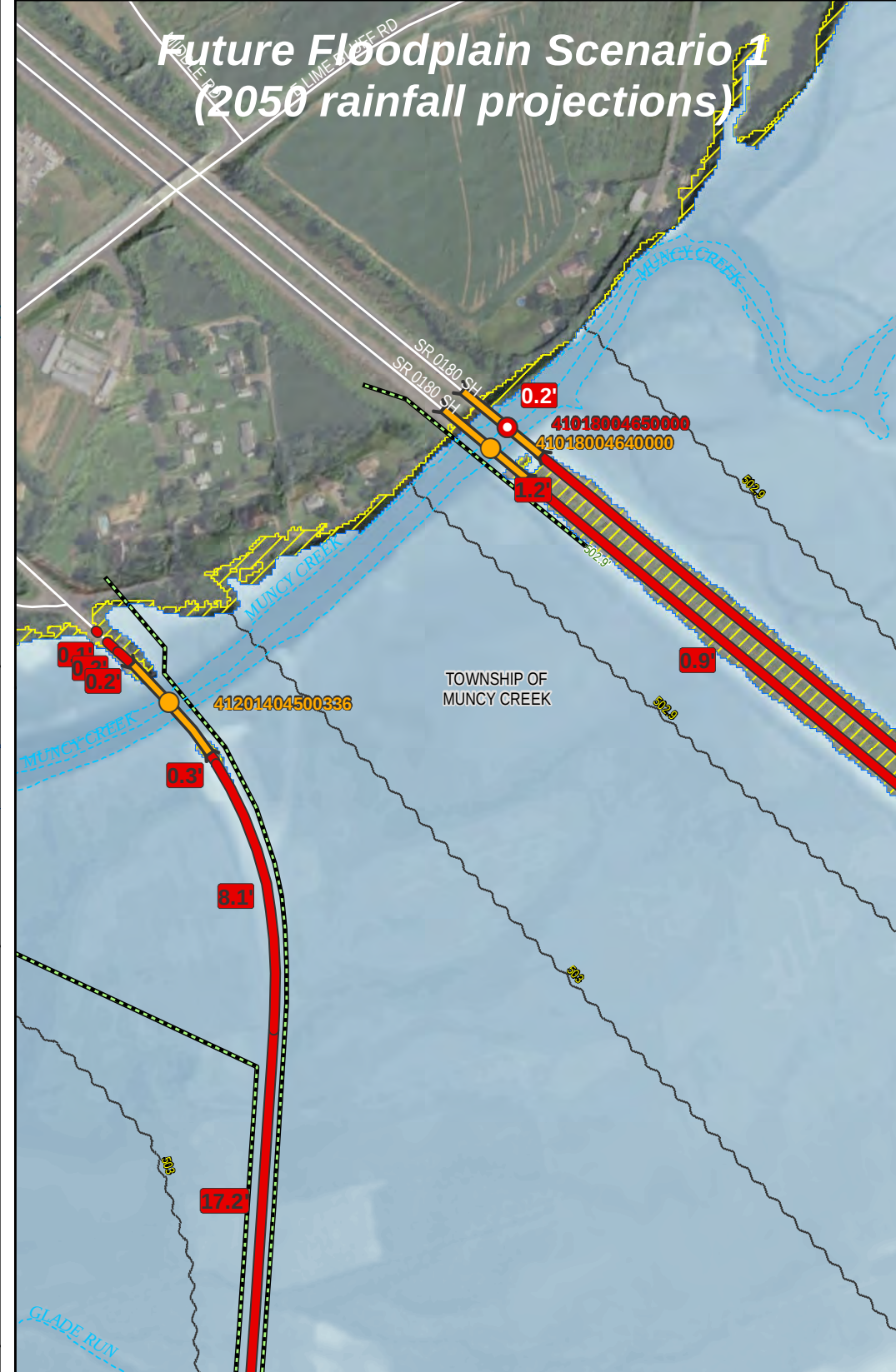
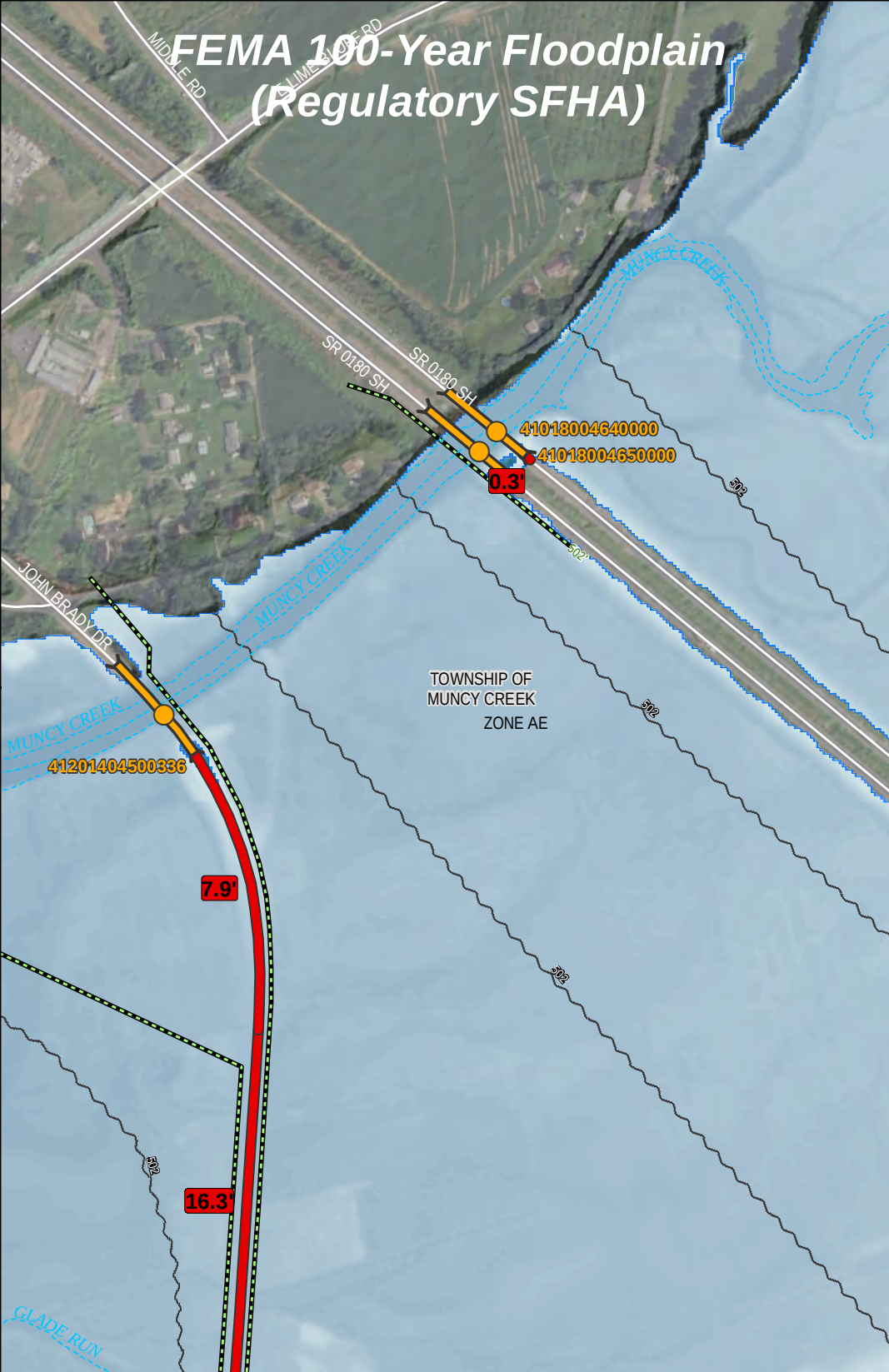
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

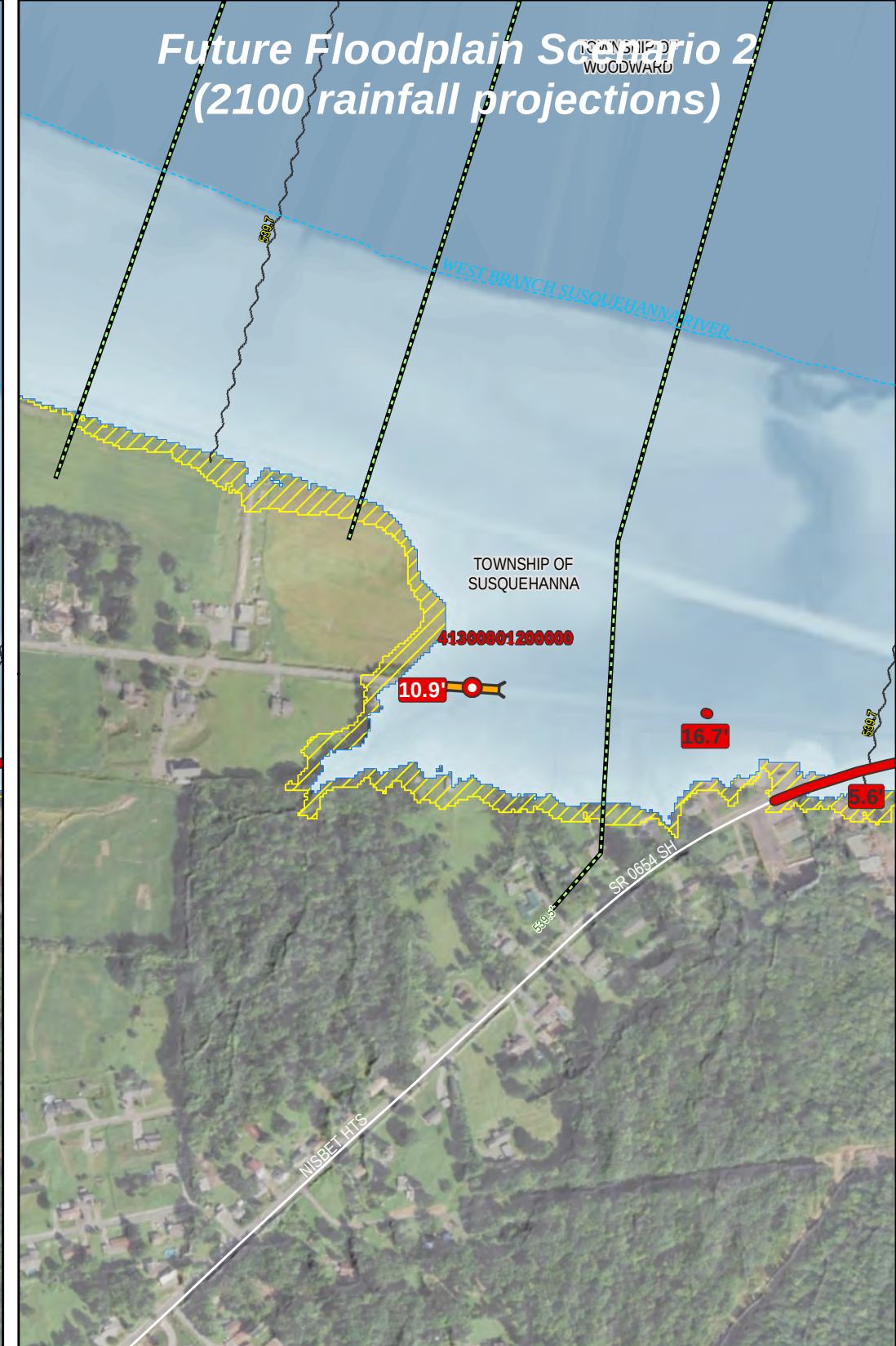
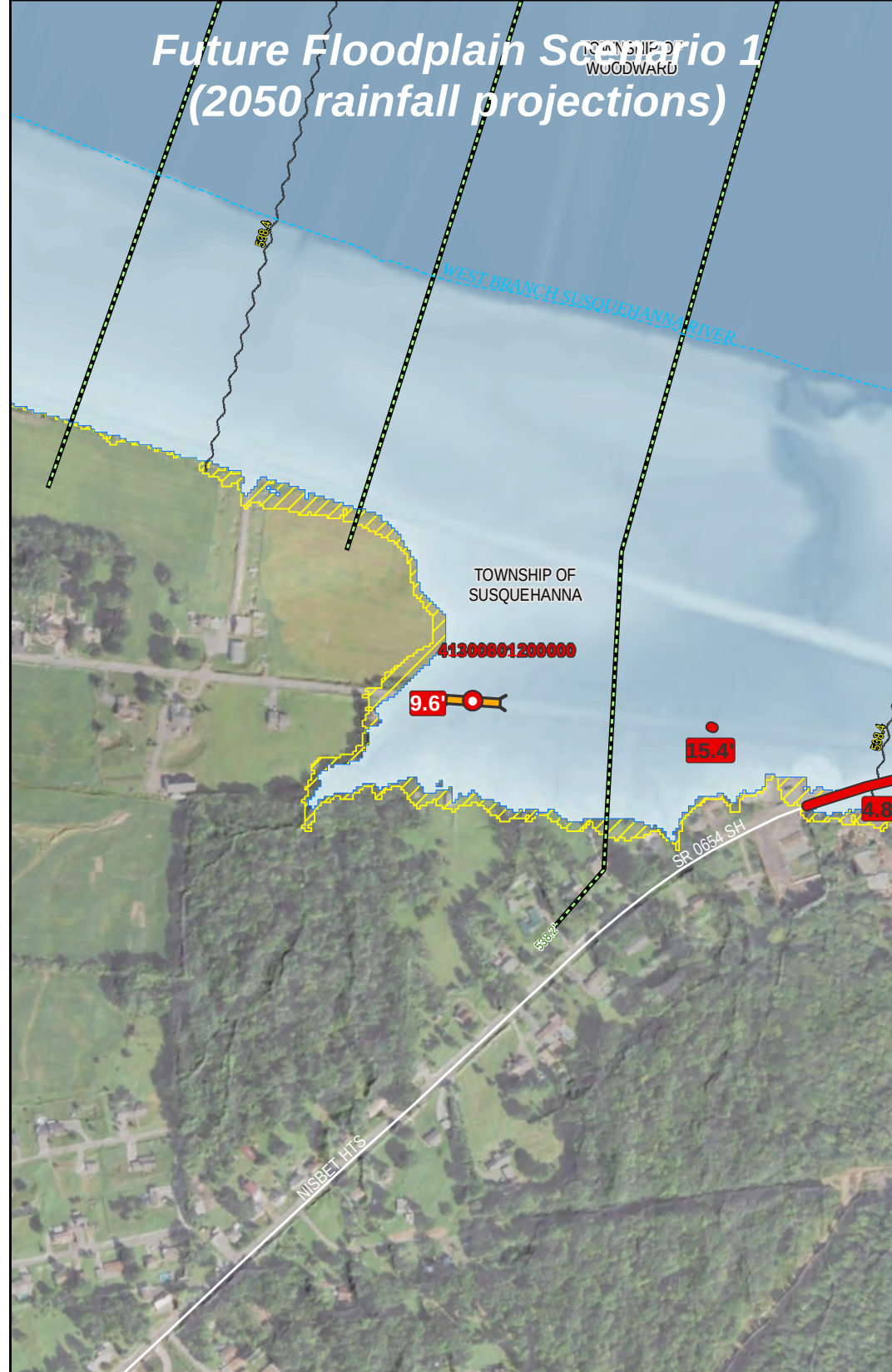
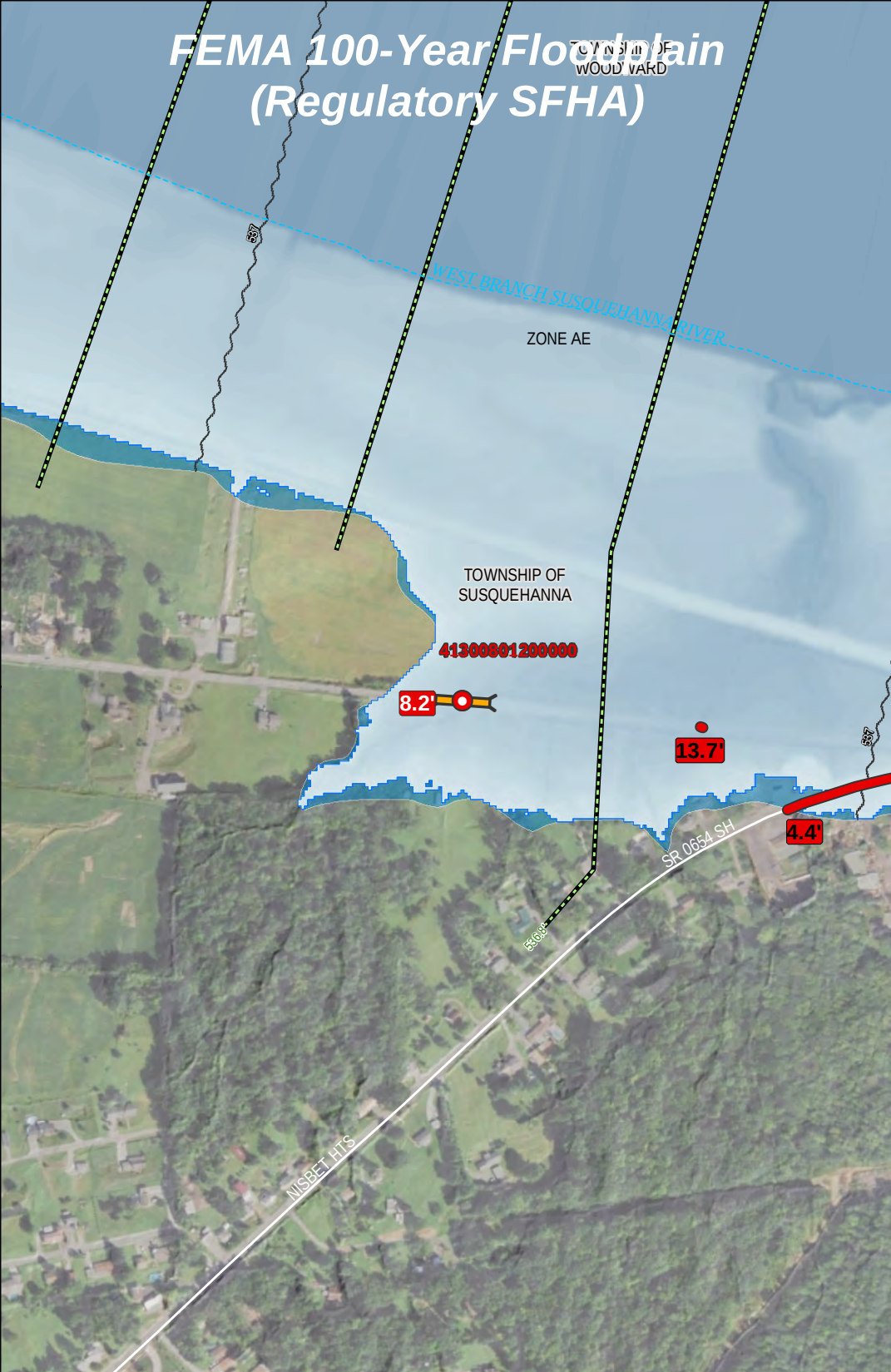




LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

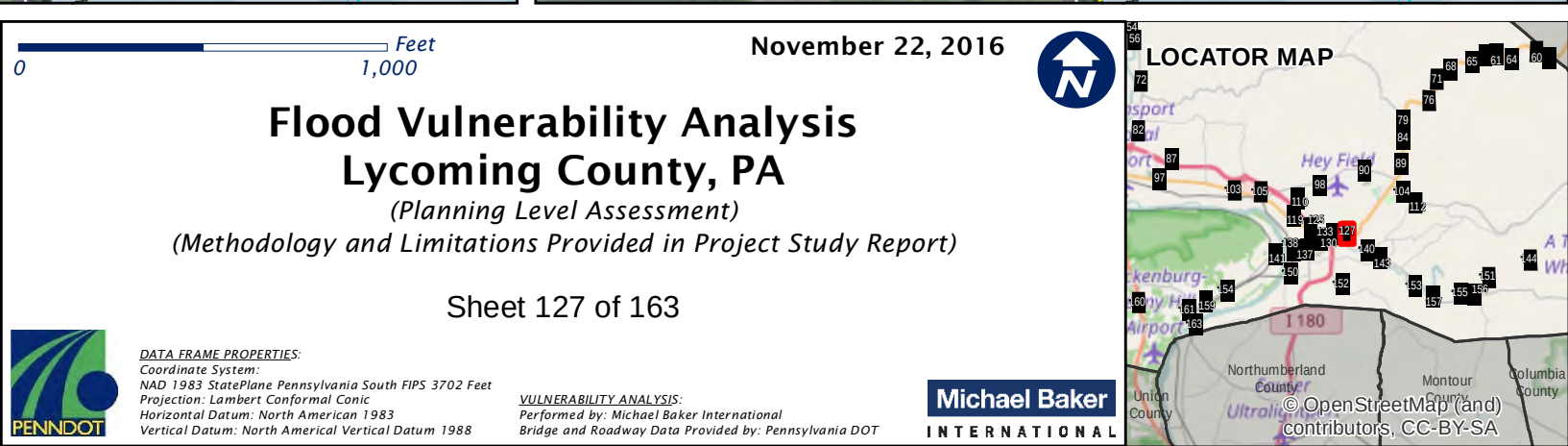
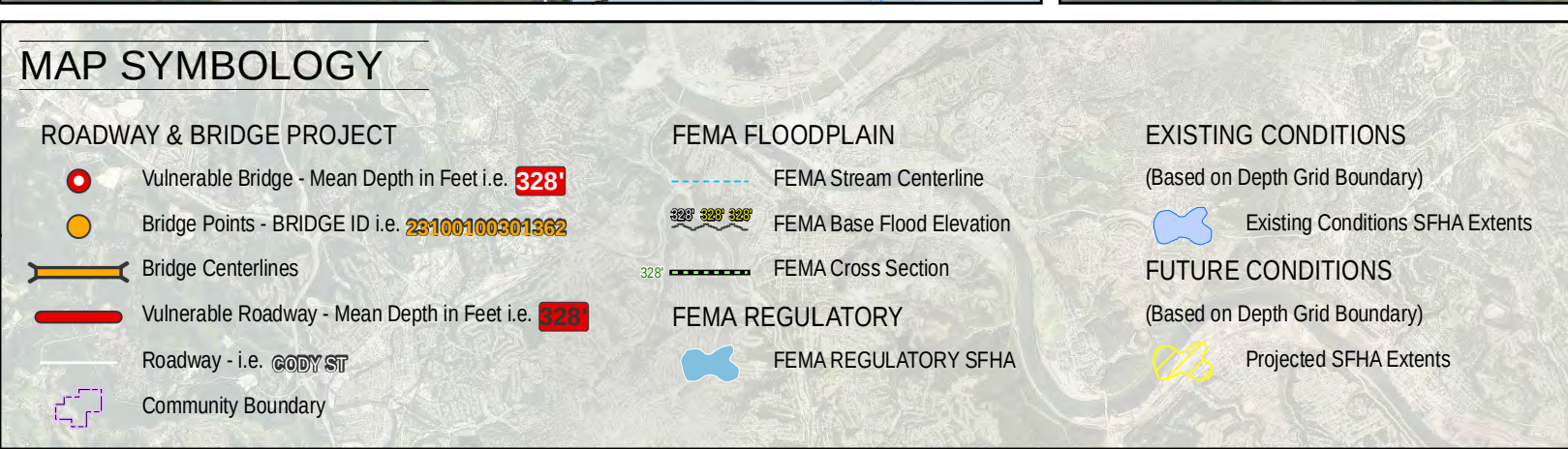
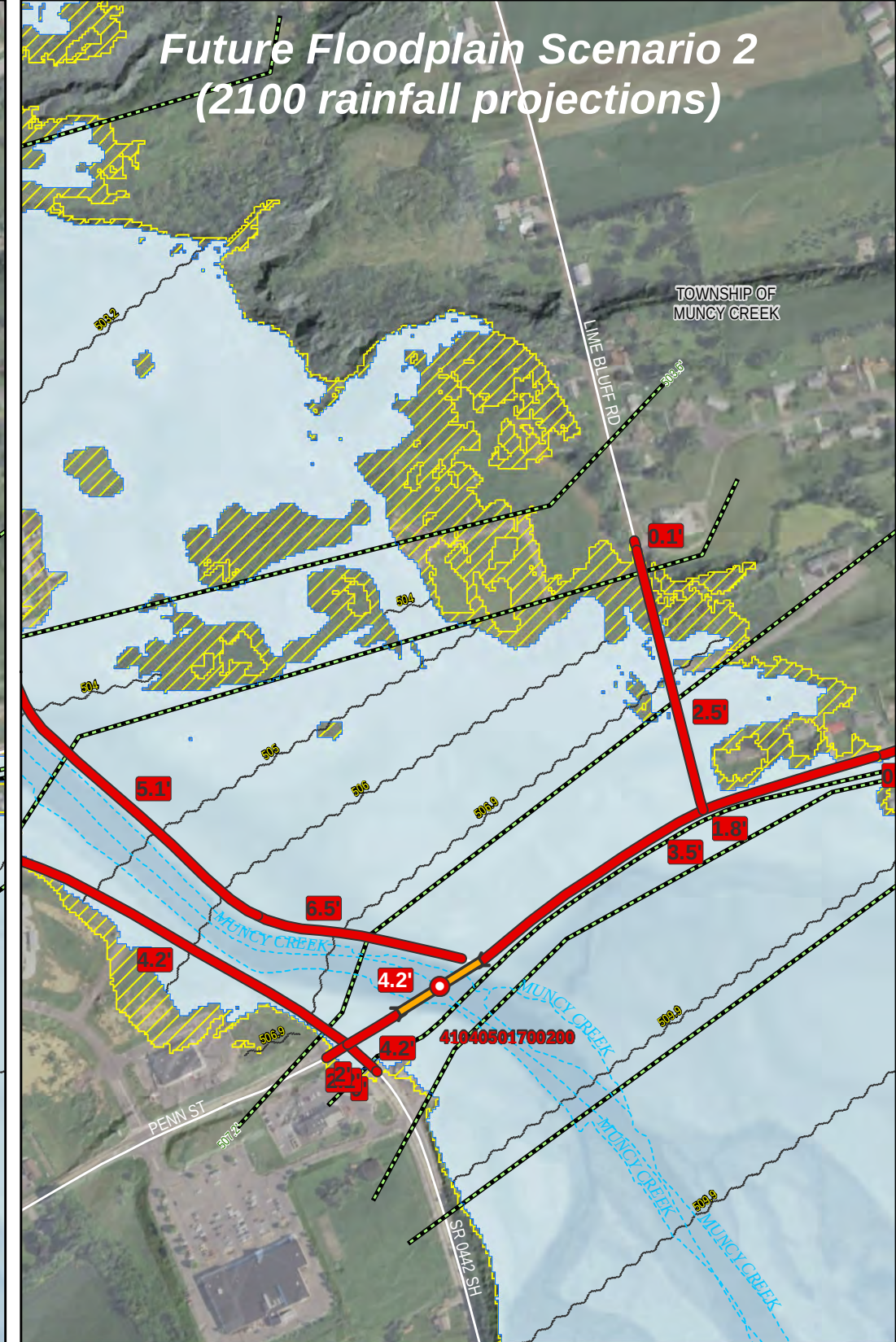
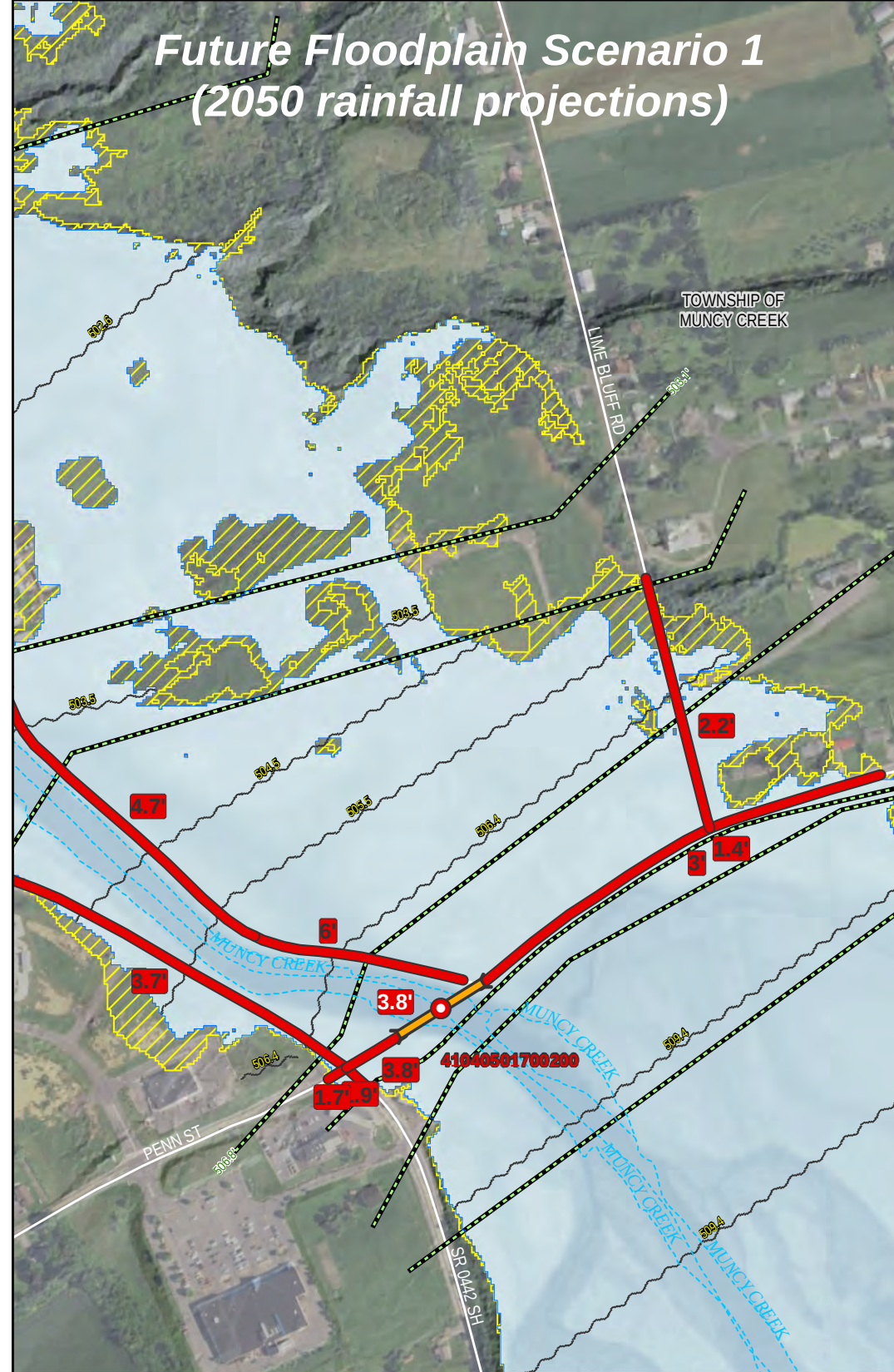
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

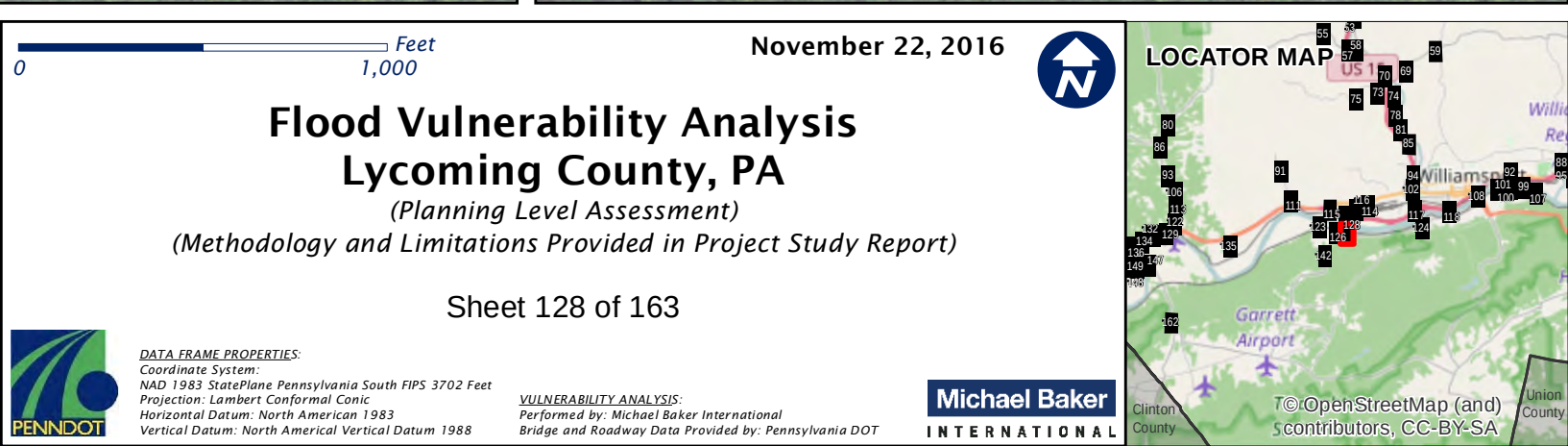
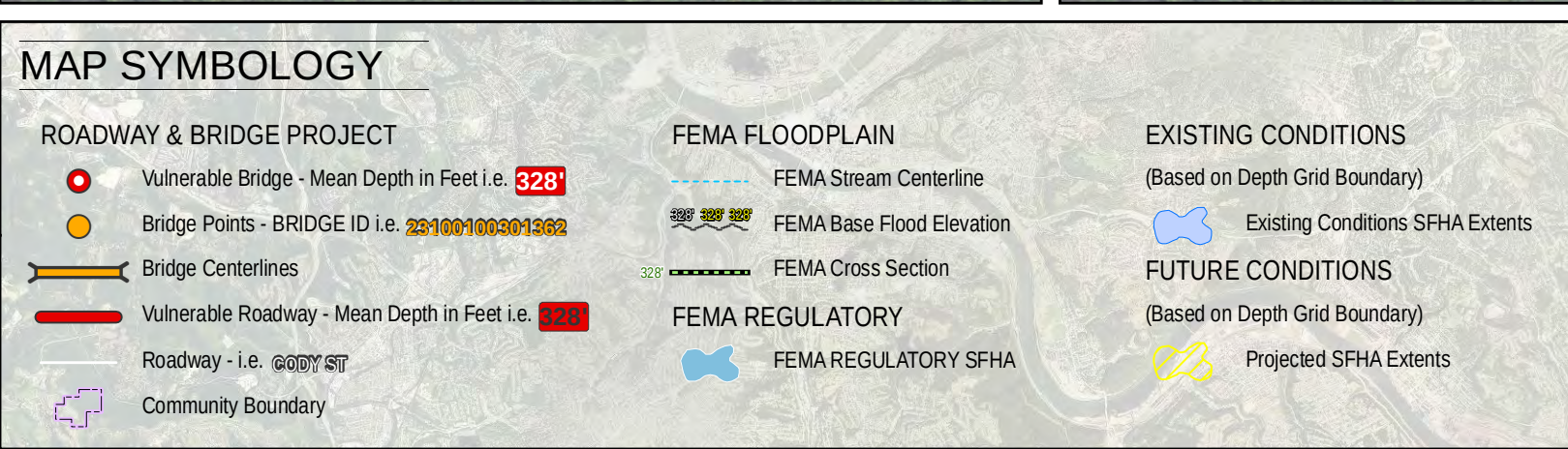
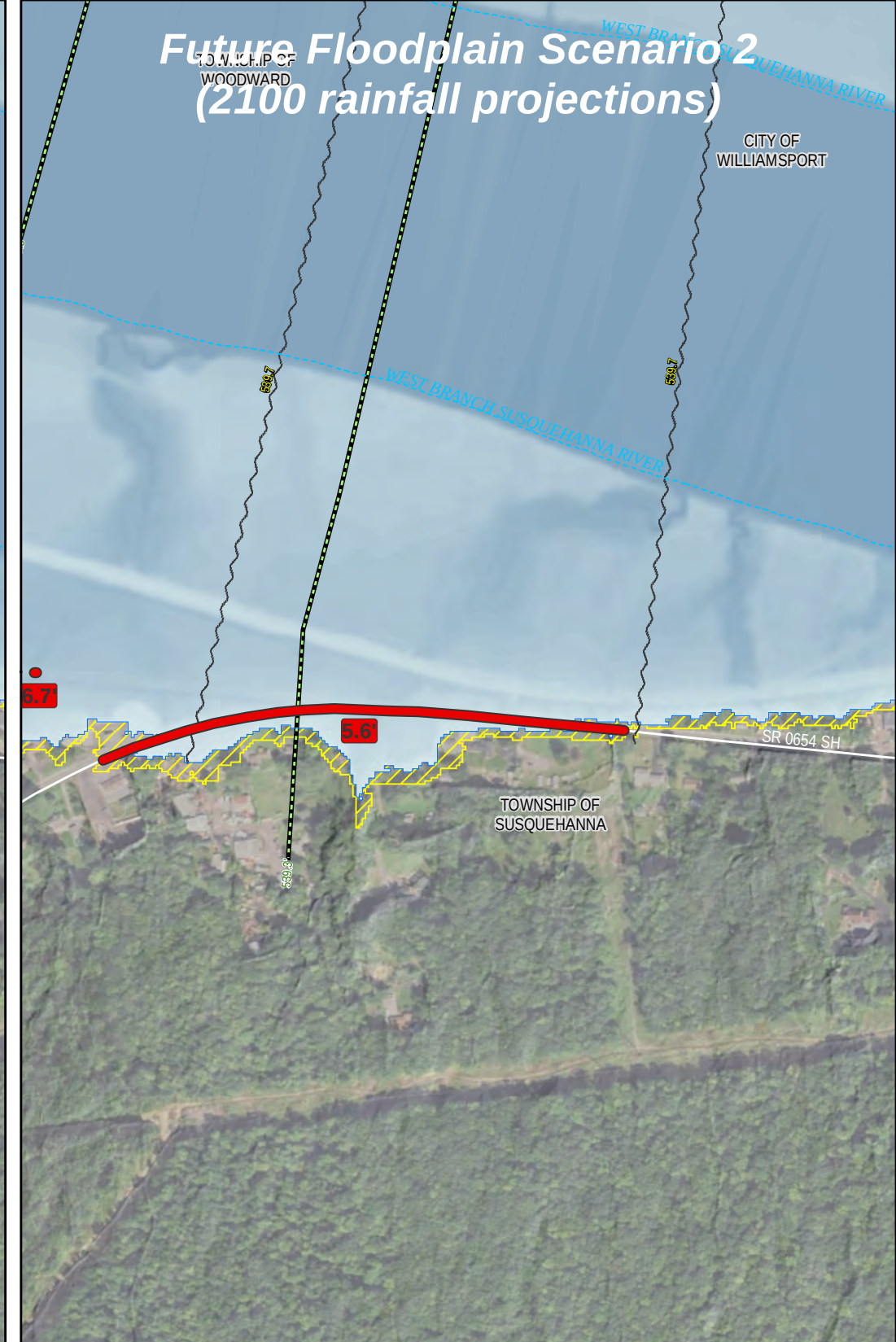
Sheet 126 of 163

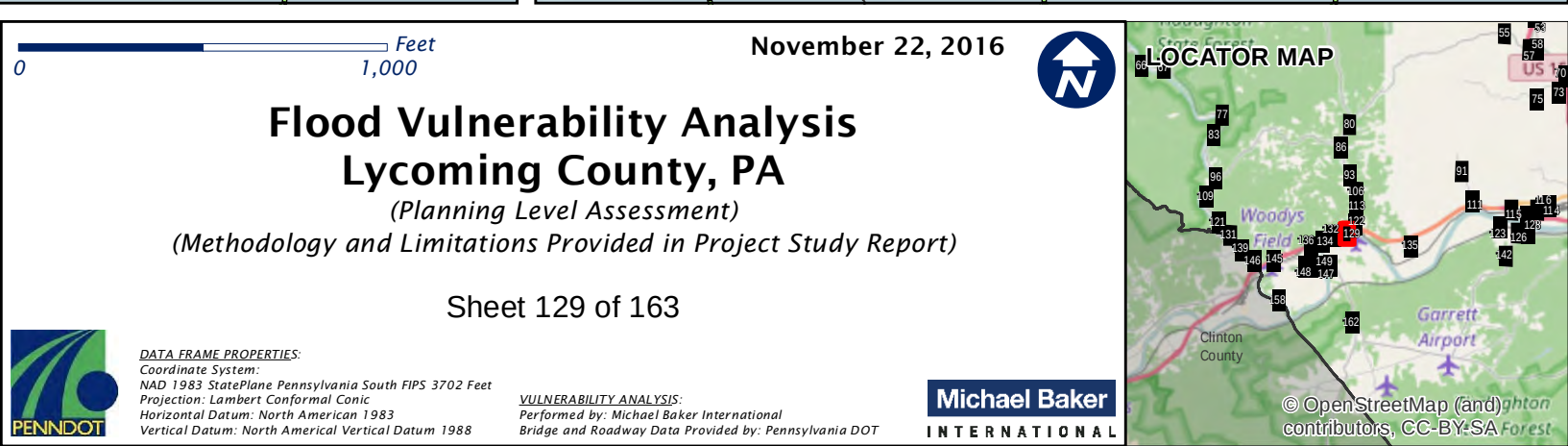
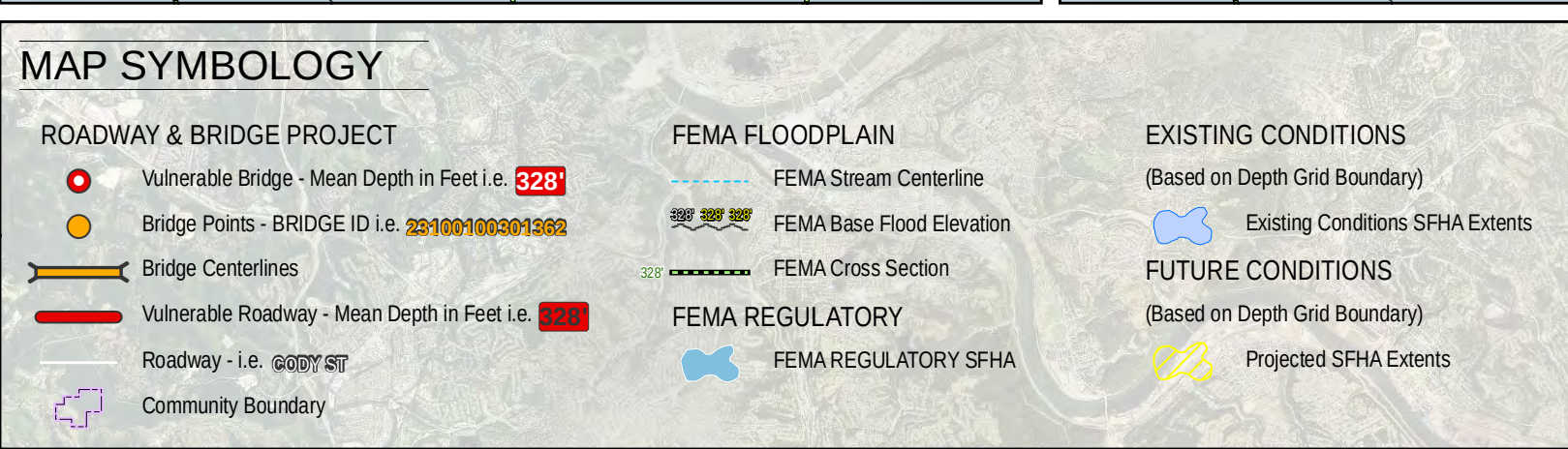
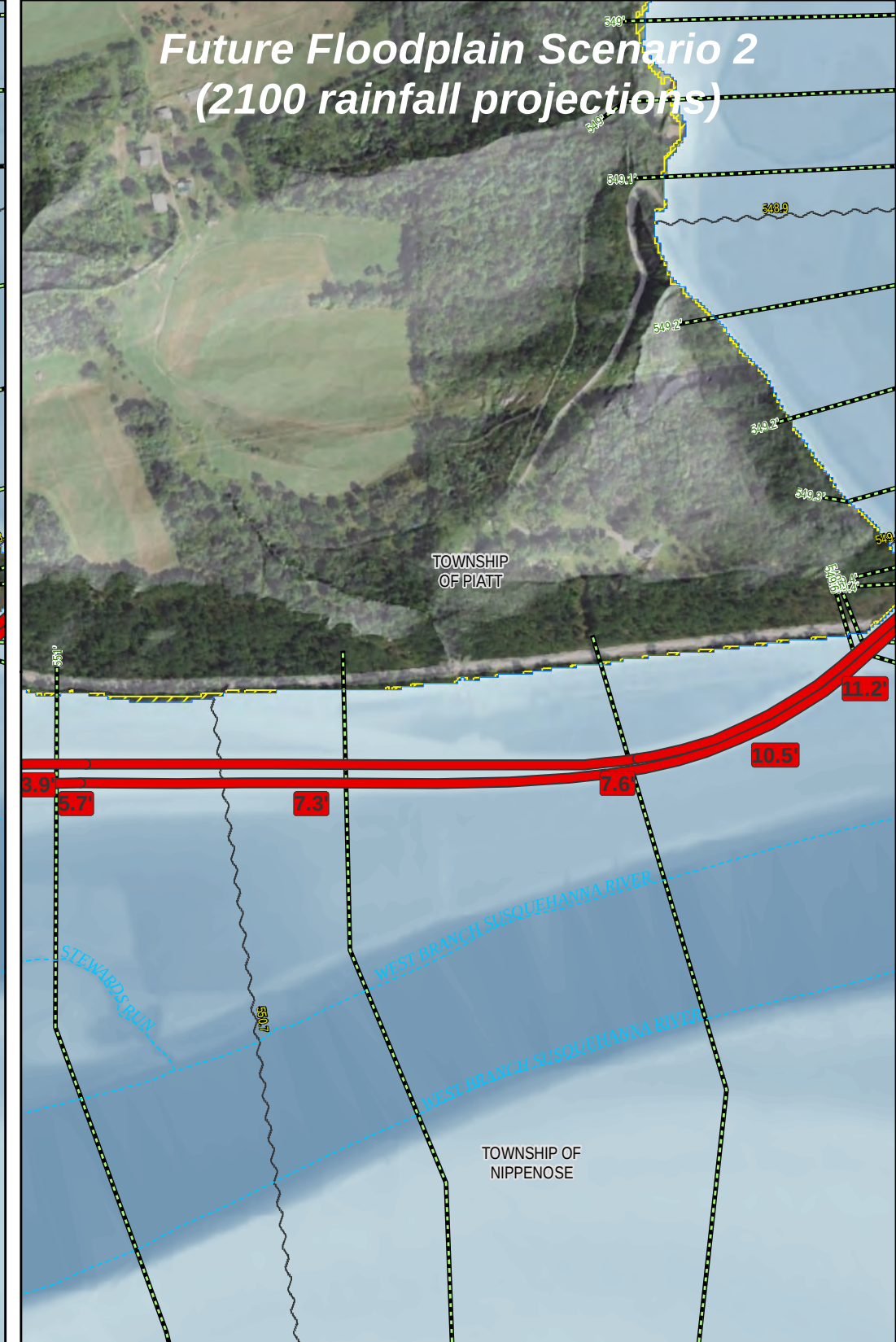
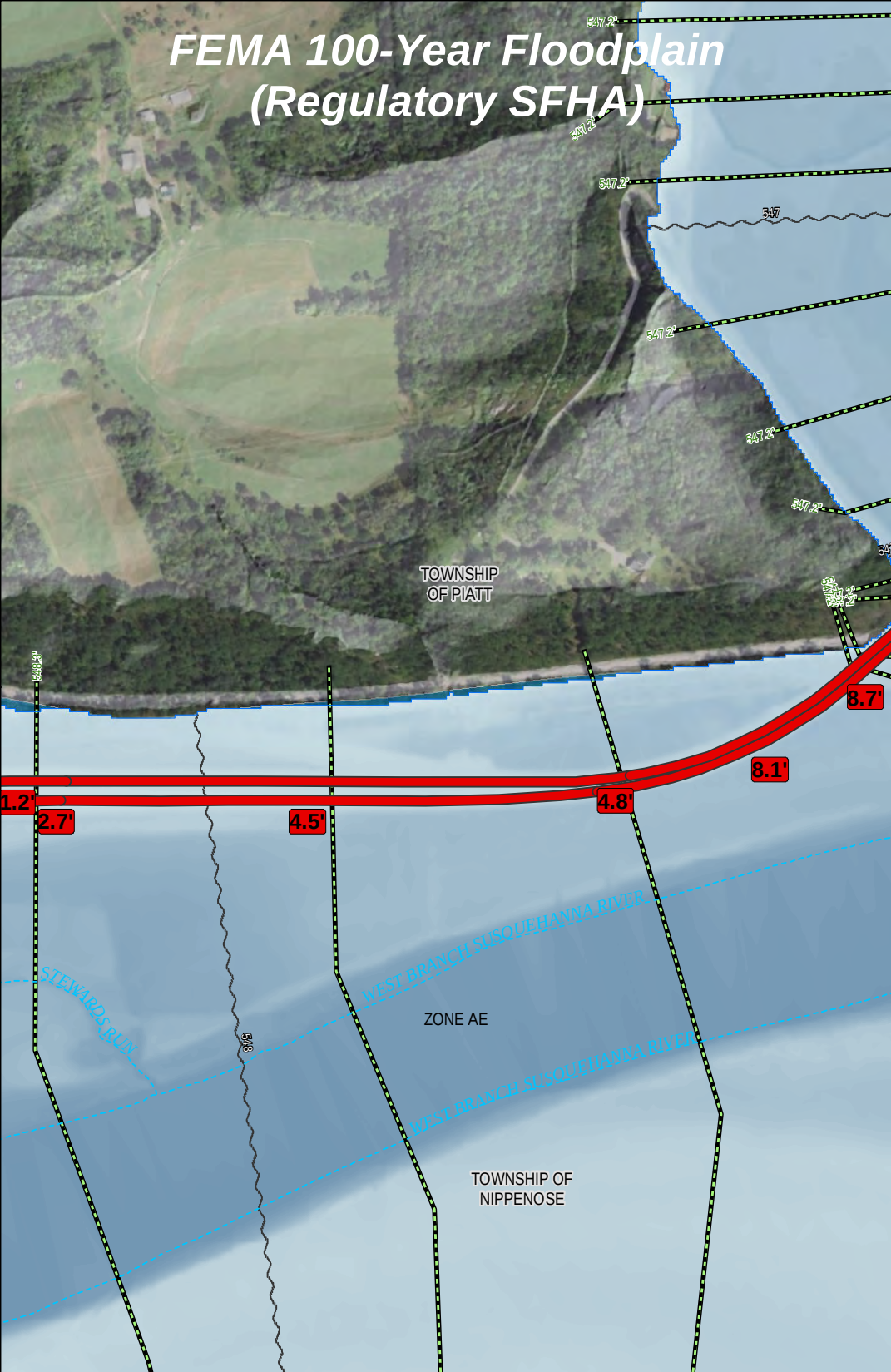
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Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

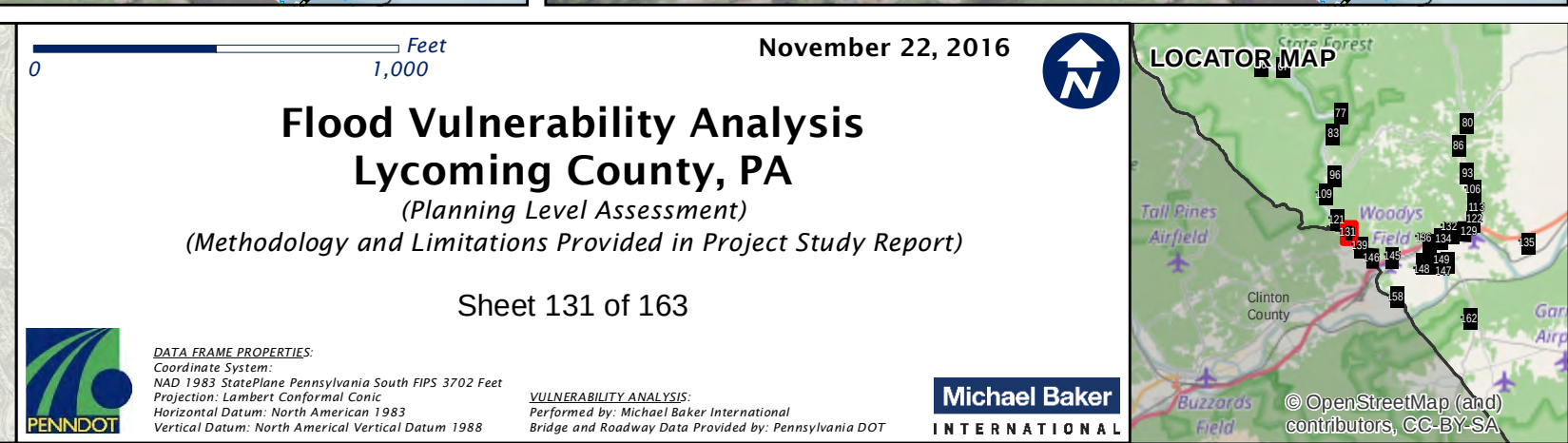
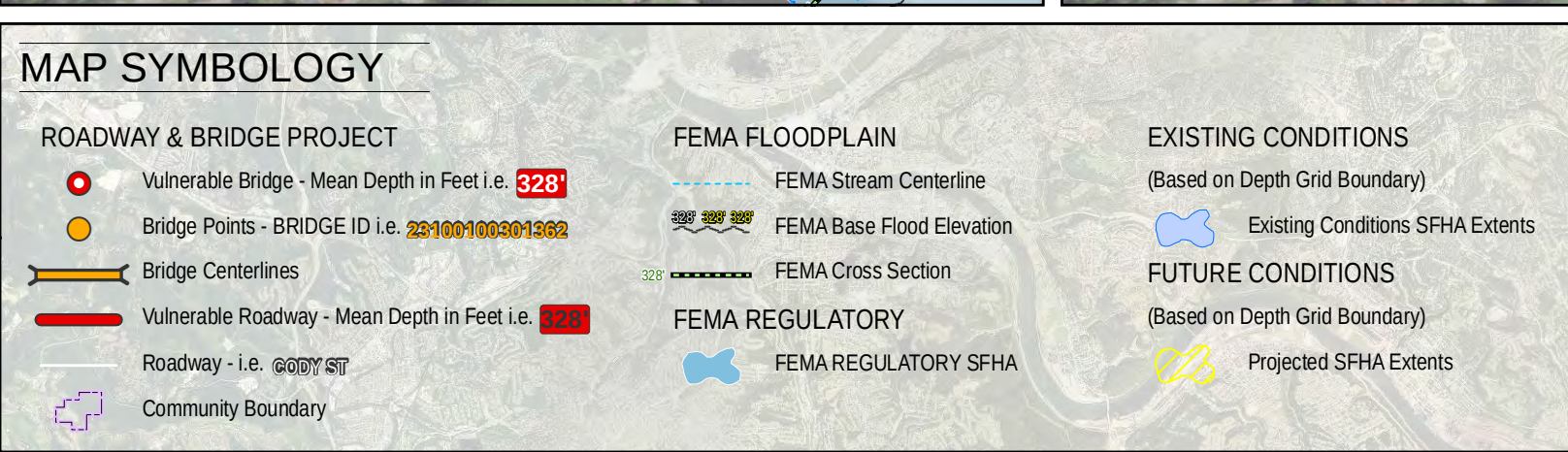
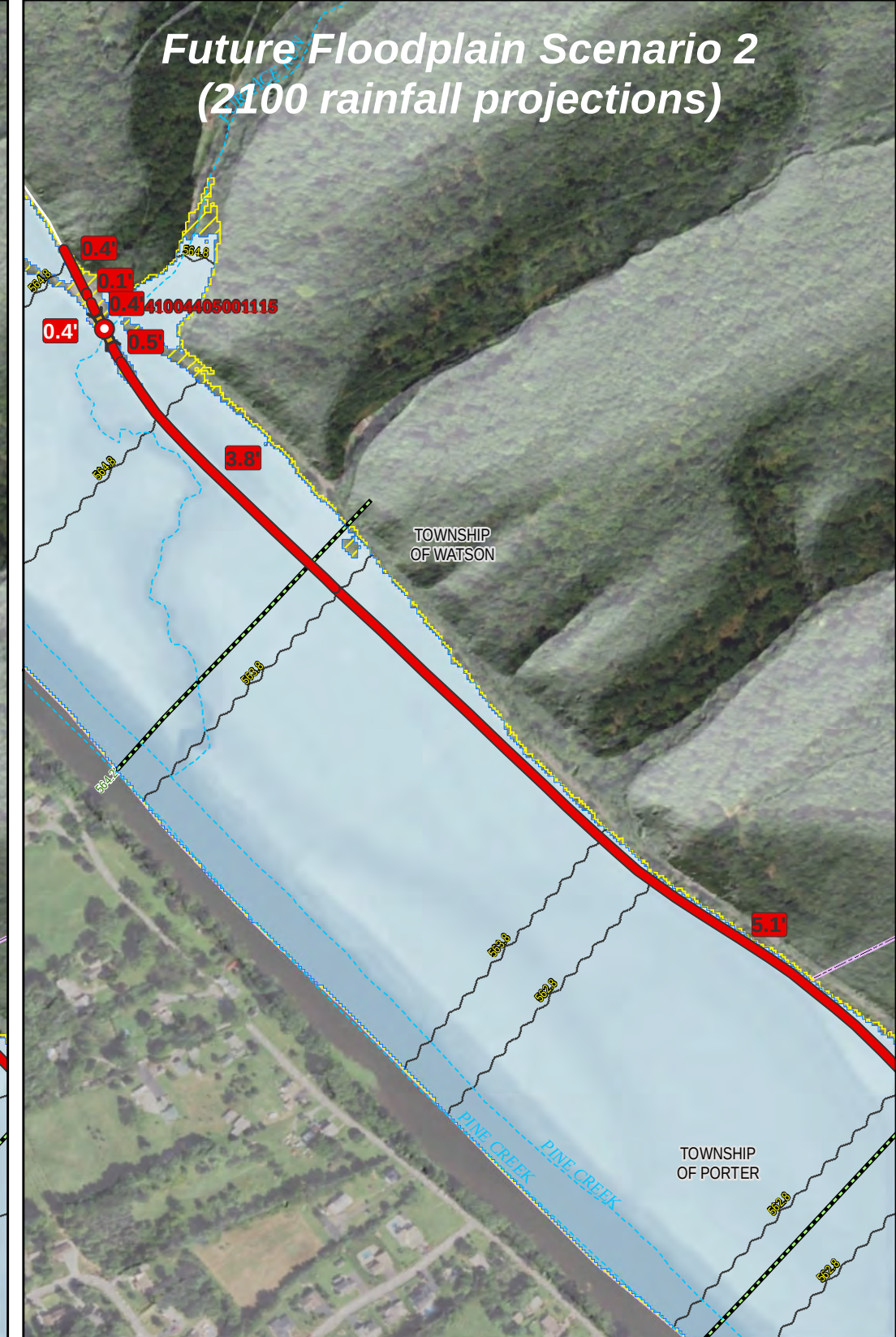
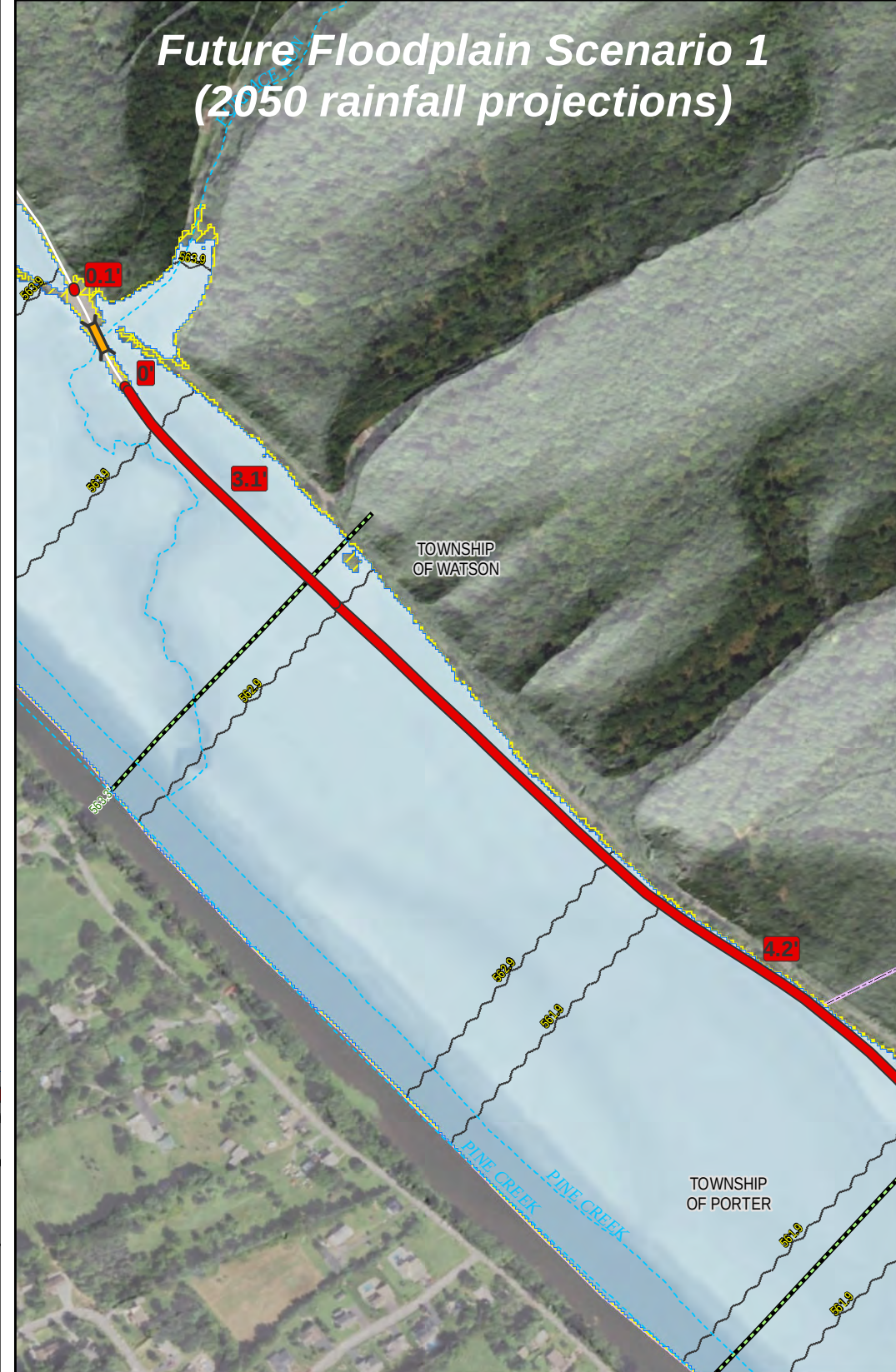
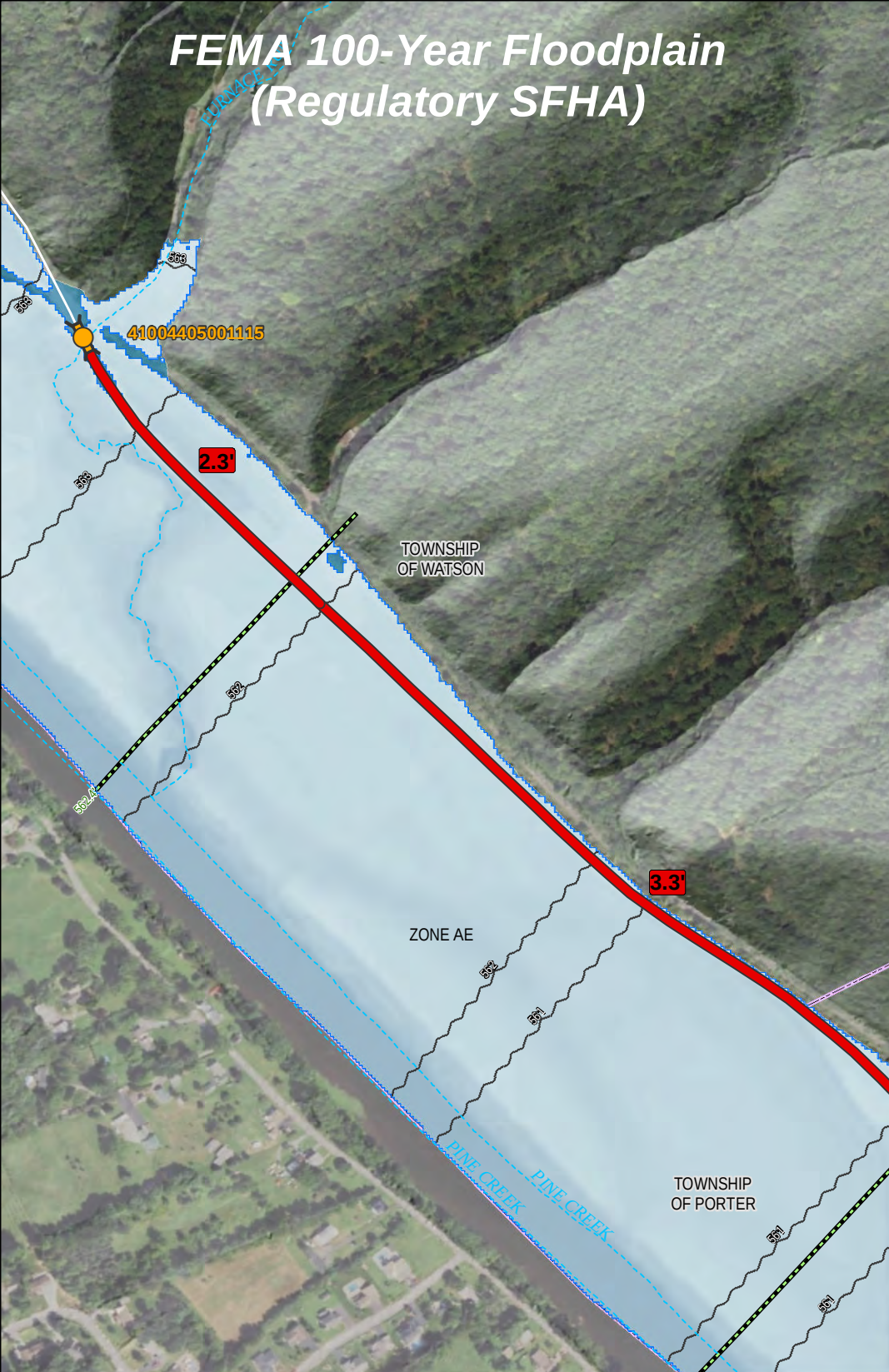
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

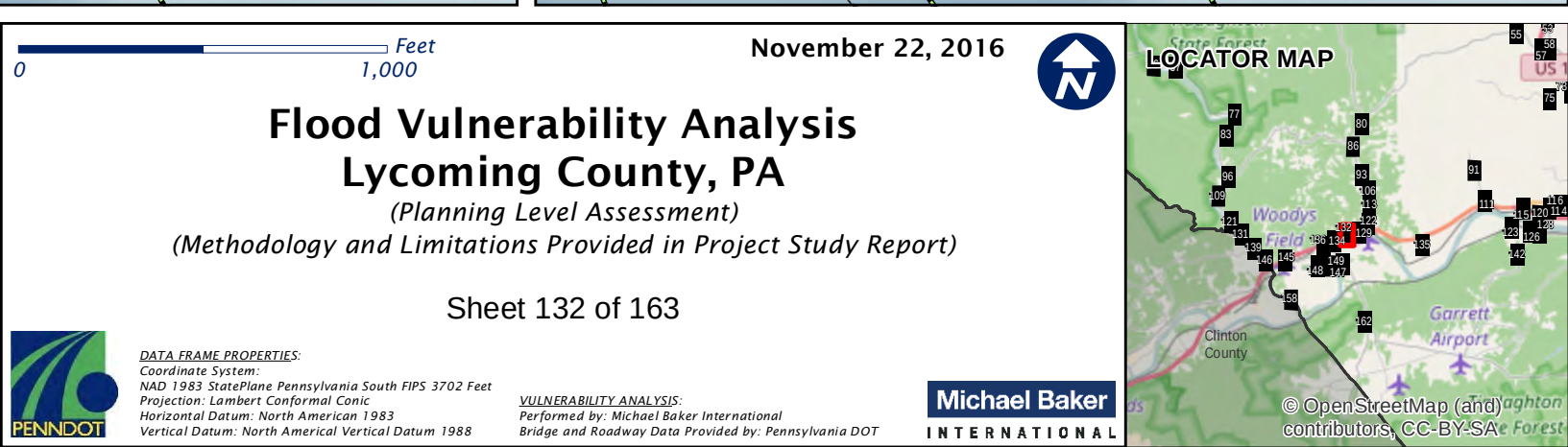
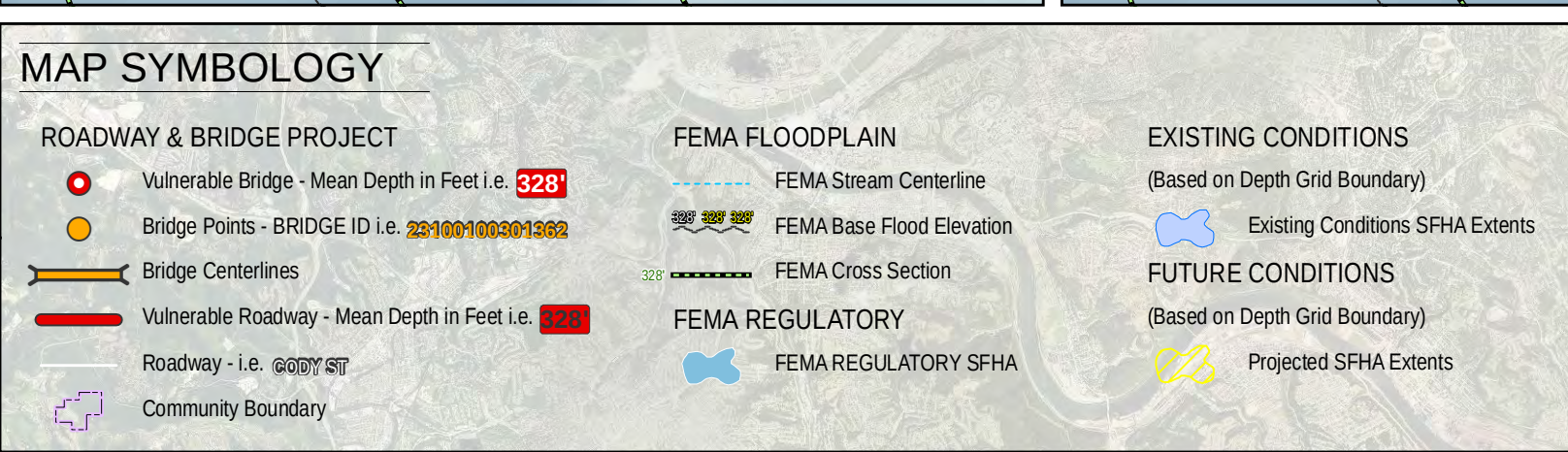
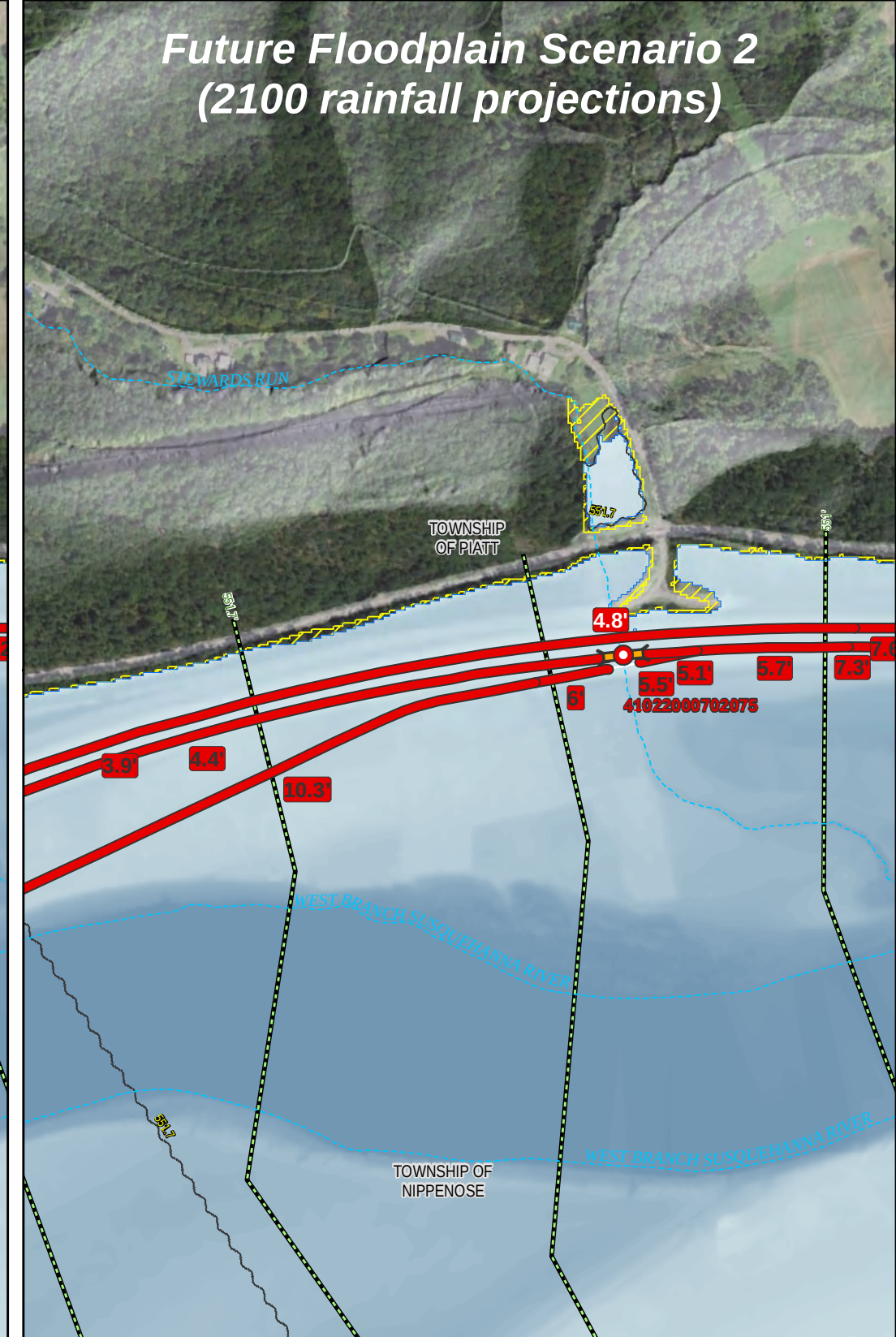
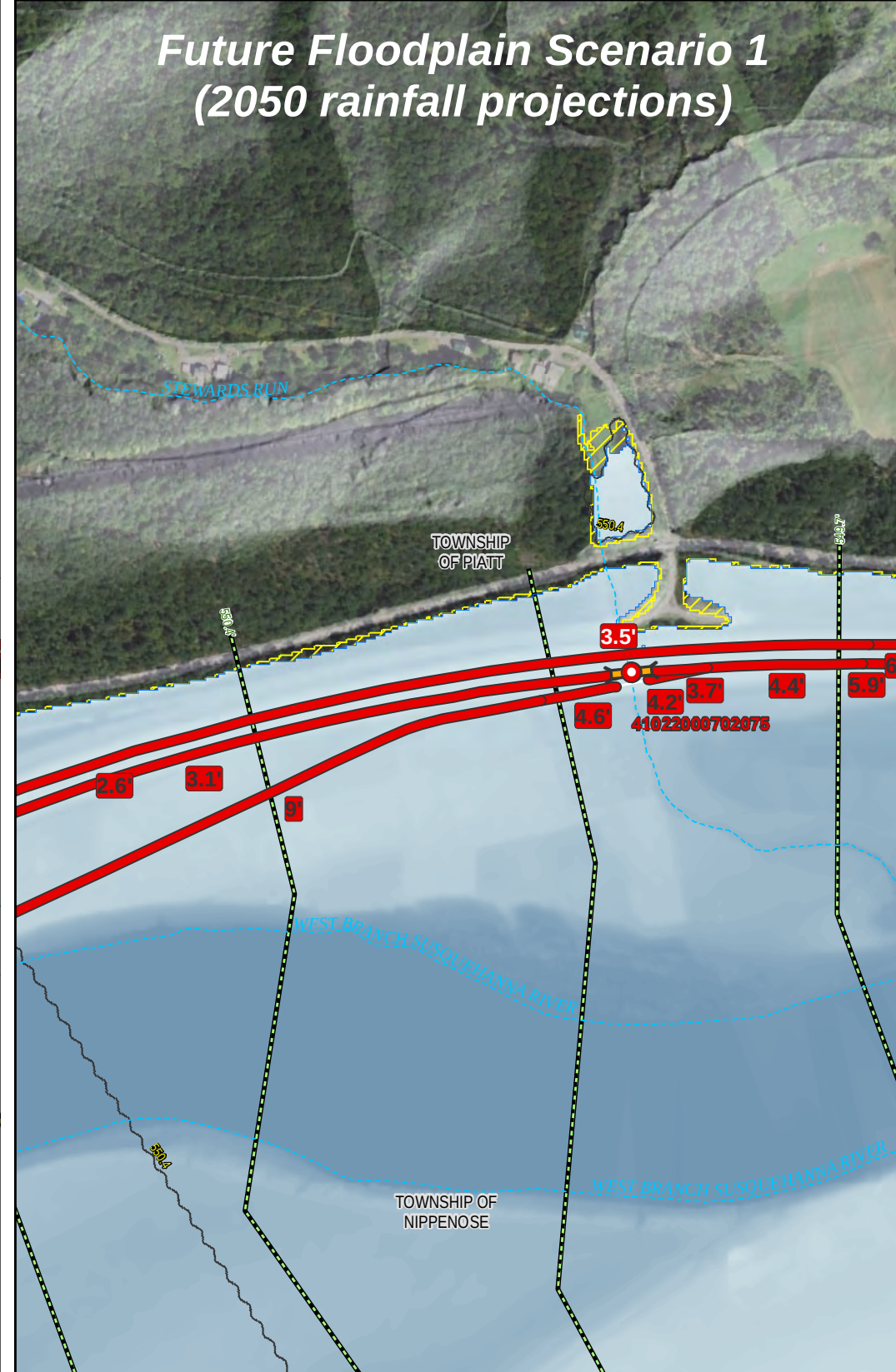
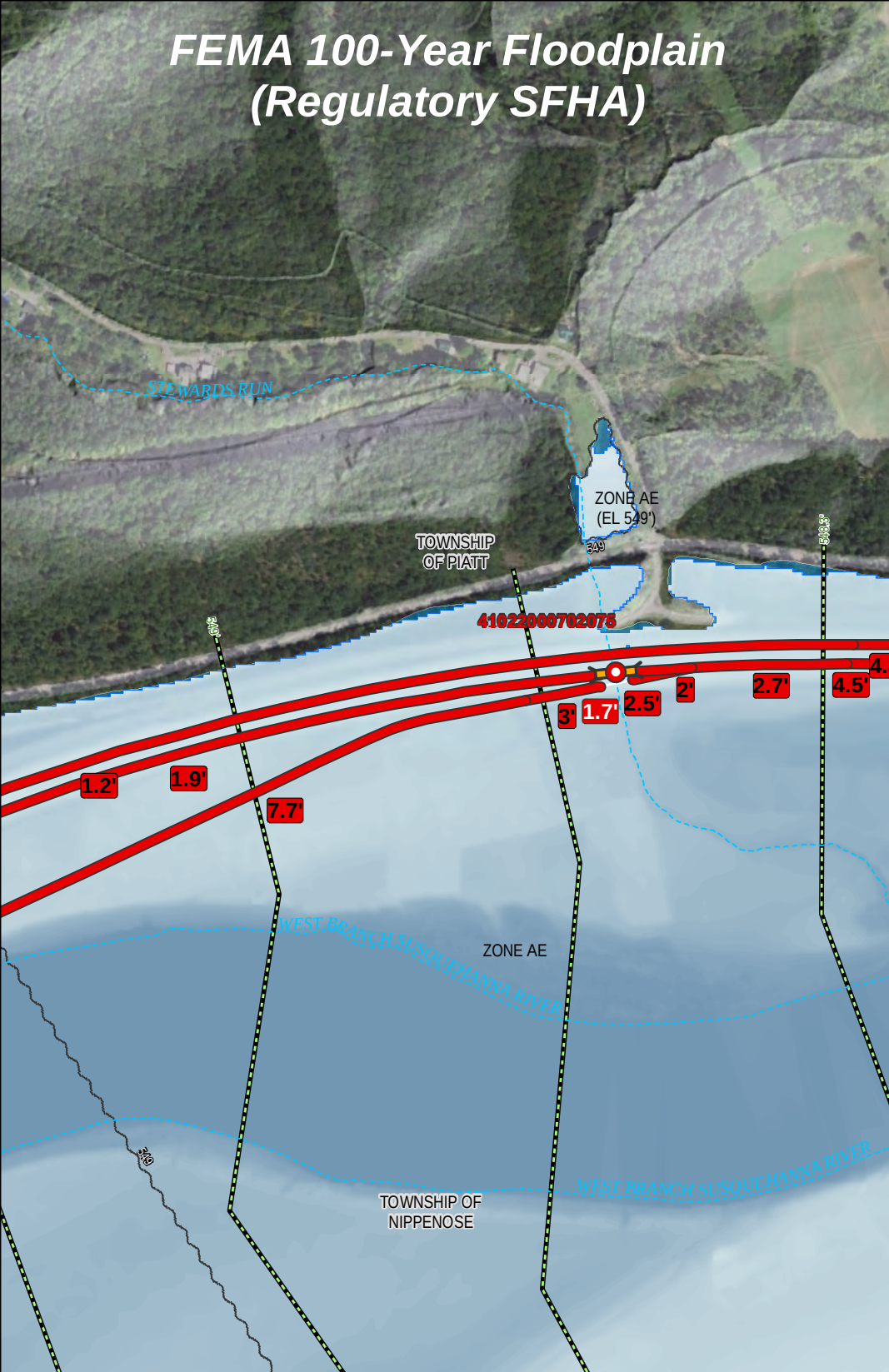
LOCATOR MAP

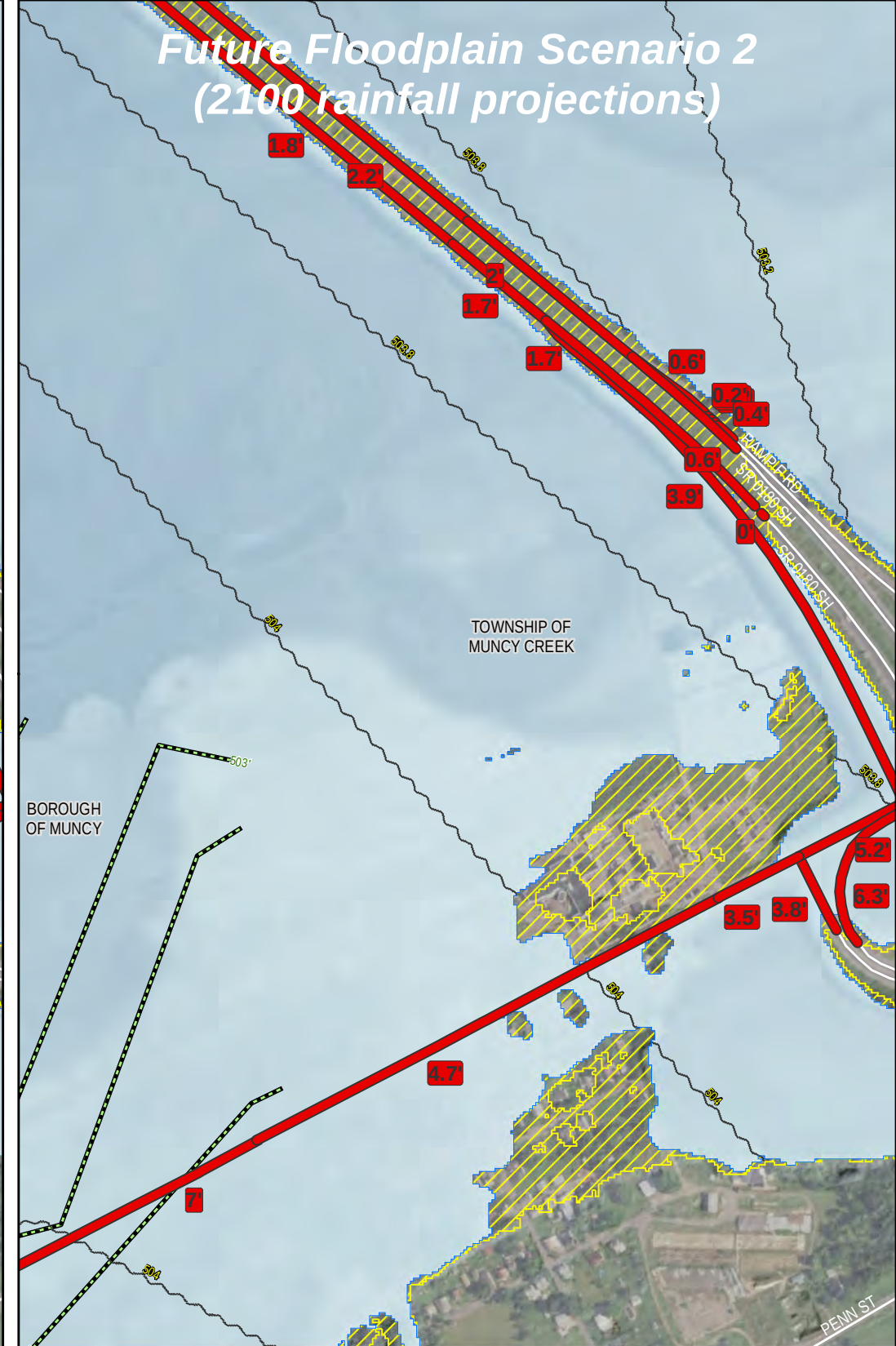
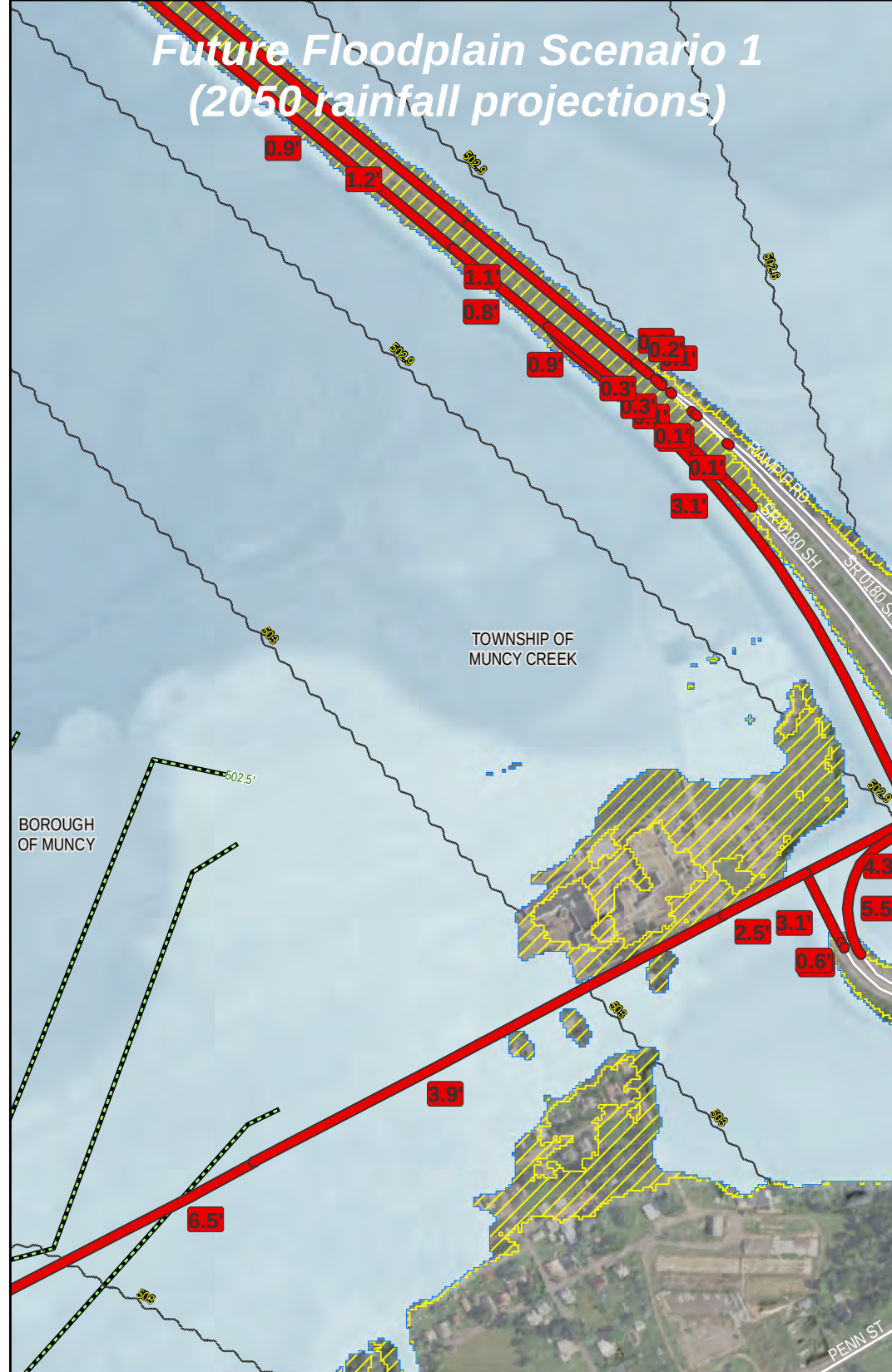












MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 3.28'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 3.28'
	Roadway - i.e. CODY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

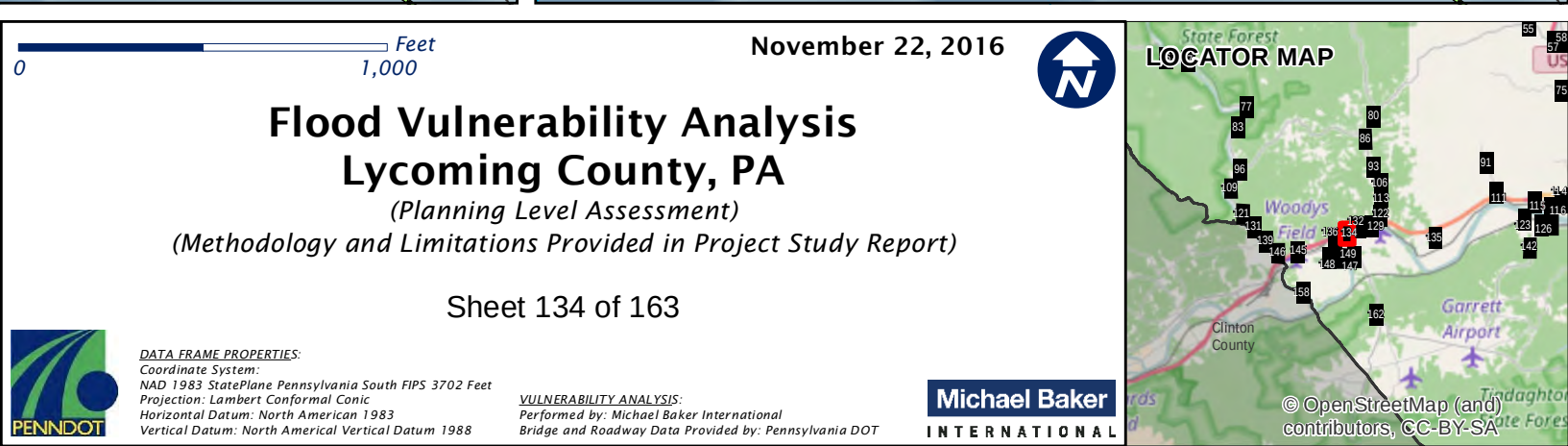
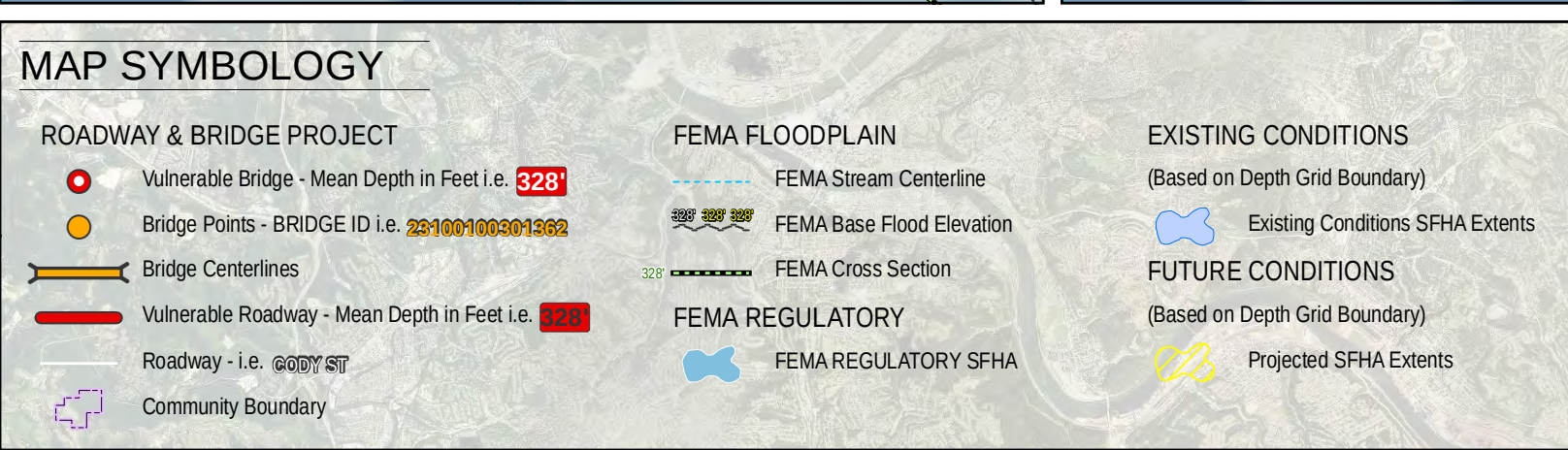
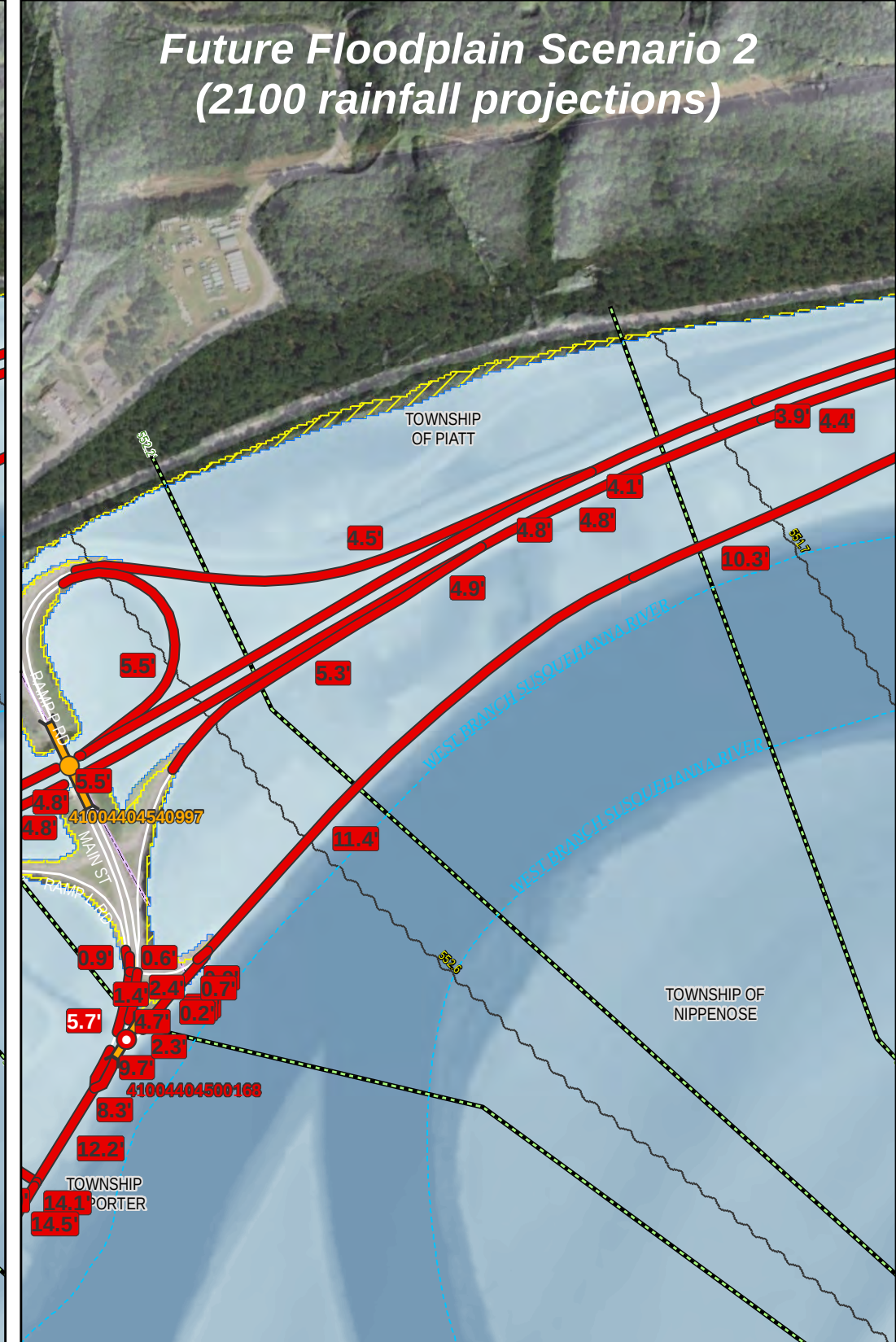
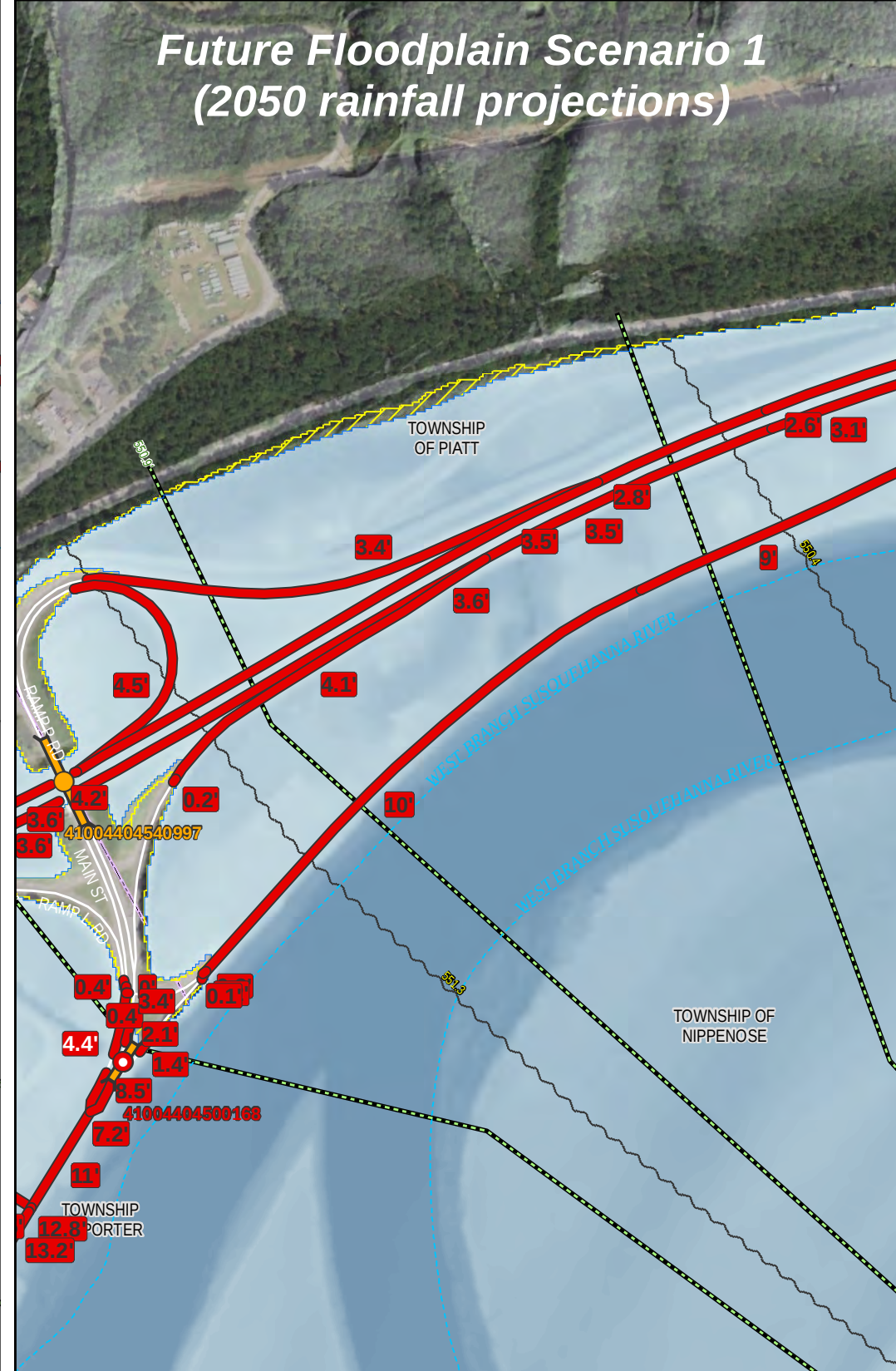
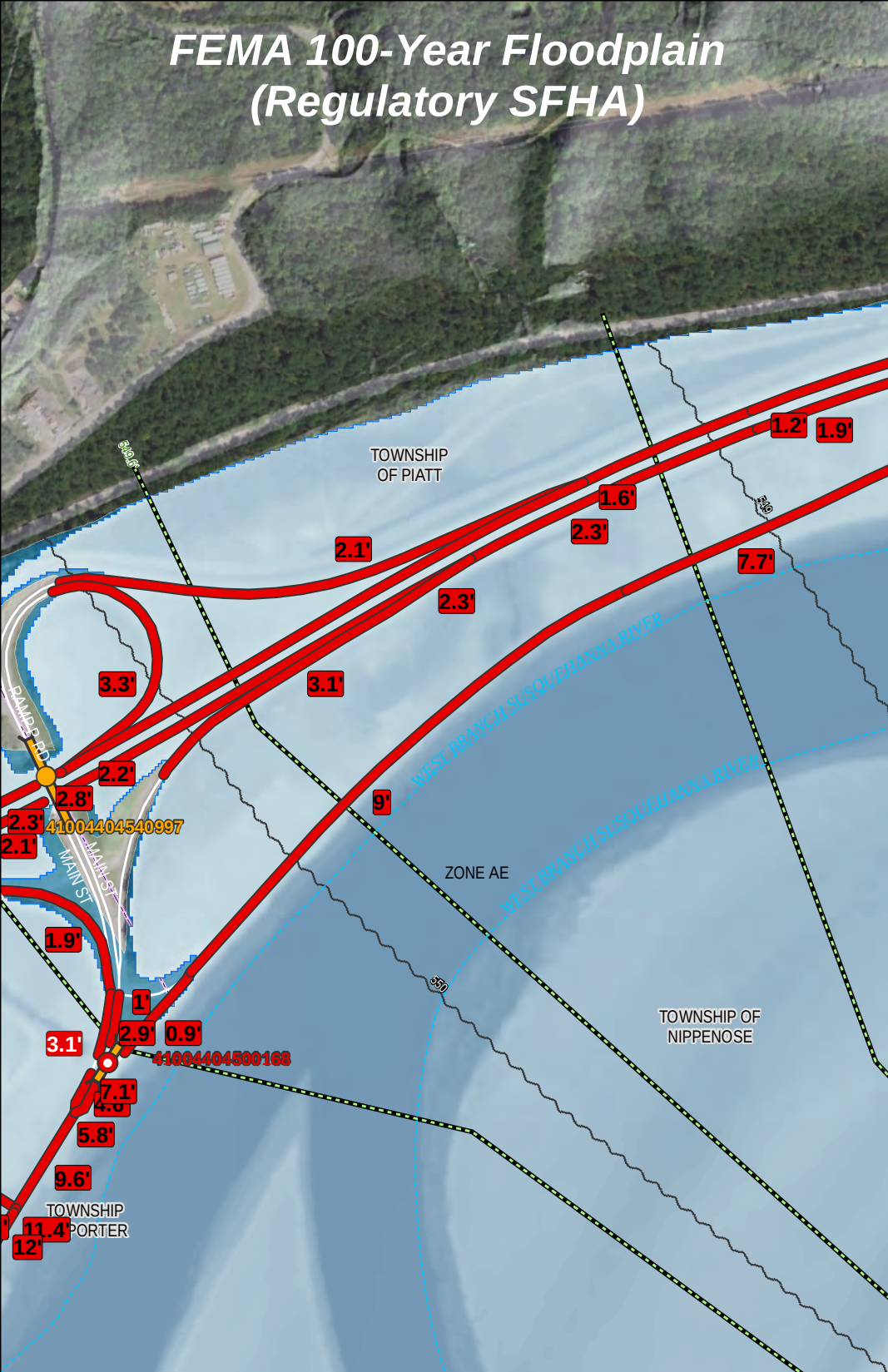
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

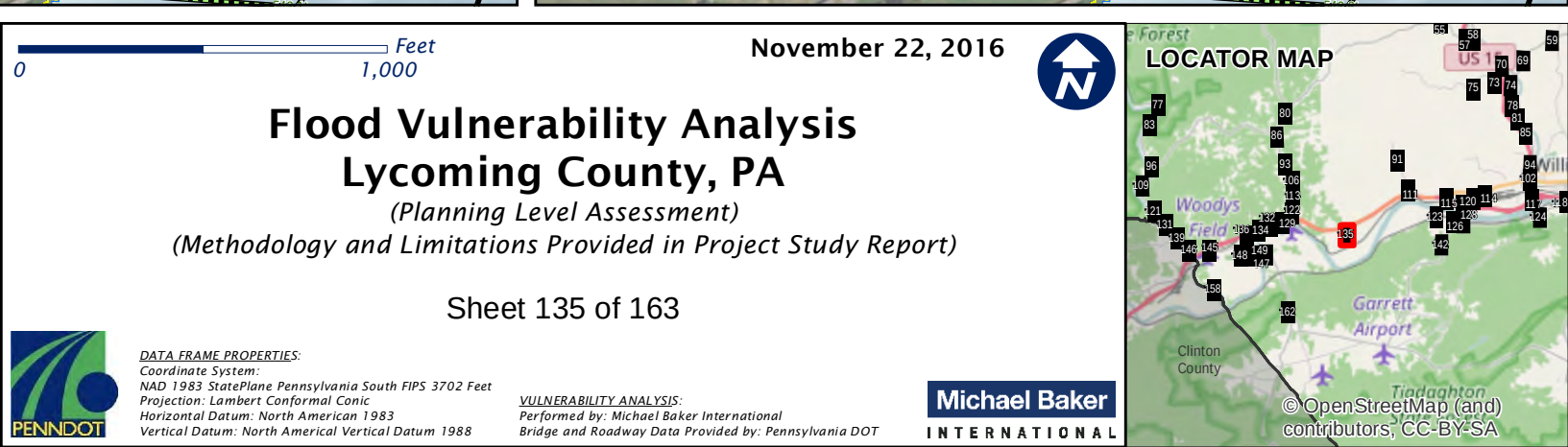
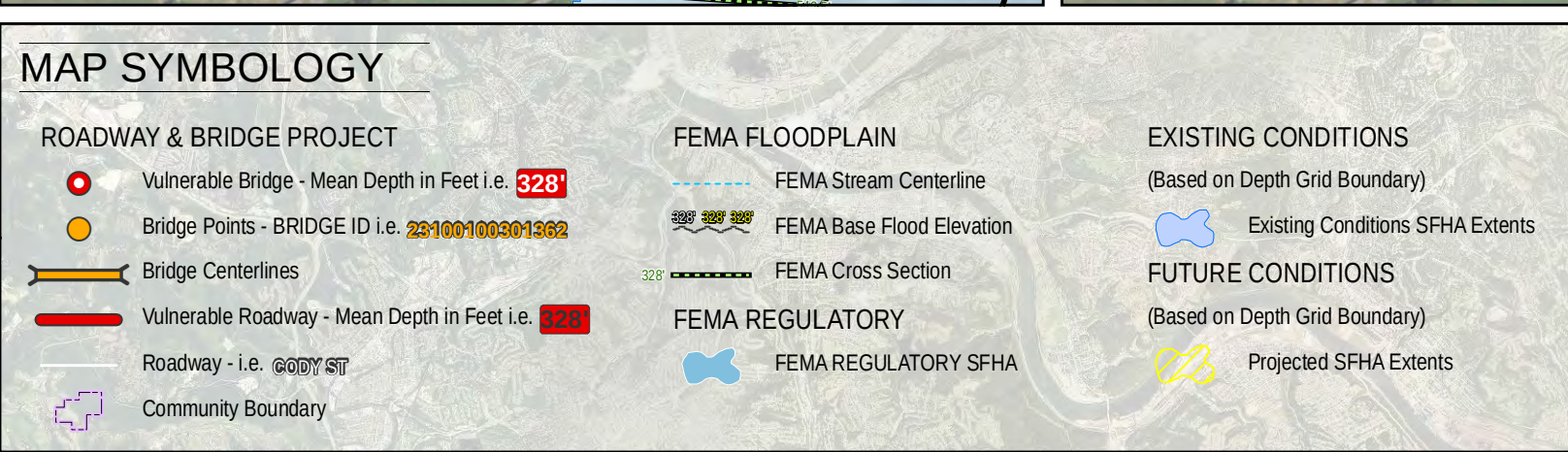
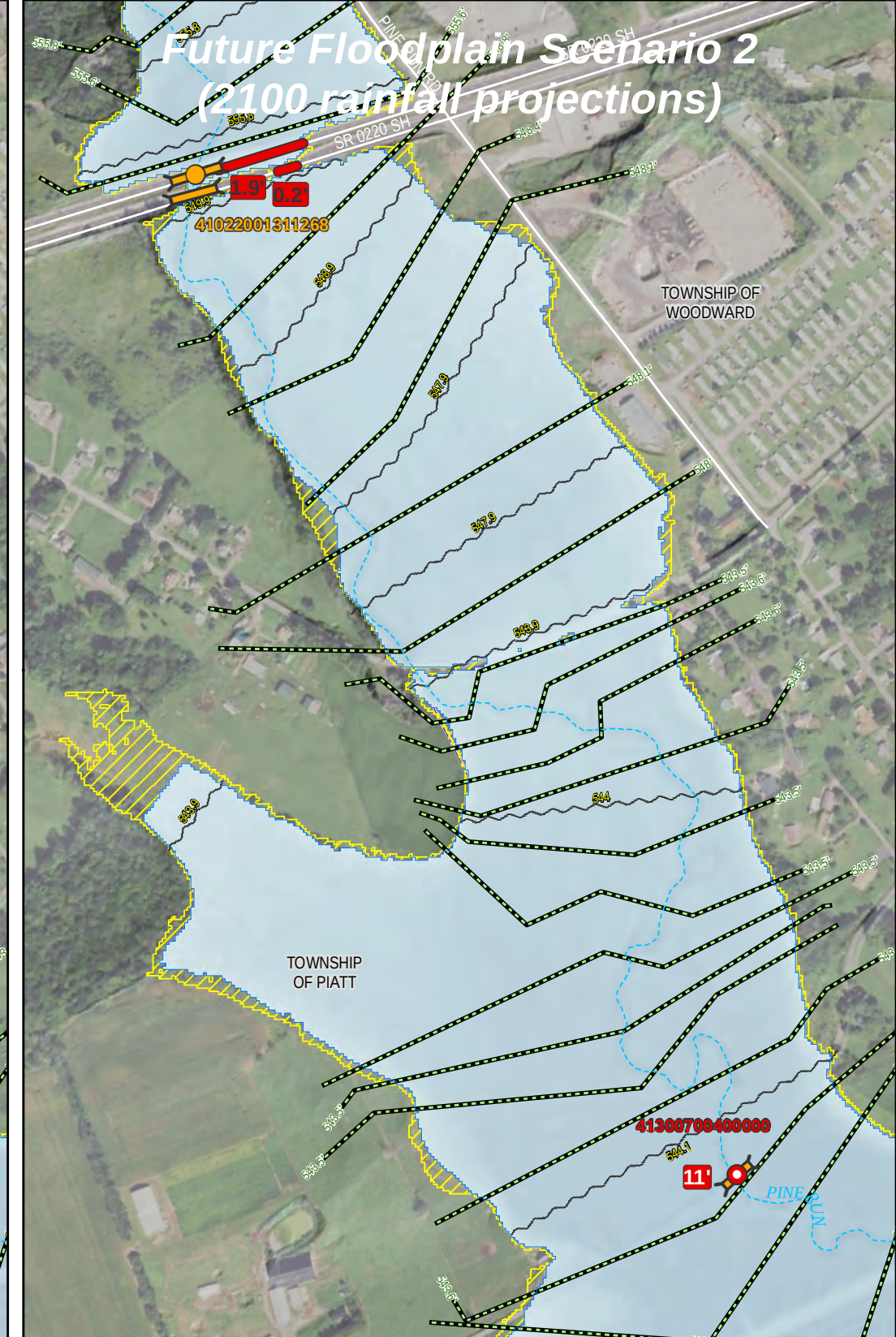
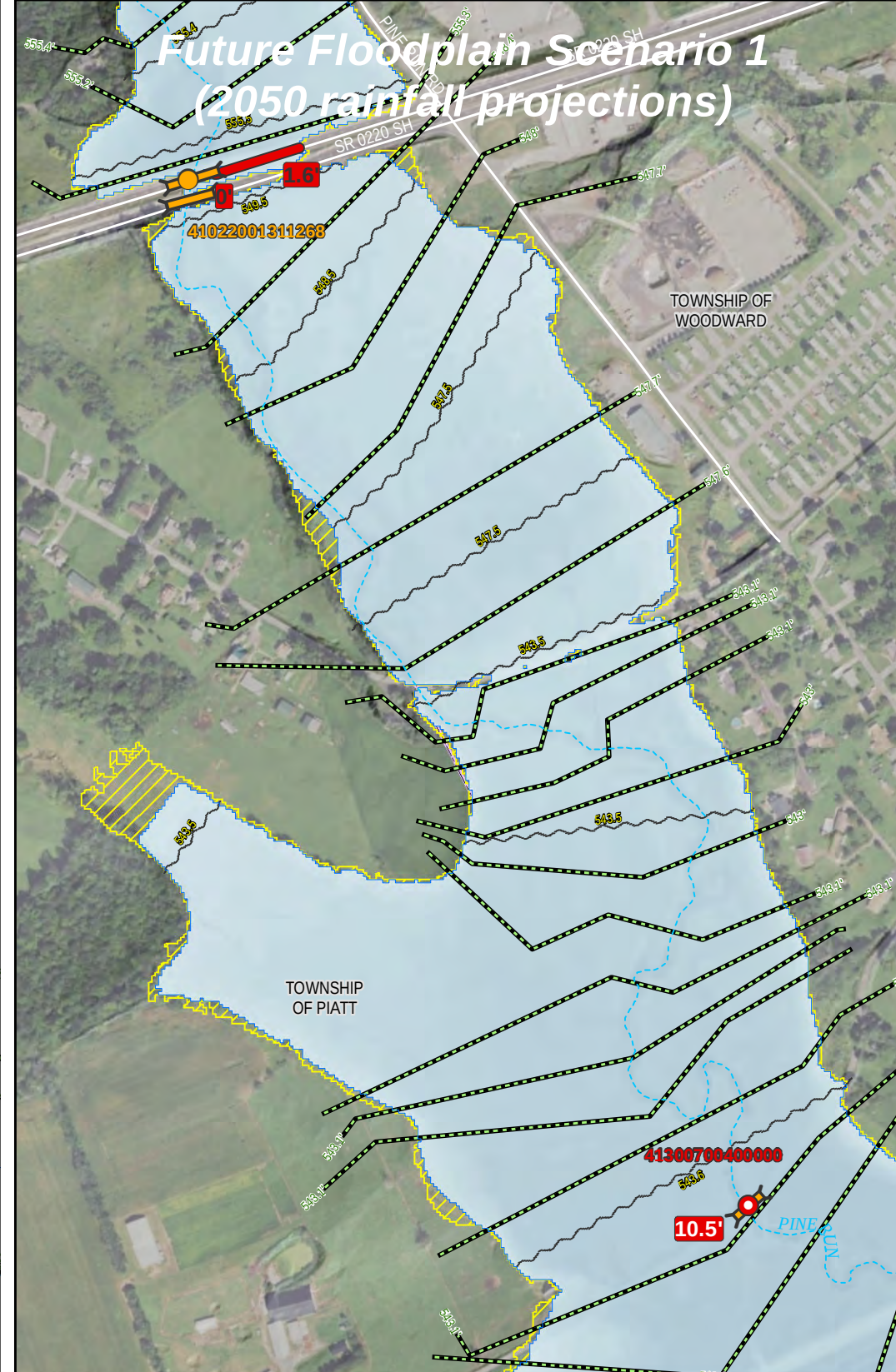
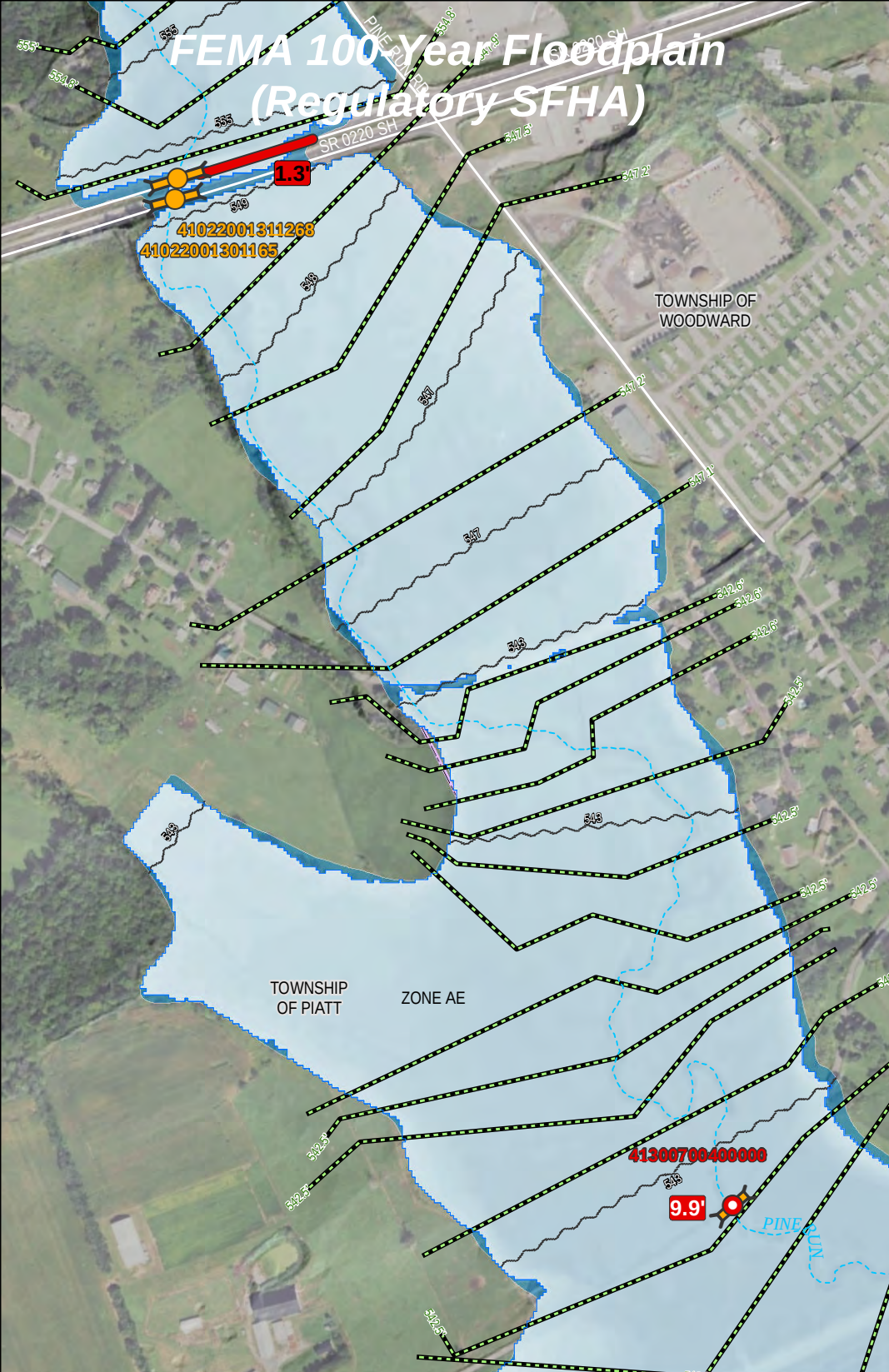
Sheet 133 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

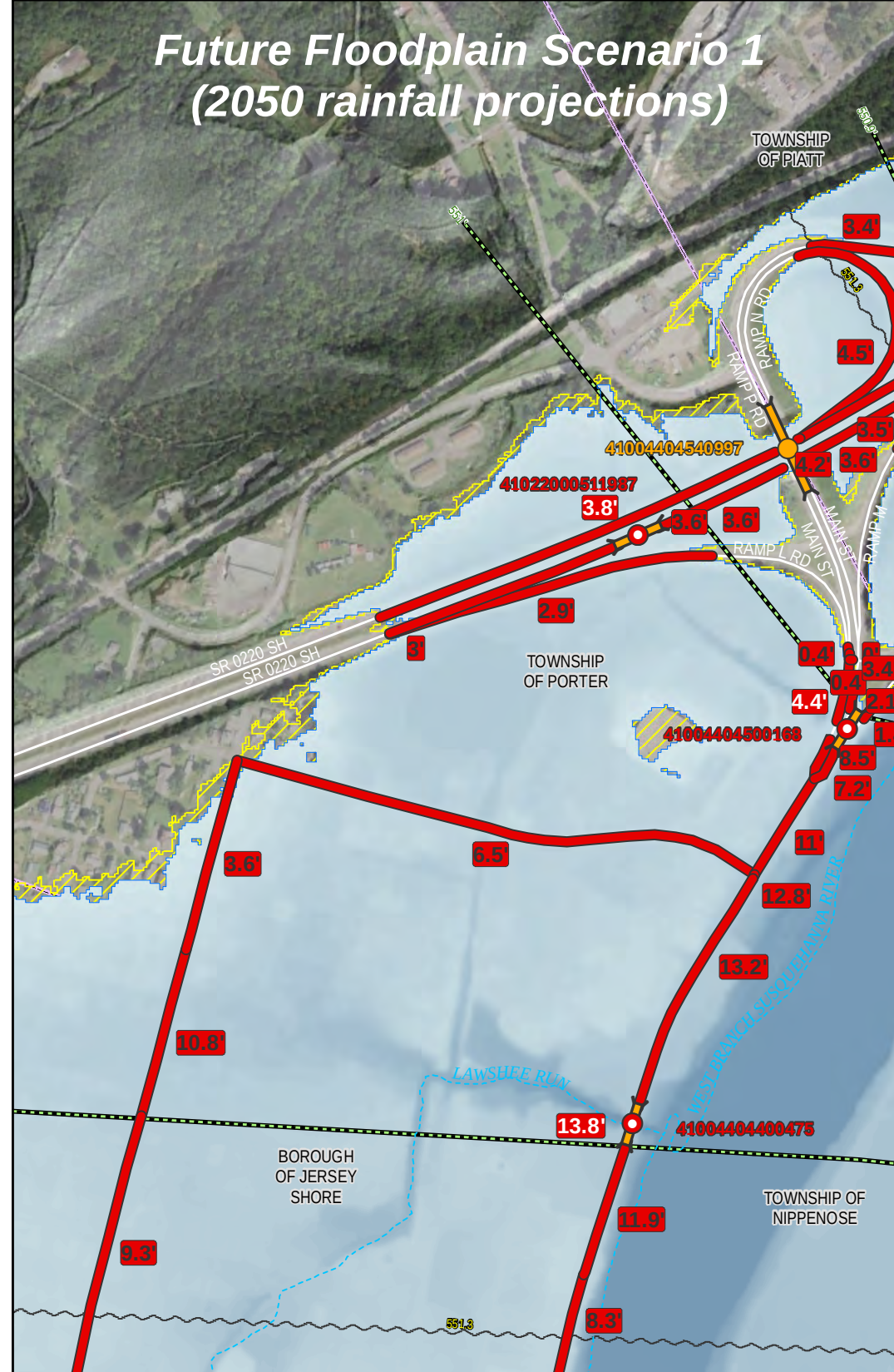




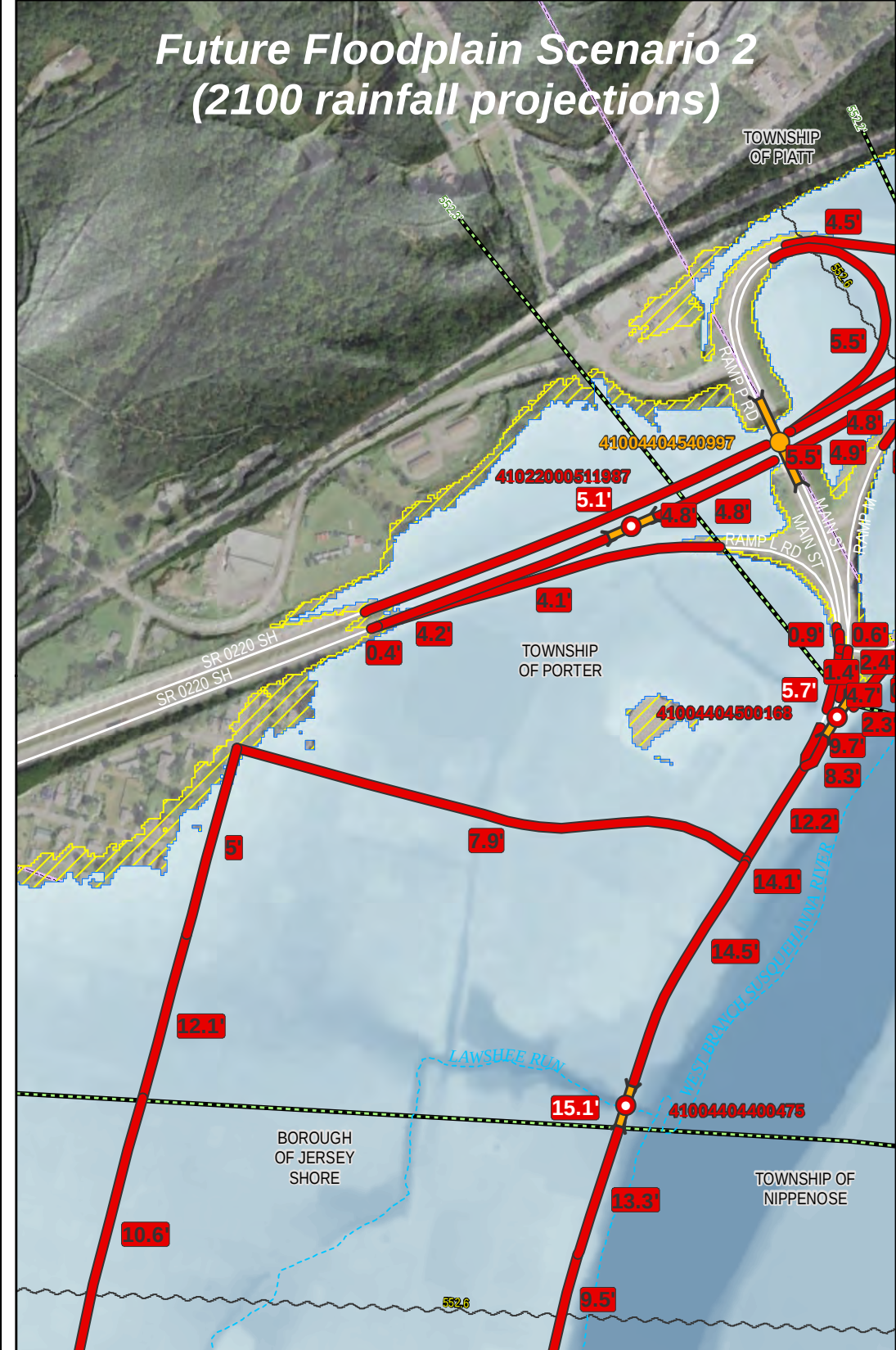
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

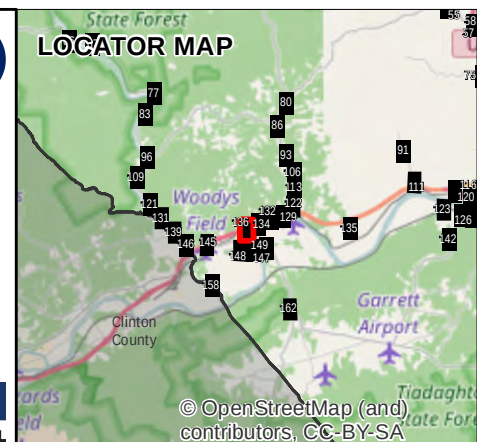
Sheet 136 of 163



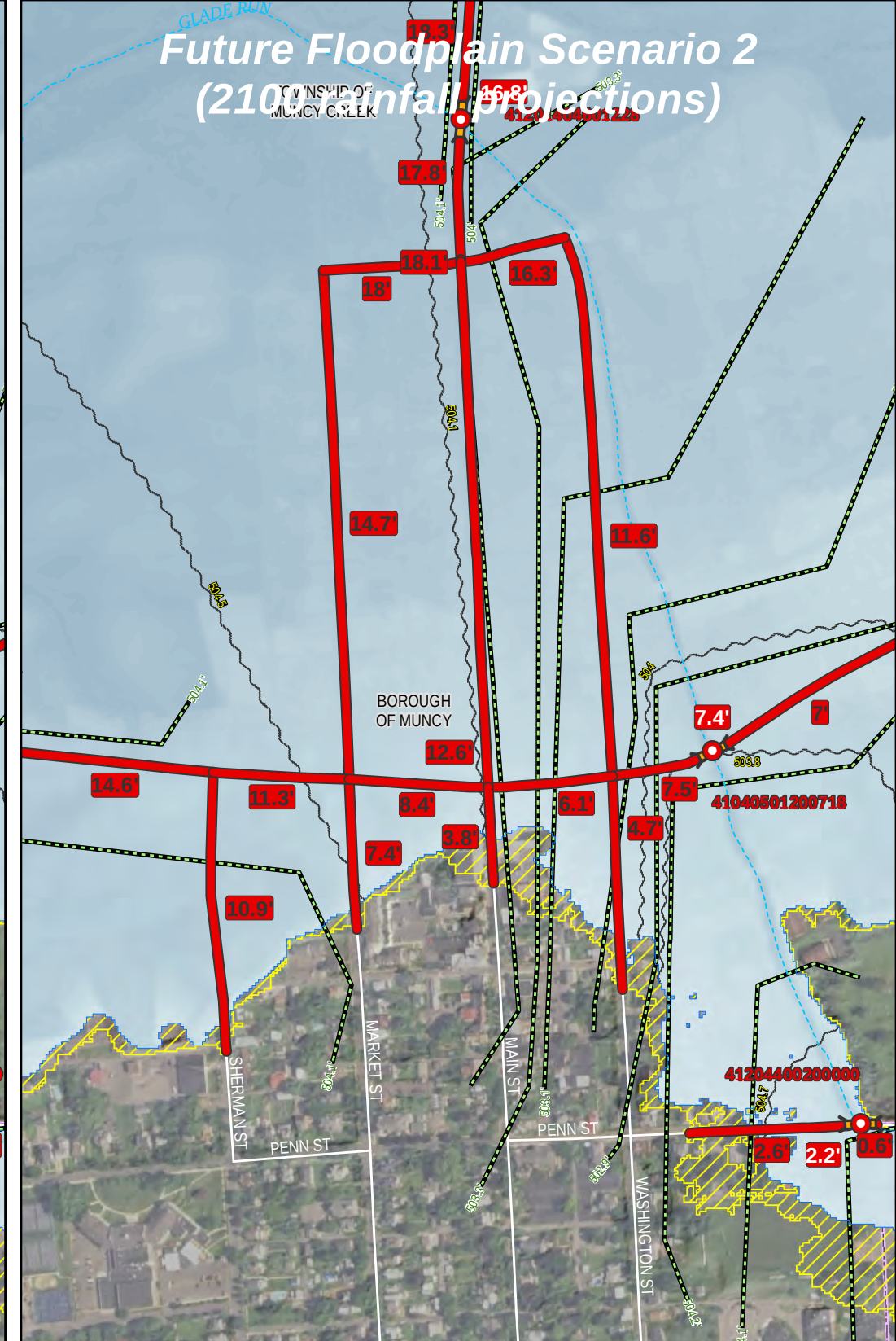
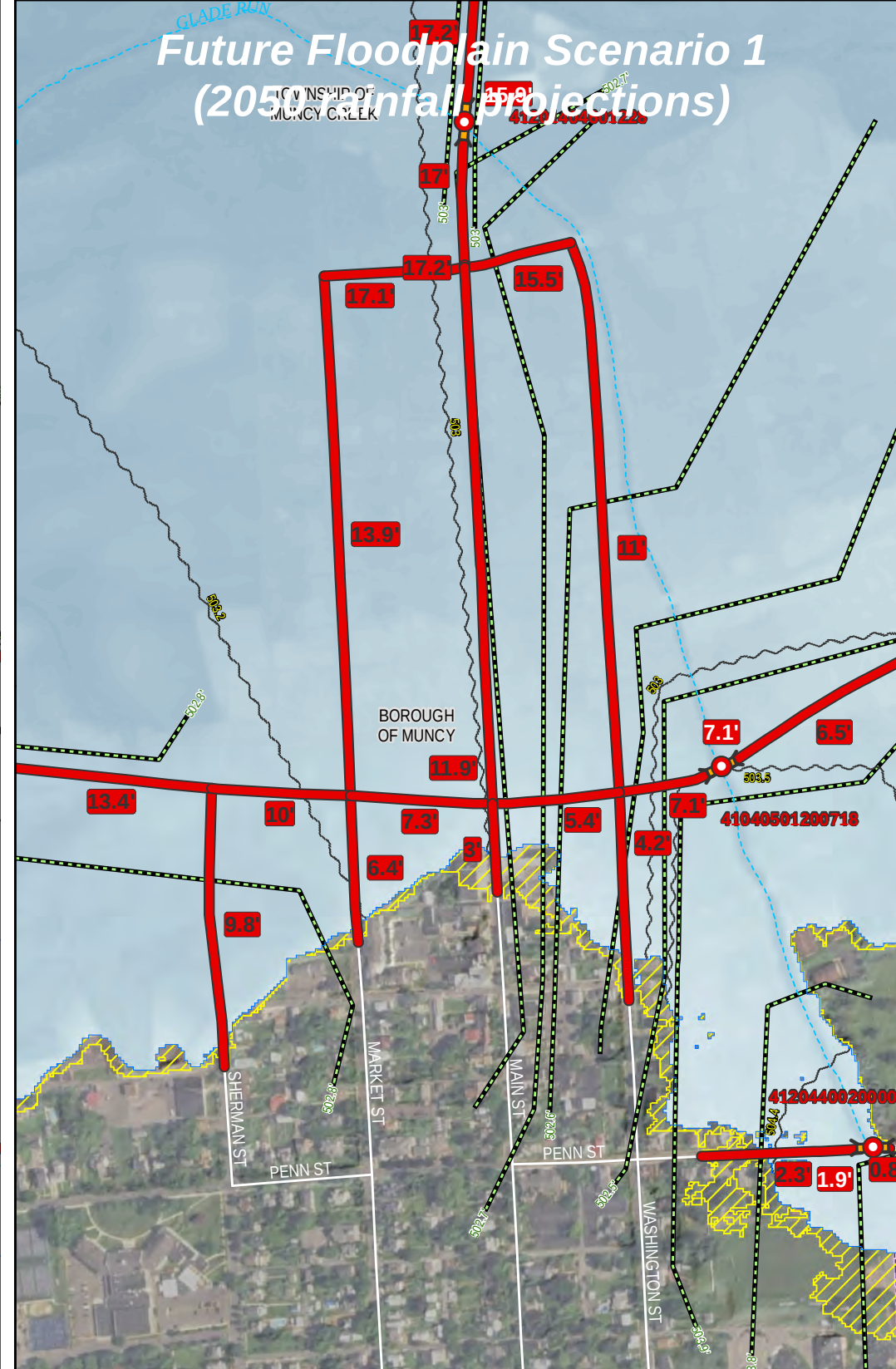
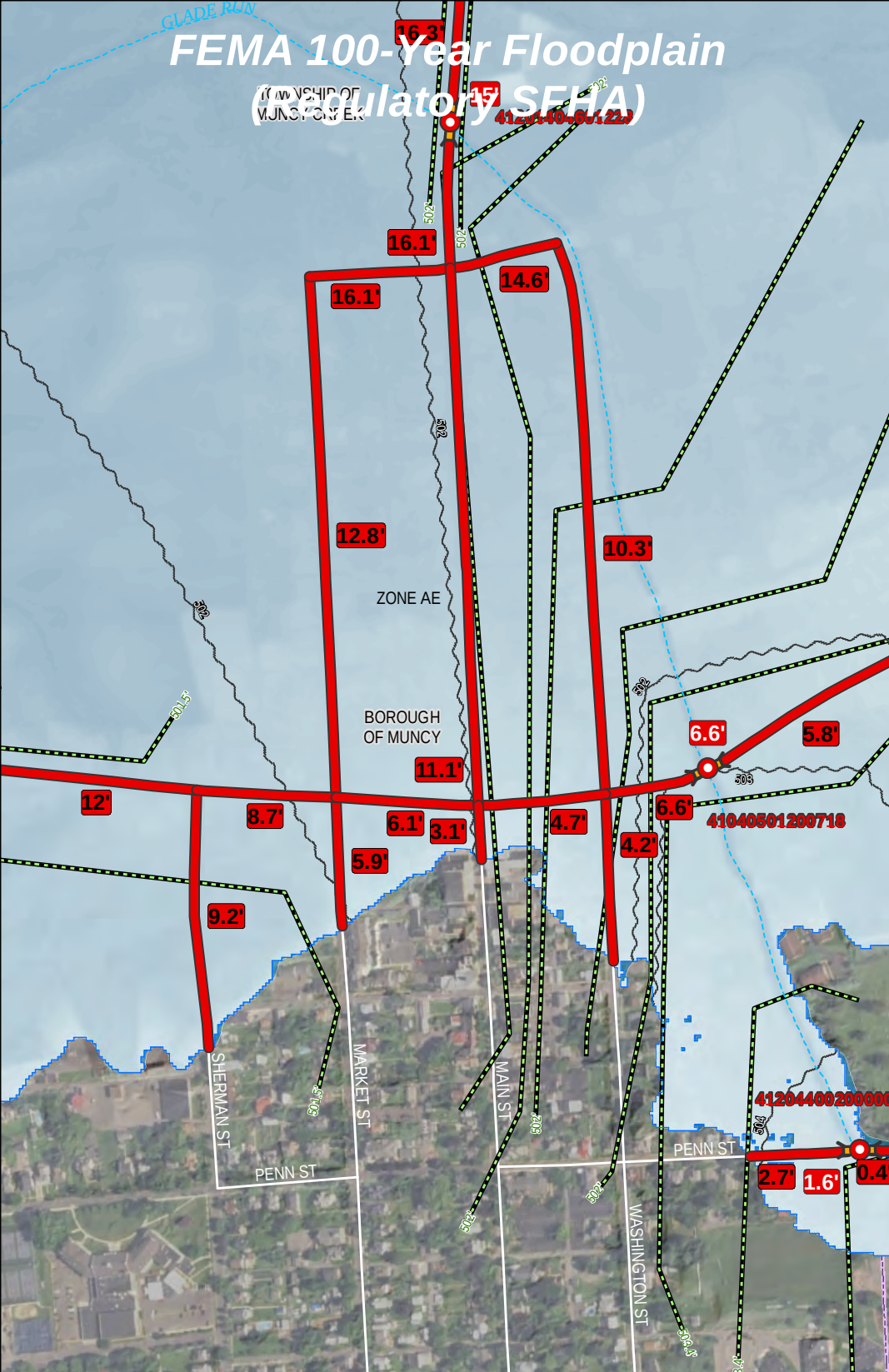
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

Michael Baker
INTERNATIONAL



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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

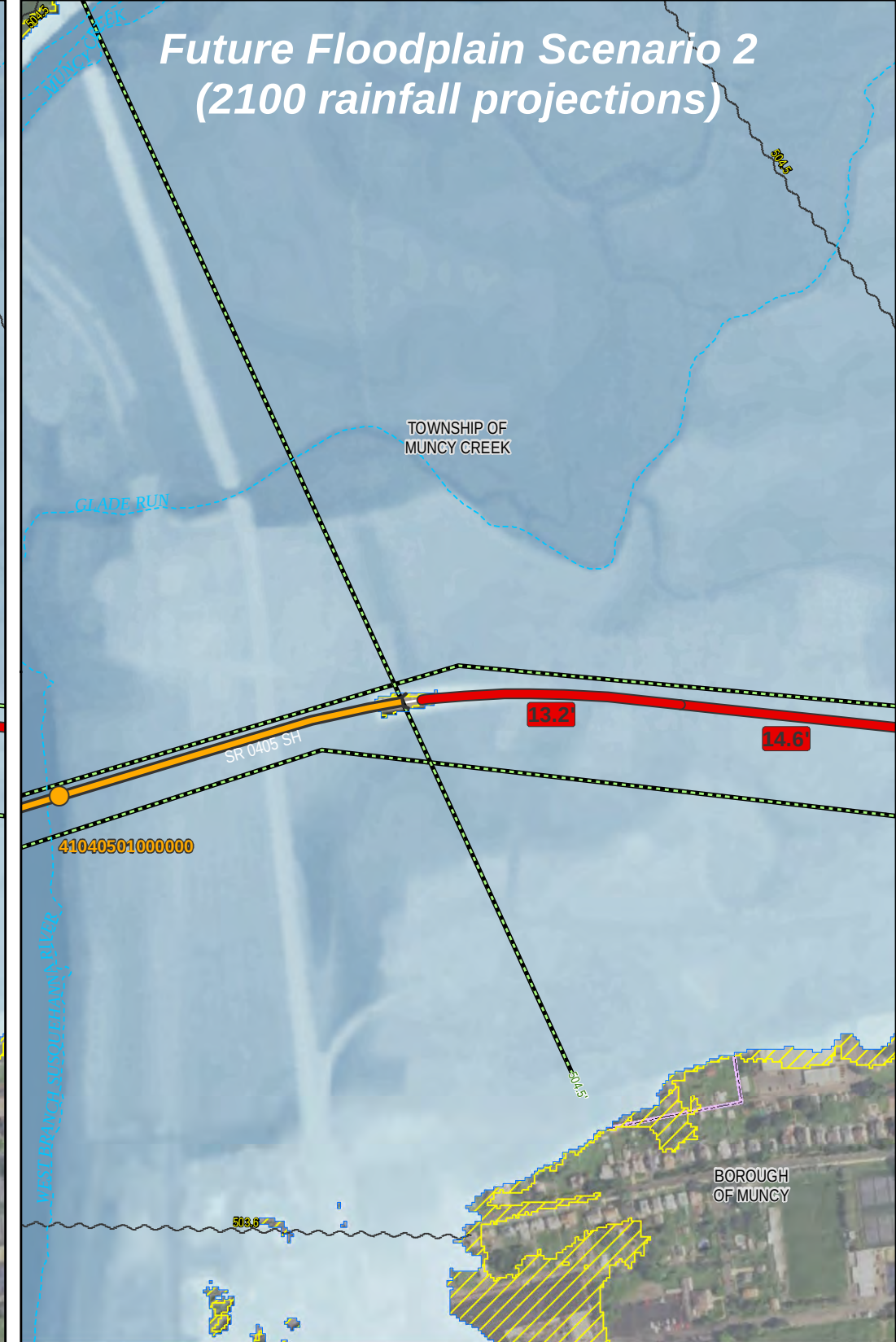
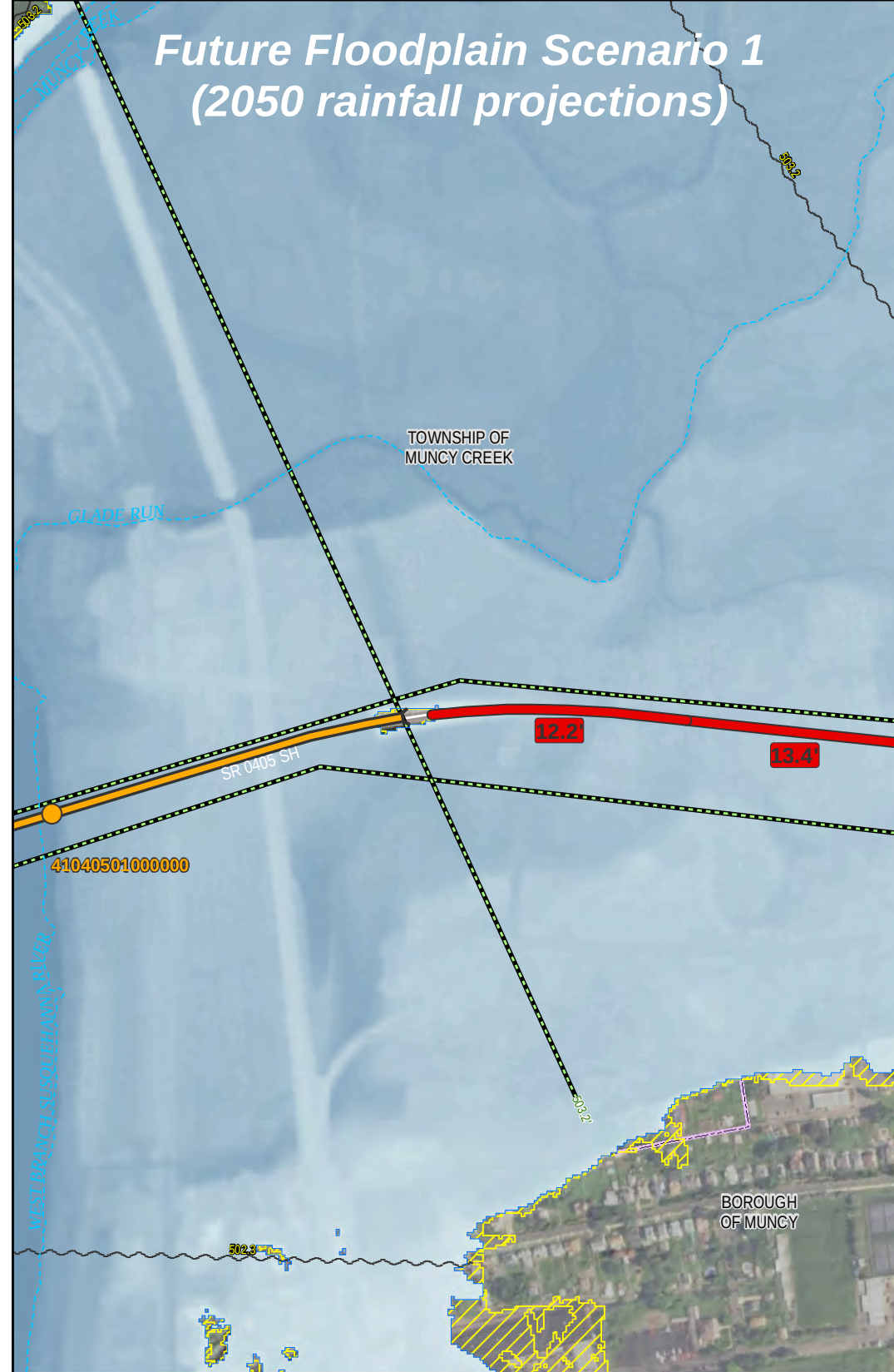
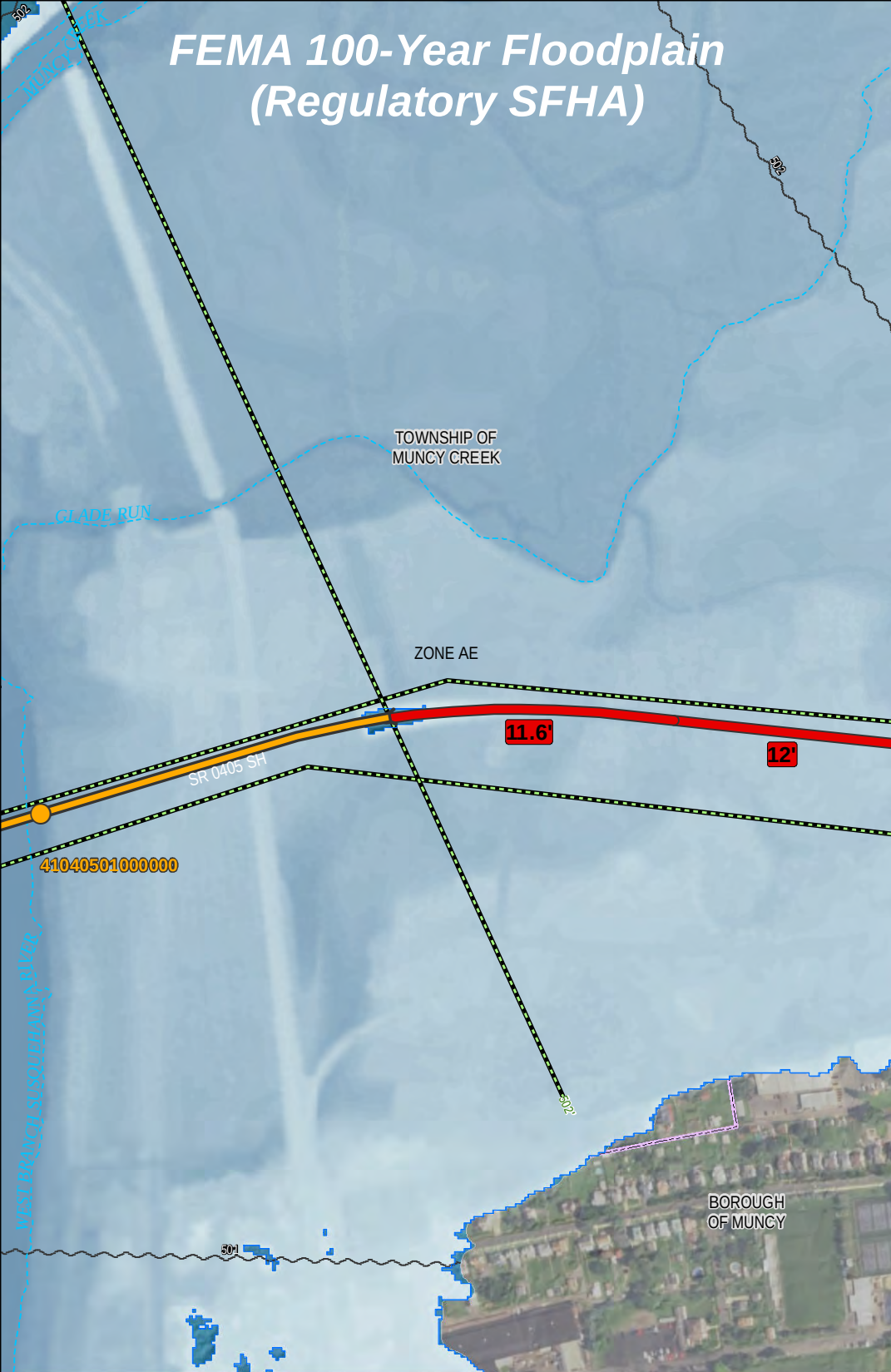
Sheet 137 of 163

**Michael Baker
INTERNATIONAL**

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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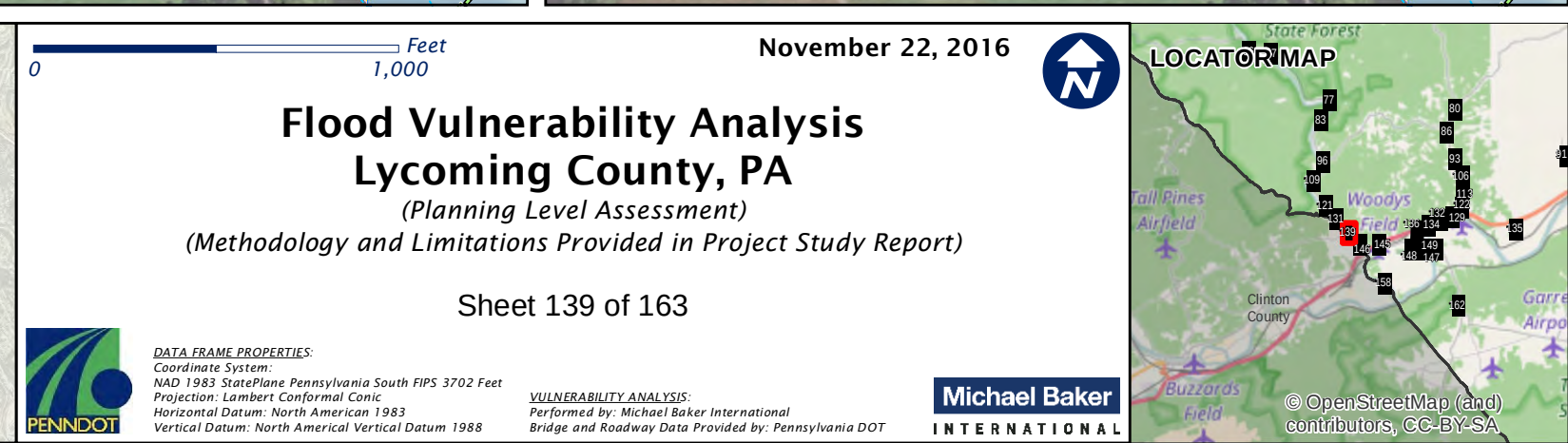
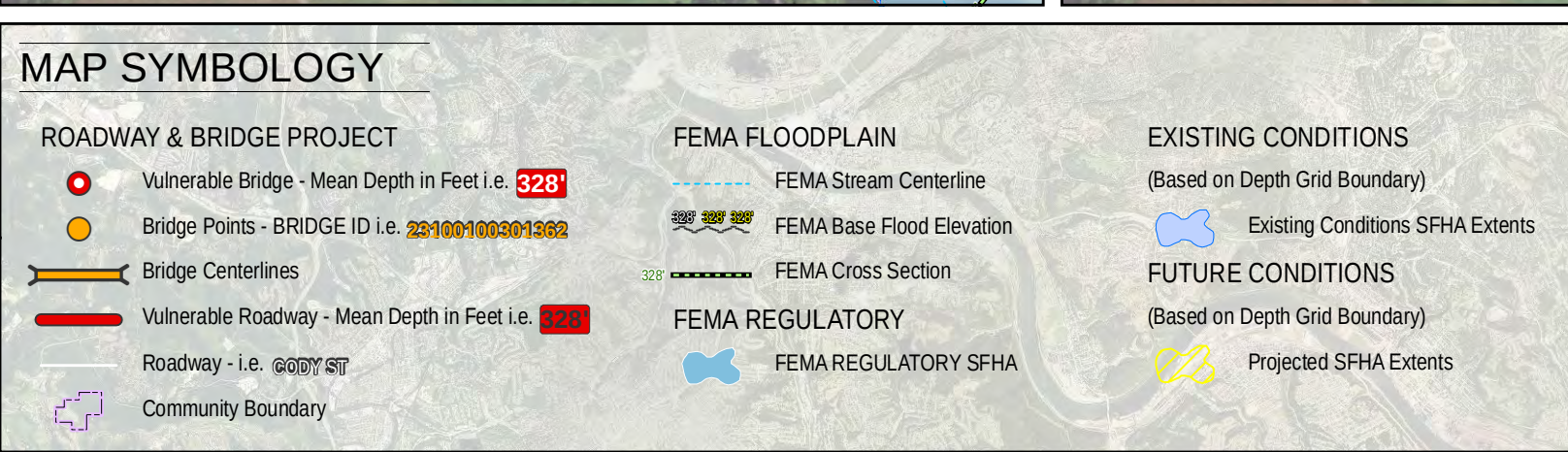
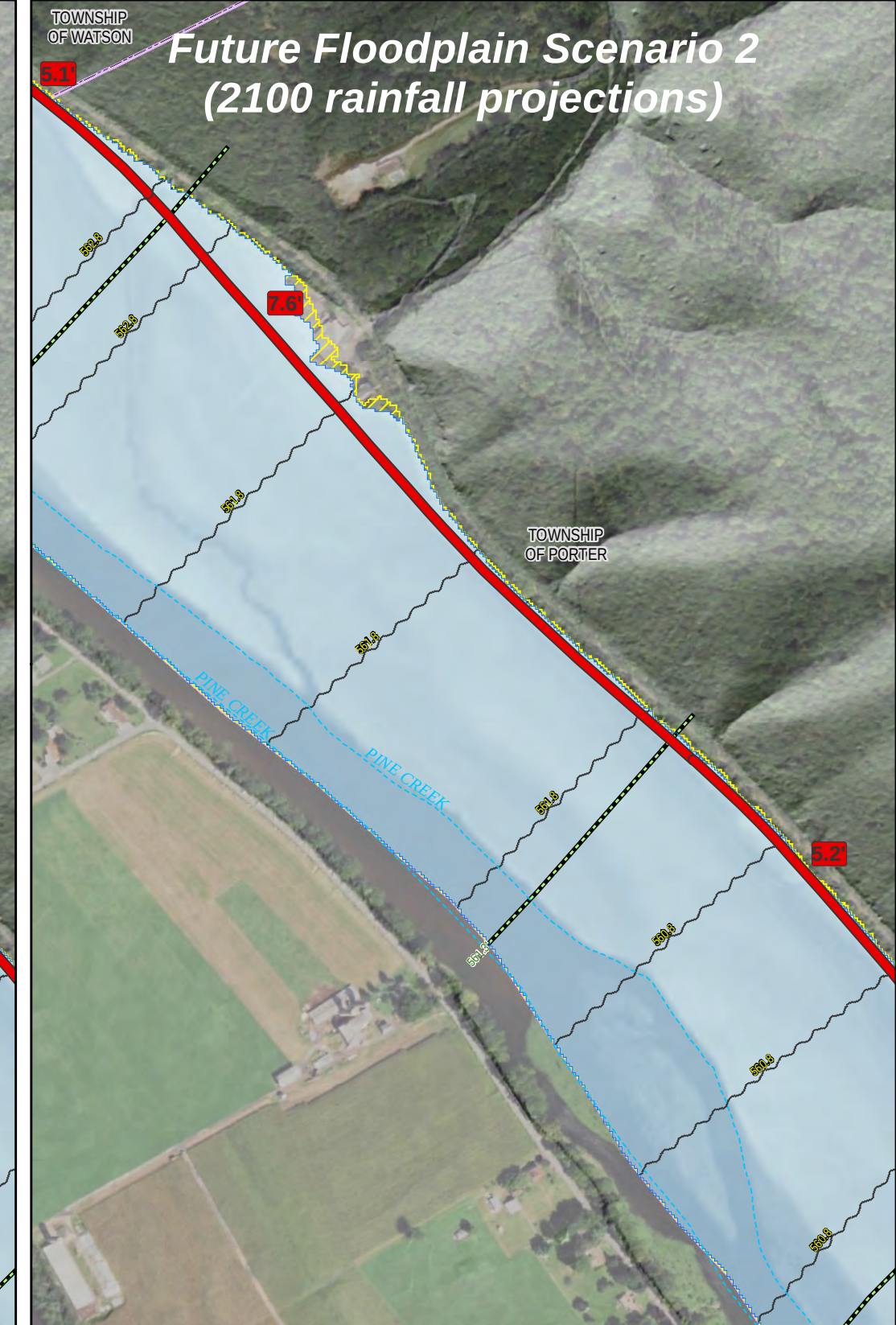
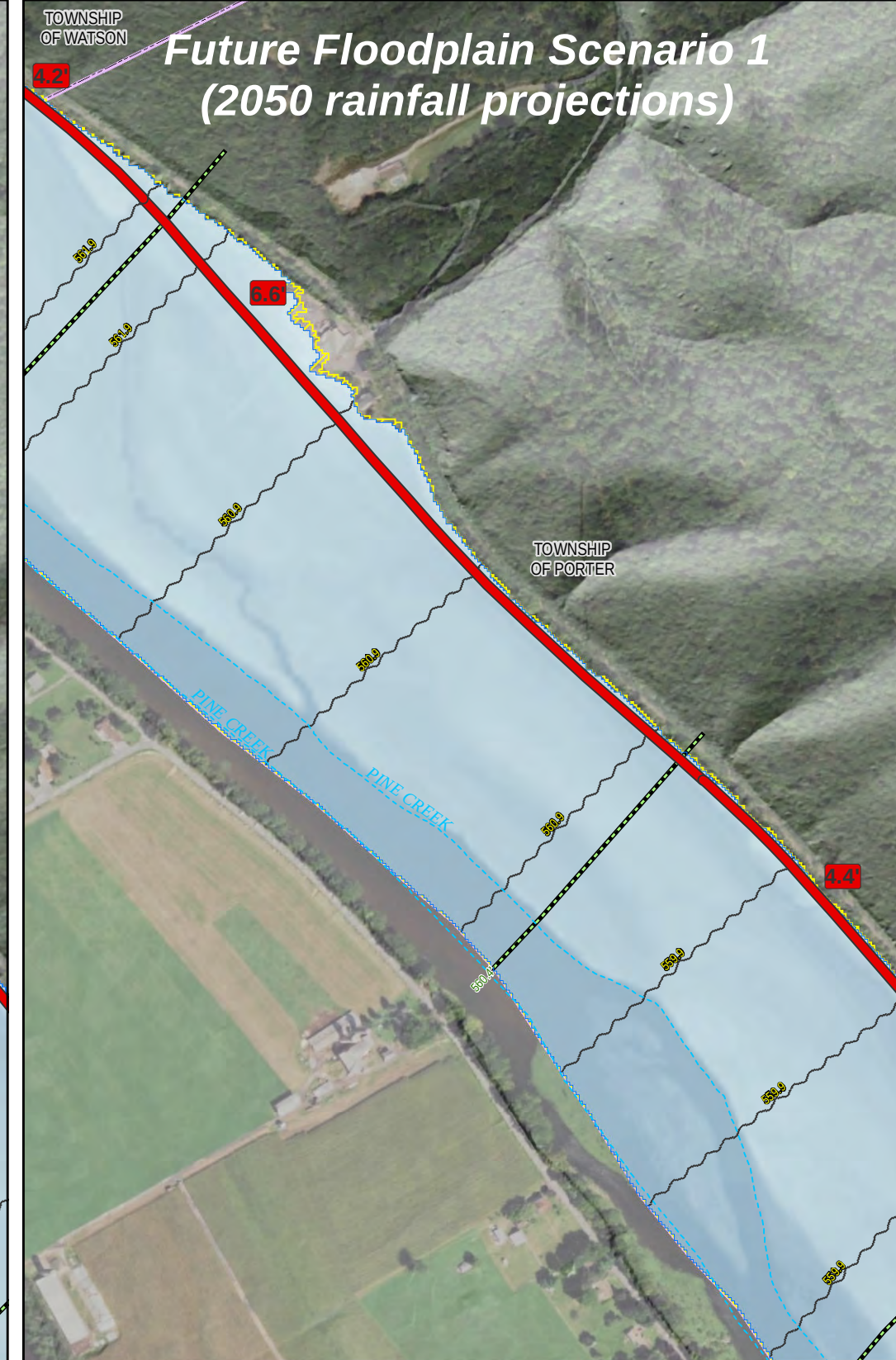
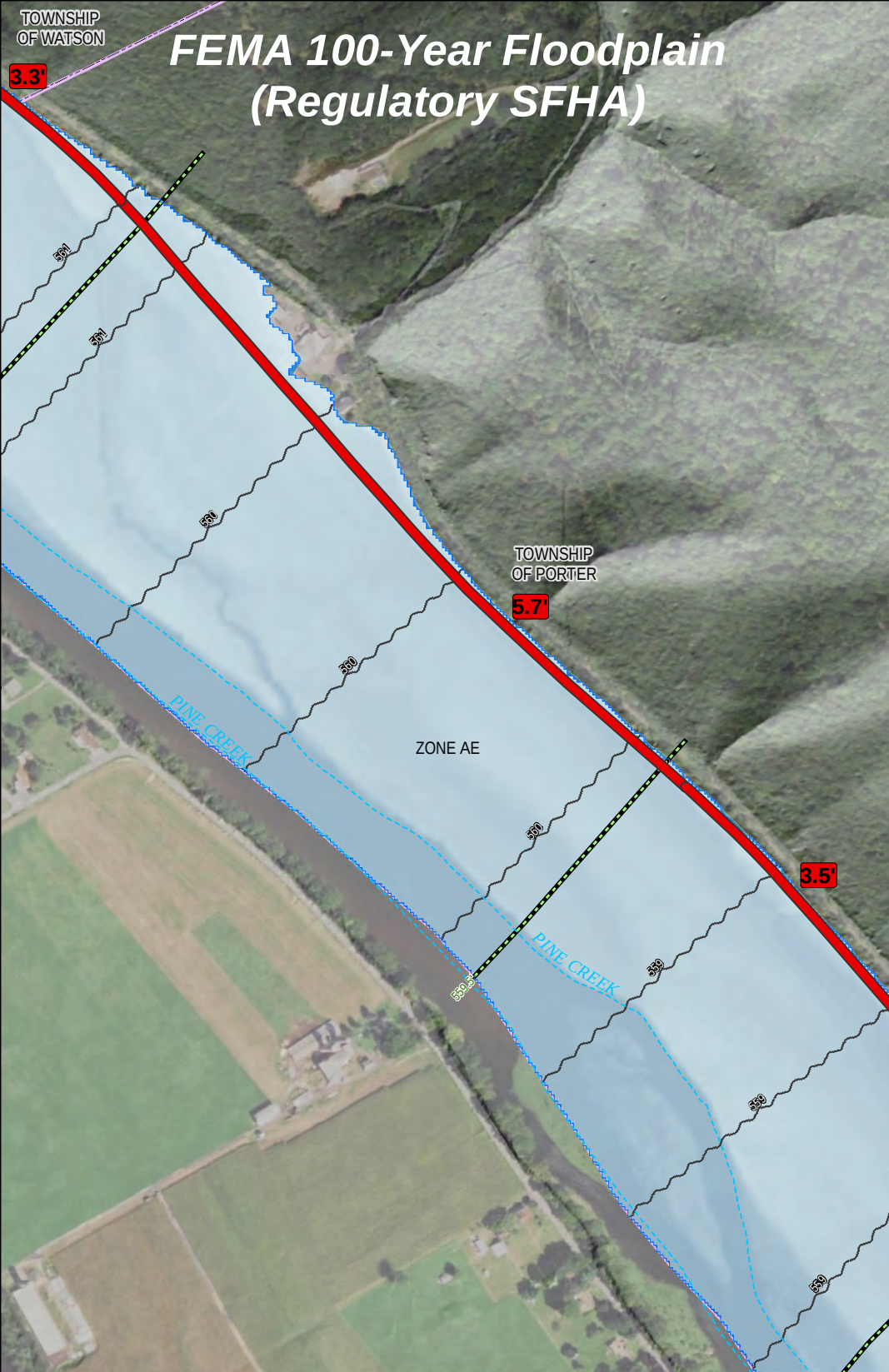
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

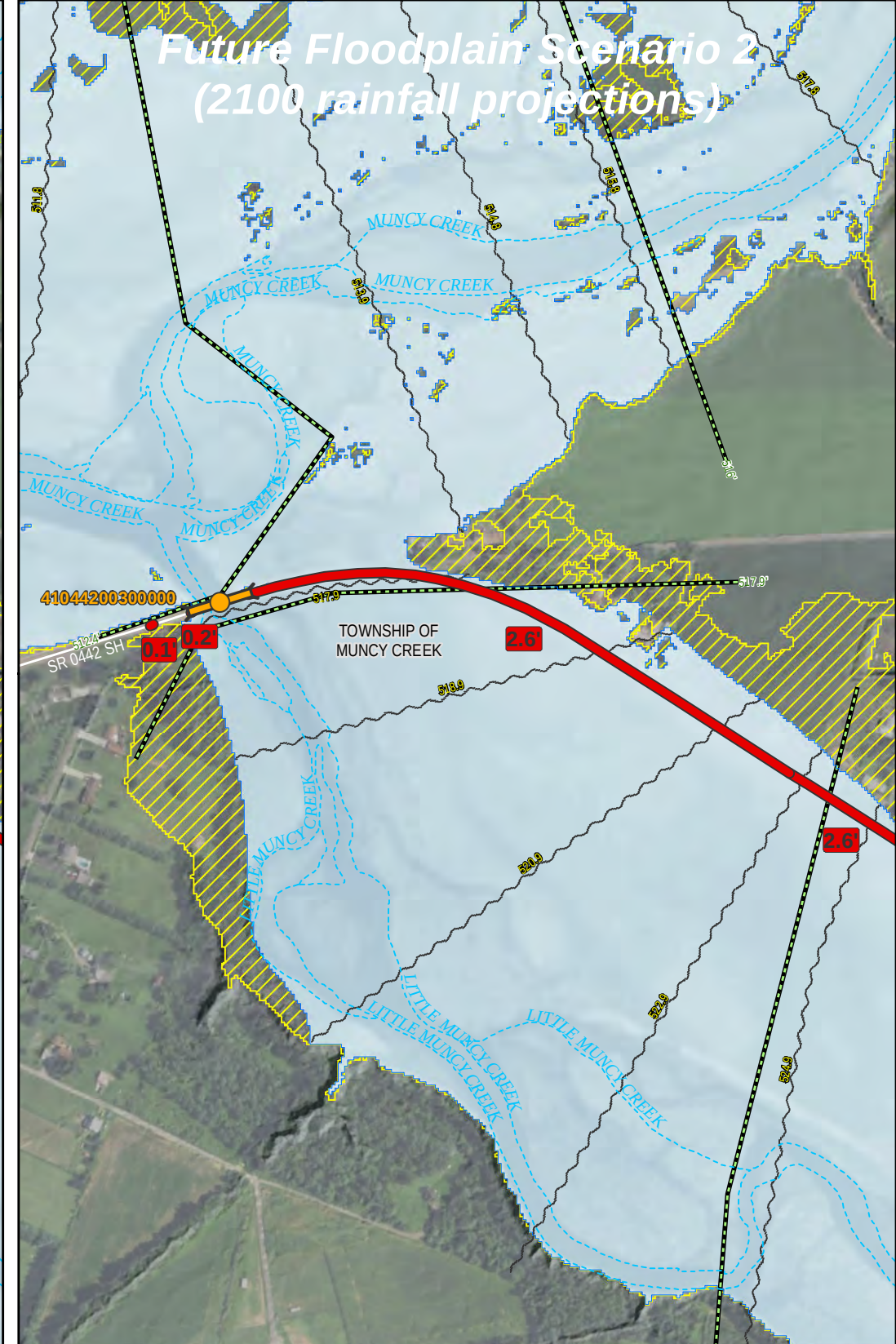
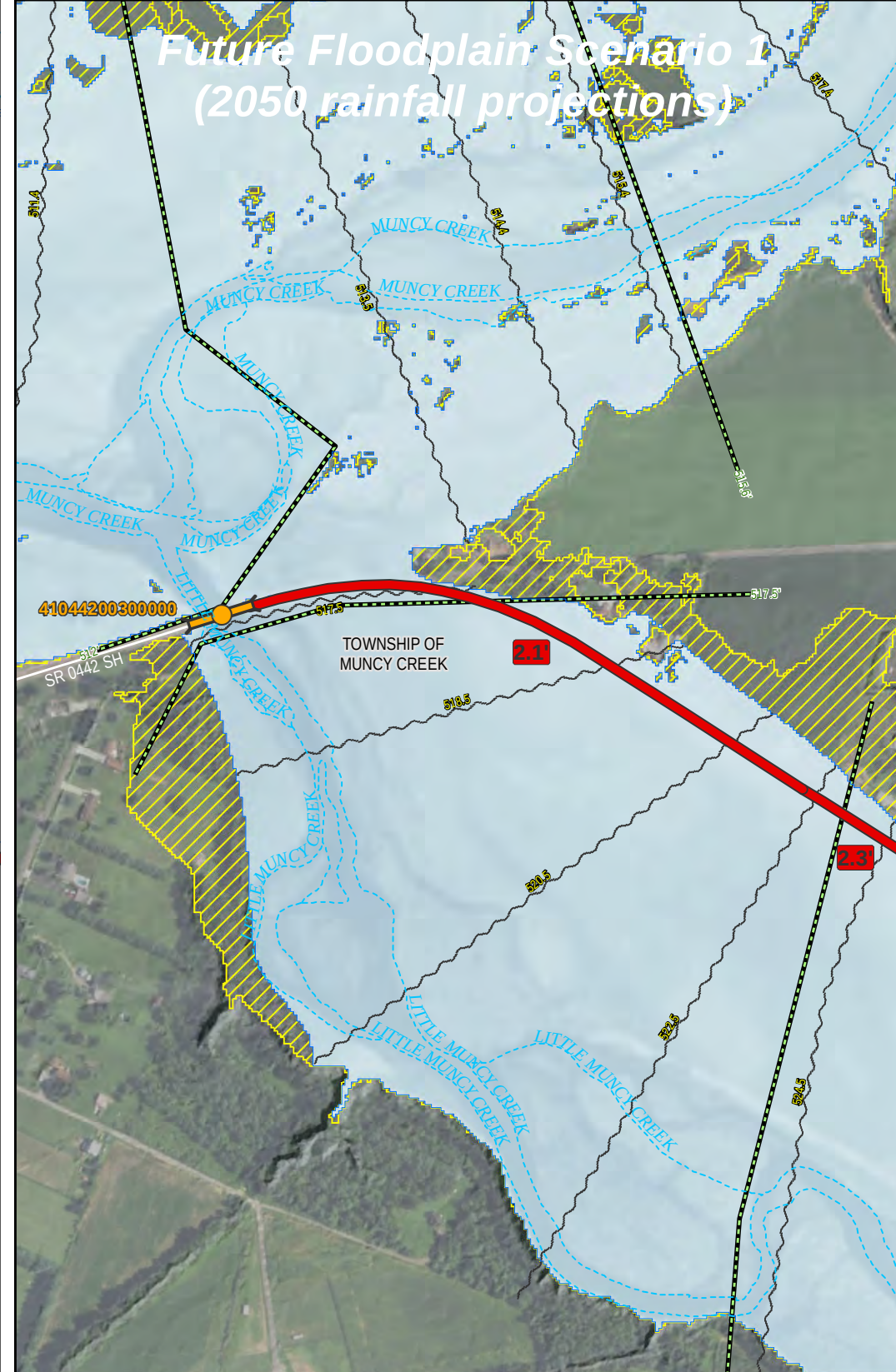
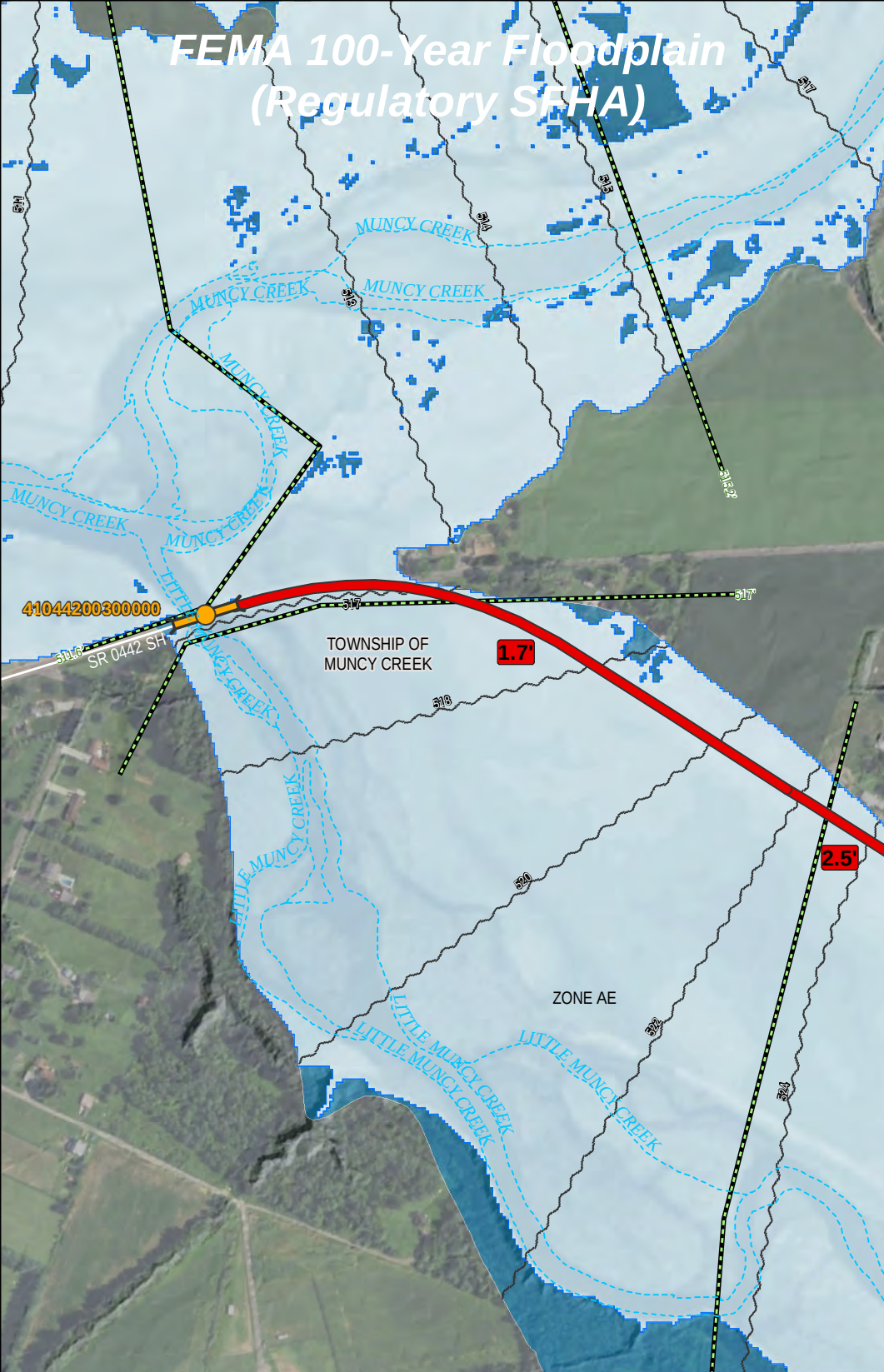
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

Williamsport Regional Airport
Hey Field
Hackenbush-Palmyra Airport
Northumberland County
Montour County
Union County
Columbia County

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

Feet
0 1,000

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

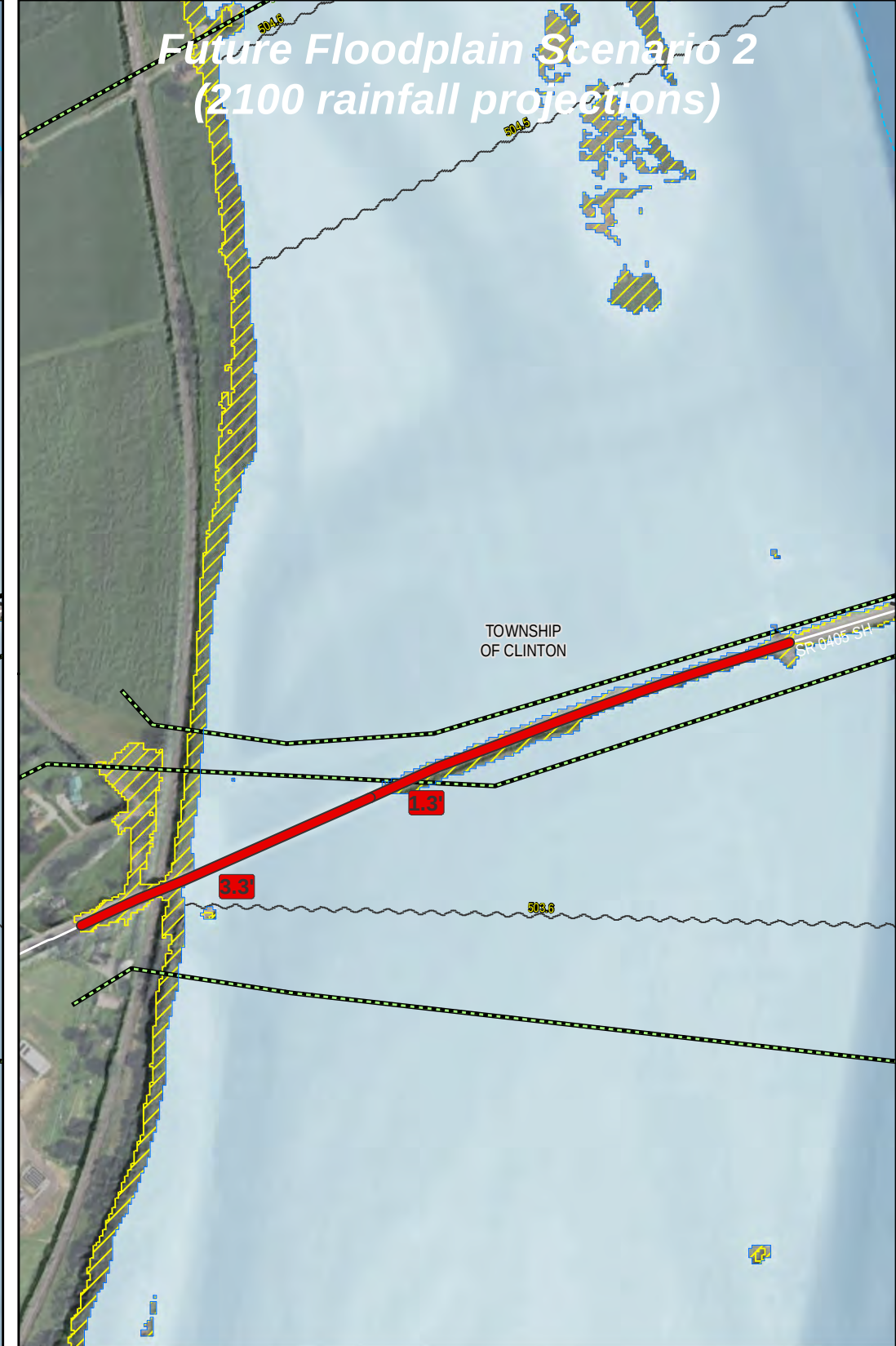
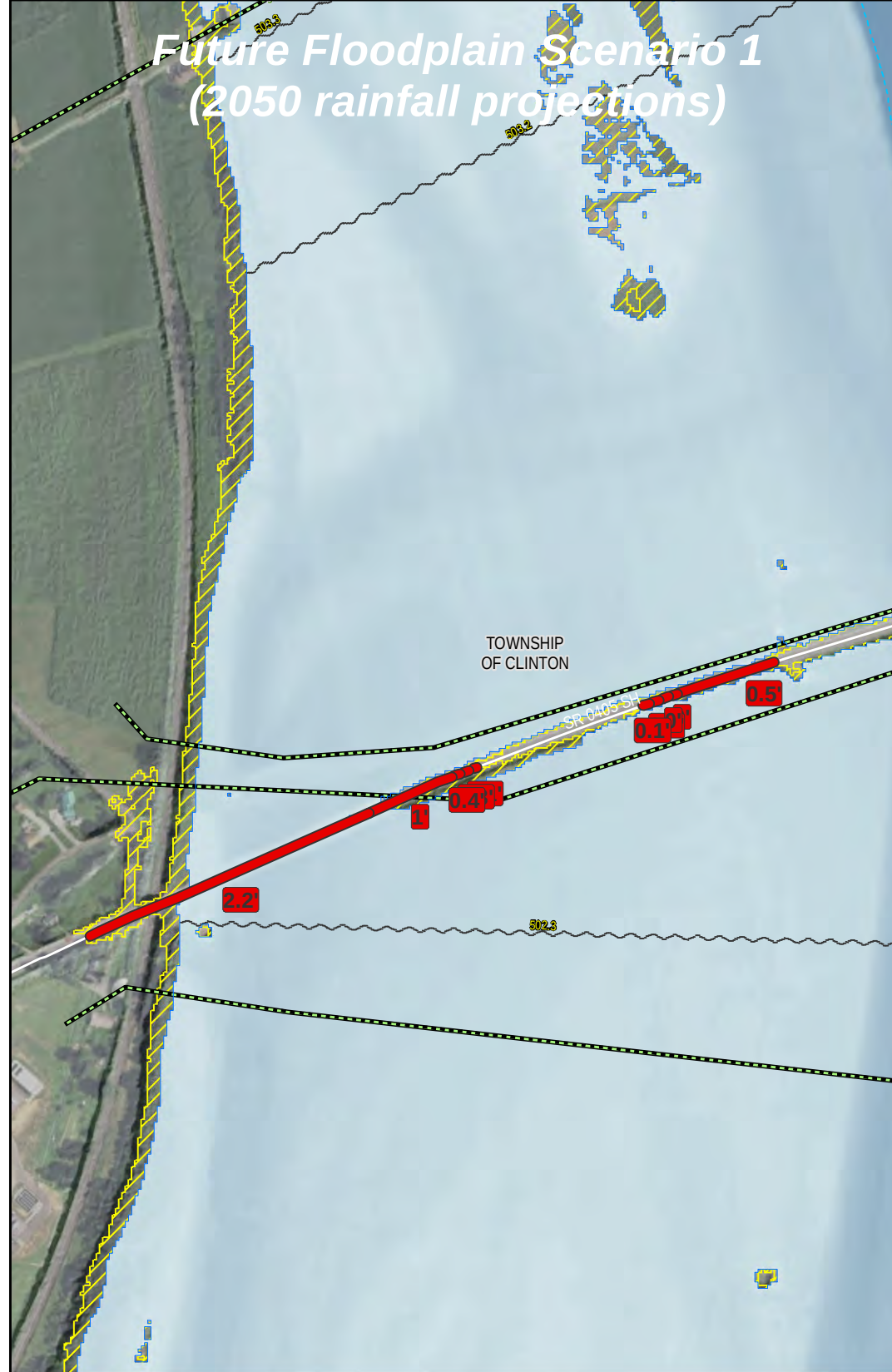
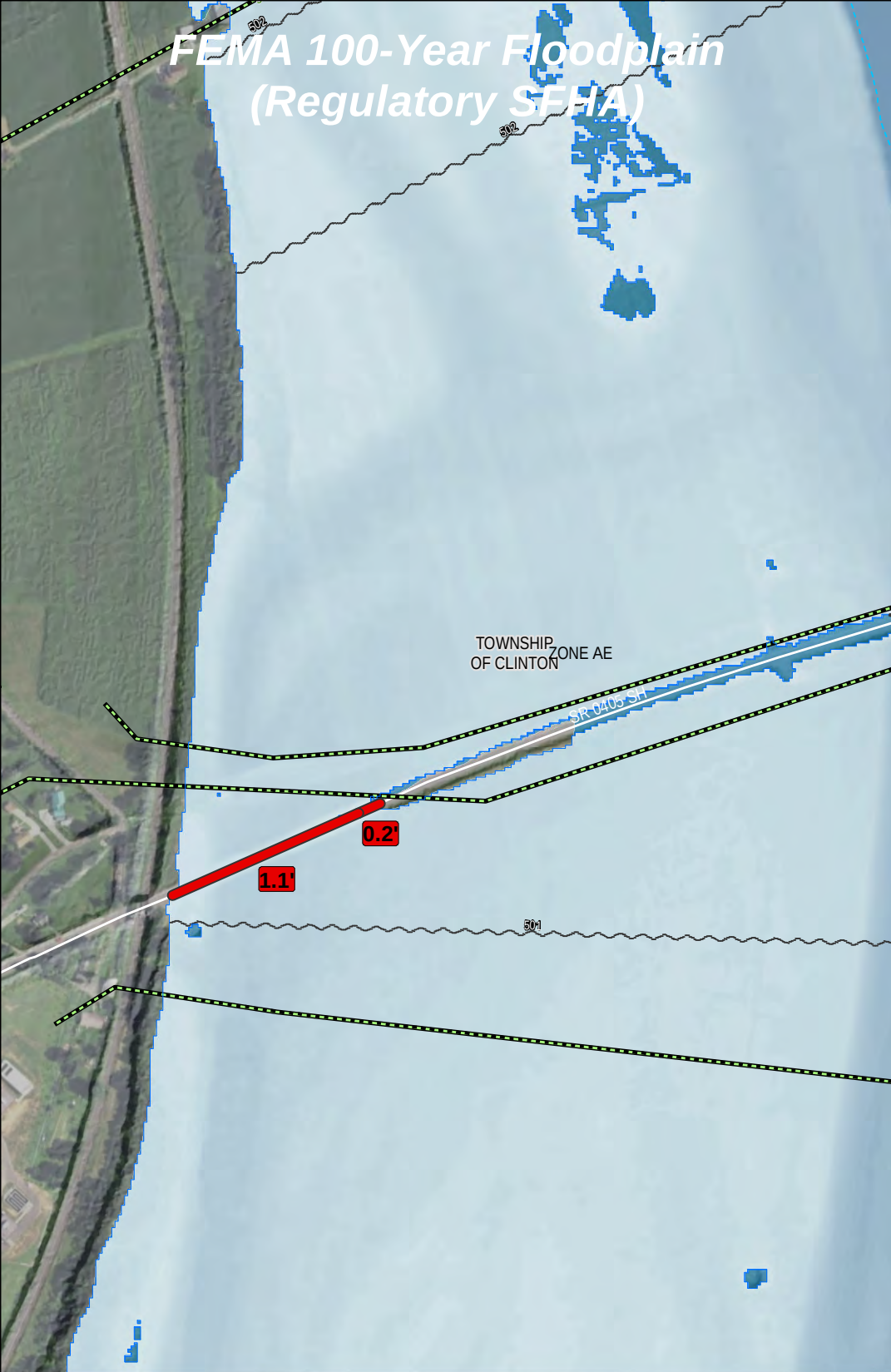
Sheet 140 of 163

Michael Baker
INTERNATIONAL

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
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Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
	Roadway - i.e. 60DY ST
	Community Boundary

FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
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Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

Williamsport Regional Airport

Hey Field

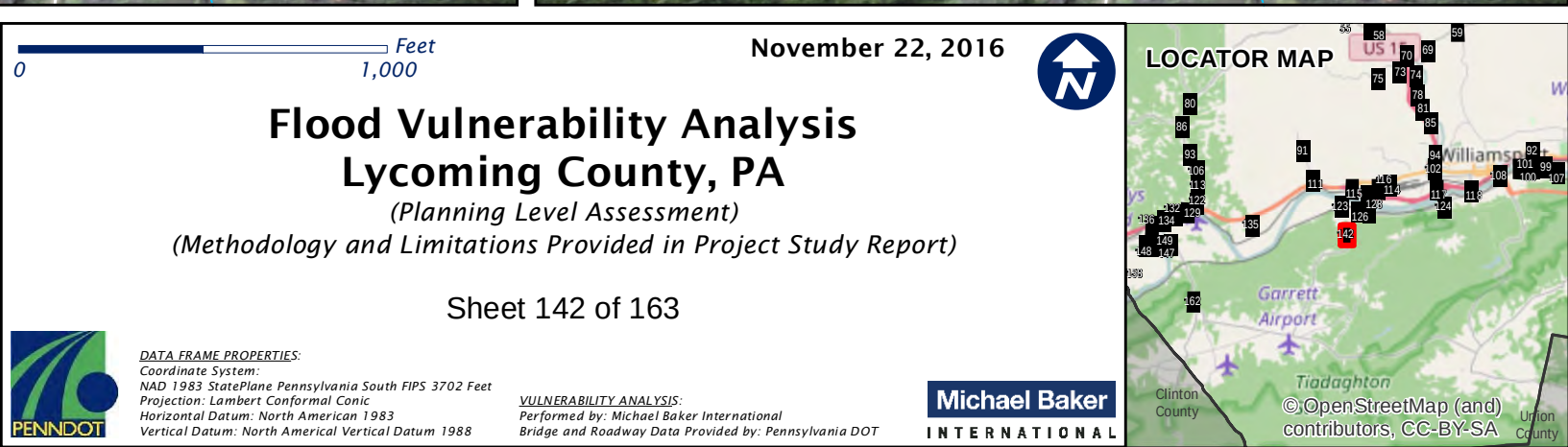
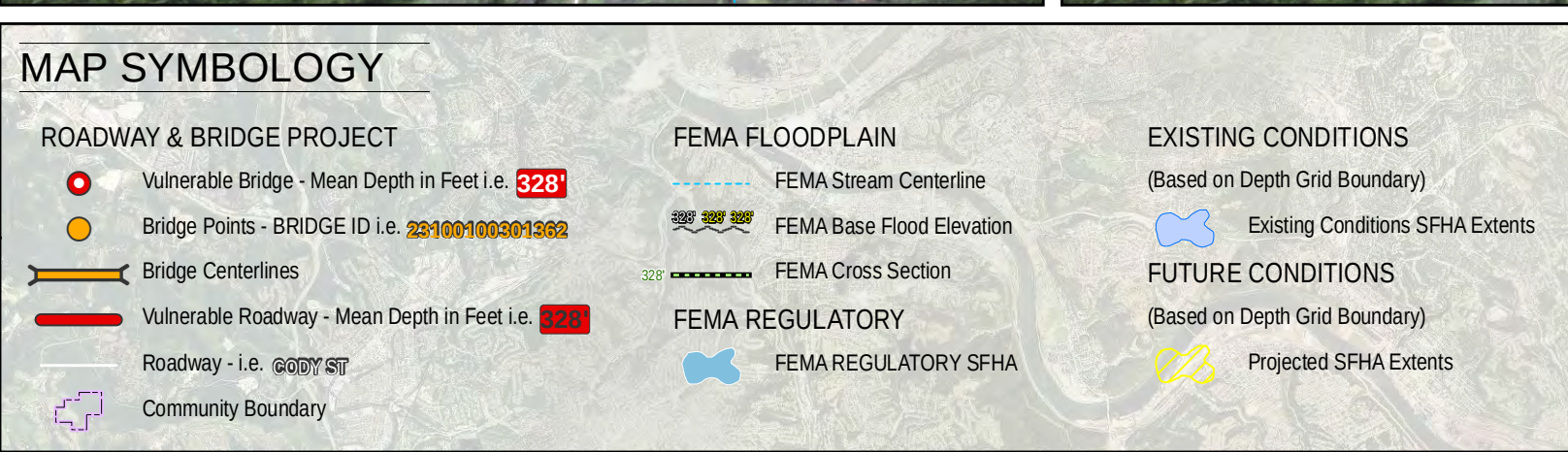
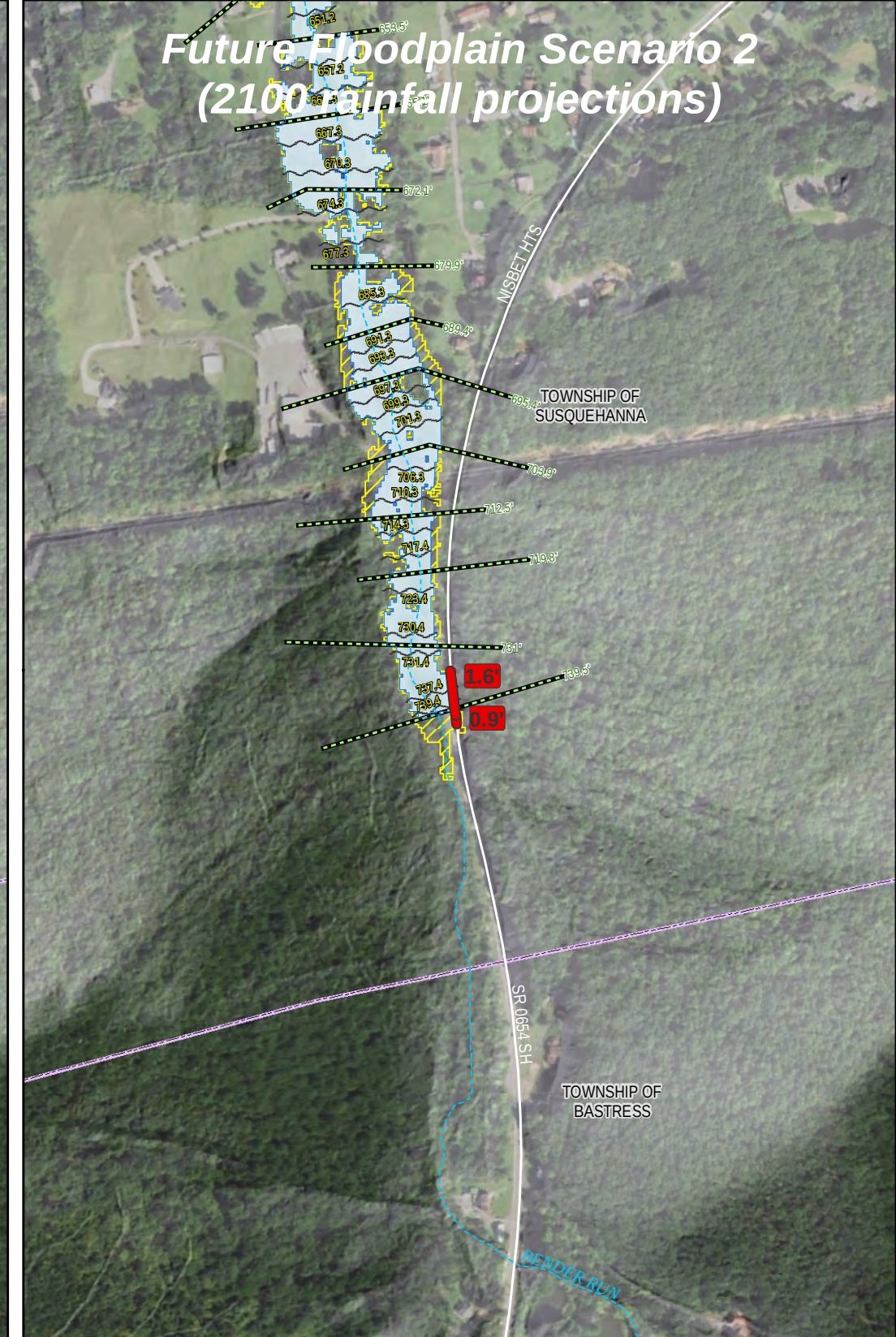
Hackensburg

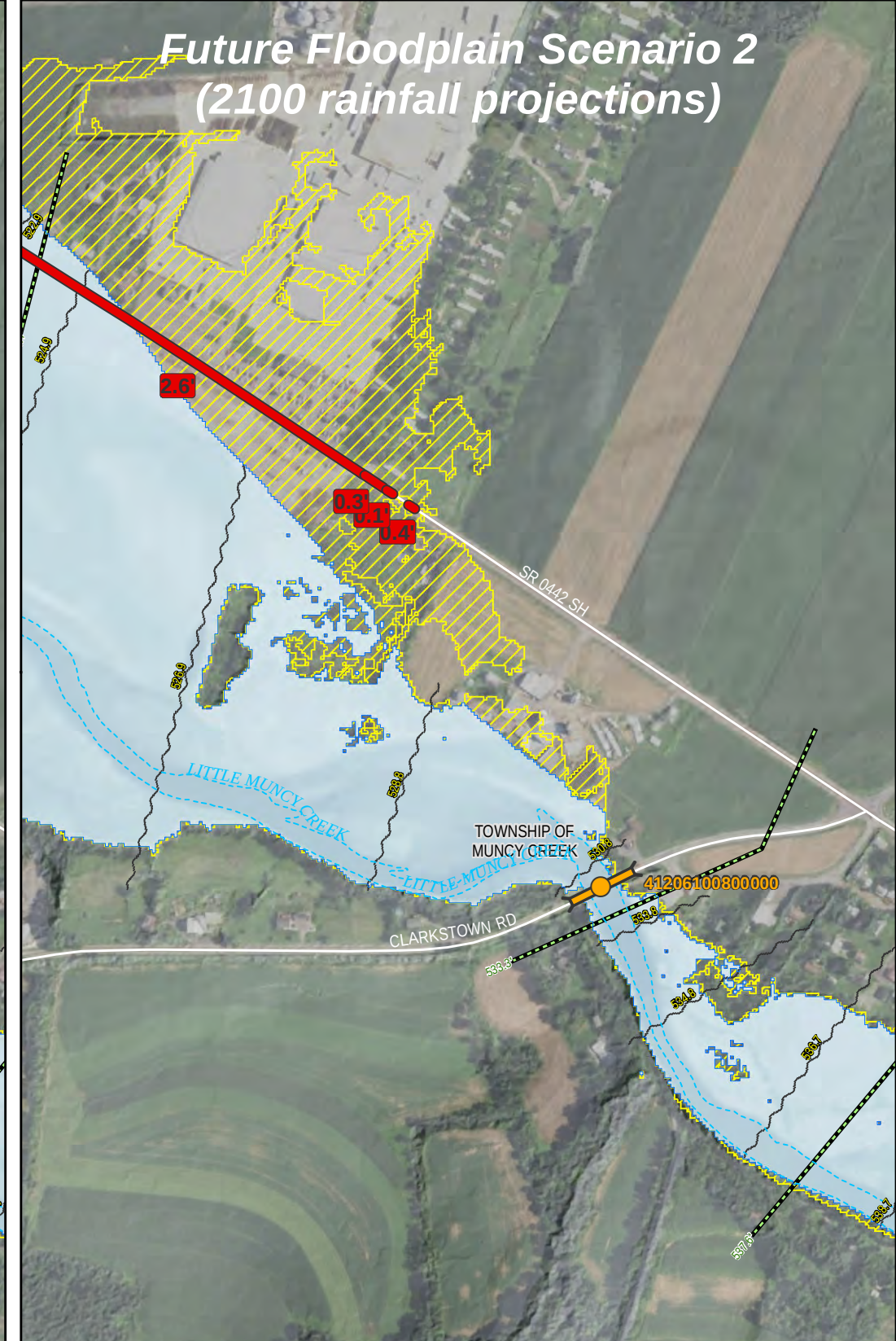
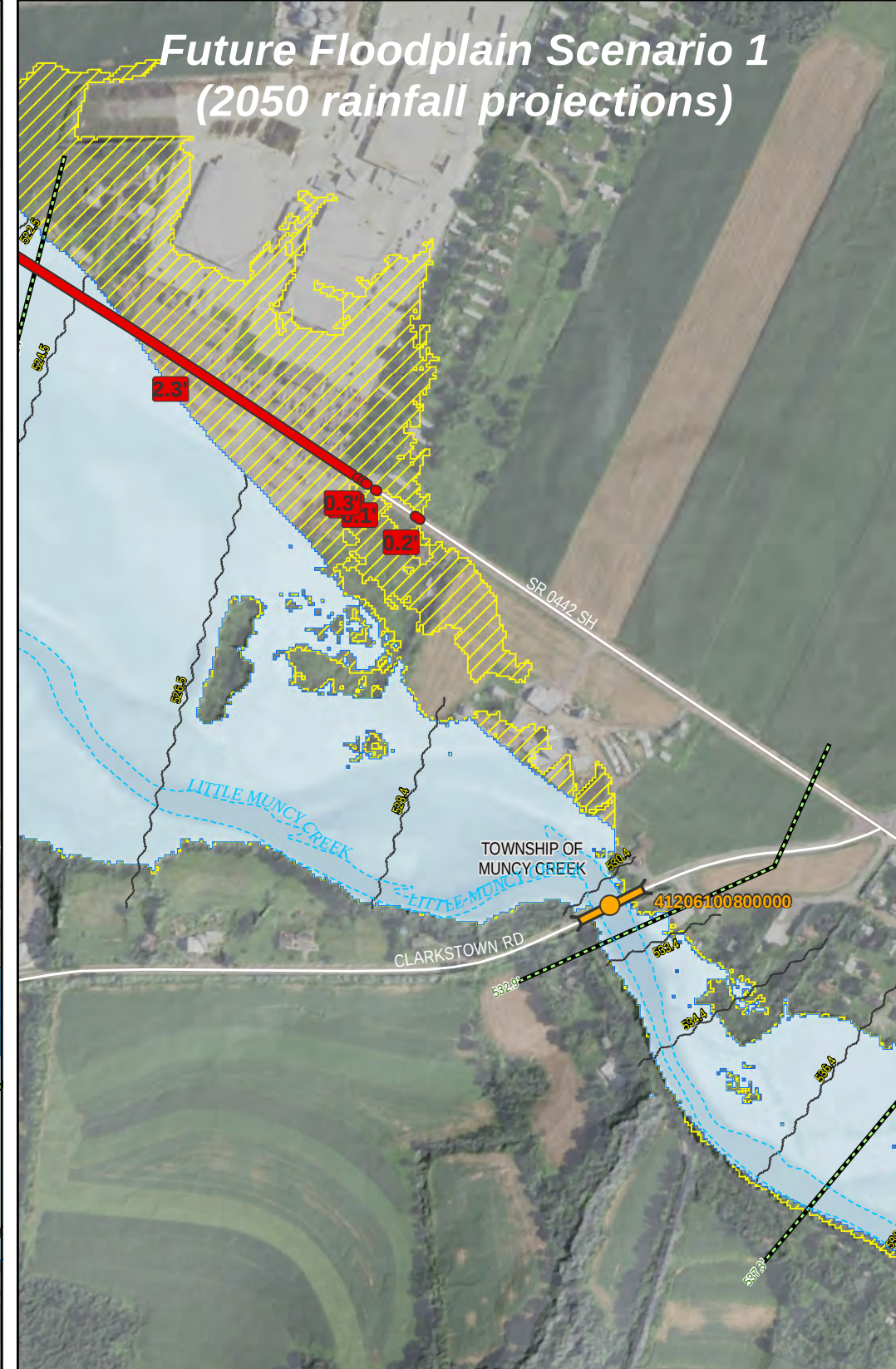
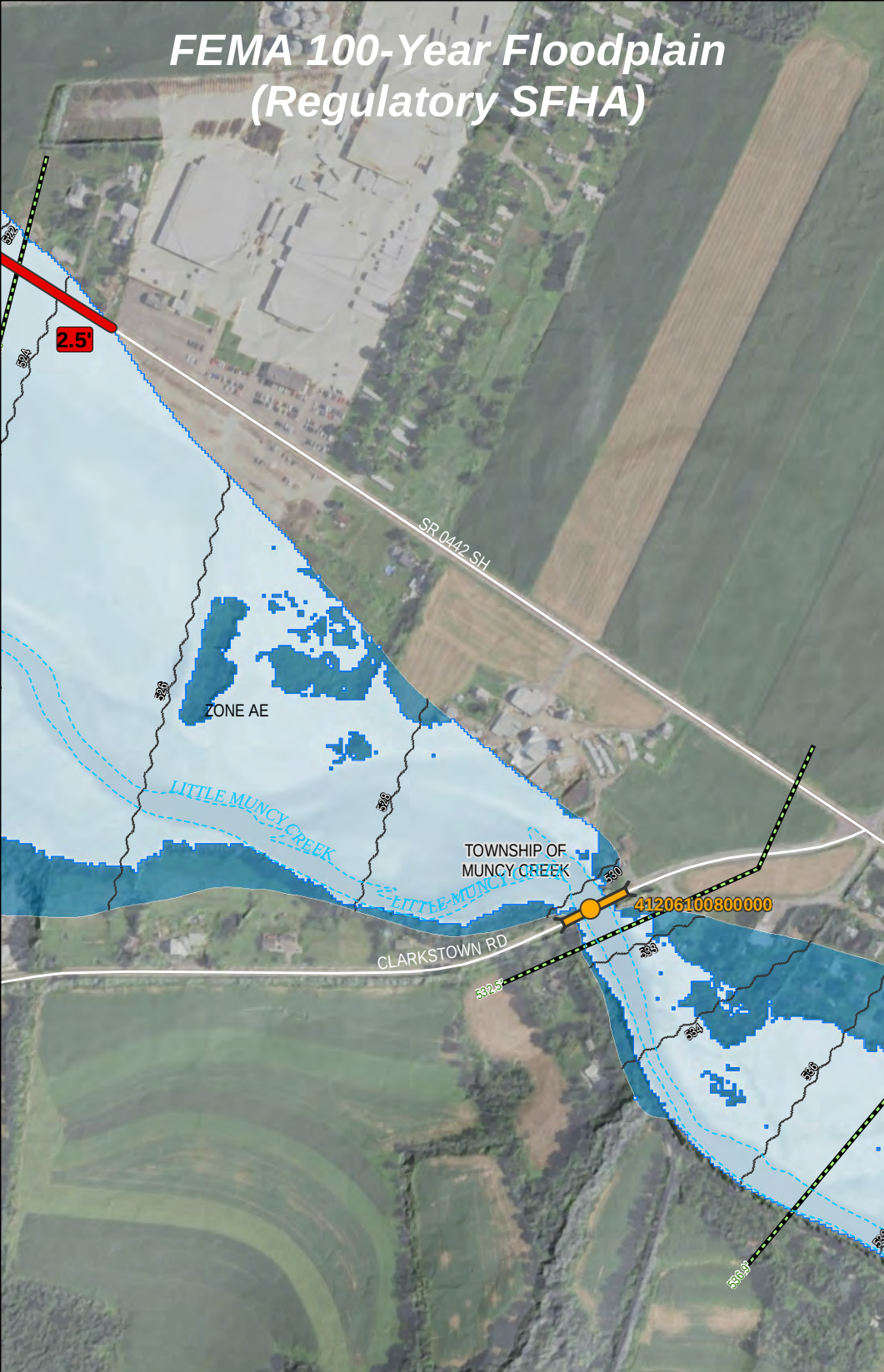
Union County

Northumberland County

Montour County

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	FUTURE CONDITIONS (Based on Depth Grid Boundary)
Bridge Centerlines	FEMA Cross Section	Projected SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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Michael Baker INTERNATIONAL

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

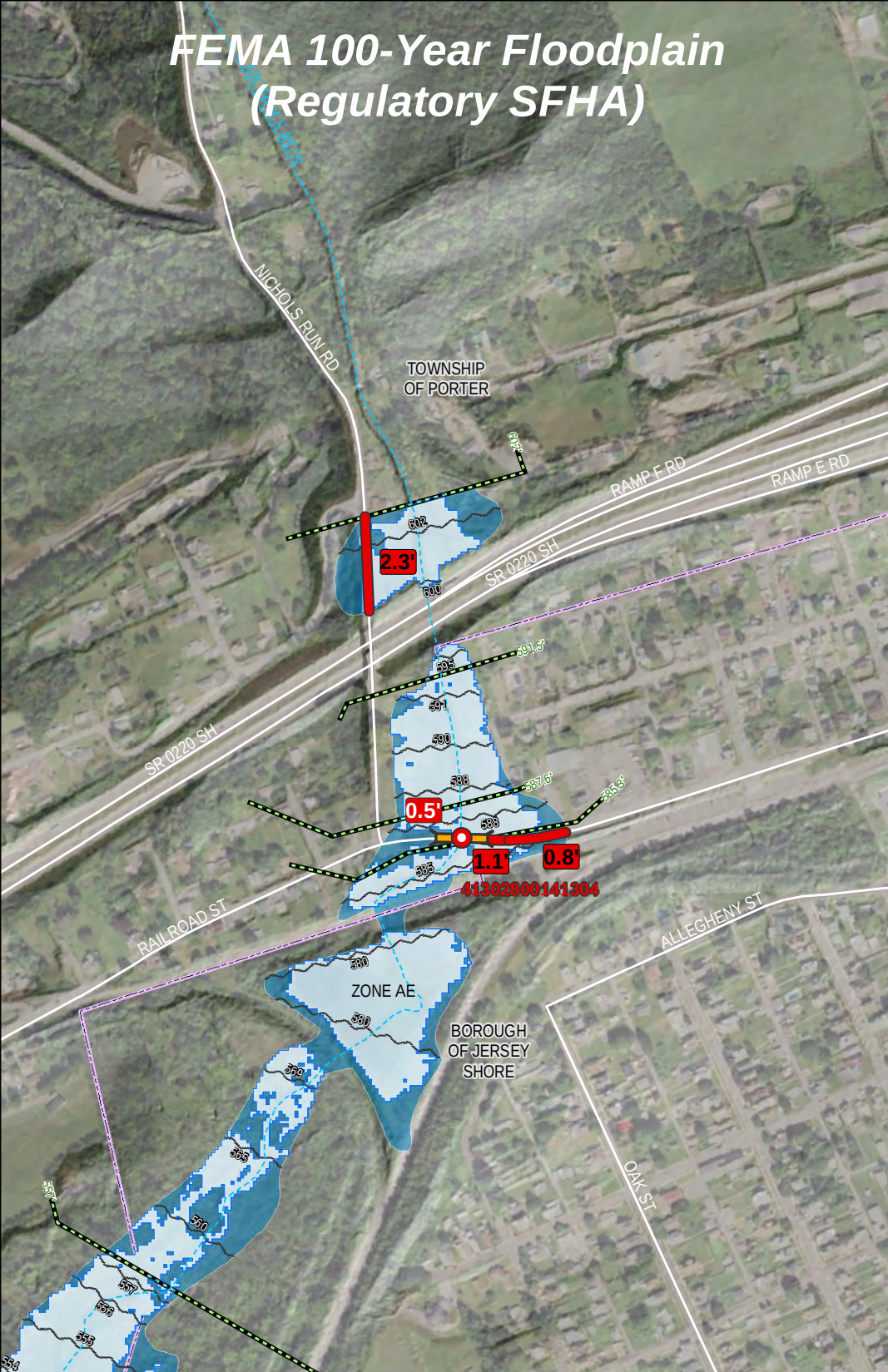
Sheet 144 of 163

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

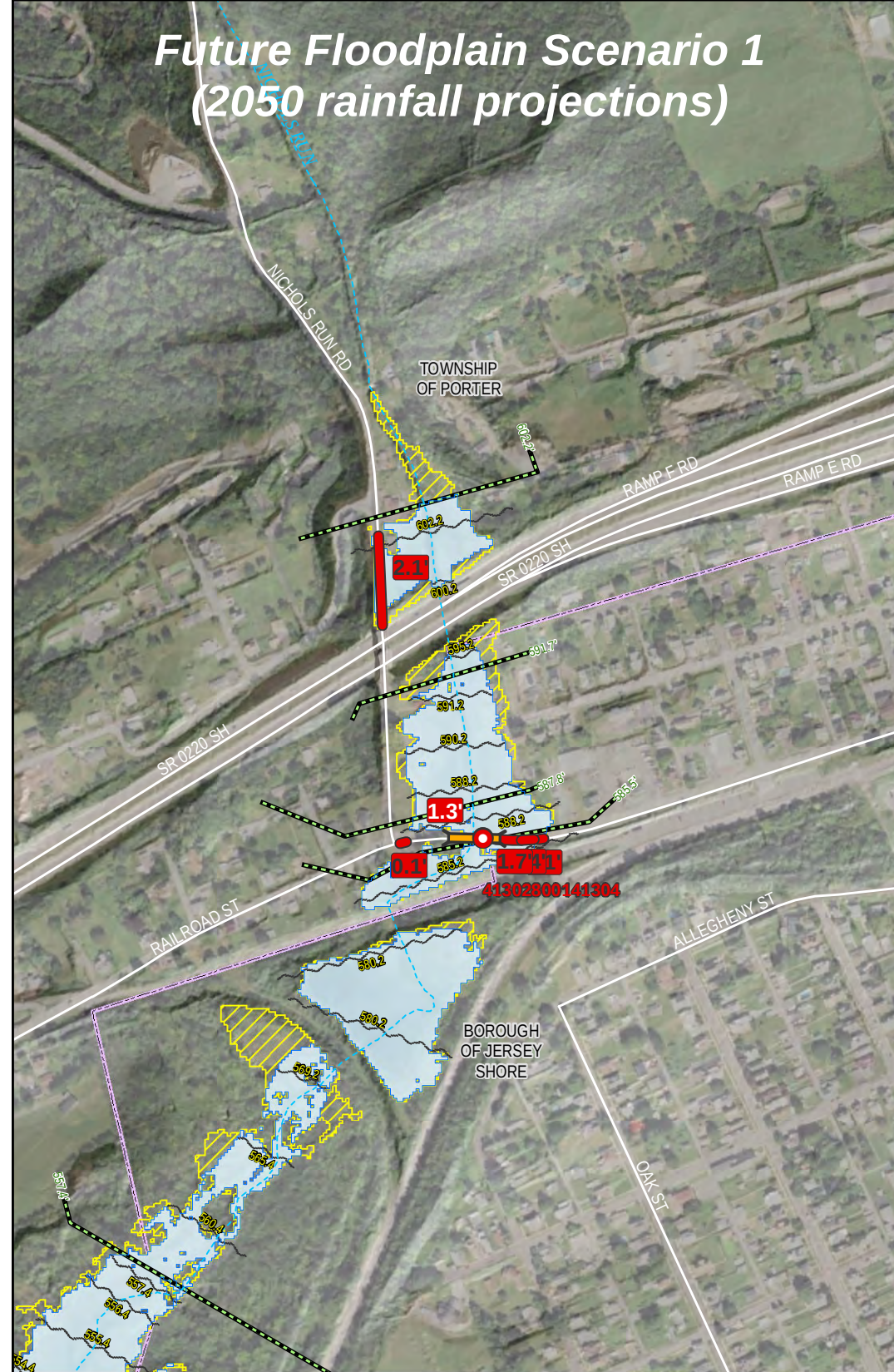
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

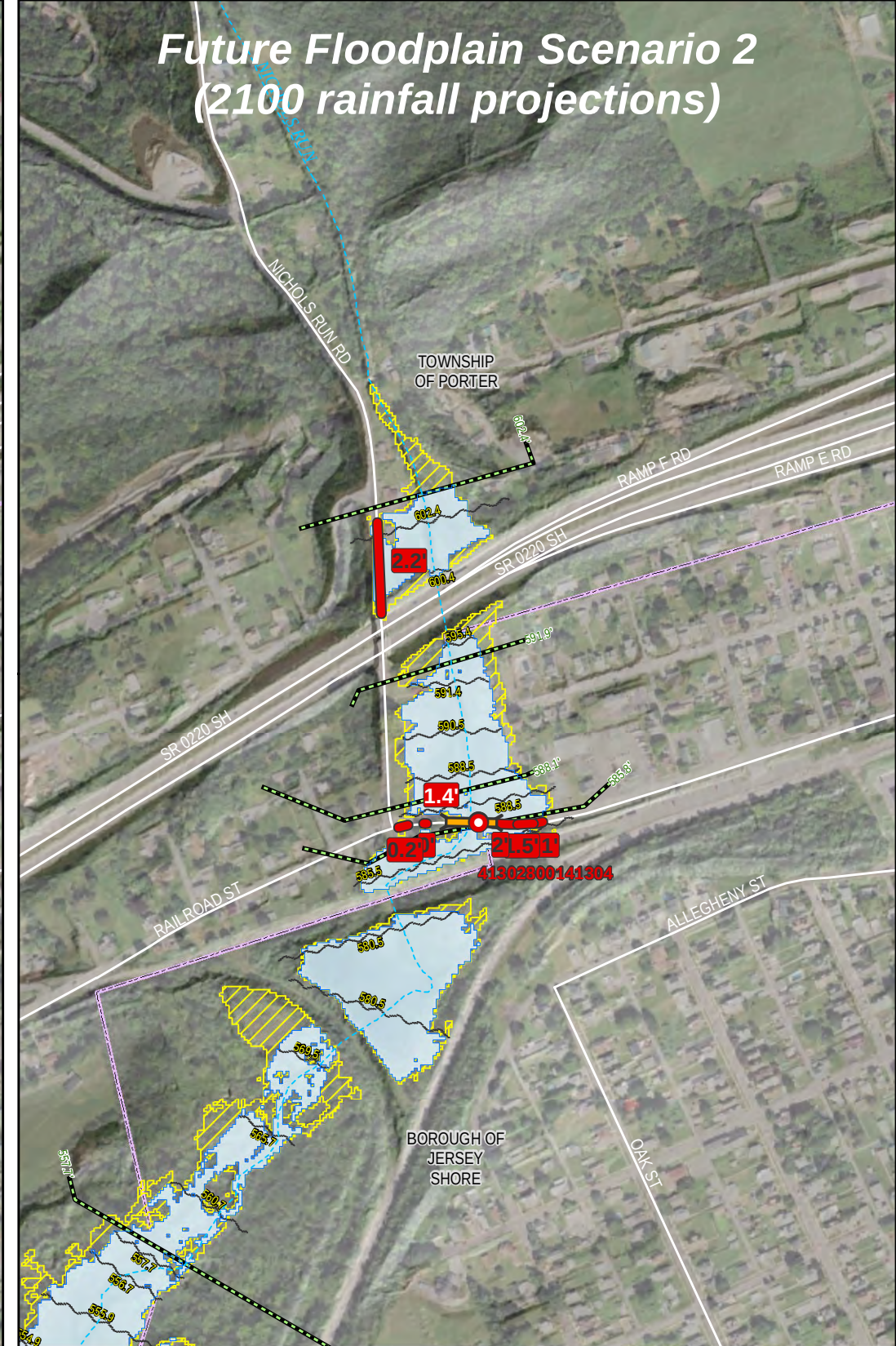
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **GOODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

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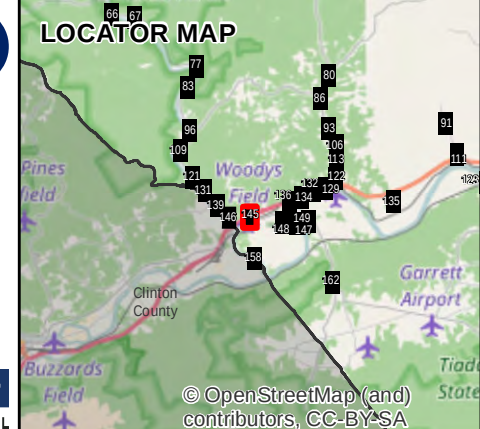


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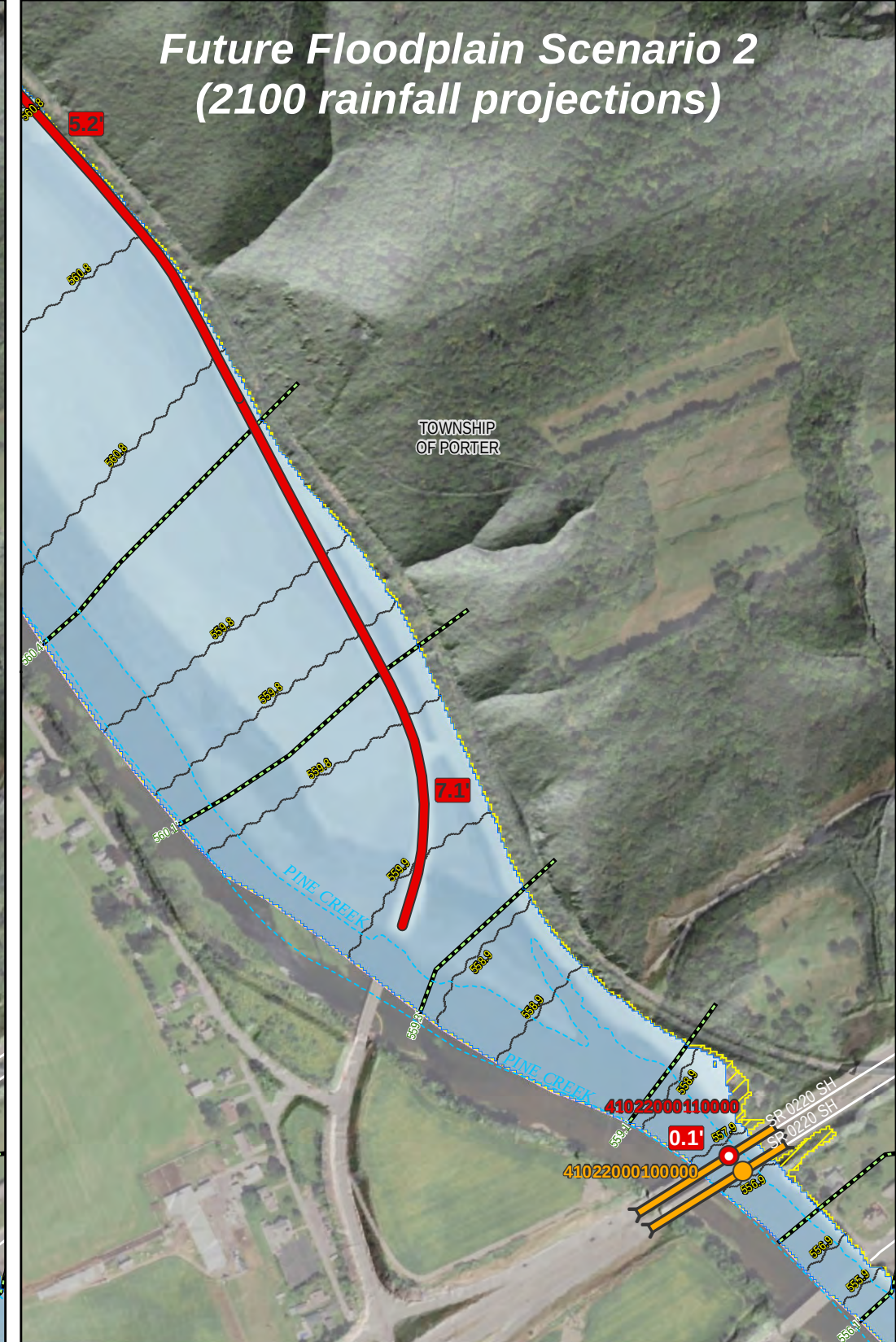
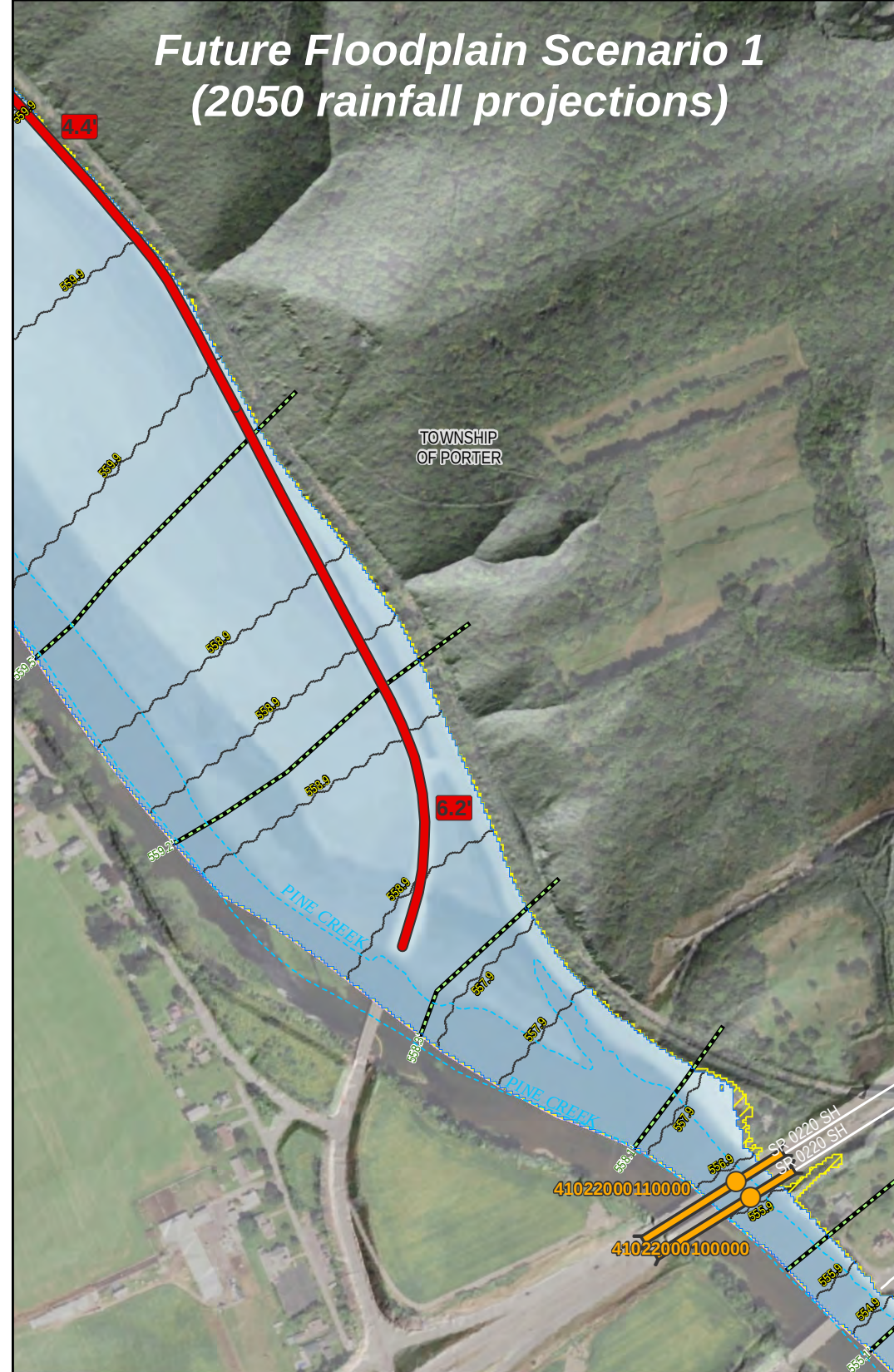
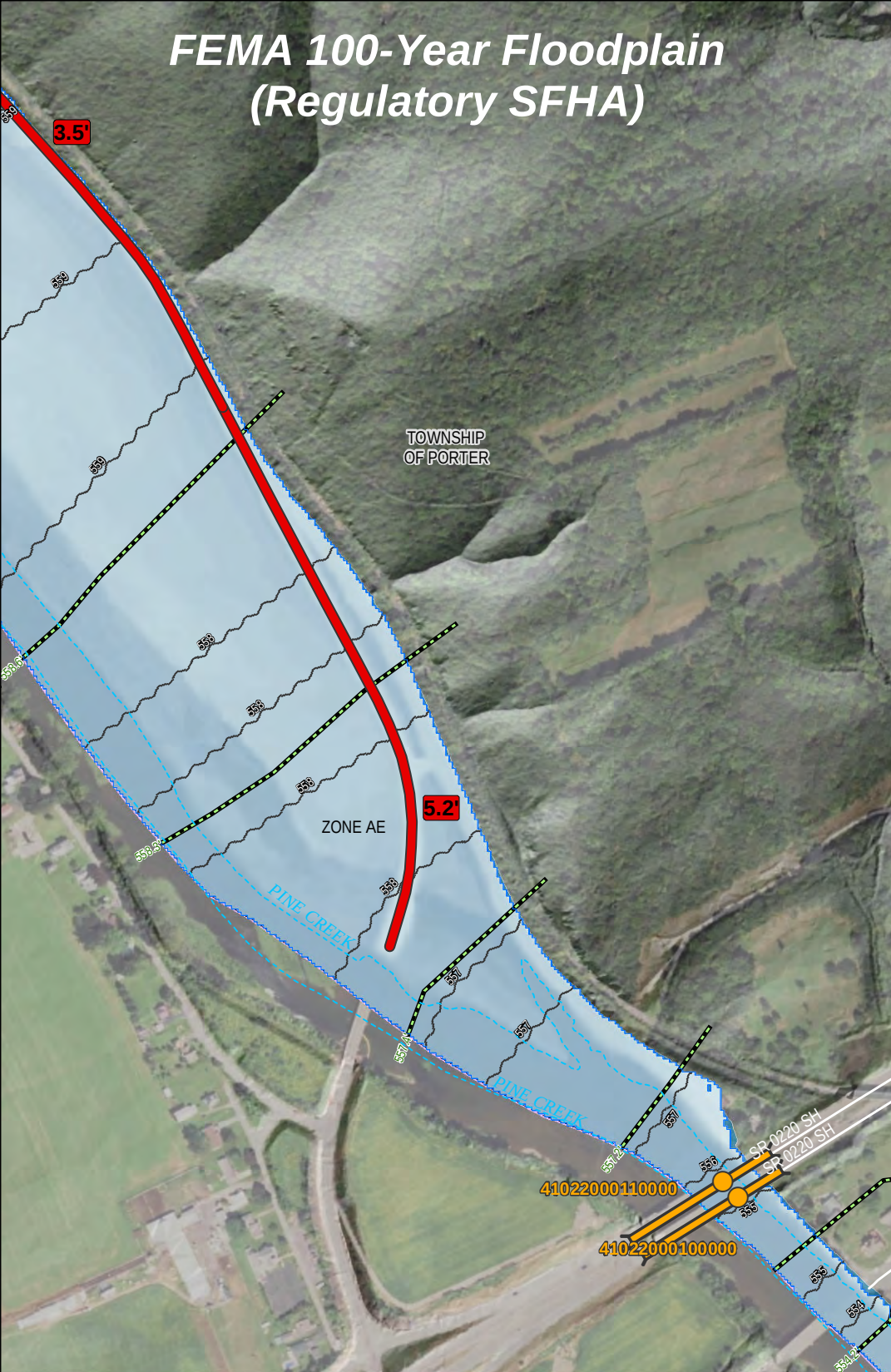
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

Michael Baker
INTERNATIONAL

LOCATOR MAP



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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **CODY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
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FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

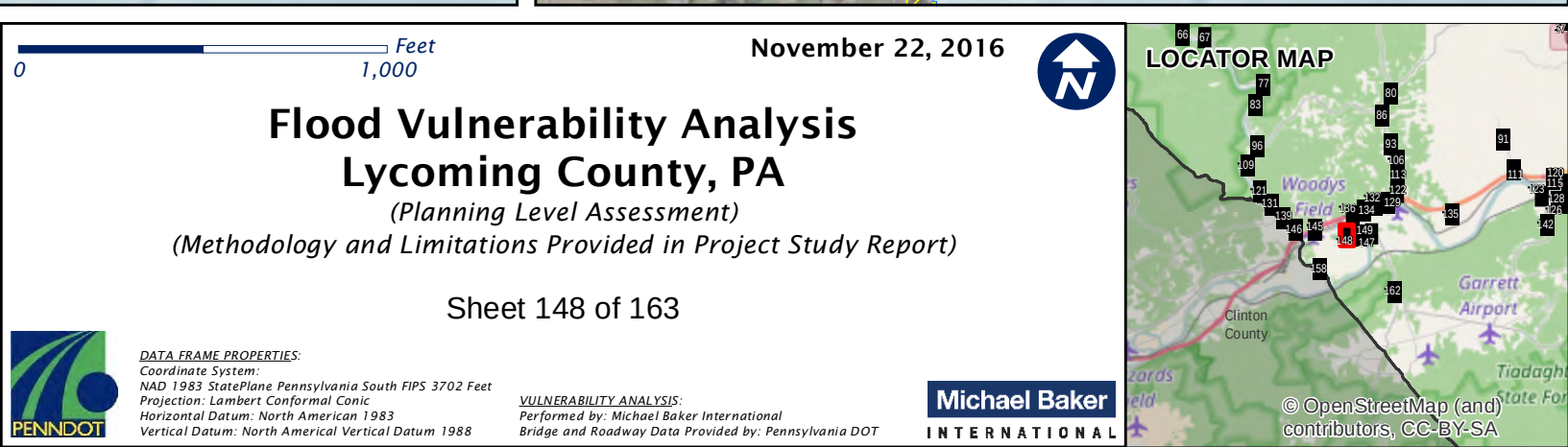
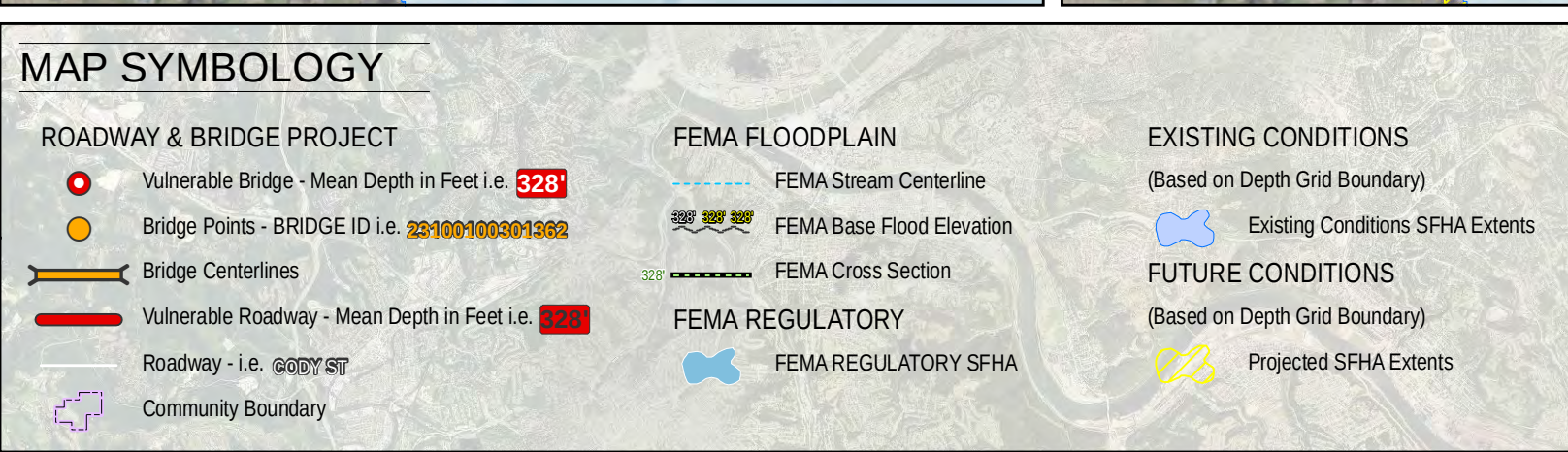
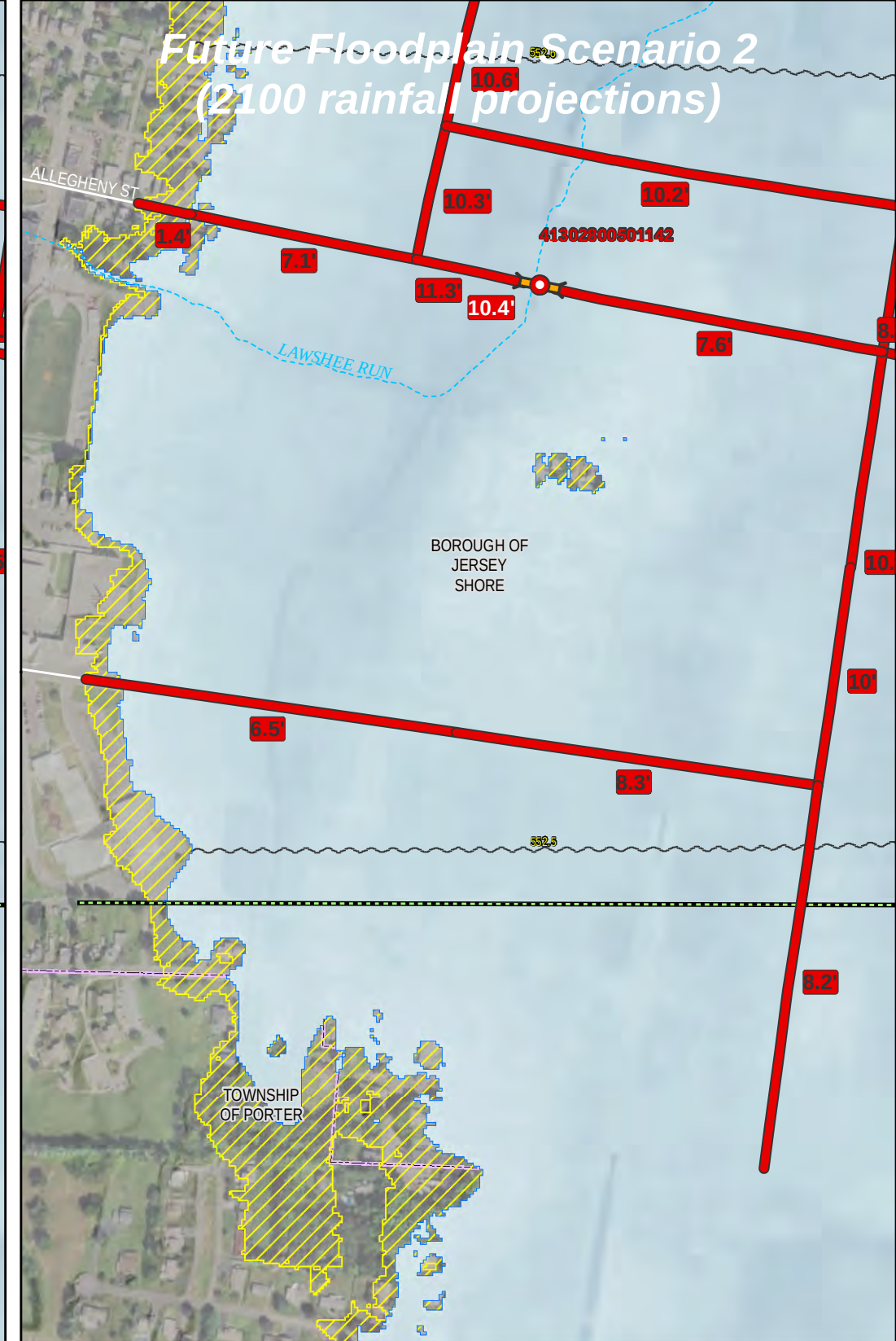
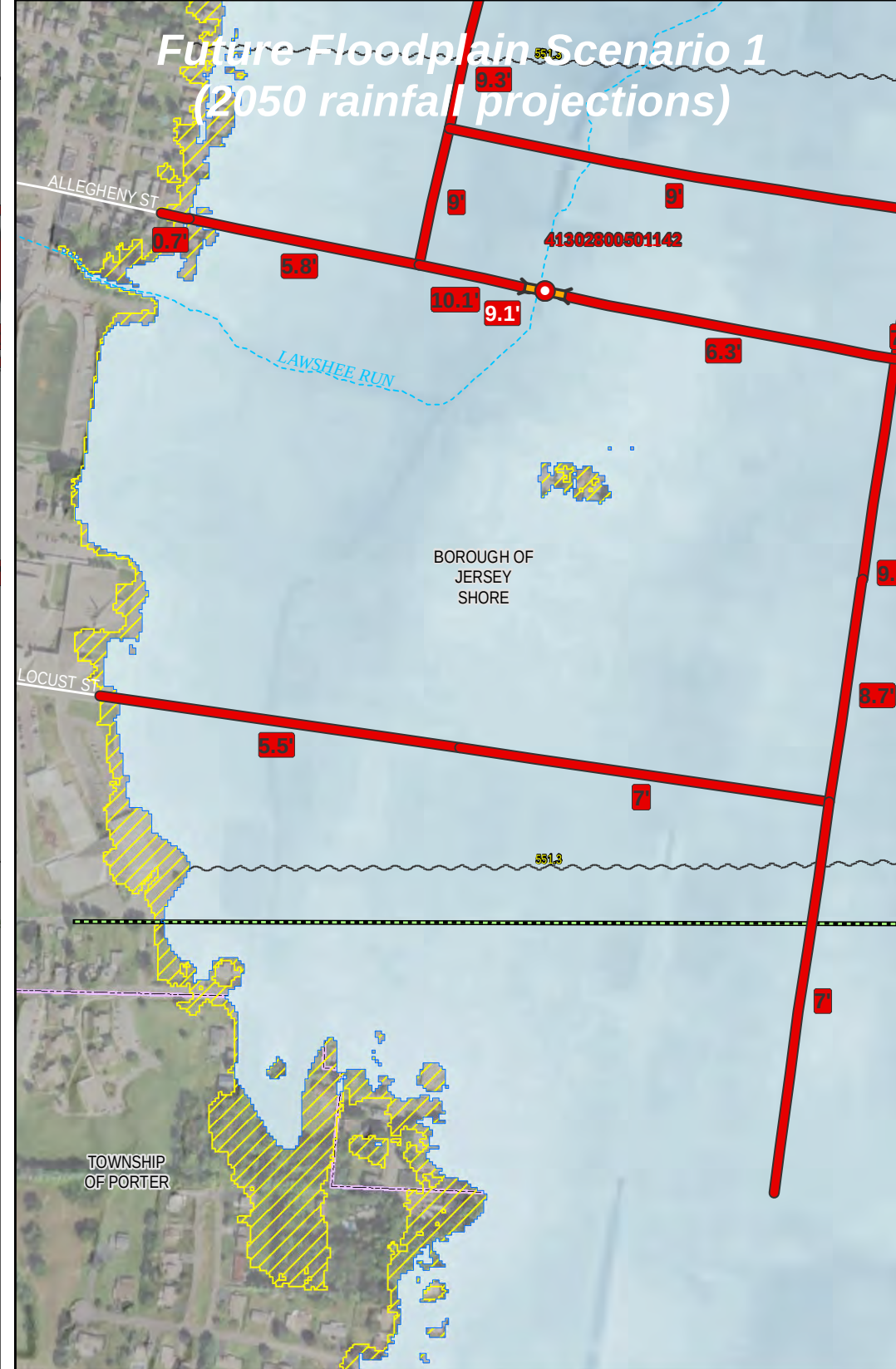
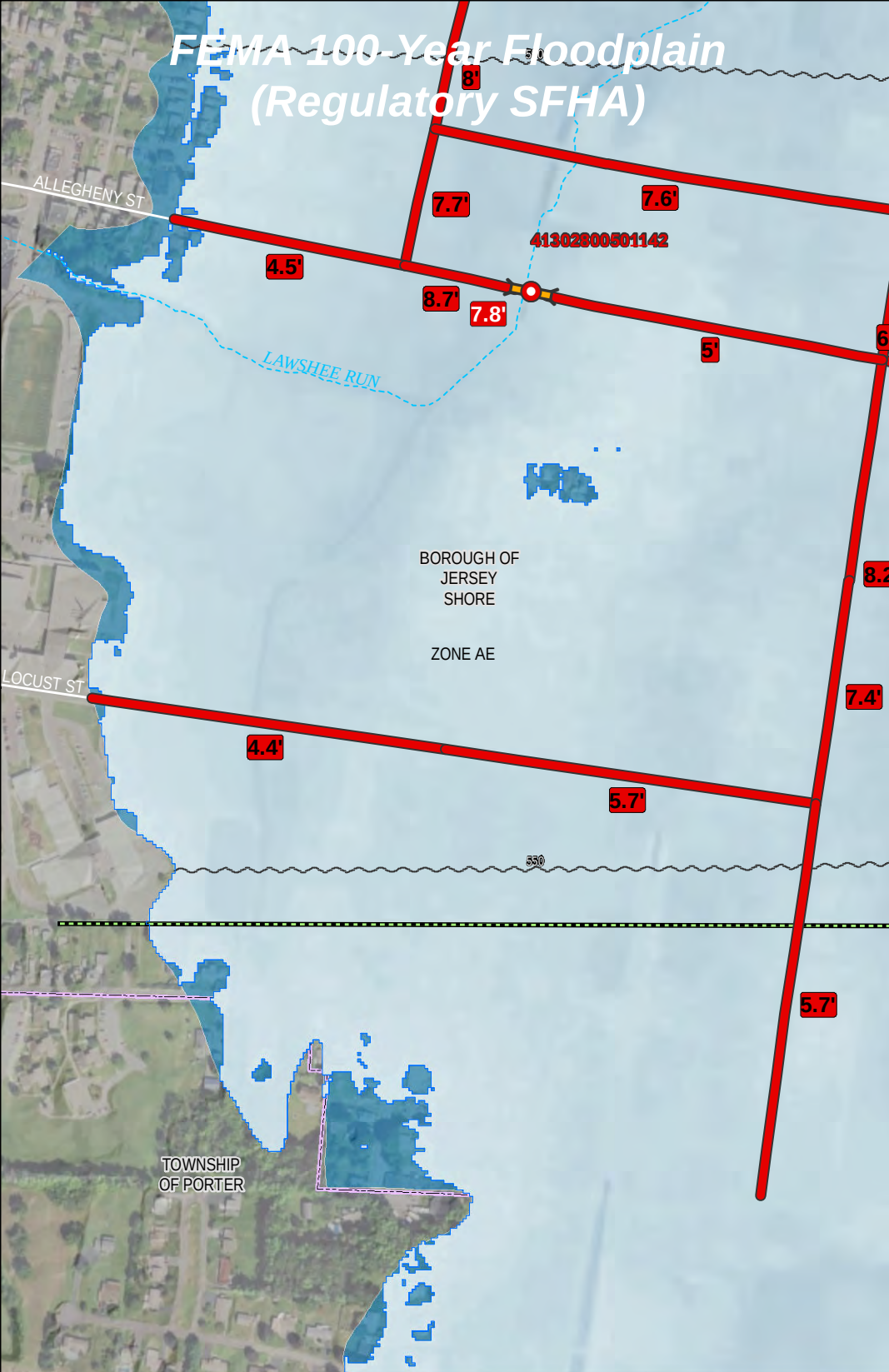
Sheet 147 of 163

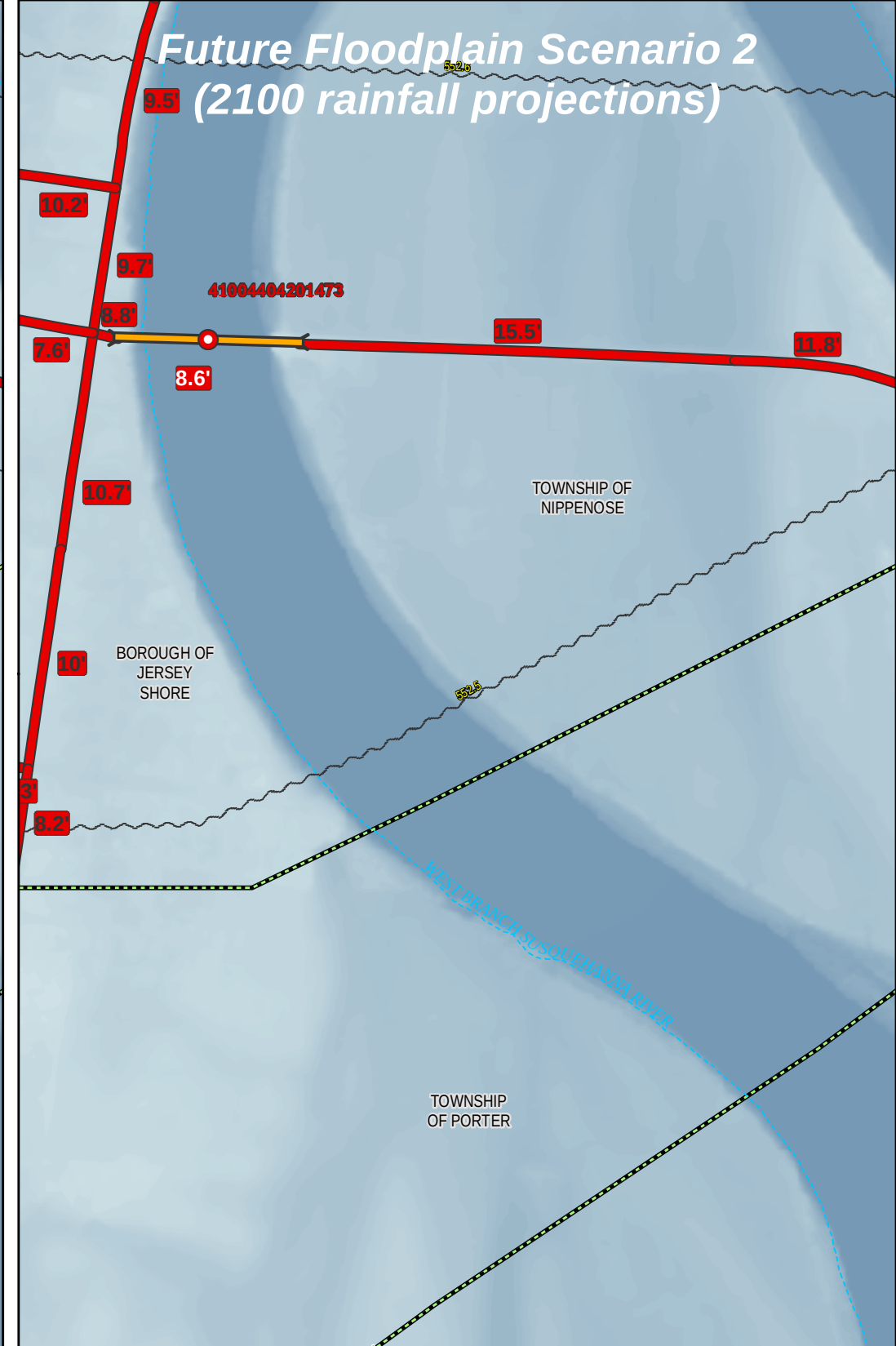
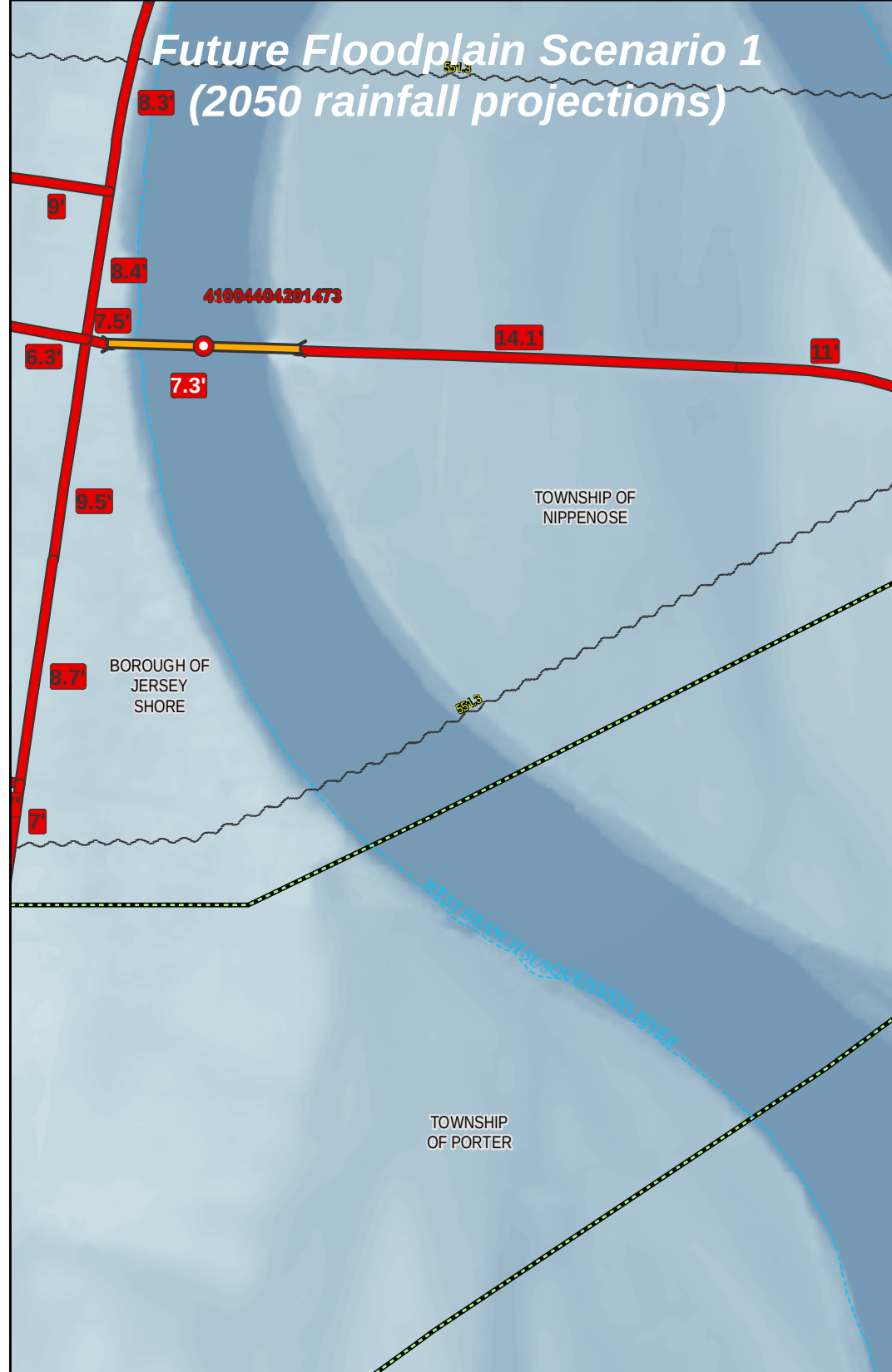
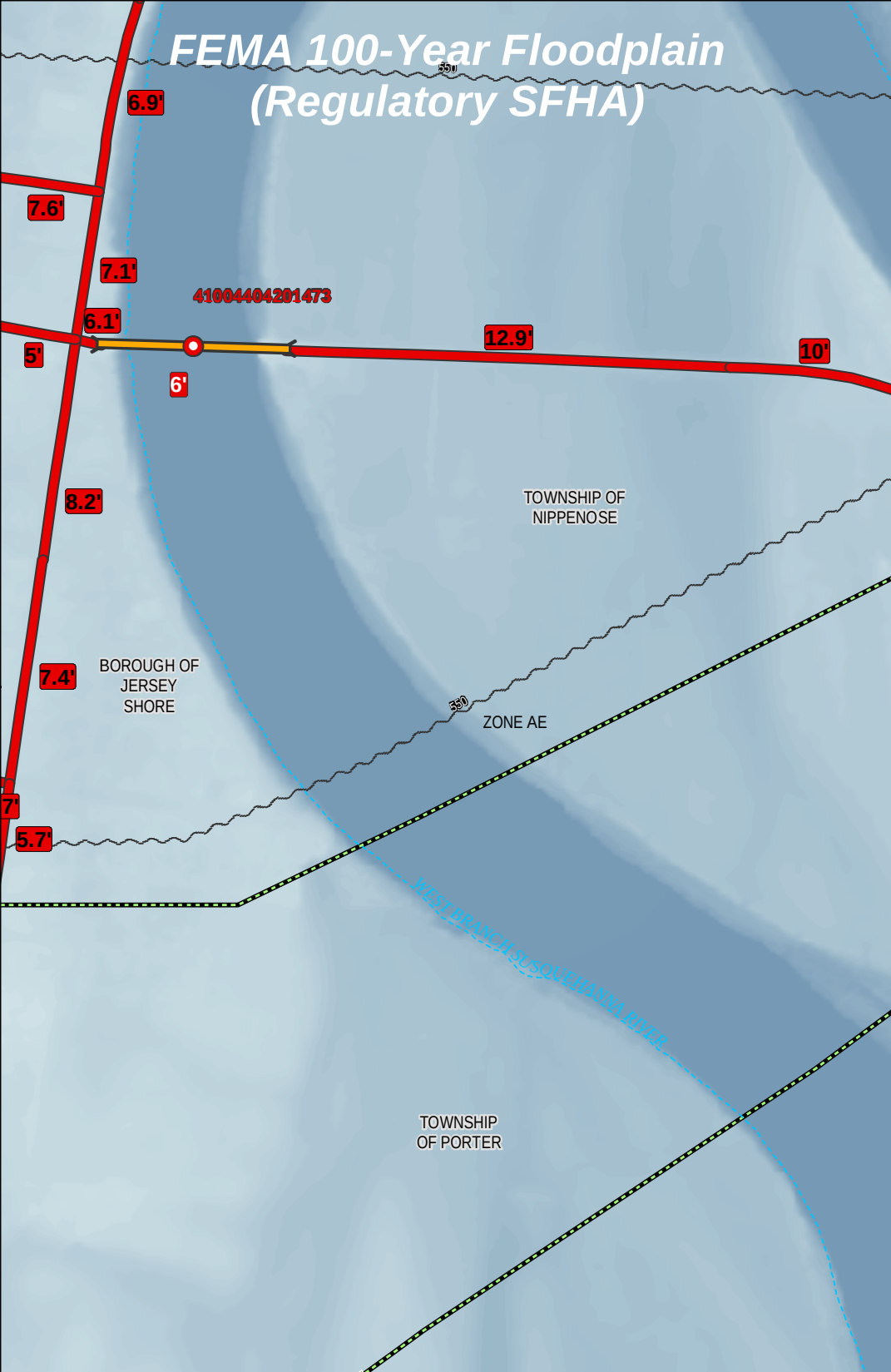
DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
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Roadway - i.e. CODY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

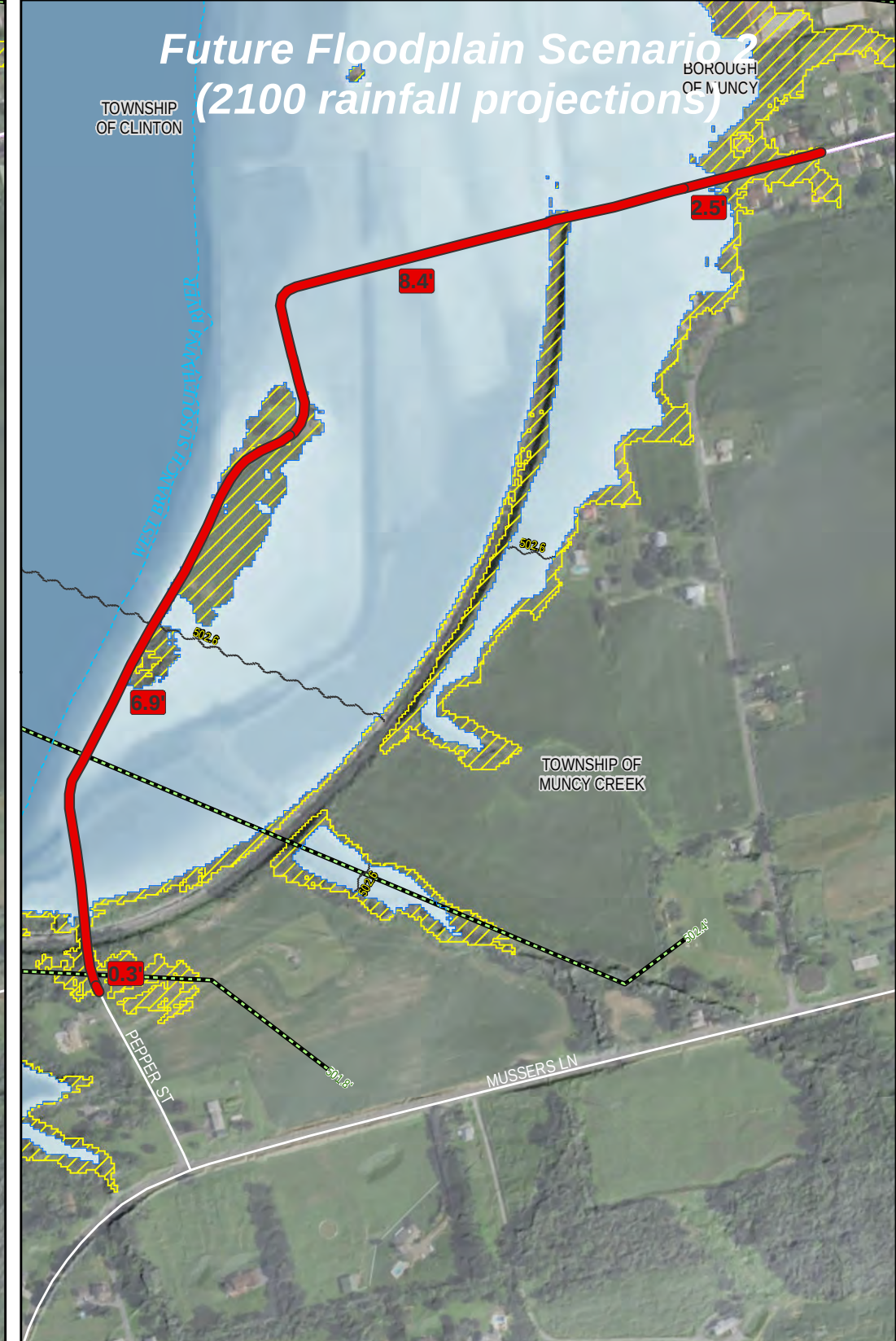
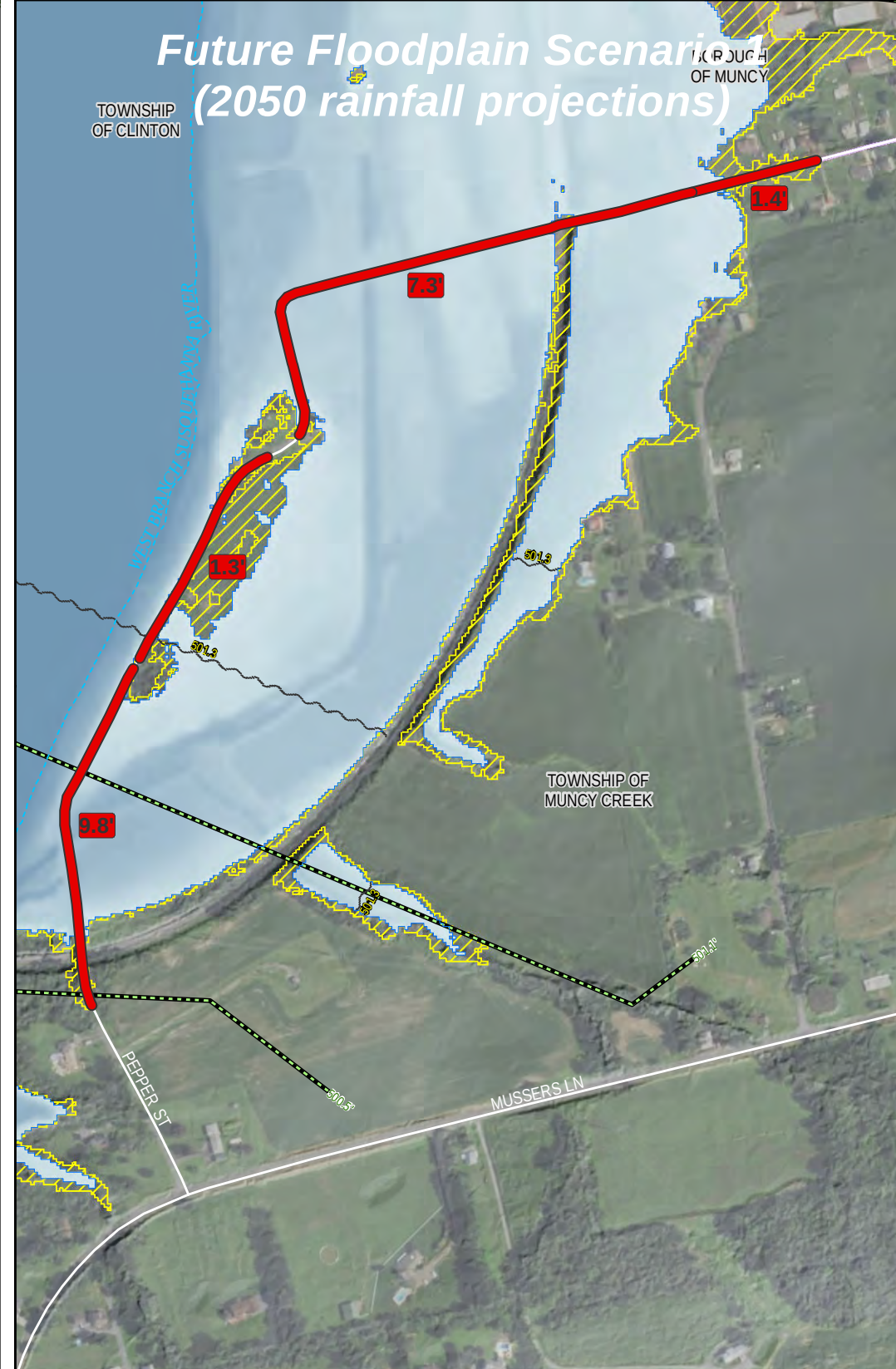
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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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VULNERABILITY ANALYSIS:
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LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS (Based on Depth Grid Boundary)
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Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

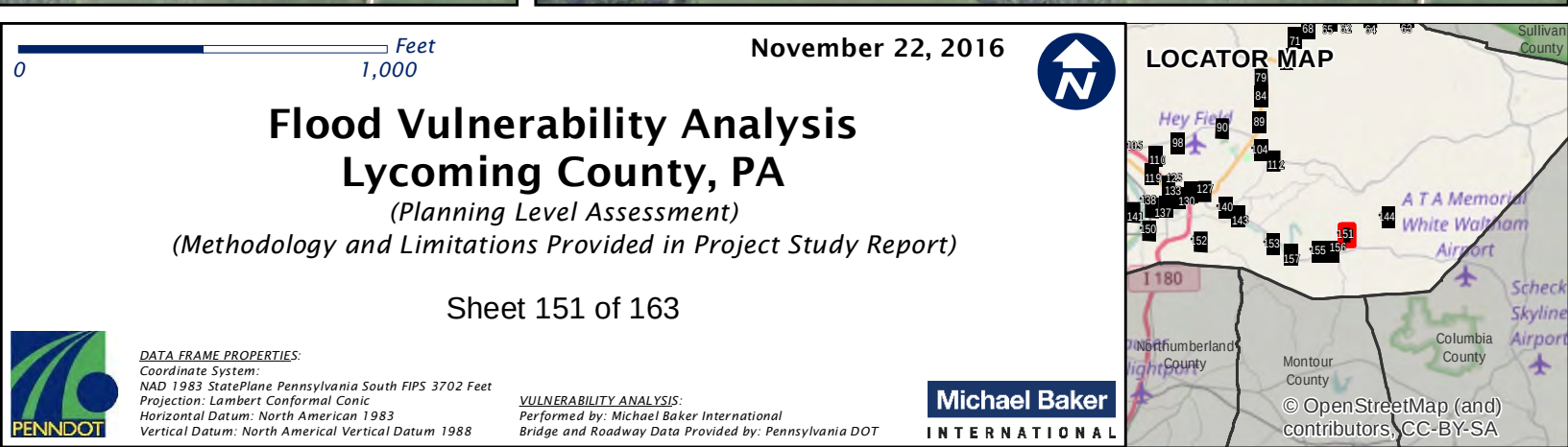
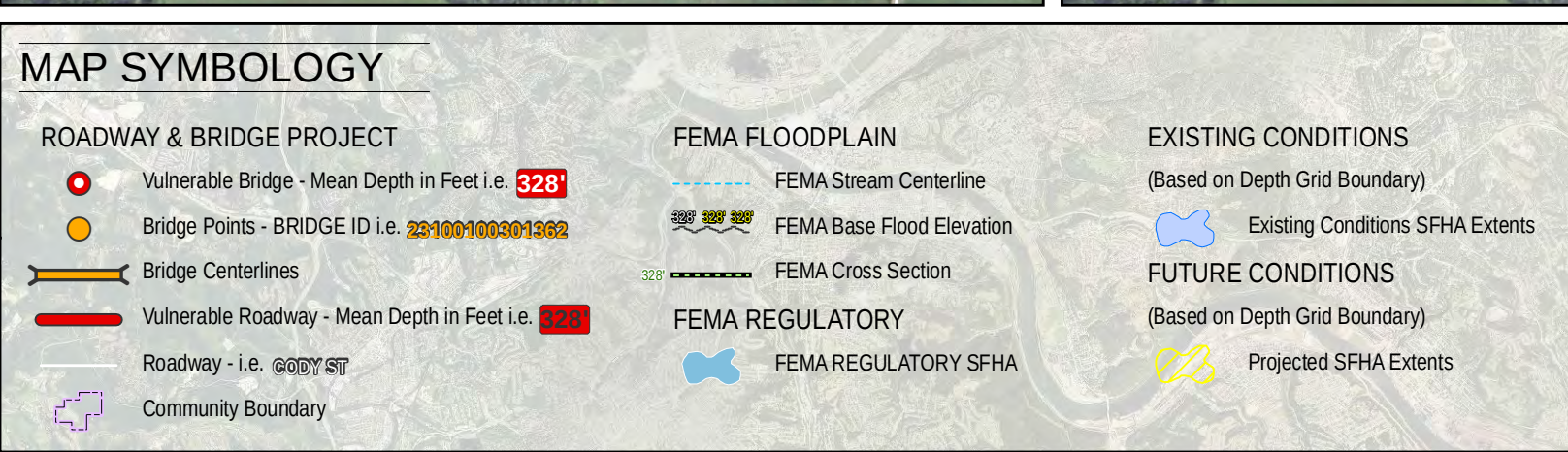
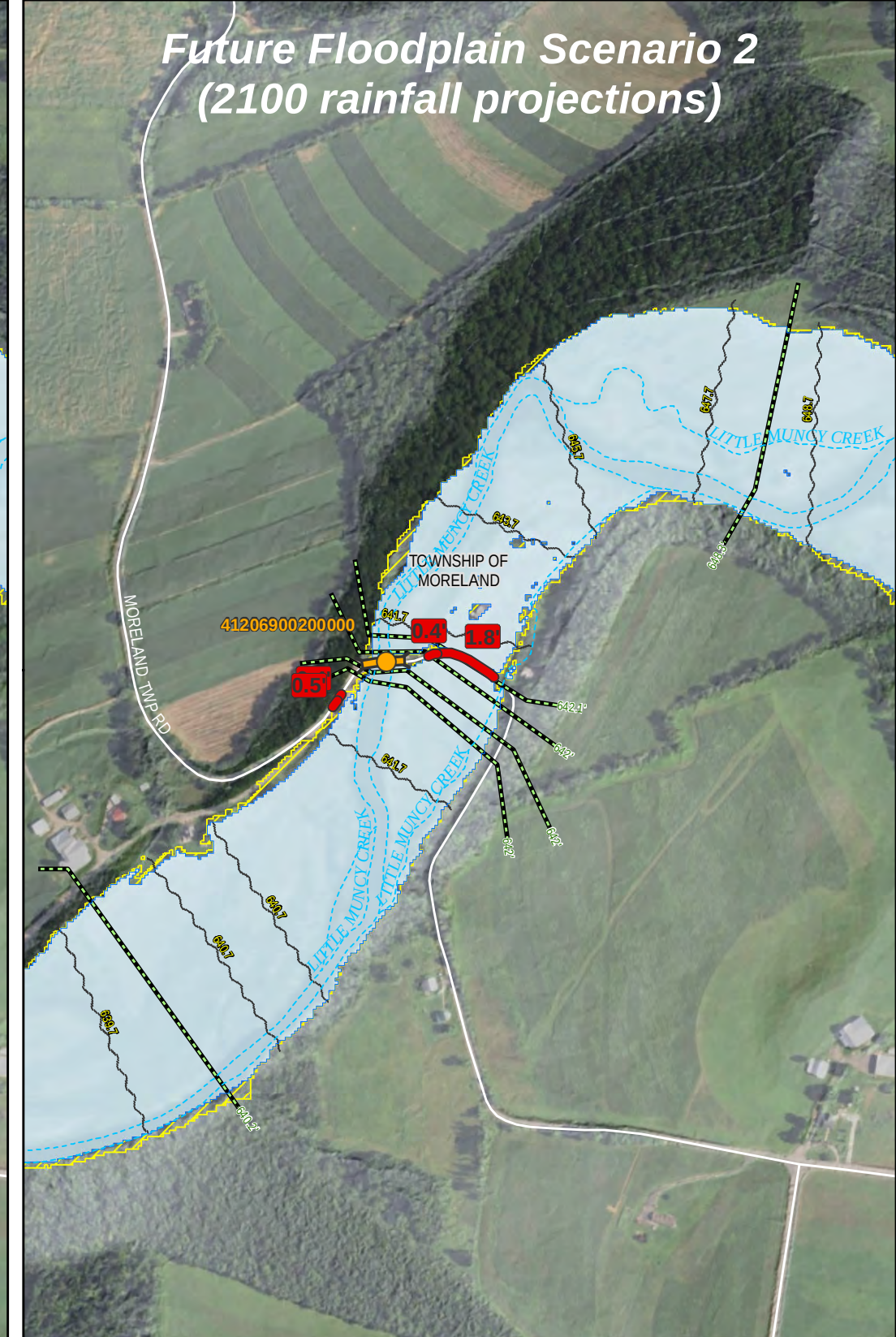
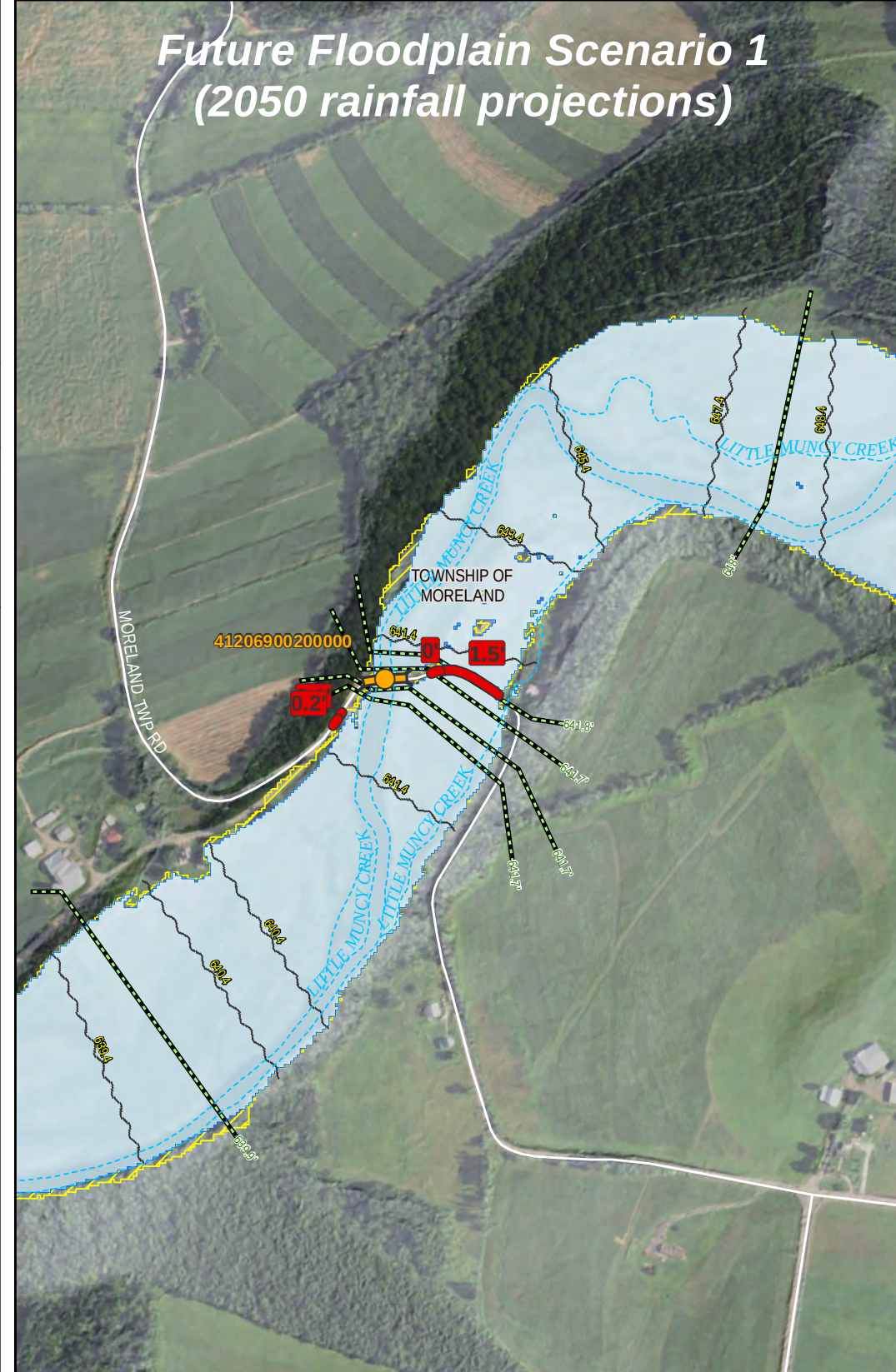
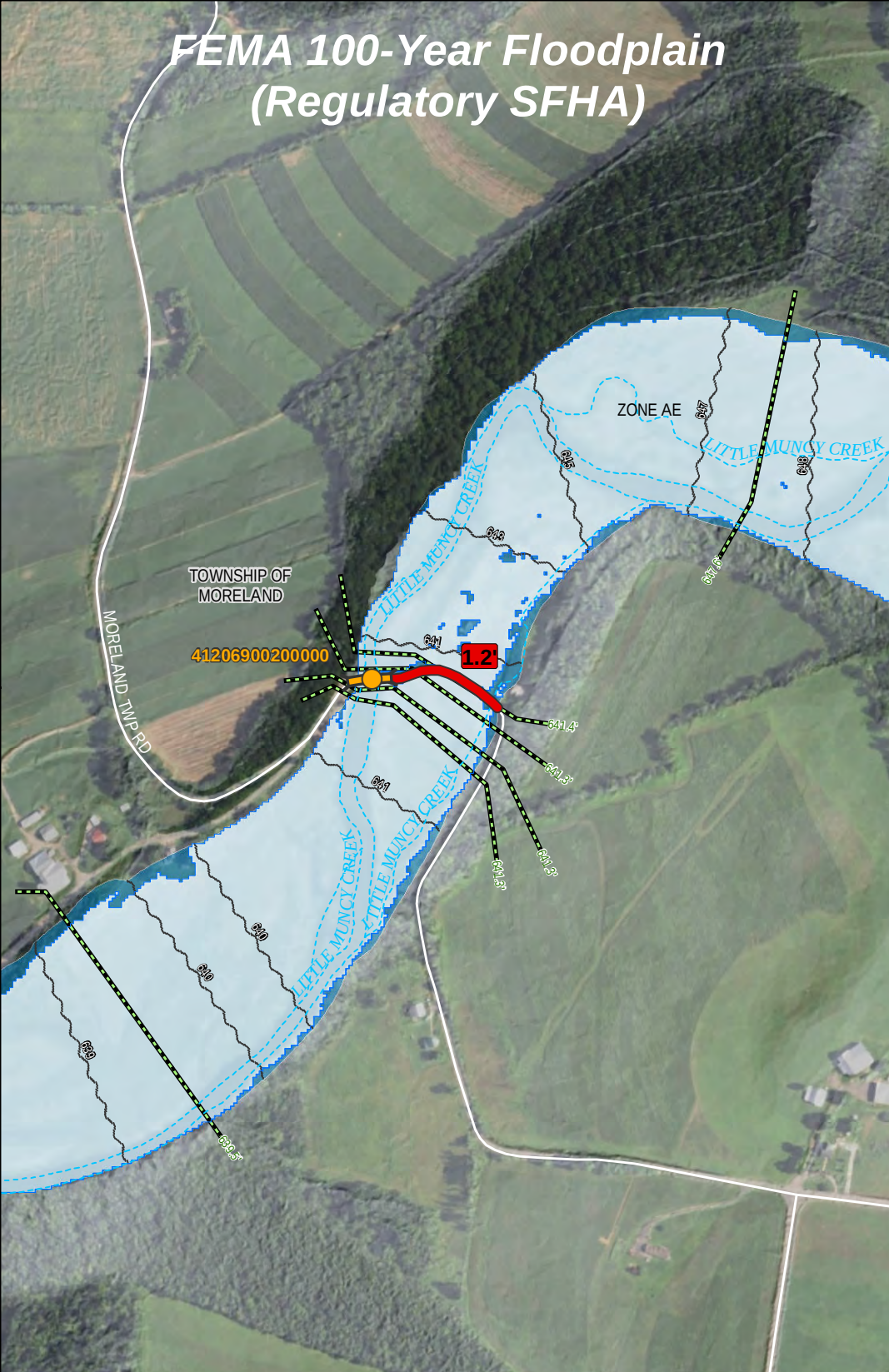
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

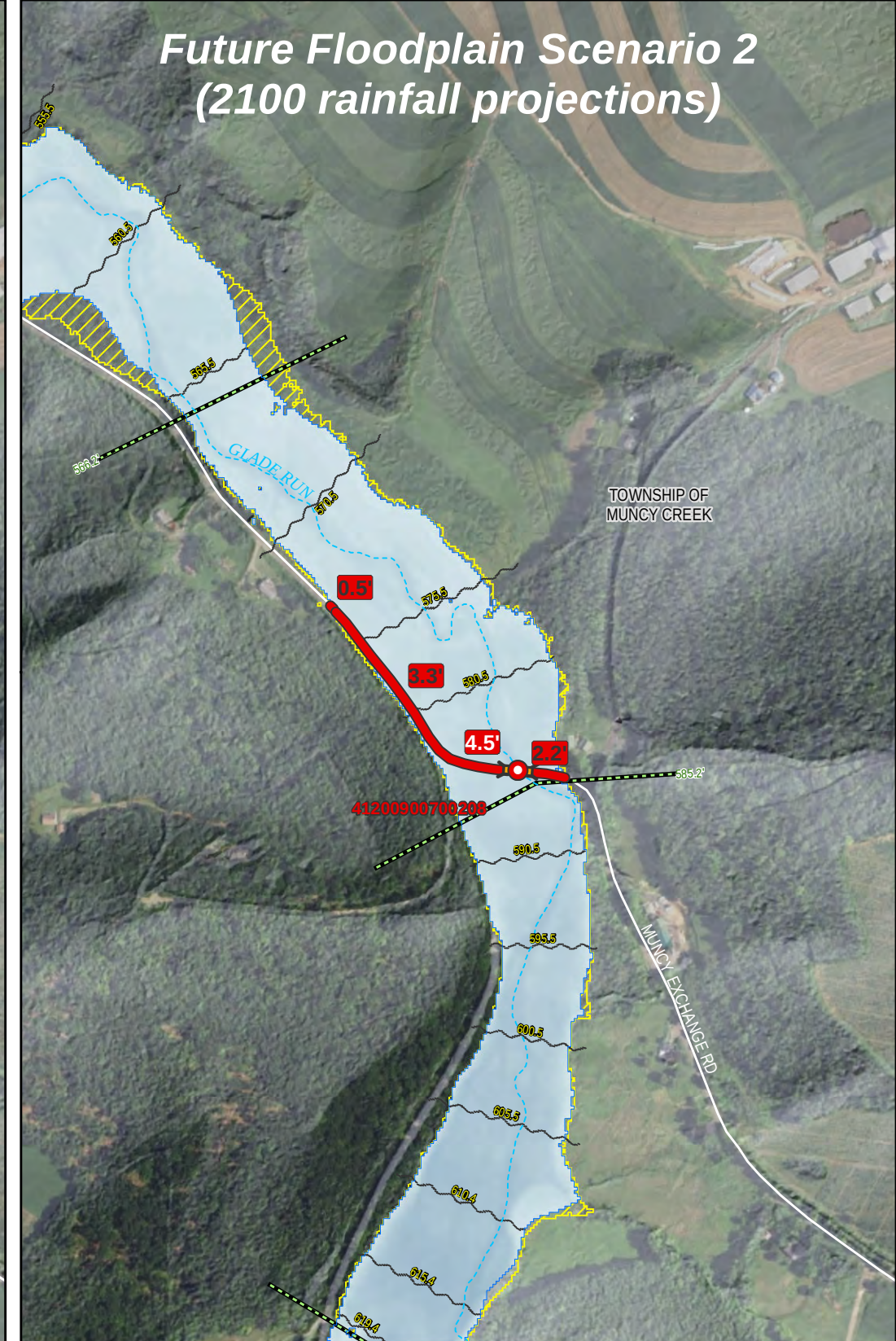
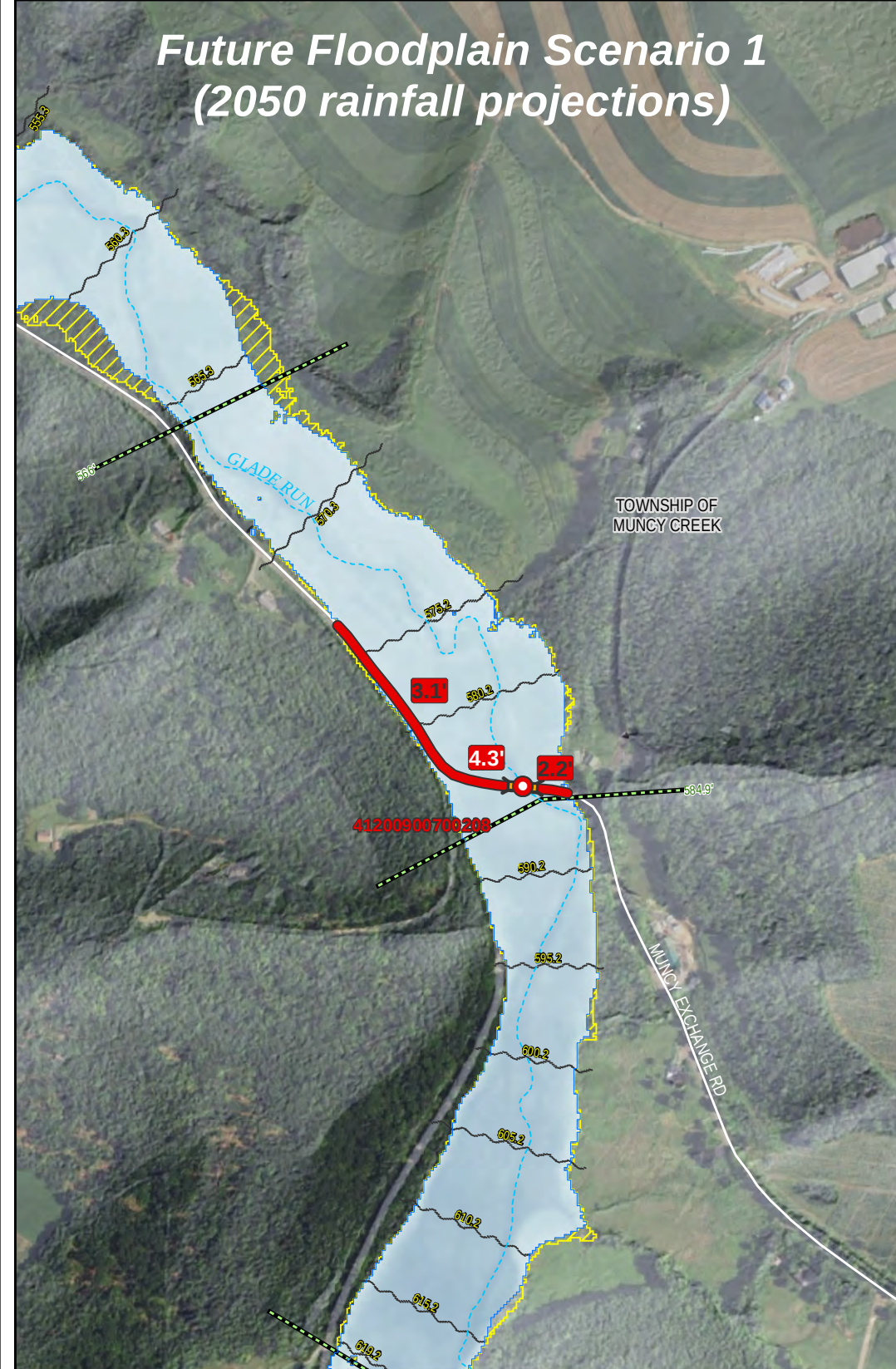
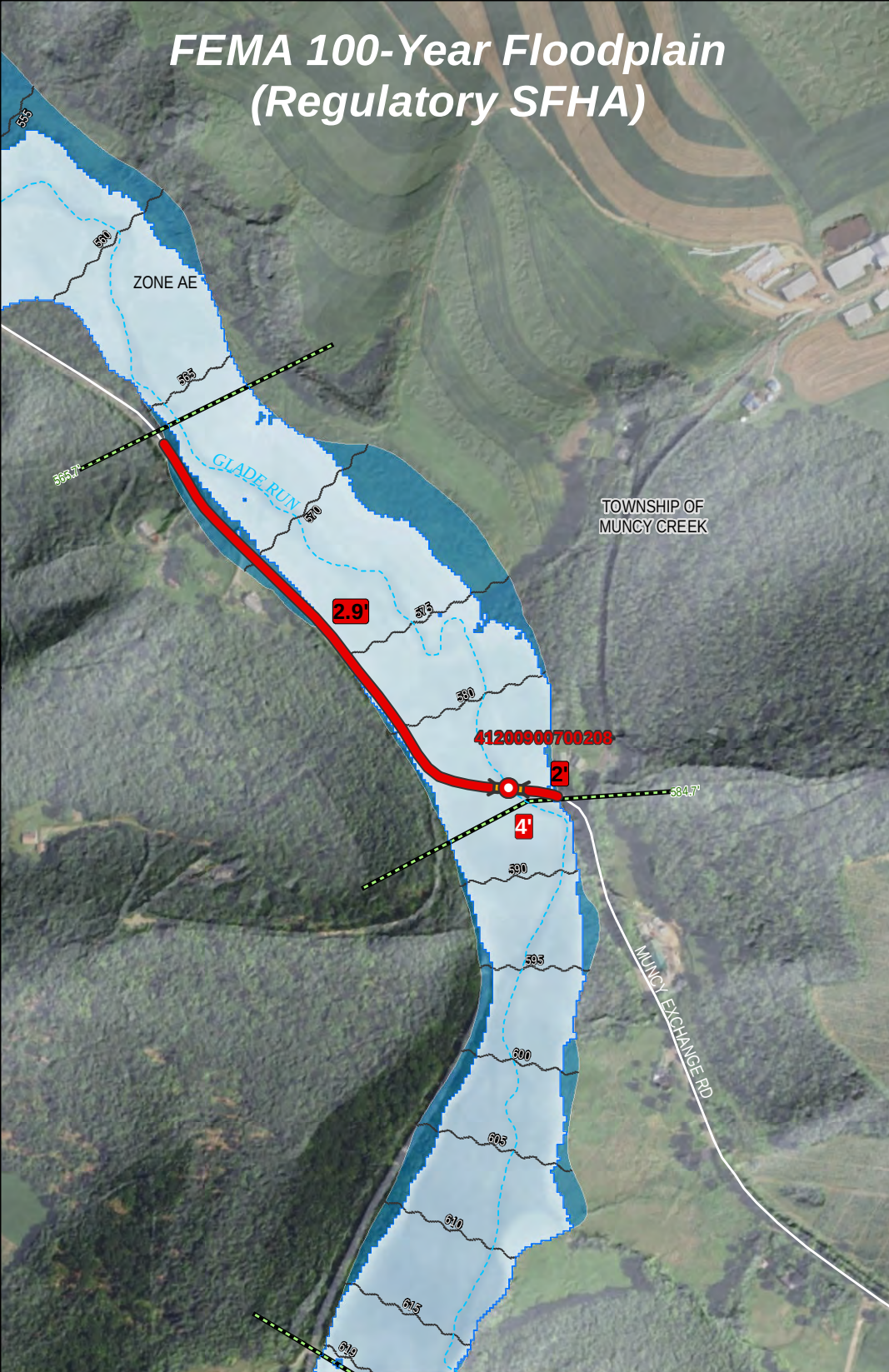
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DATA FRAME PROPERTIES:
Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

LOCATOR MAP





MAP SYMBOLOLOGY

Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	Projected SFHA Extents
Bridge Centerlines	FEMA Cross Section	
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY	
Roadway - i.e. 60DY ST	FEMA REGULATORY SFHA	
Community Boundary		

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

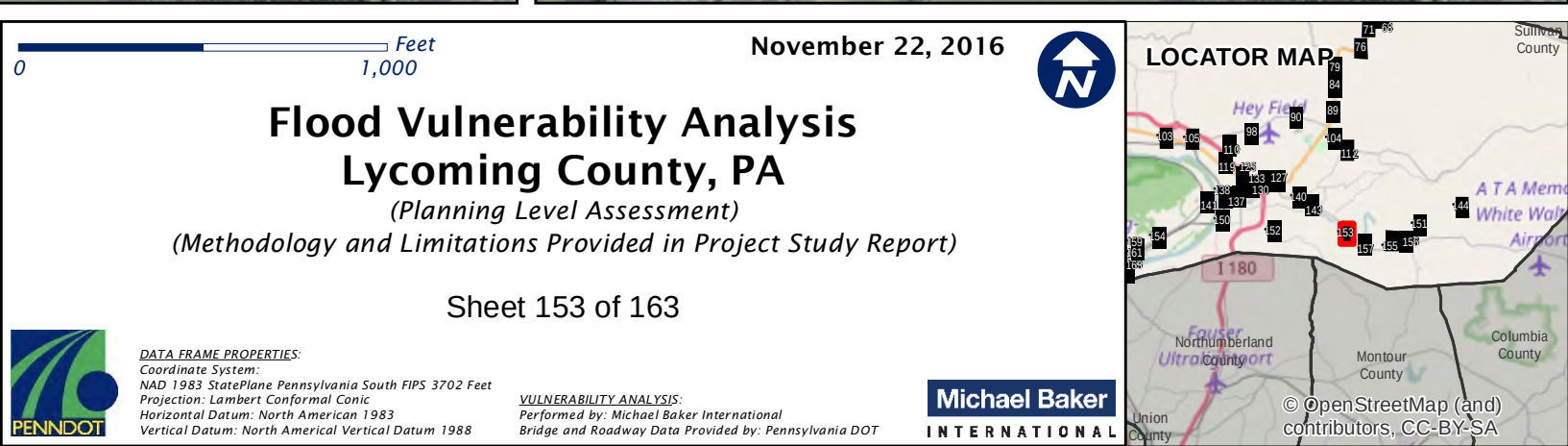
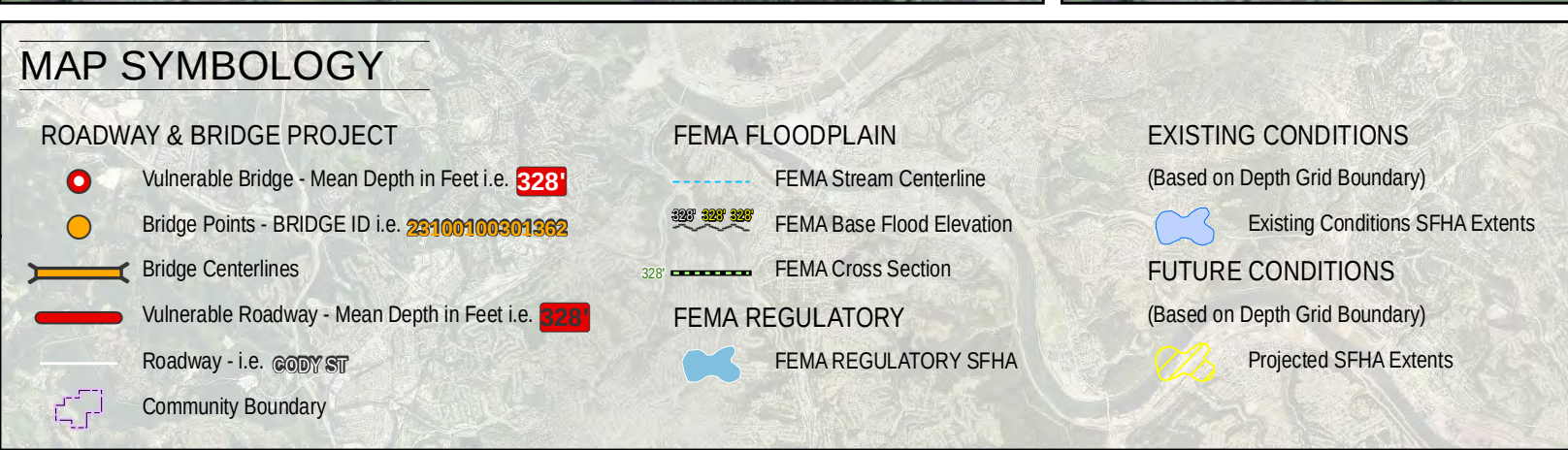
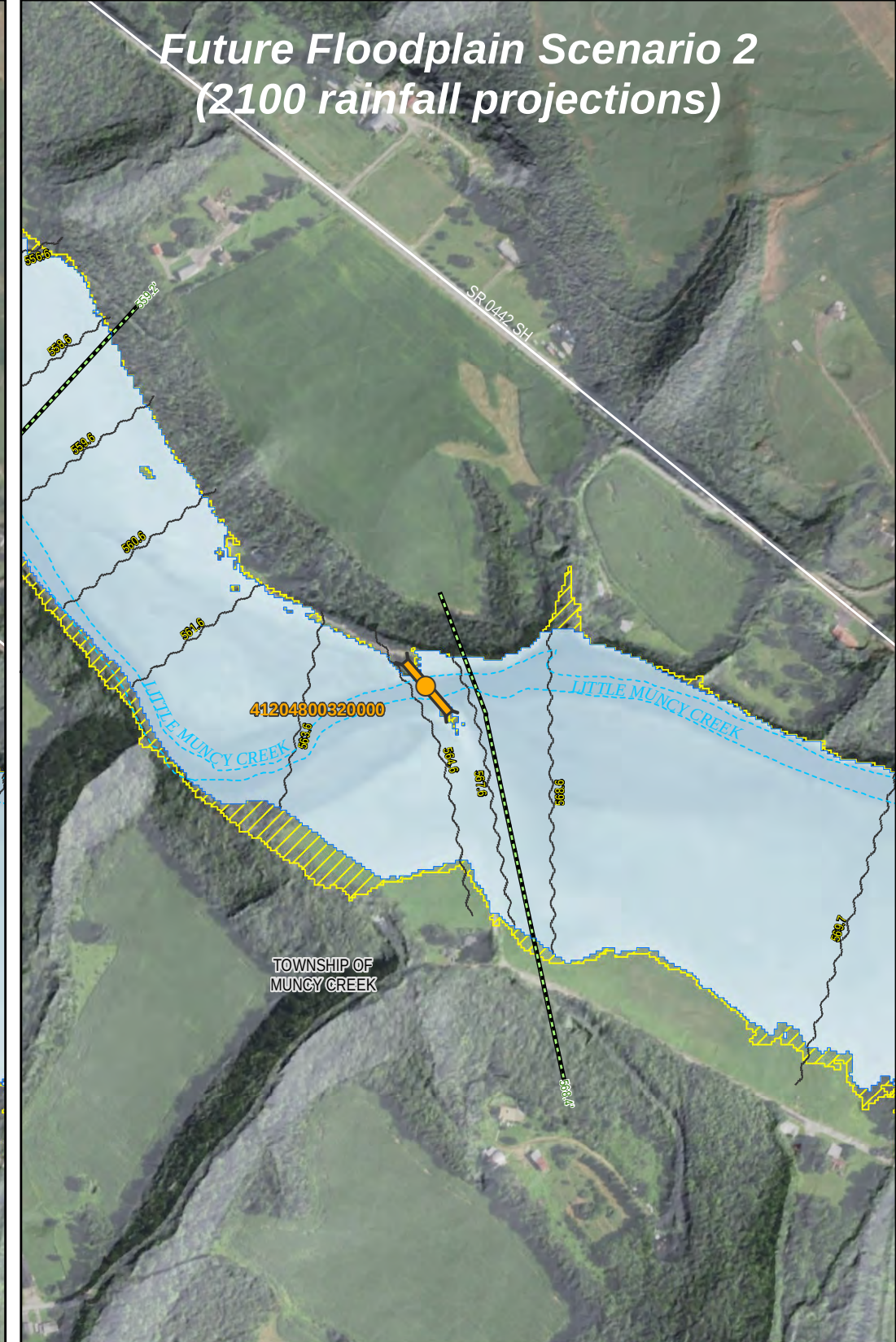
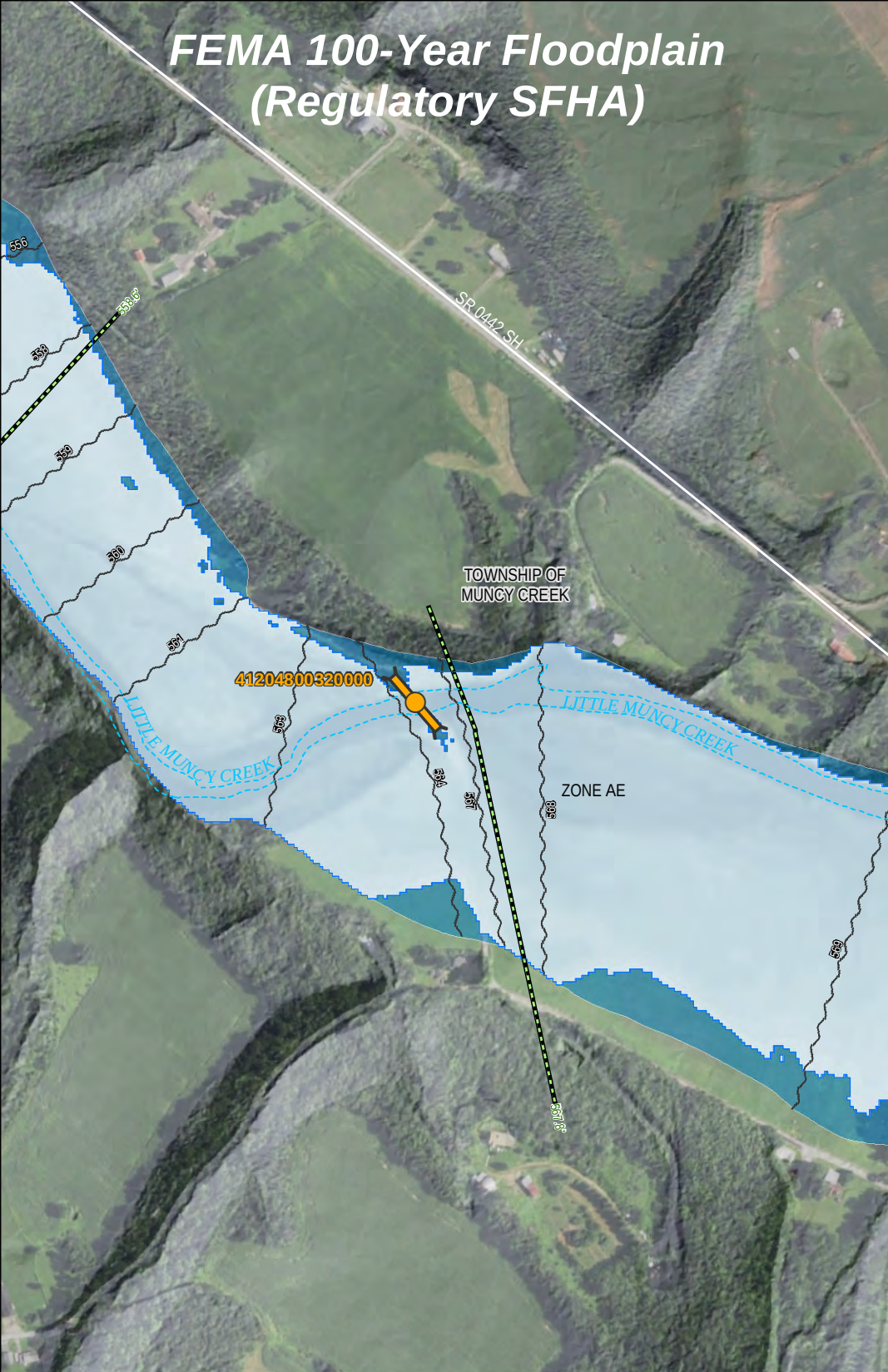
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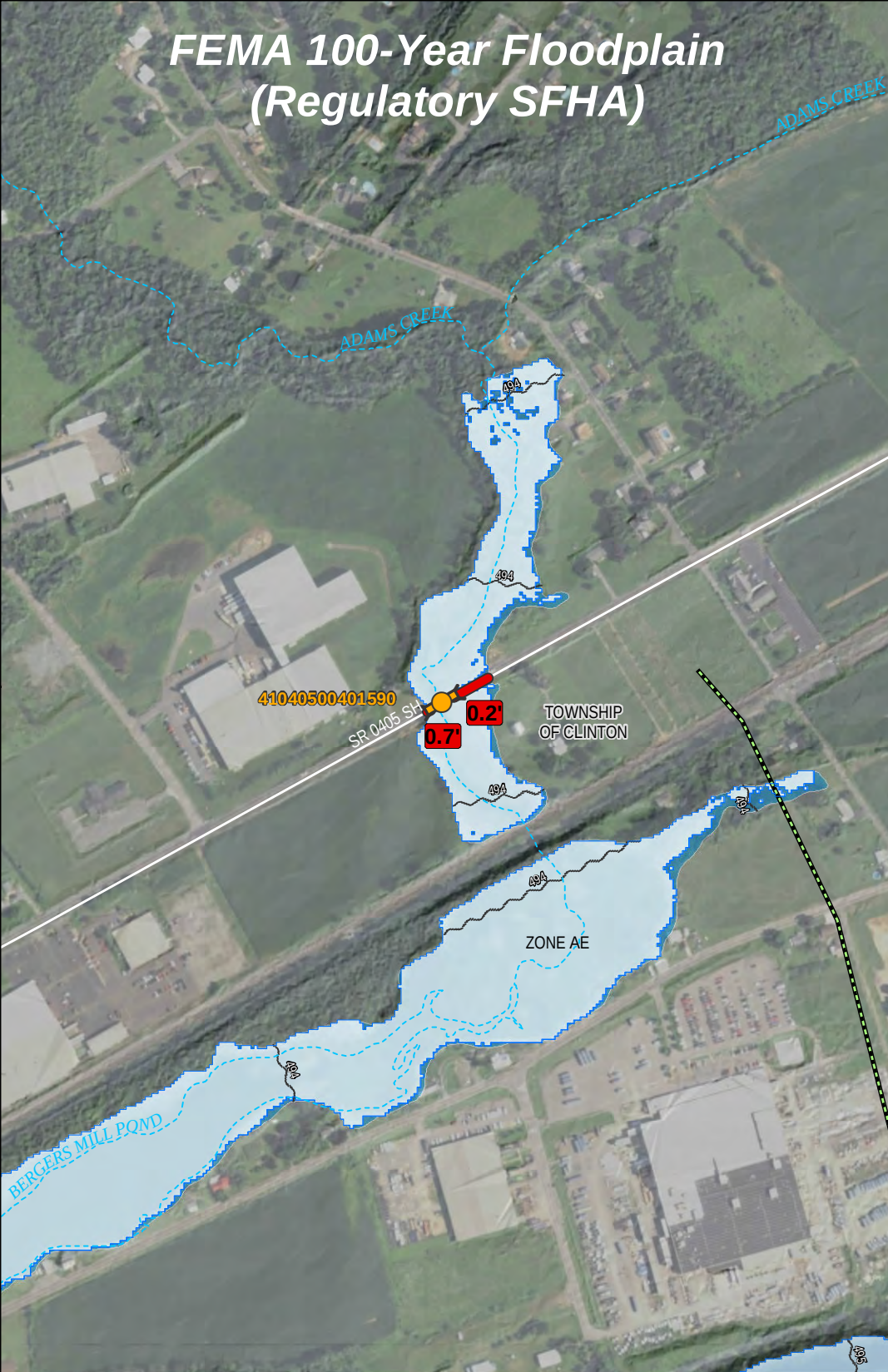
LOCATOR MAP

DATA FRAME PROPERTIES:
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

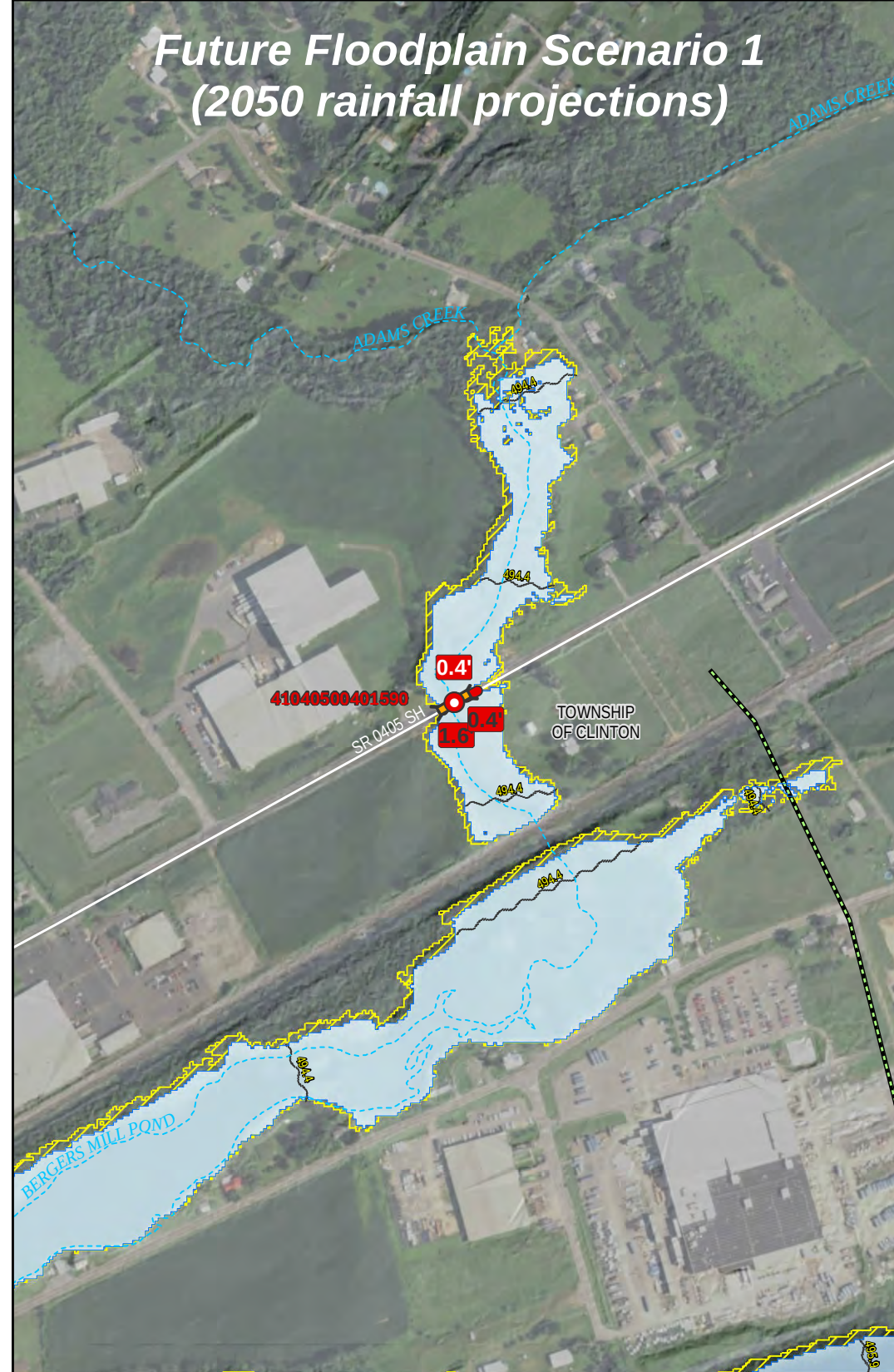
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT



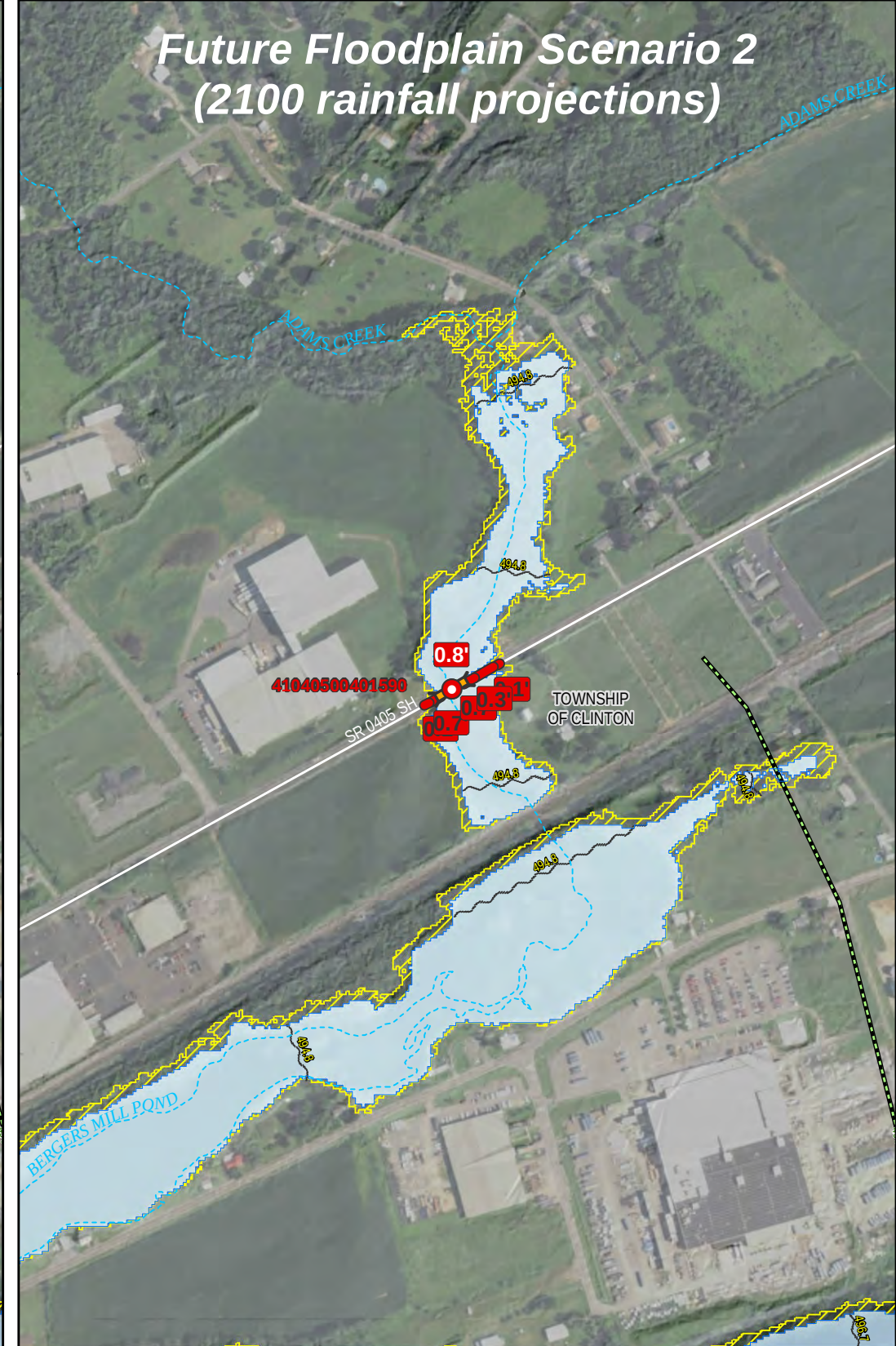
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. 328'
- Bridge Points - BRIDGE ID i.e. 23100100301362
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. 328'
- Roadway - i.e. CODY ST
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS

(Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS

(Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

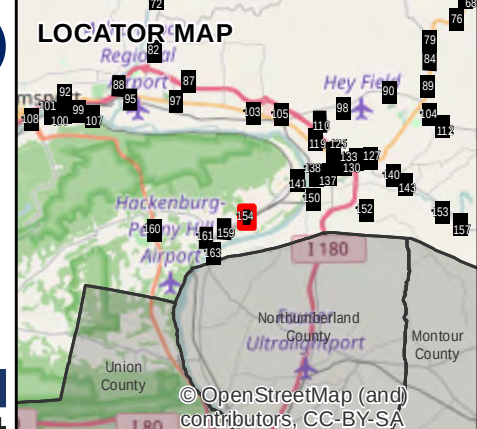
Sheet 154 of 163



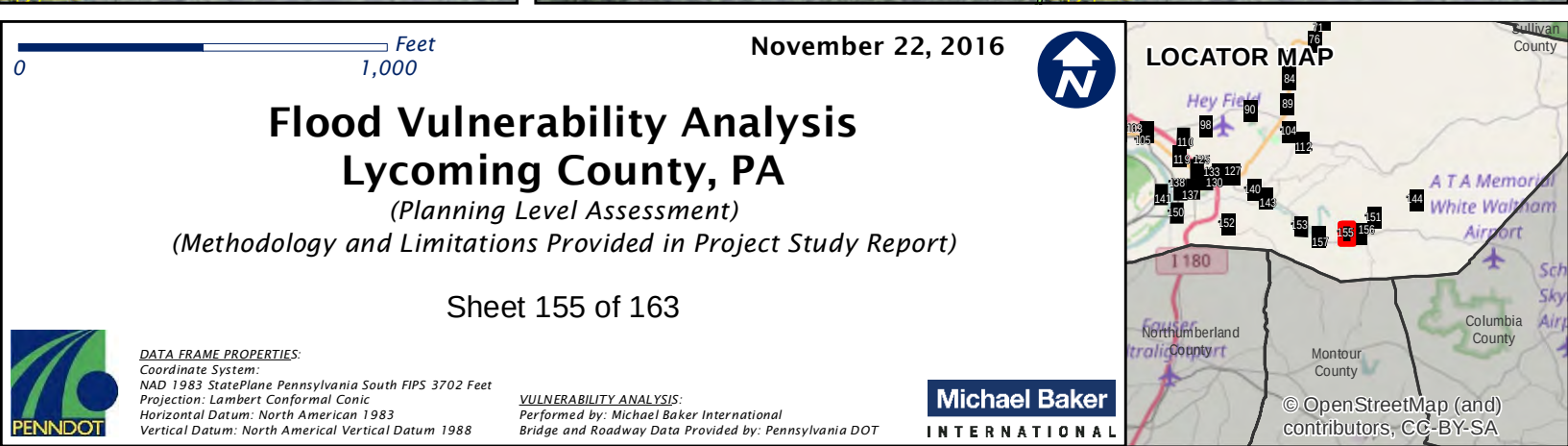
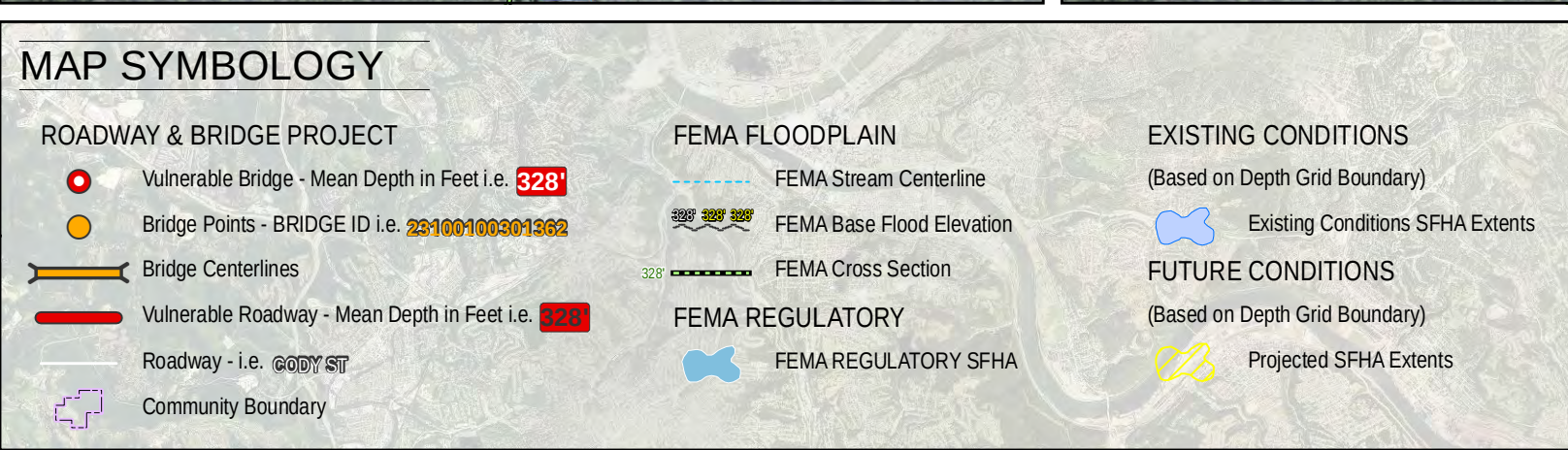
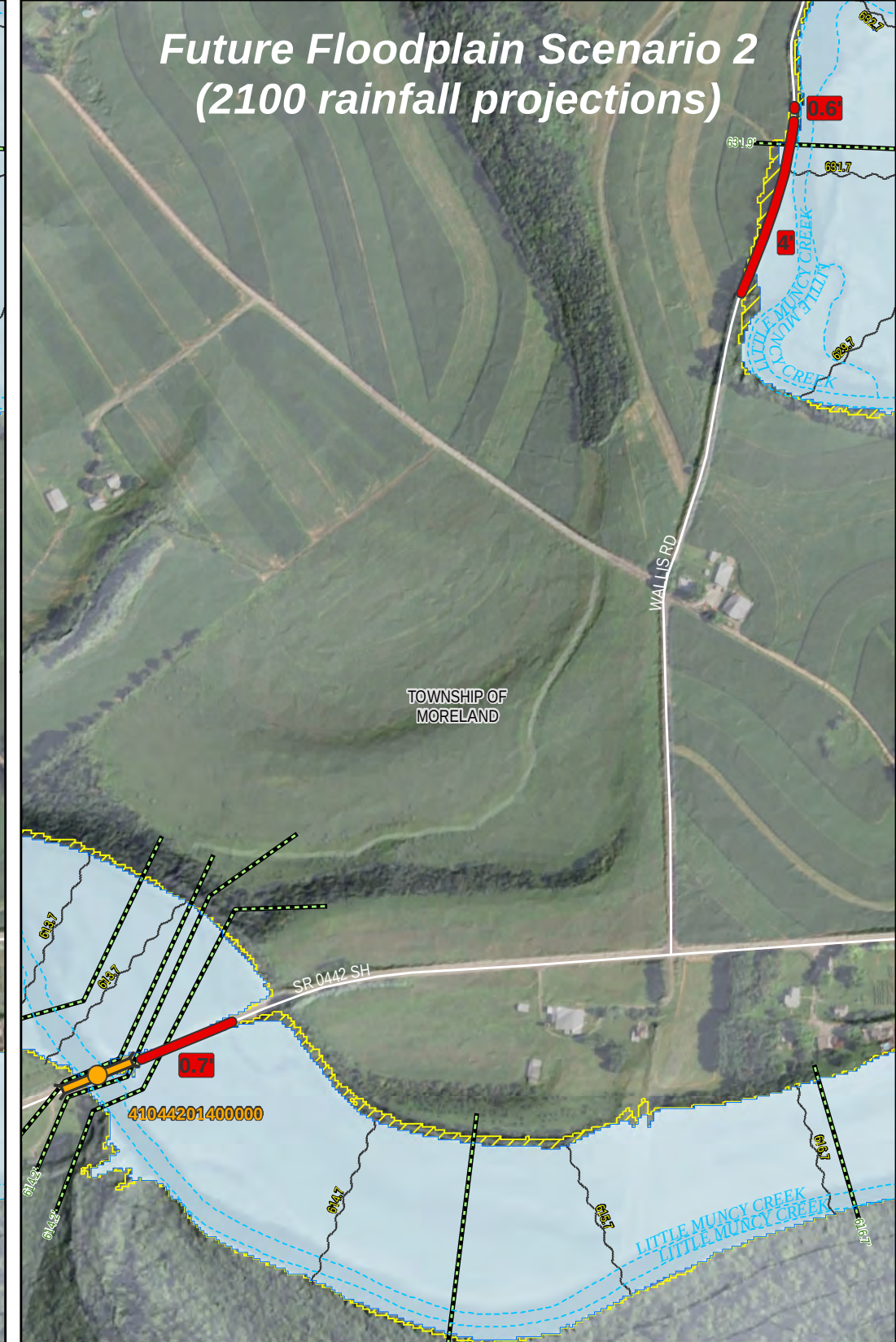
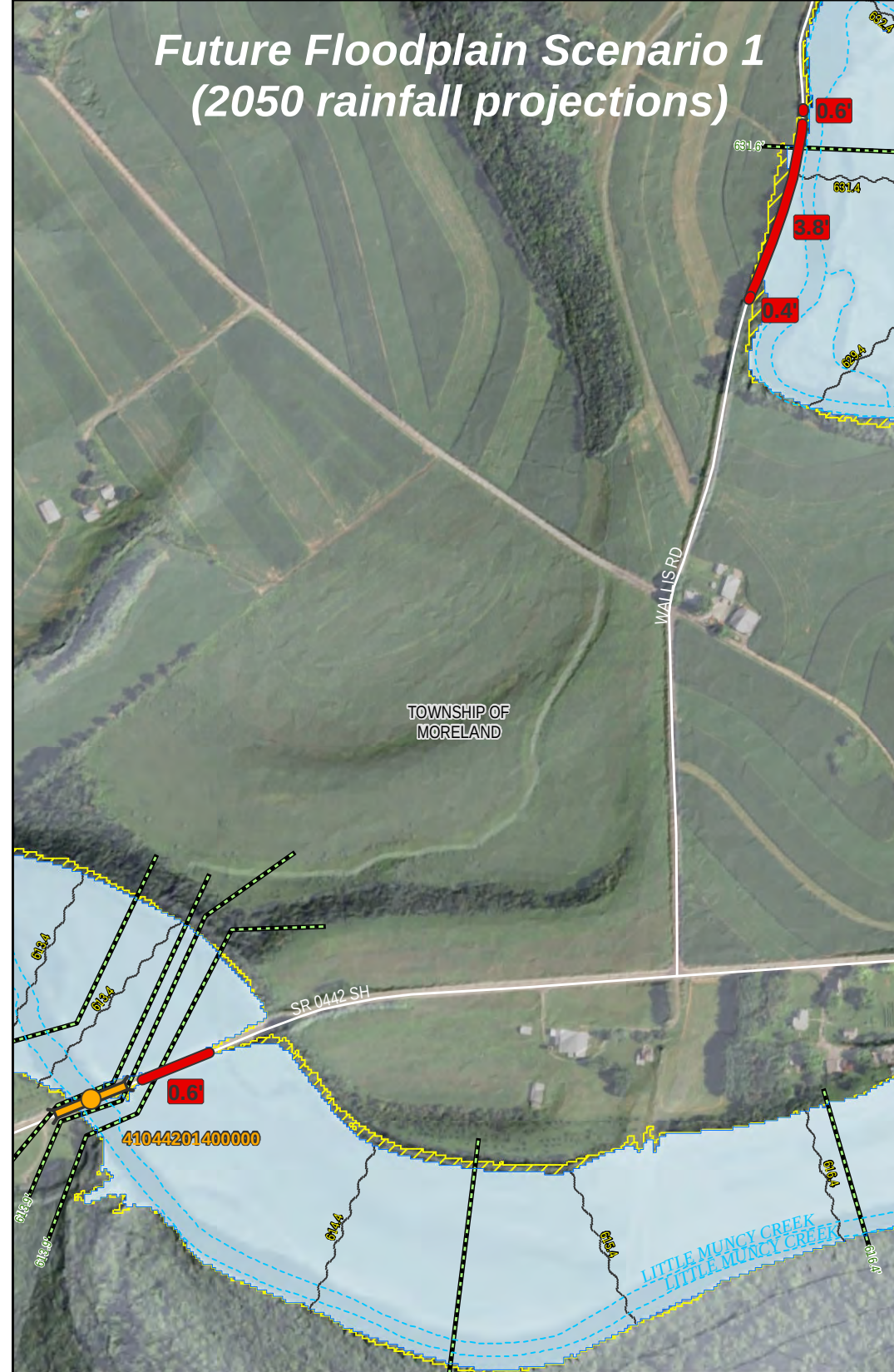
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Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

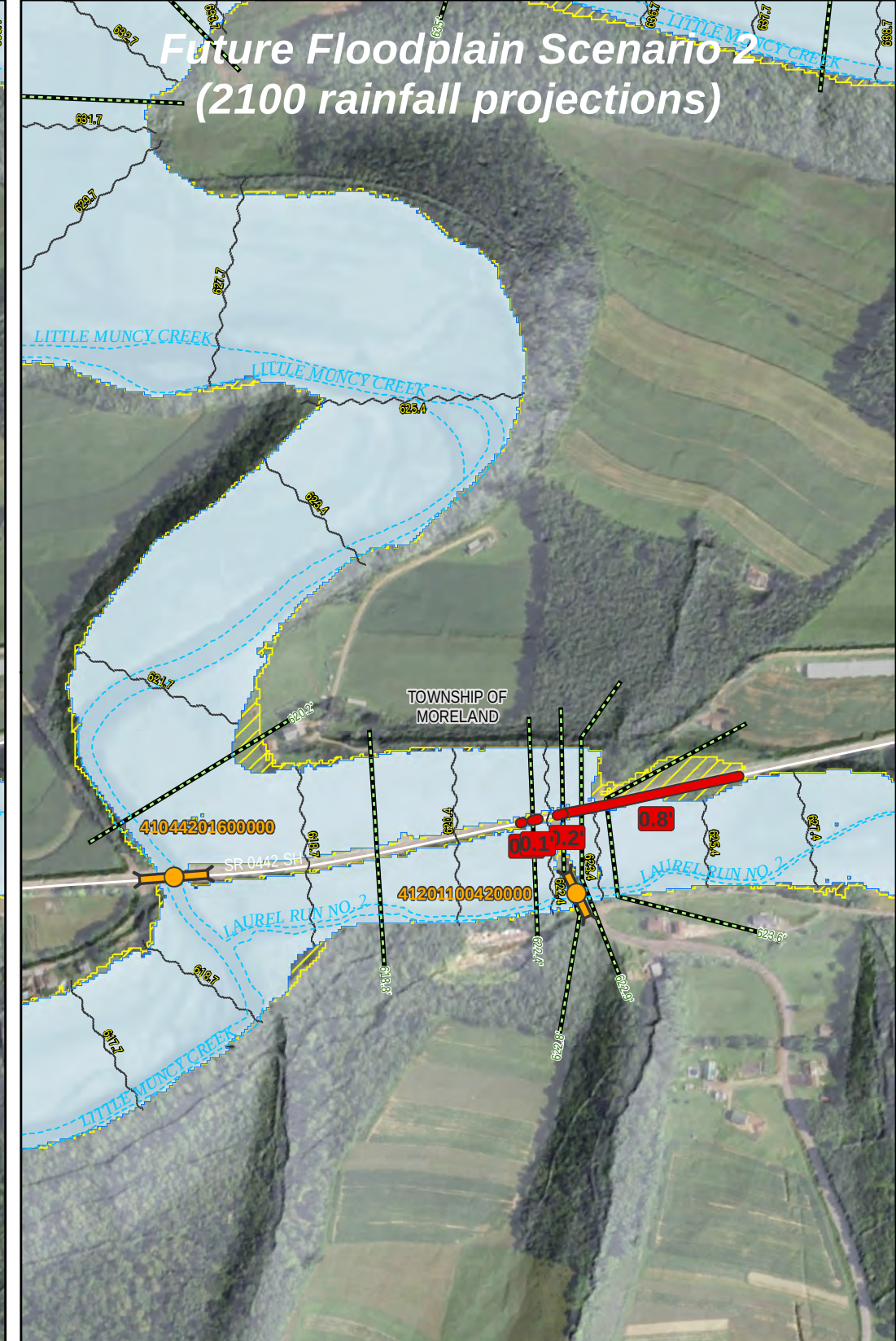
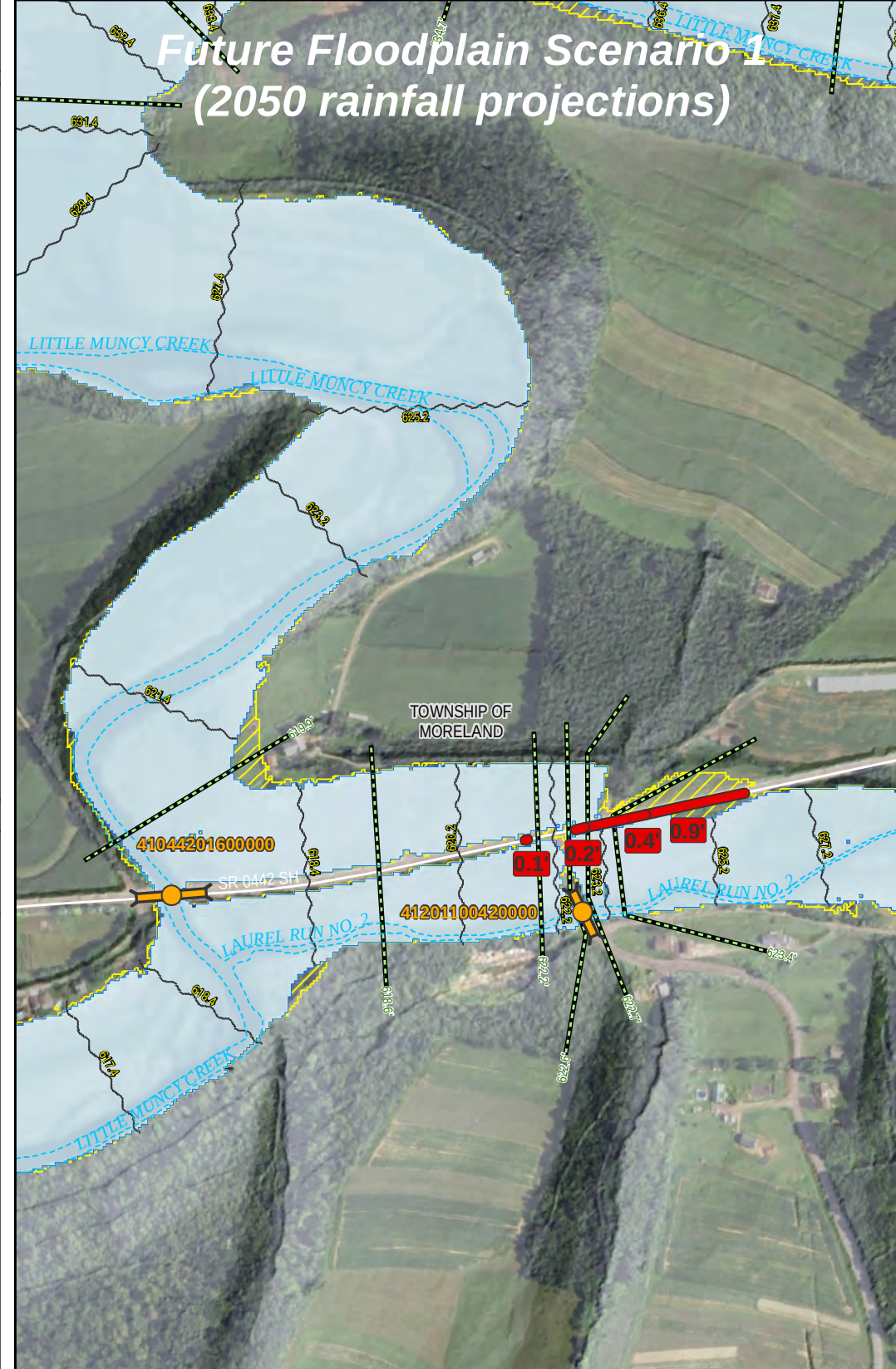
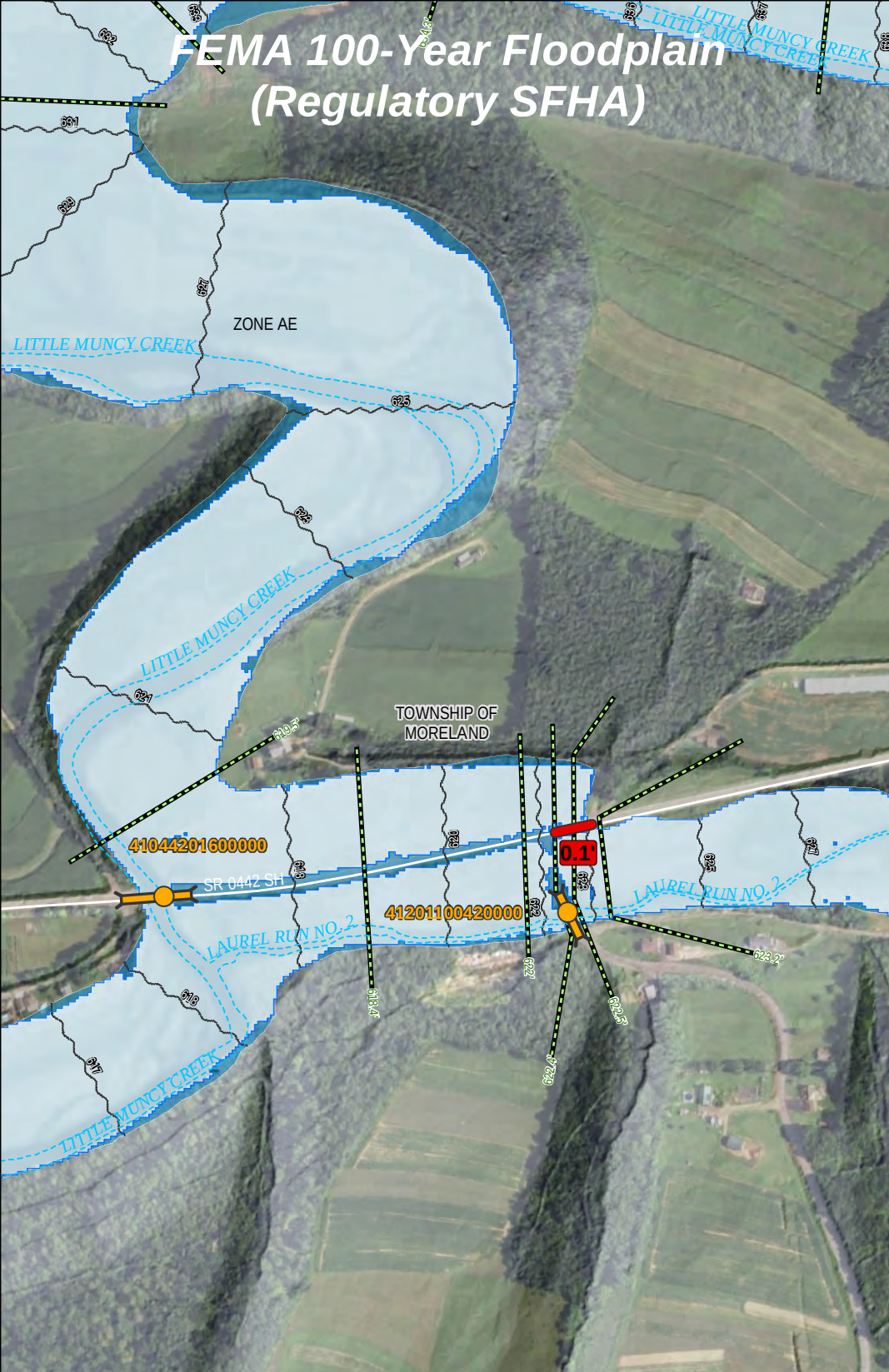
VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
Bridge and Roadway Data Provided by: Pennsylvania DOT

**Michael Baker
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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

- Vulnerable Bridge - Mean Depth in Feet i.e. **328'**
- Bridge Points - BRIDGE ID i.e. **23100100301362**
- Bridge Centerlines
- Vulnerable Roadway - Mean Depth in Feet i.e. **328'**
- Roadway - i.e. **60DY ST**
- Community Boundary

FEMA FLOODPLAIN

- FEMA Stream Centerline
- FEMA Base Flood Elevation
- FEMA Cross Section

FEMA REGULATORY

- FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)

- Existing Conditions SFHA Extents

FUTURE CONDITIONS (Based on Depth Grid Boundary)

- Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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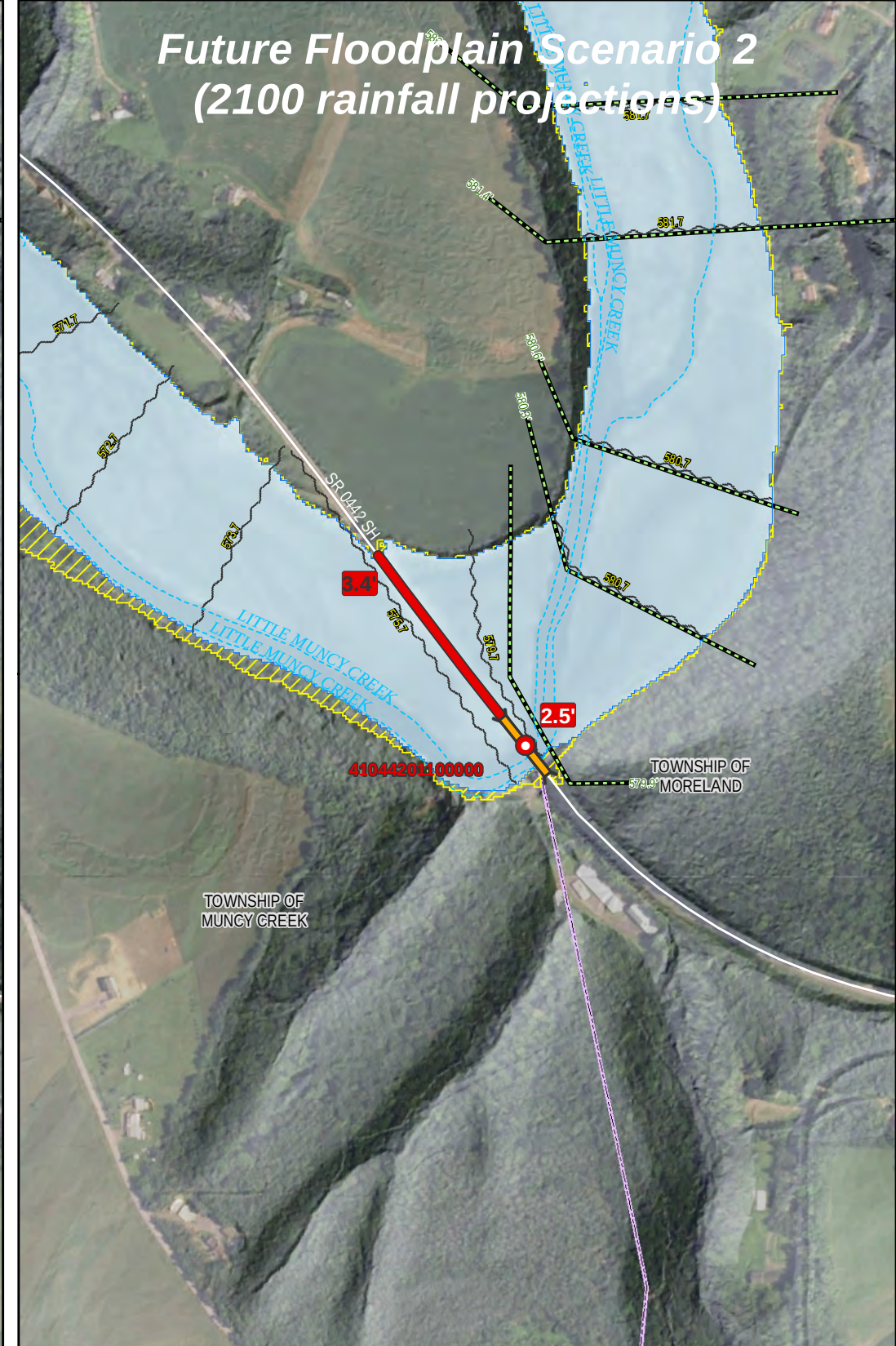
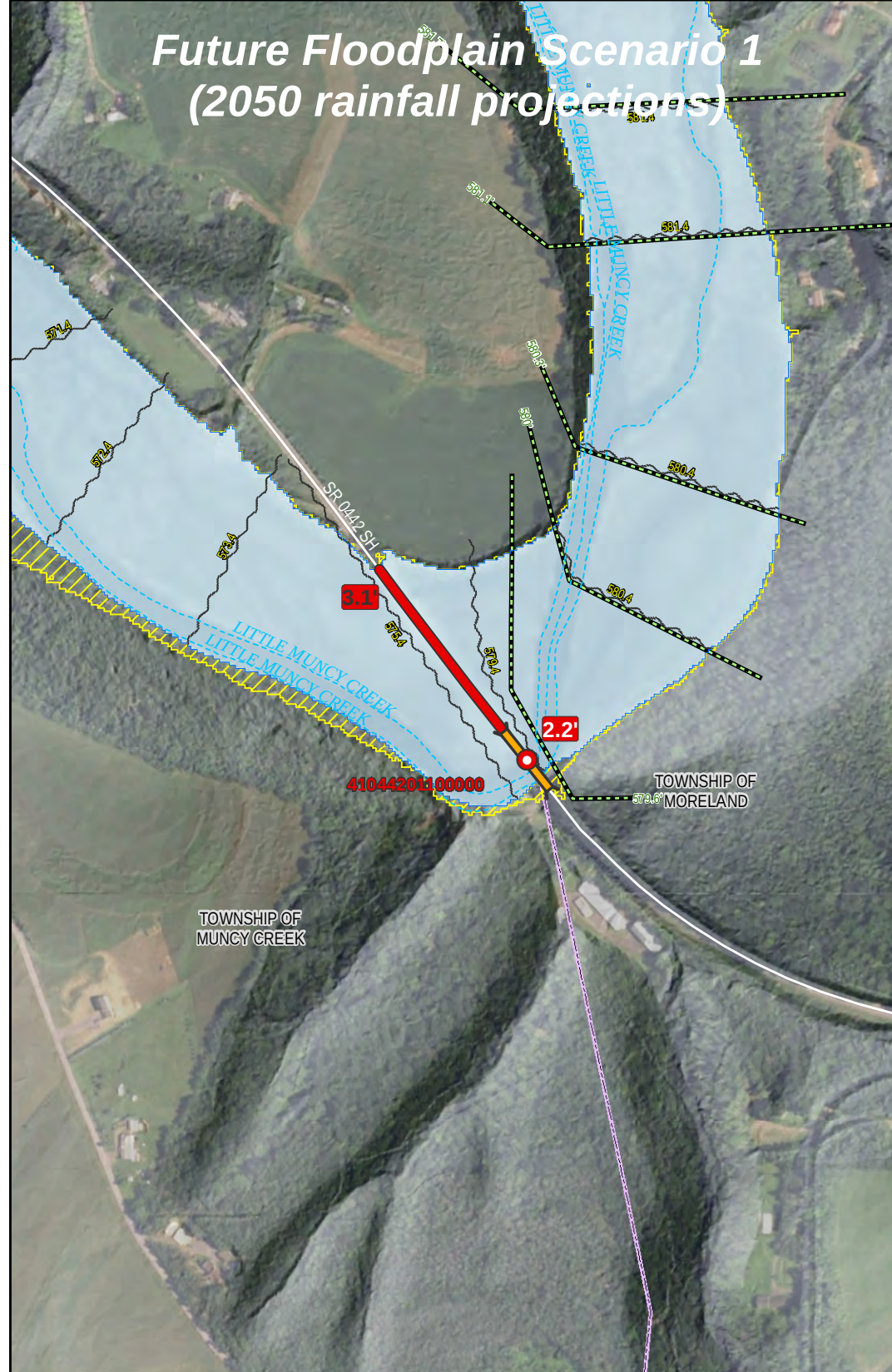
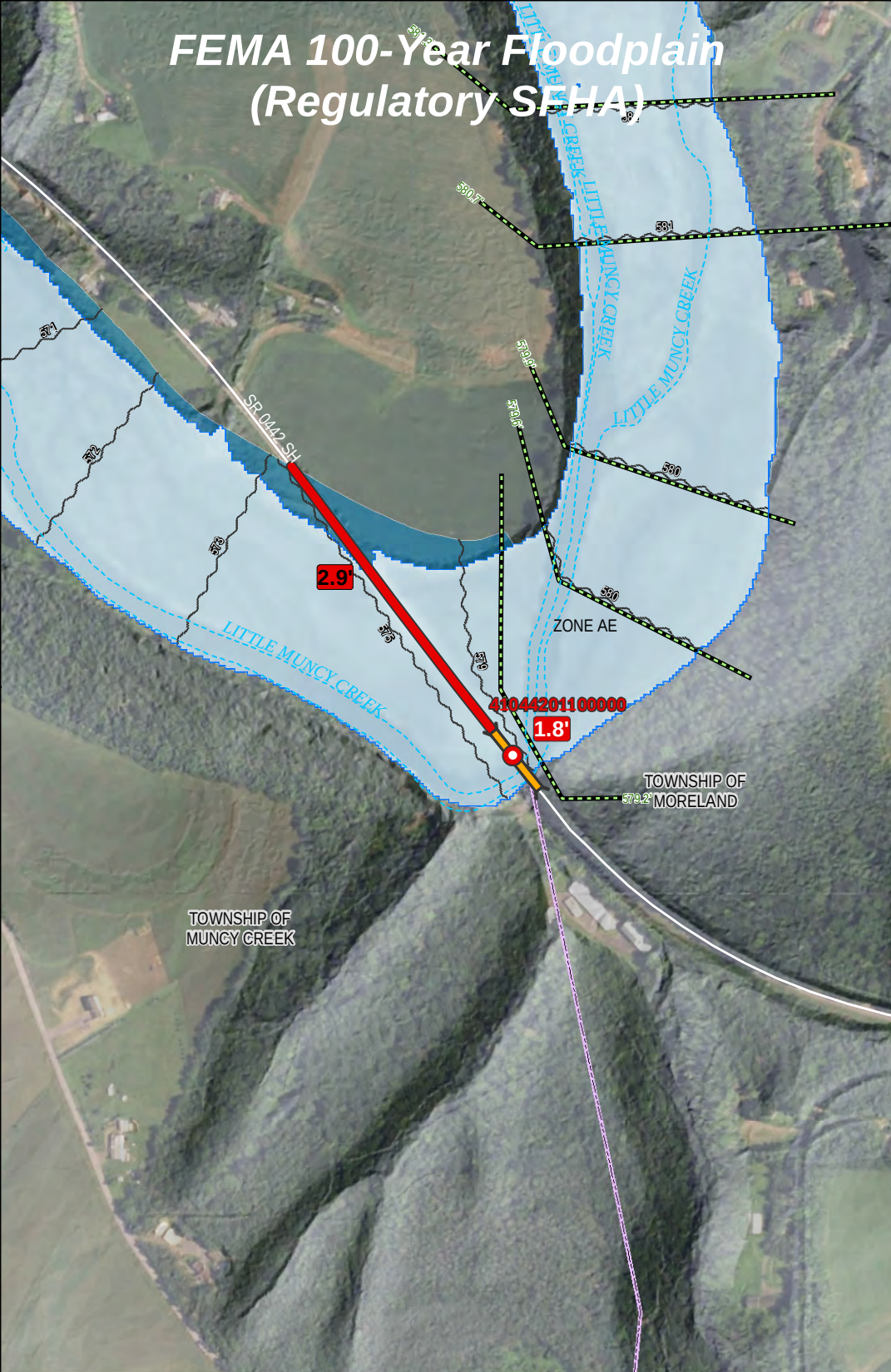
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INTERNATIONAL

LOCATOR MAP

DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOLOGY

ROADWAY & BRIDGE PROJECT	
	Vulnerable Bridge - Mean Depth in Feet i.e. 328'
	Bridge Points - BRIDGE ID i.e. 23100100301362
	Bridge Centerlines
	Vulnerable Roadway - Mean Depth in Feet i.e. 328'
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FEMA FLOODPLAIN	
	FEMA Stream Centerline
	FEMA Base Flood Elevation
	FEMA Cross Section
FEMA REGULATORY	
	FEMA REGULATORY SFHA

EXISTING CONDITIONS (Based on Depth Grid Boundary)	
	Existing Conditions SFHA Extents
FUTURE CONDITIONS (Based on Depth Grid Boundary)	
	Projected SFHA Extents

0 1,000 Feet

November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

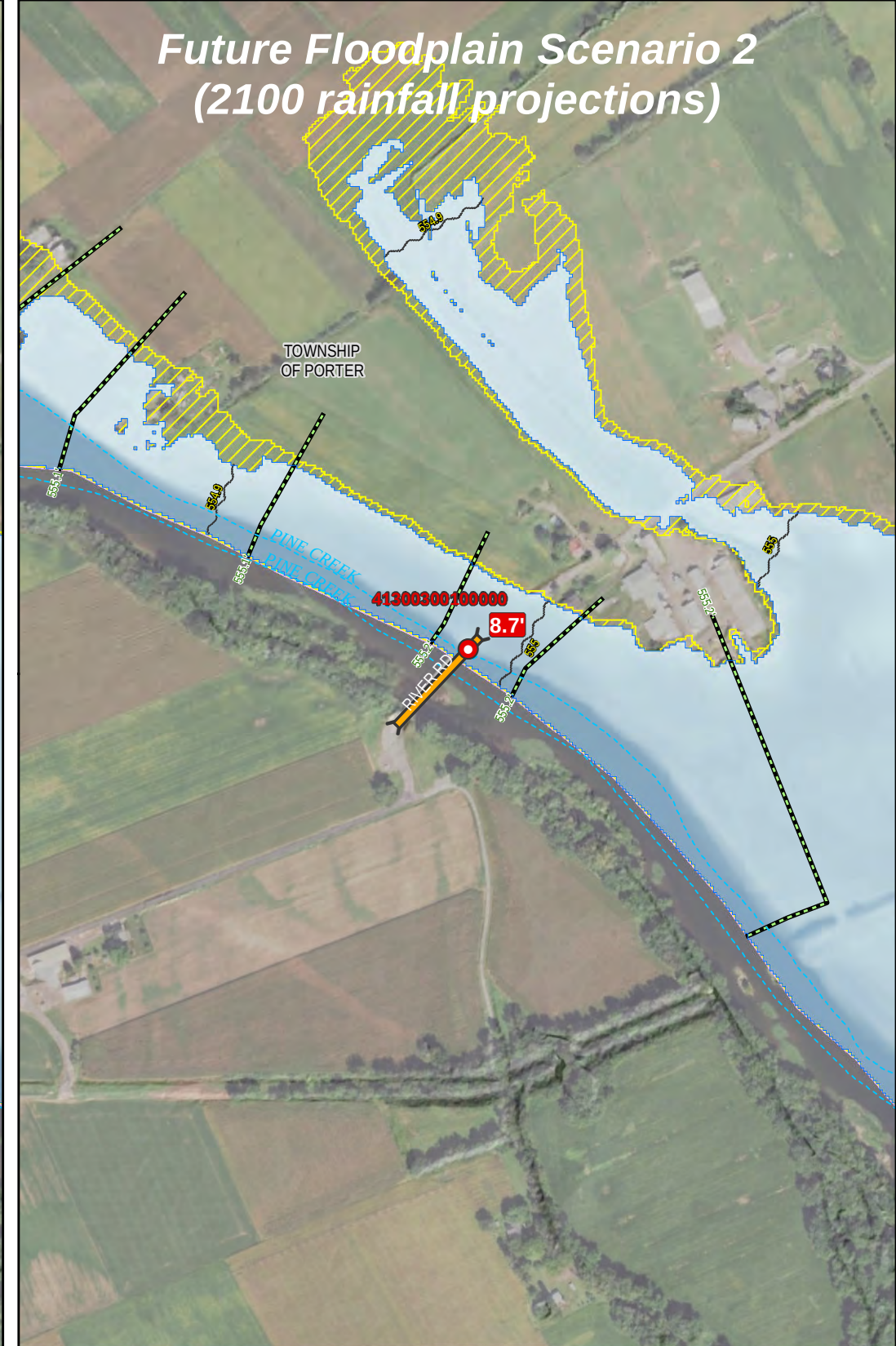
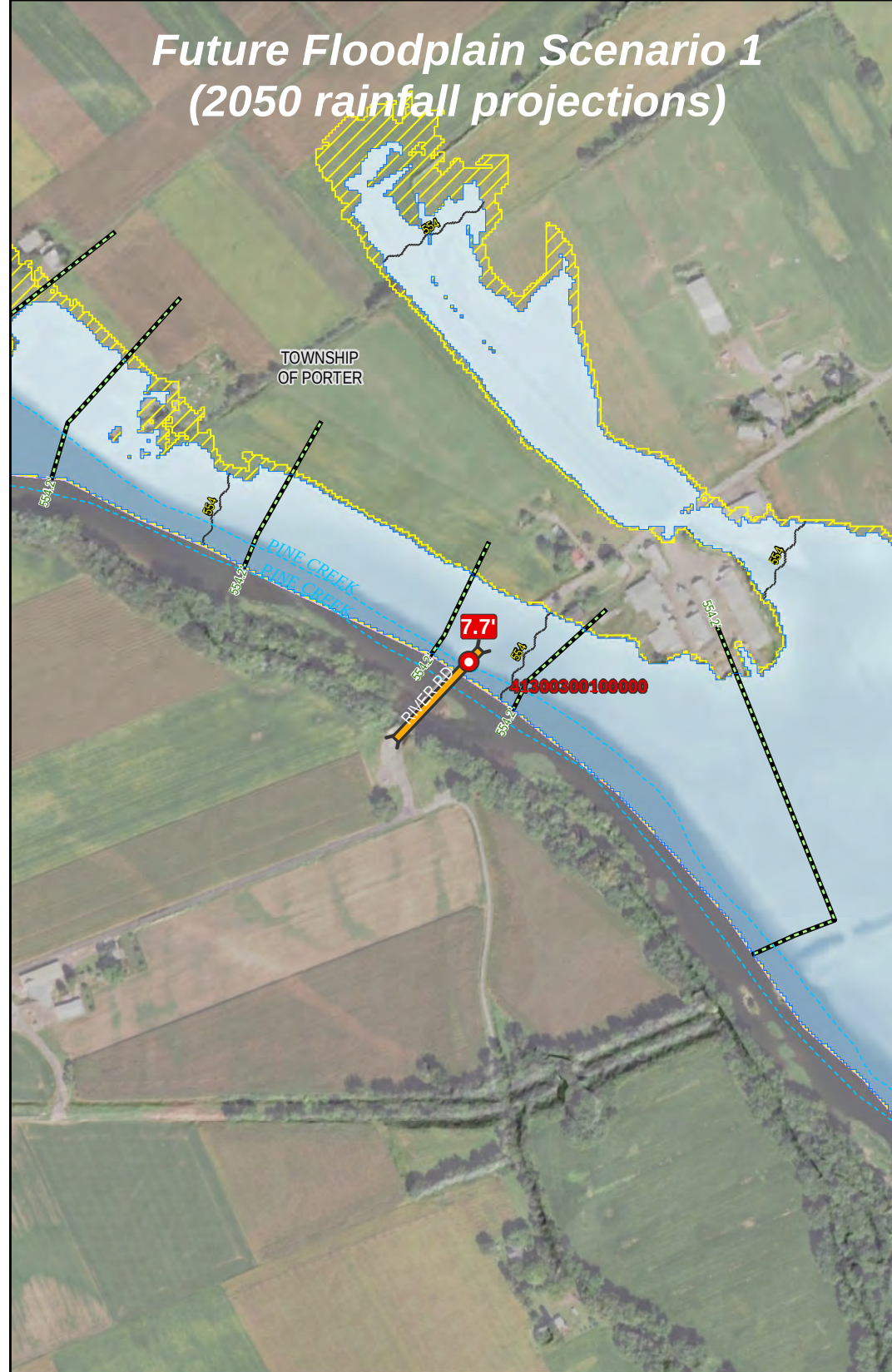
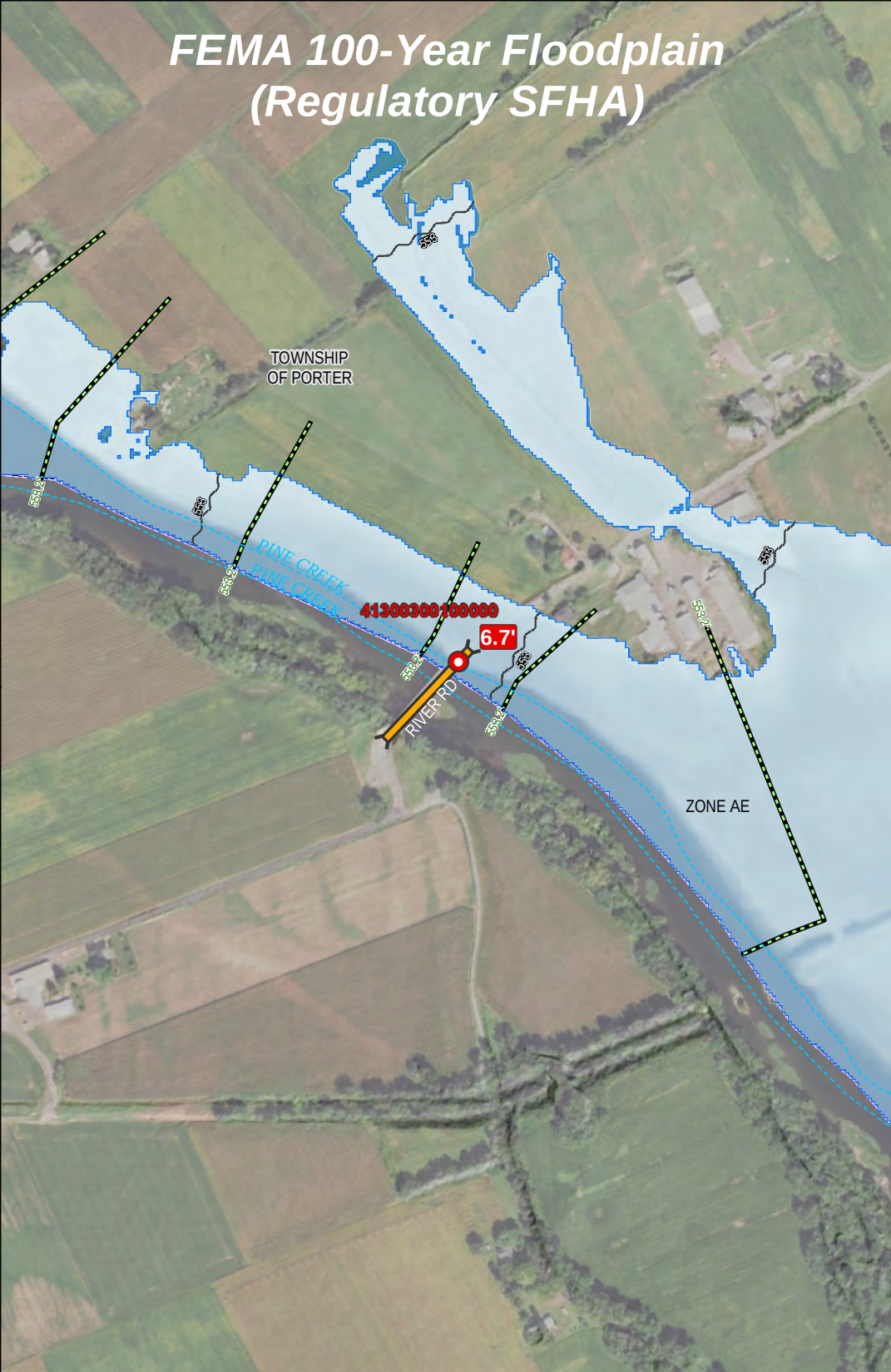
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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
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VULNERABILITY ANALYSIS:
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LOCATOR MAP

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

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FEMA REGULATORY

- FEMA REGULATORY SFHA

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(Based on Depth Grid Boundary)**

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(Based on Depth Grid Boundary)**

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0 1,000 Feet

**Flood Vulnerability Analysis
Lycoming County, PA**
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

November 22, 2016

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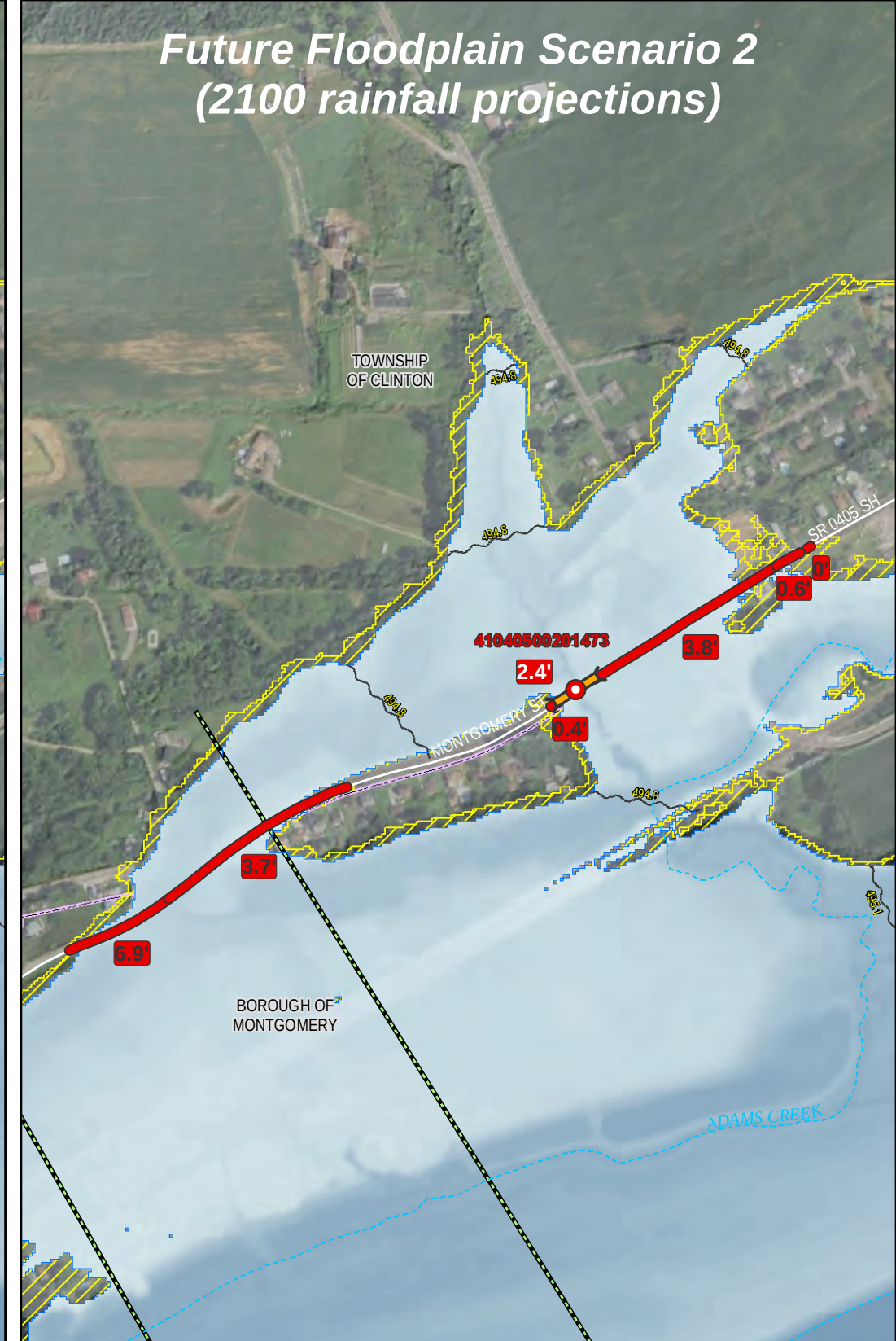
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DATA FRAME PROPERTIES:
Coordinate System:
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Vertical Datum: North American Vertical Datum 1988

VULNERABILITY ANALYSIS:
Performed by: Michael Baker International
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LOCATOR MAP

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MAP SYMBOLOGY

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November 22, 2016

Flood Vulnerability Analysis Lycoming County, PA

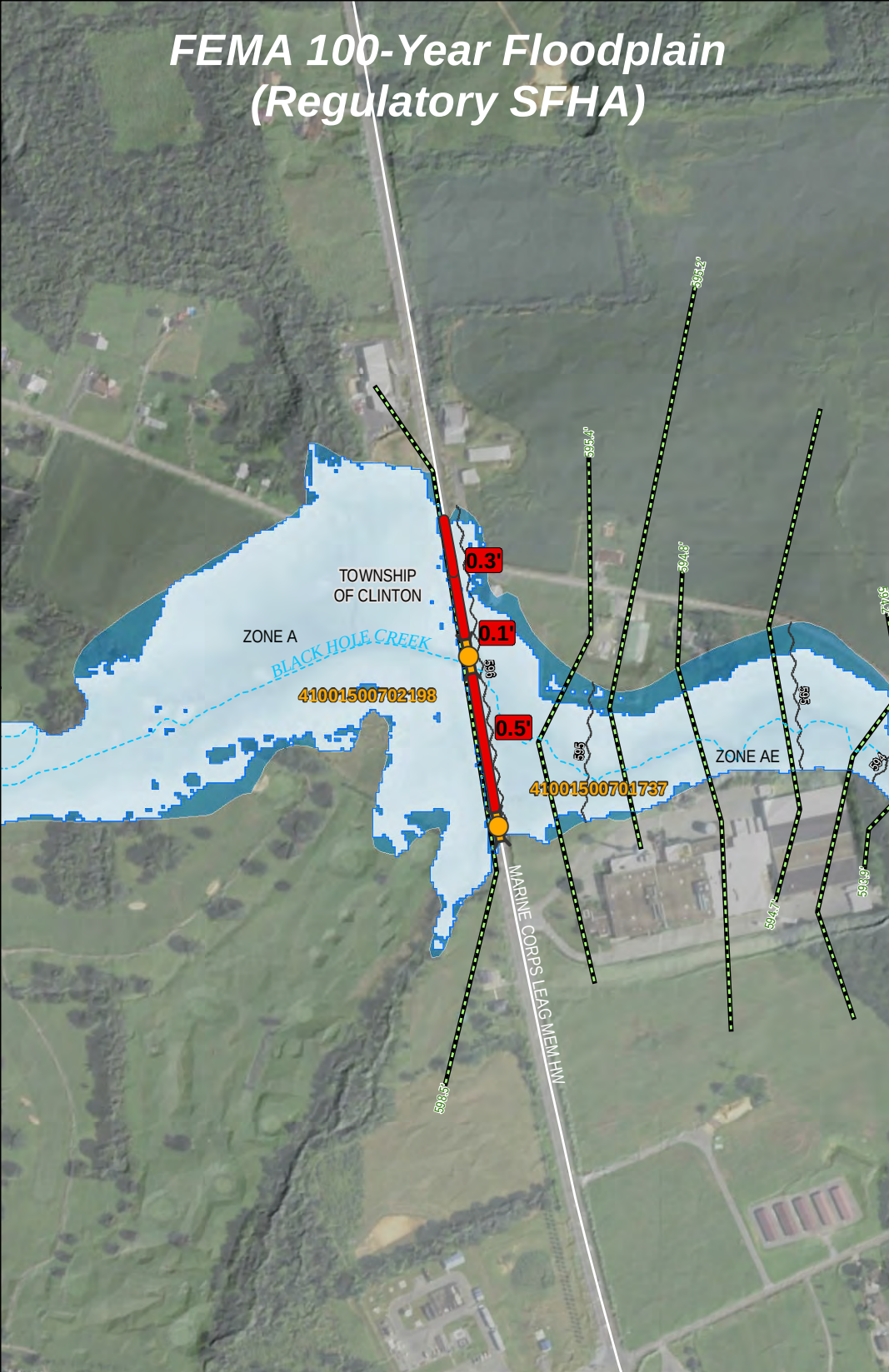
(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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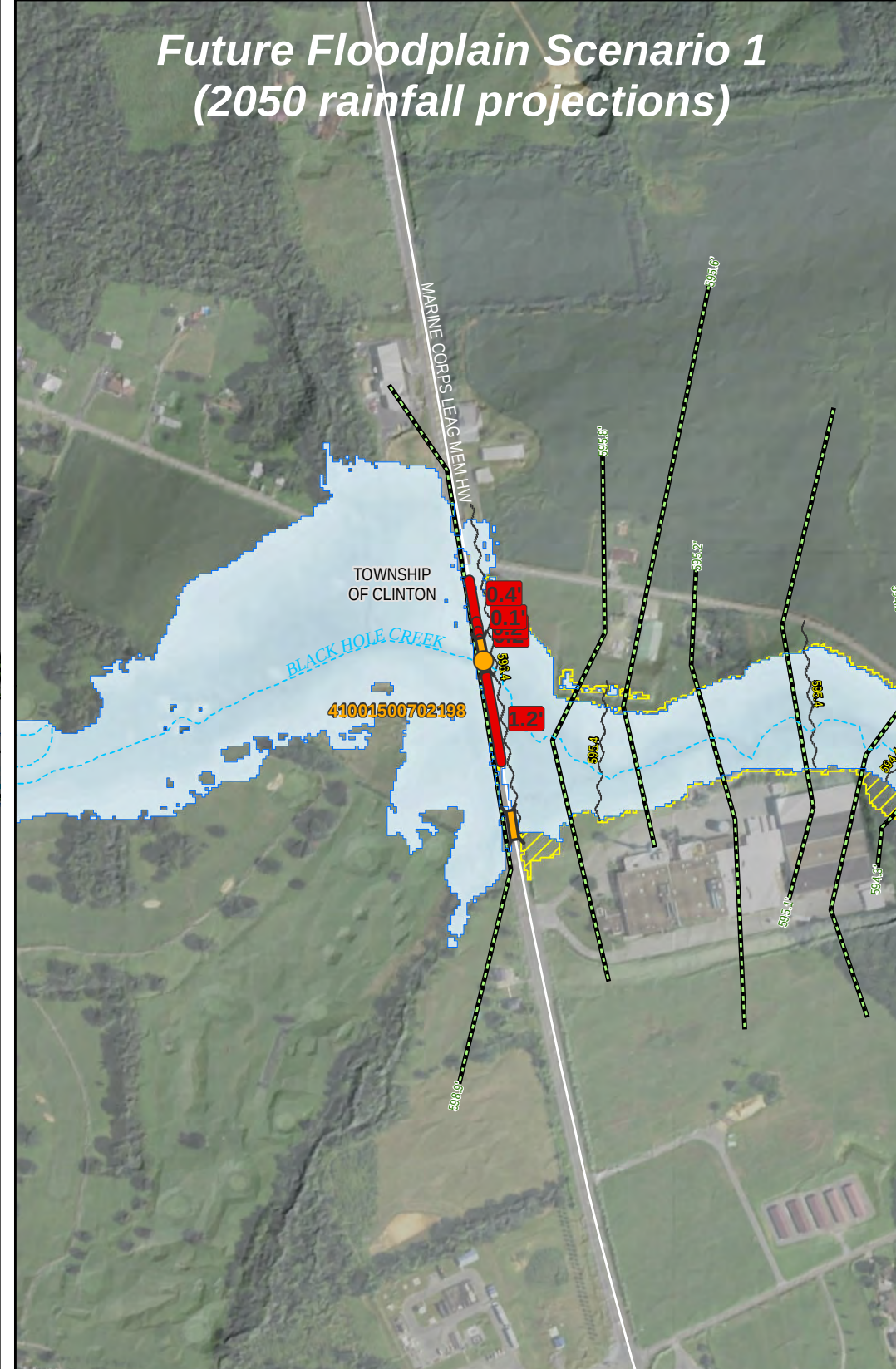
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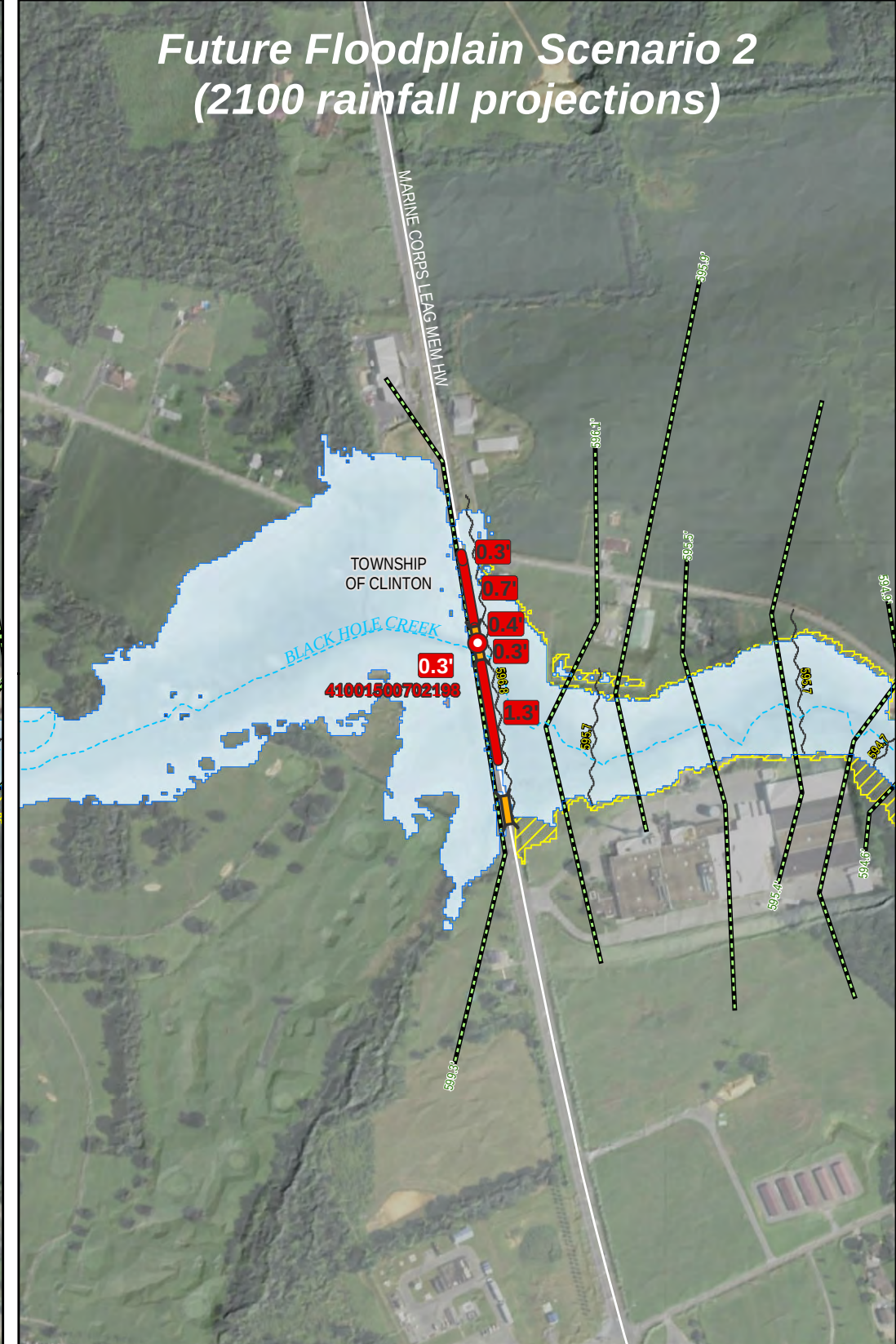
FEMA 100-Year Floodplain (Regulatory SFHA)



Future Floodplain Scenario 1 (2050 rainfall projections)



Future Floodplain Scenario 2 (2100 rainfall projections)



MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT

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FEMA REGULATORY

- FEMA REGULATORY SFHA

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- Projected SFHA Extents

0 Feet
1,000

November 22, 2016



Flood Vulnerability Analysis Lycoming County, PA (Planning Level Assessment) (Methodology and Limitations Provided in Project Study Report)

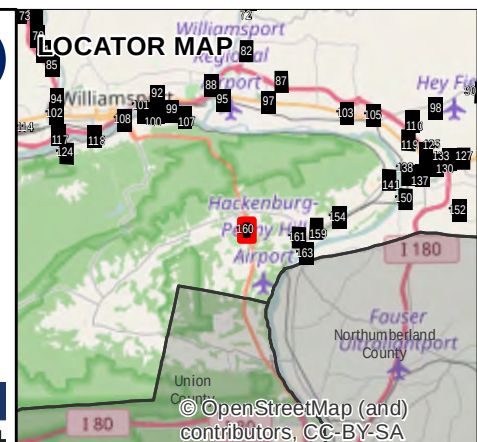
Sheet 160 of 163

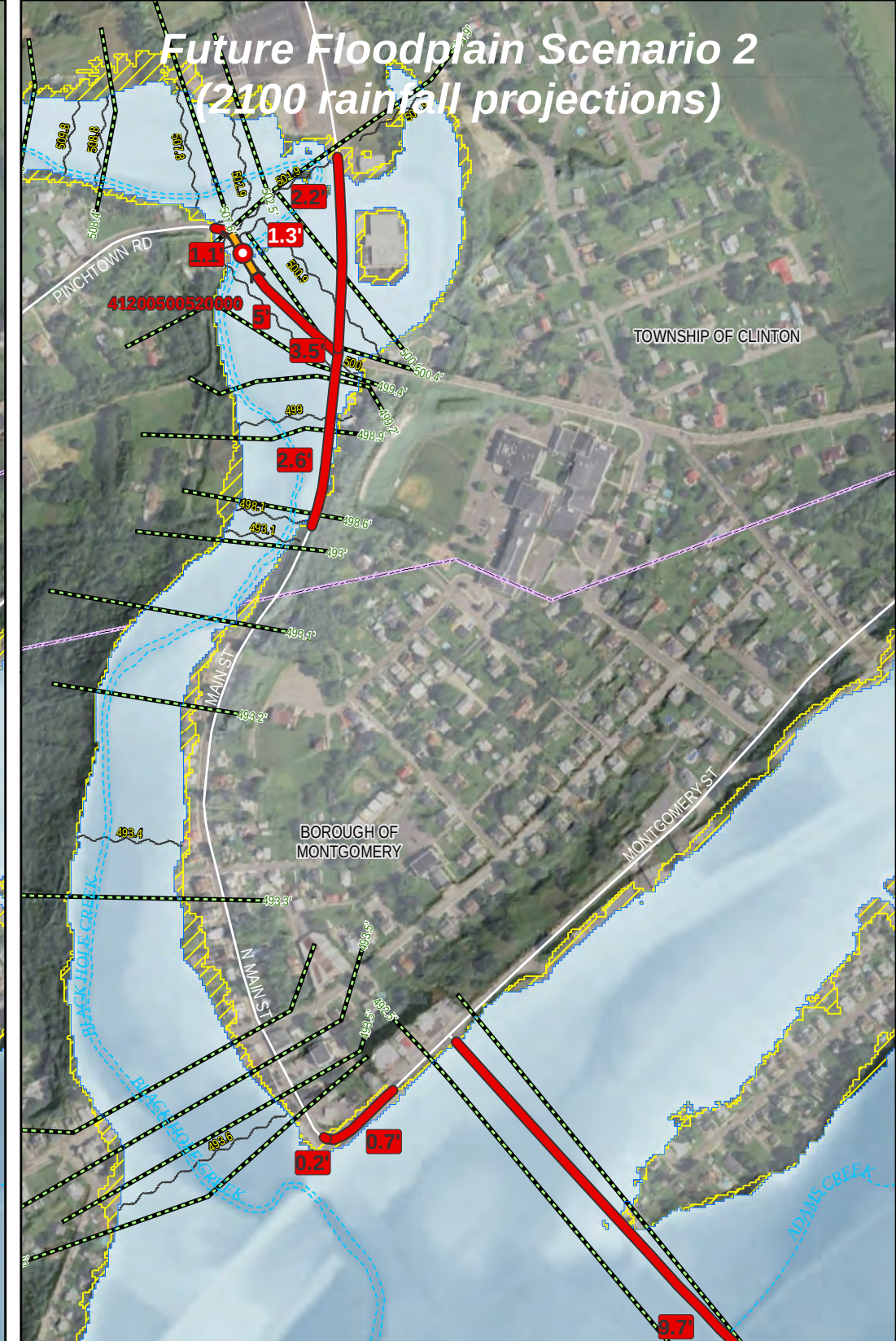
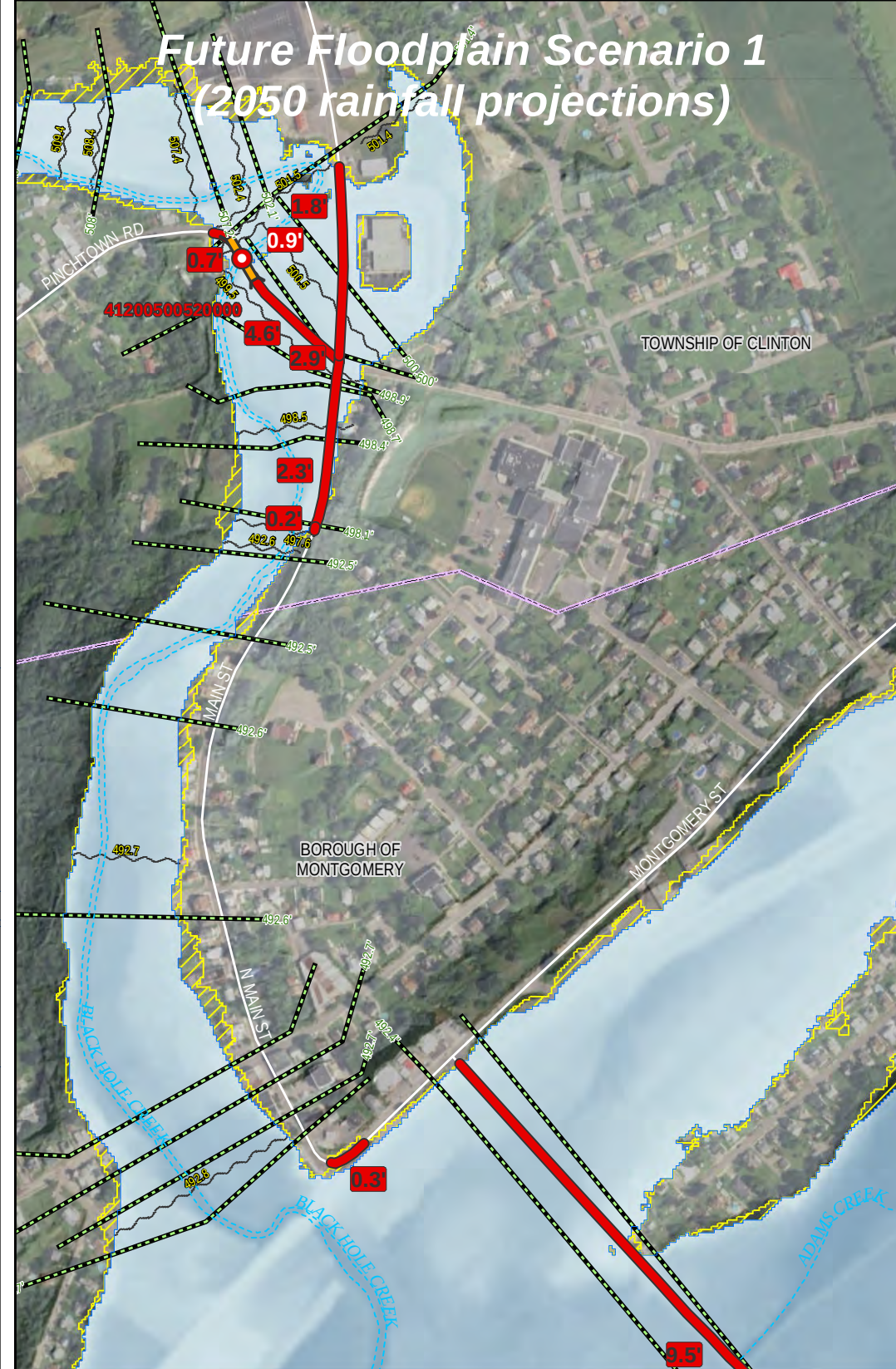
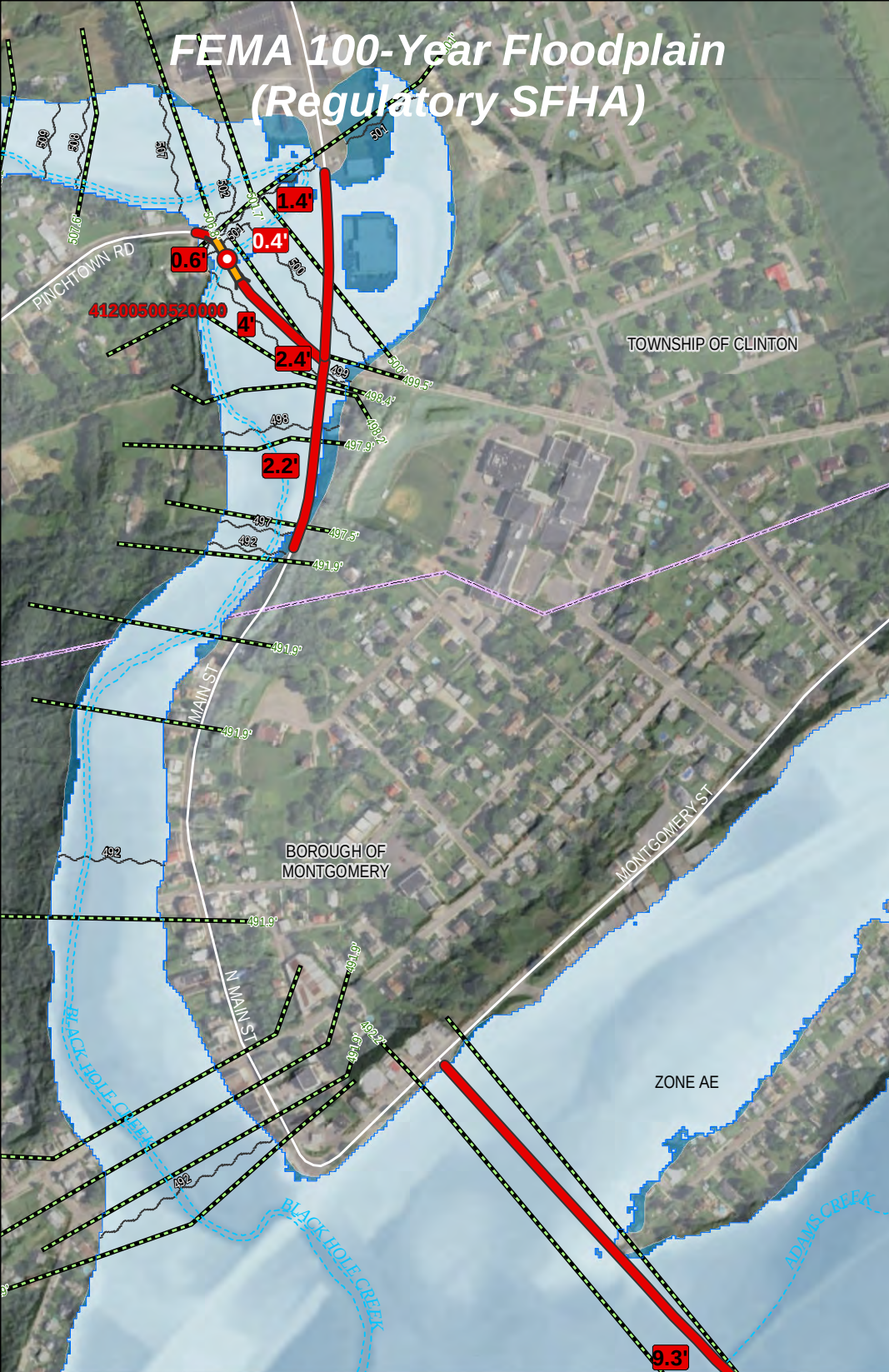


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VULNERABILITY ANALYSIS:
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Bridge and Roadway Data Provided by: Pennsylvania DOT

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MAP SYMBOLOGY

ROADWAY & BRIDGE PROJECT	FEMA FLOODPLAIN	EXISTING CONDITIONS
Vulnerable Bridge - Mean Depth in Feet i.e. 328'	FEMA Stream Centerline	Existing Conditions SFHA Extents
Bridge Points - BRIDGE ID i.e. 23100100301362	FEMA Base Flood Elevation	Existing Conditions SFHA Extents
Bridge Centerlines	FEMA Cross Section	Existing Conditions SFHA Extents
Vulnerable Roadway - Mean Depth in Feet i.e. 328'	FEMA REGULATORY SFHA	Existing Conditions SFHA Extents
Roadway - i.e. CODY ST		Existing Conditions SFHA Extents
Community Boundary		Existing Conditions SFHA Extents

Flood Vulnerability Analysis

Lycoming County, PA

(Planning Level Assessment)
(Methodology and Limitations Provided in Project Study Report)

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November 22, 2016

0 1,000 Feet

DATA FRAME PROPERTIES:
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LOCATOR MAP

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