

PARSONS

Canoe Creek H&H

I-69 ORX US 41 to US 60

Henderson Flood Control Board
02.25.2020

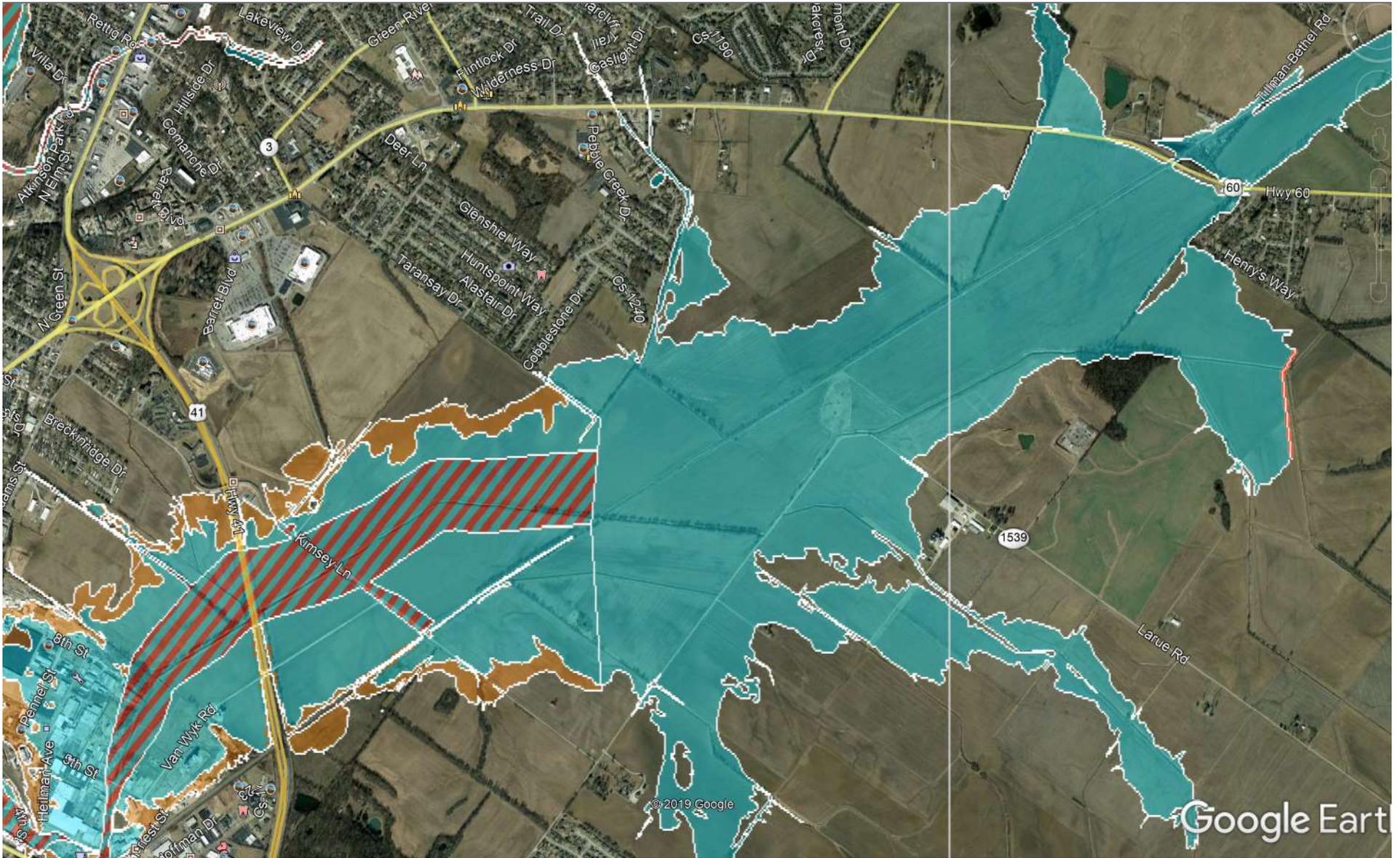
Agenda

- Project Improvements
- FEMA Model Update and Revisions
- Project Impact H&H
- US 41 Alignment Option

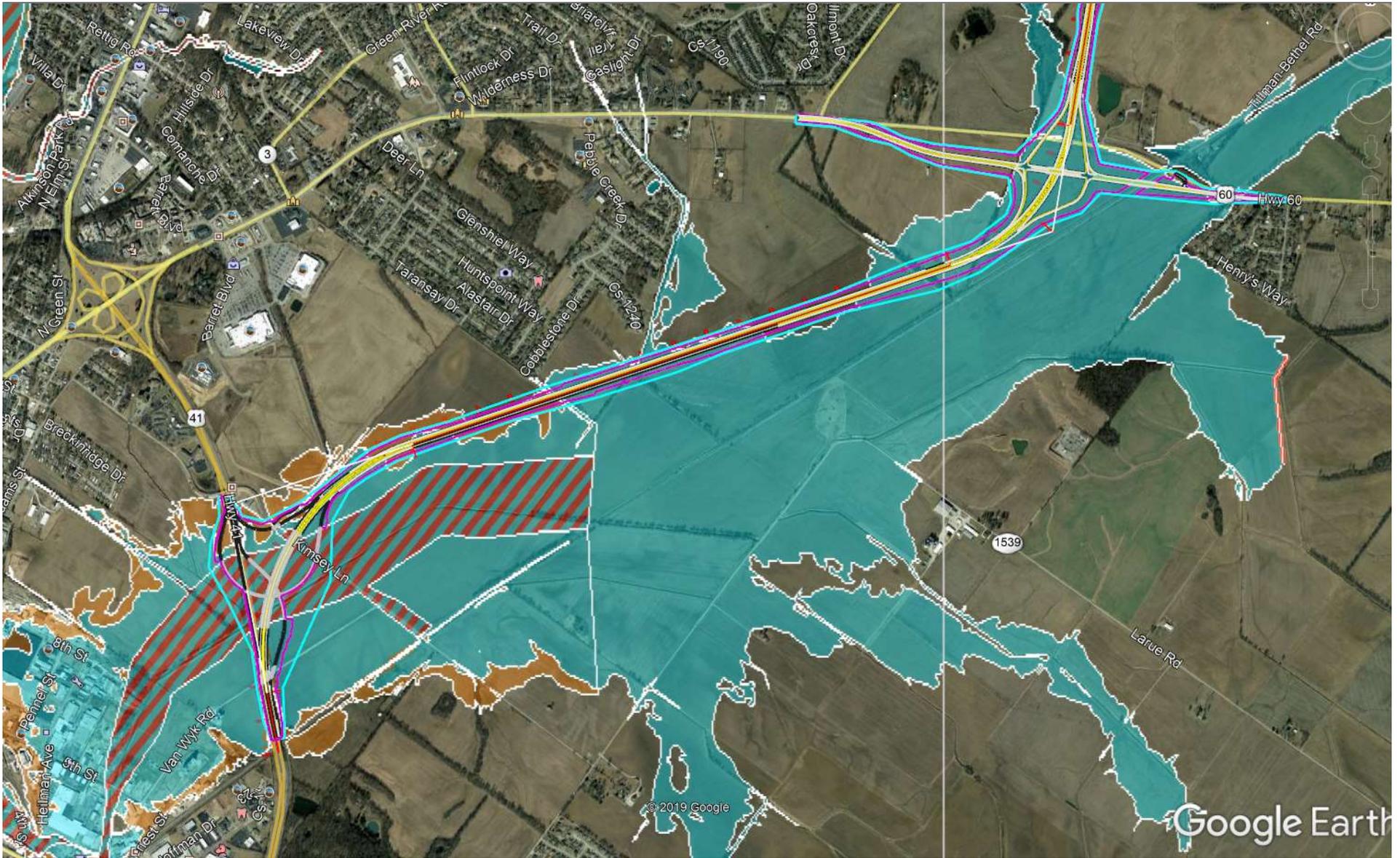
Project Improvements

- New interchange with US 60
- New interchange with US 41
- Approximately 2.5 miles of new I-69 roadway

Existing Site w/ Canoe Creek Floodplain



Proposed Roadway Alignment w/ Canoe Creek Floodplain



FEMA Model Update and Revisions

- Data Updates
- Model Results

FEMA Model Update

DATA Updates

- Hydrology Model revised to include project basin delineations in greater detail
- Hydraulic Model extended upstream to cover project area
- Field survey to pick up the existing roadway, culverts/bridges and channel sections at Kimsey Lane, US 41, CSX Railroad and North Fork Canoe Creek within the project limits.
- LiDAR Digital Elevation Model (DEM) Project specific and contour mapping obtained from point cloud data tiles for the Commonwealth of Kentucky.
- Modeling Parameters updated
 - Time of Concentration/ Flow lengths
 - Basin areas
 - Runoff Curve Numbers

FEMA Model Update

Results

- Updated survey implemented at US 41 show the existing bridge and highway no longer overtop
- Existing Q50 and Q100 WSELs are shown to be reduced from the Effective model

FEMA Model Update: HEC-HMS

Split Flow and Storage Revisions

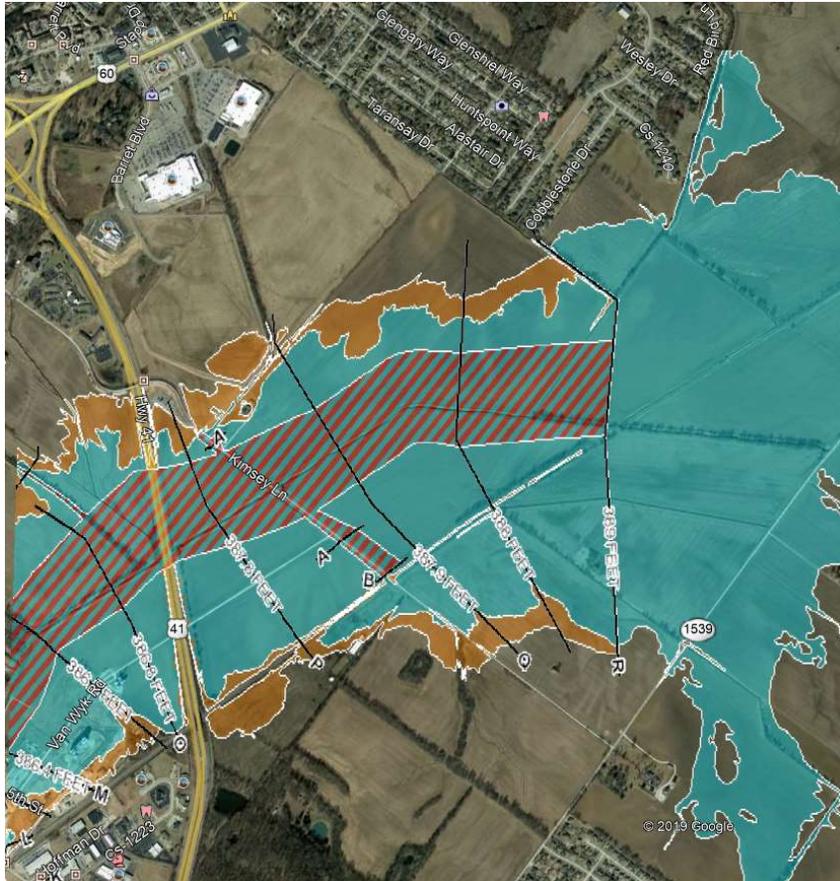
CORRECTED



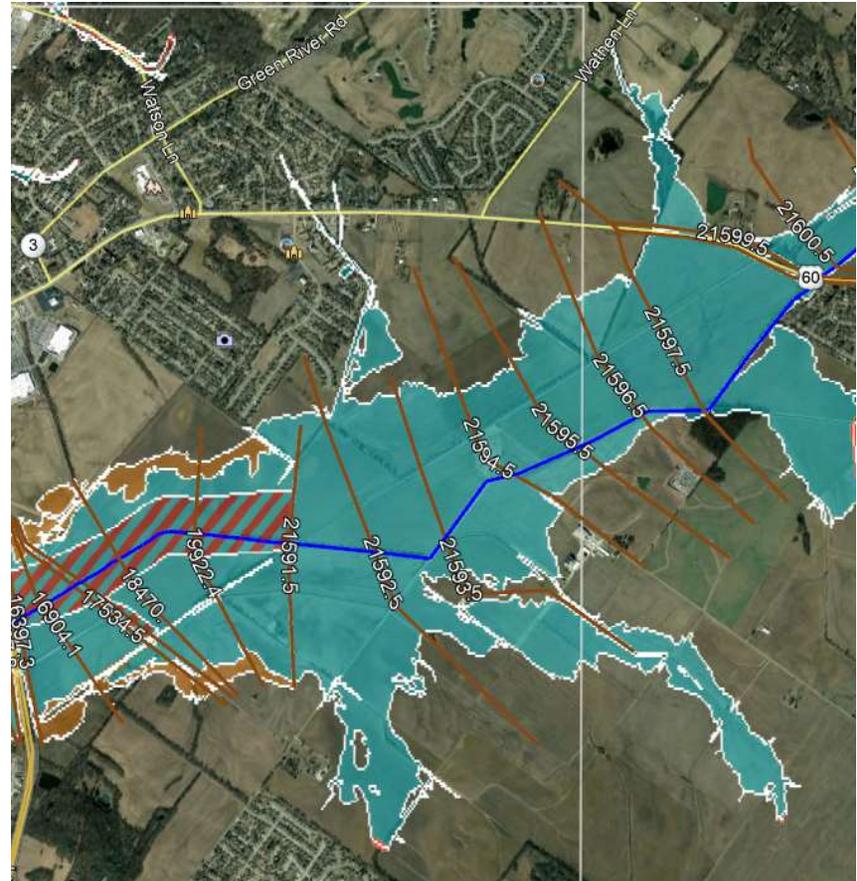
FEMA Model Update: HEC-RAS

Extension of Model

EFFECTIVE



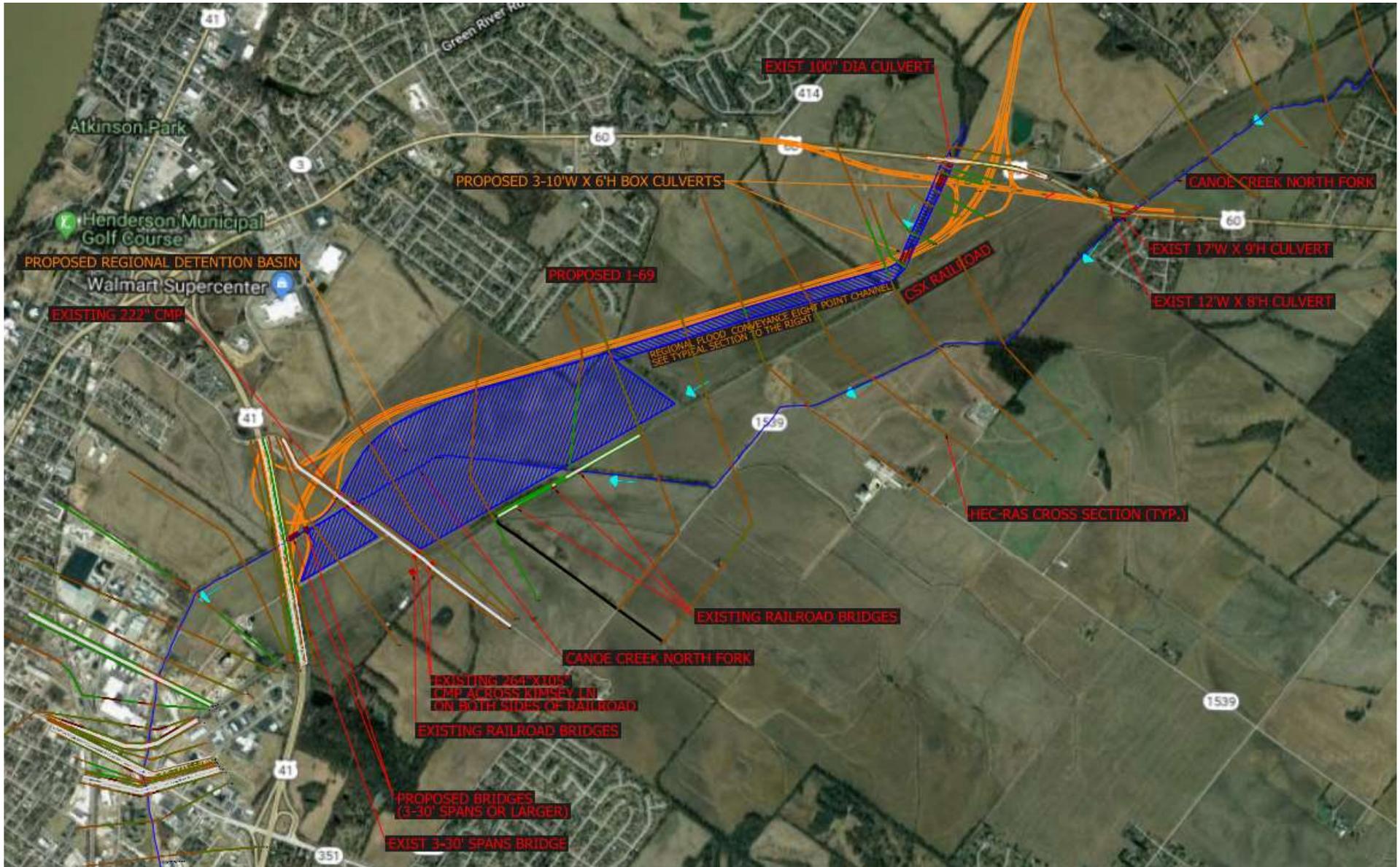
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FEMA Model Update: HEC-RAS

Update/Inclusion of Existing Structures

CORRECTED



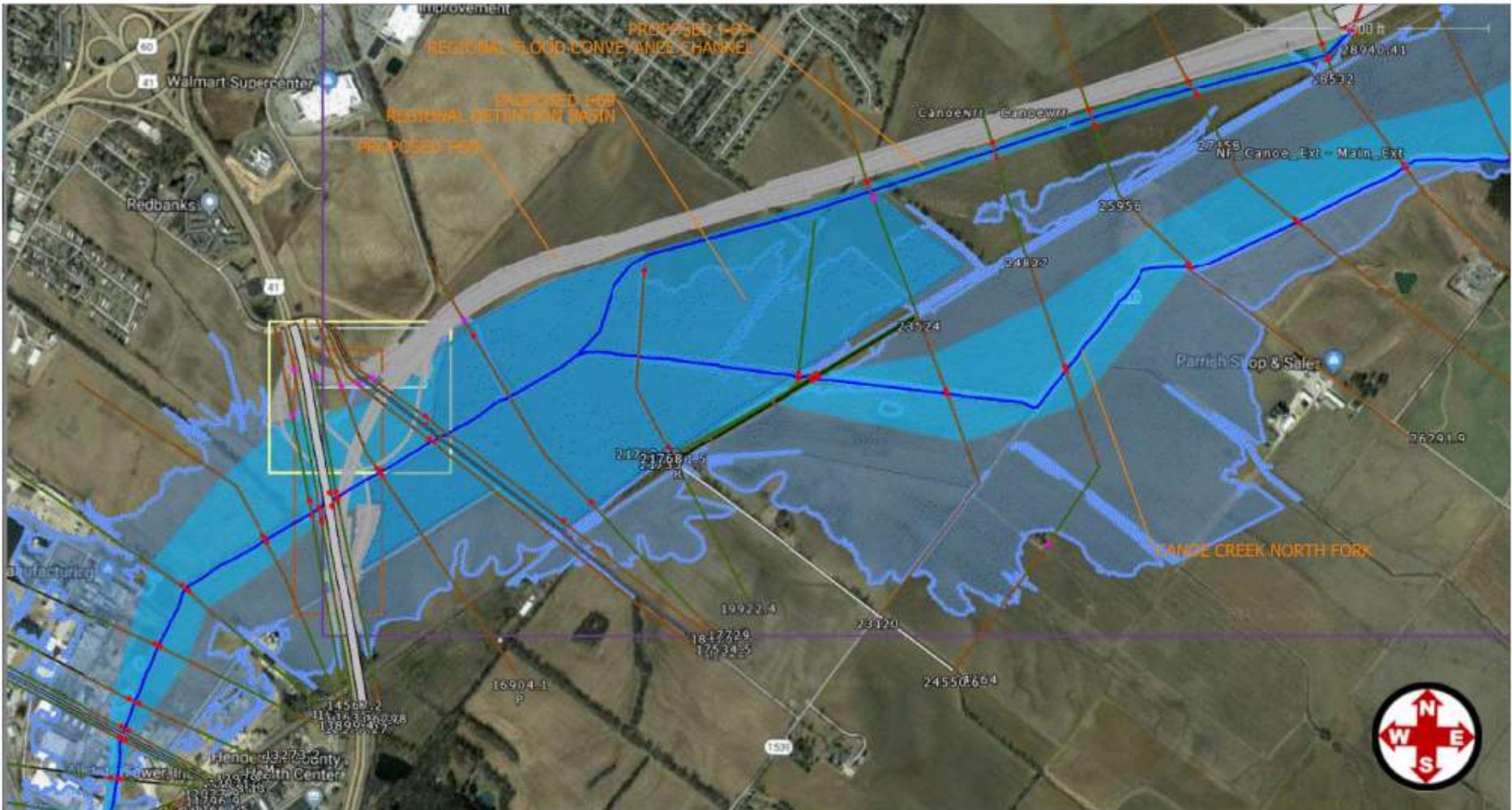
Project Impacts H&H

- Proposed Features Included in Proposed Models
- Results
- Current Revisions

Project Impacts H&H: HEC-RAS

Regional Channel & Basin

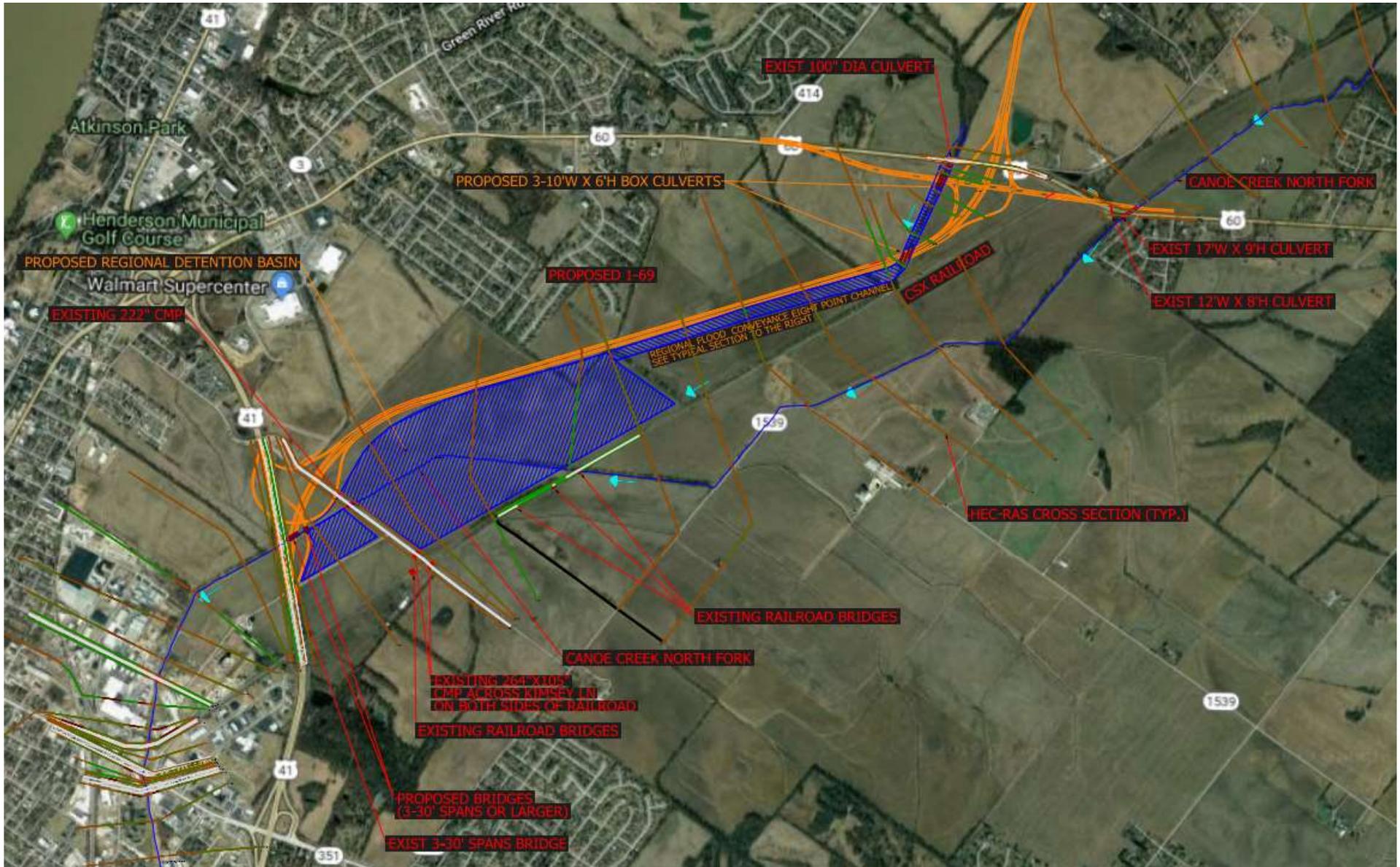
PROPOSED



FEMA Model Update: HEC-RAS

Additional Inclusions

PROPOSED

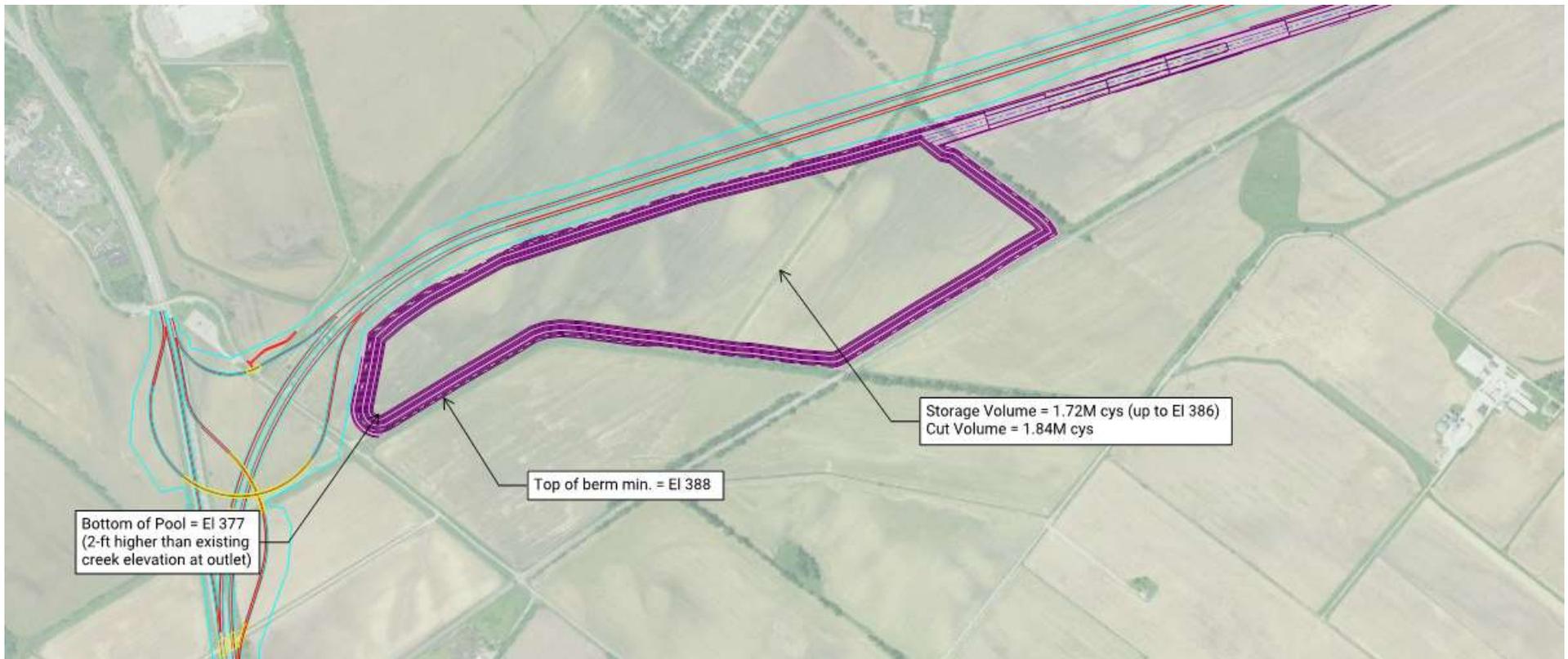


Current Revisions

Regional Channel & Basin

REV PROPOSED

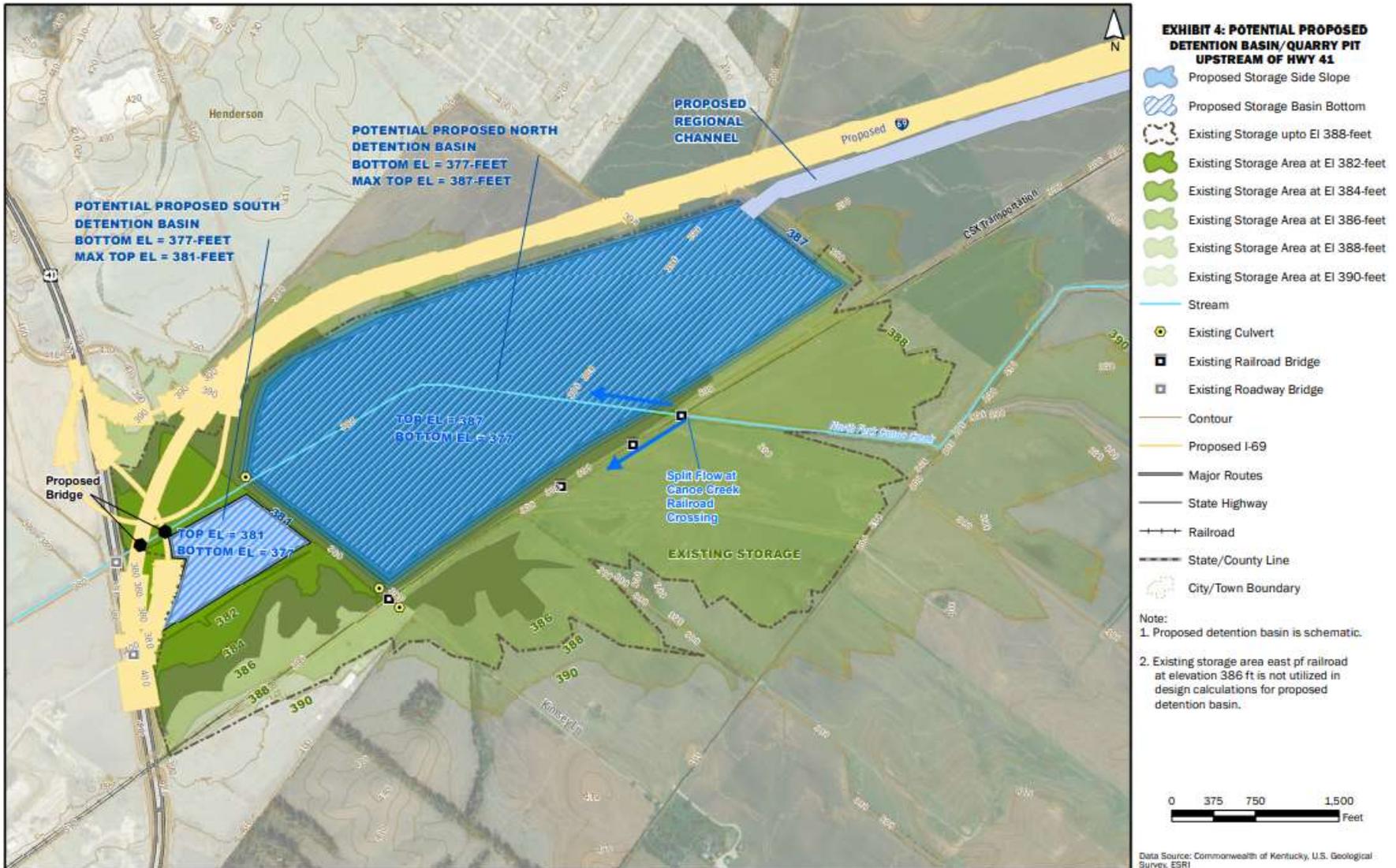
- Update: Modifying basin size
- Results: Attenuation of approximately 600 cfs during the Q100 peak WSEL decrease of approximately 1.5-ft
- Moving Forward: City of Henderson can modify the basin to further mitigate their flooding issues



Project Impacts H&H: HEC-HMS

Regional Channel & Basin

PROPOSED



Project Impacts H&H: HEC-RAS

Additional Inclusions

PROPOSED

- Proposed 3-10'x6' box culverts at
 - I-69 just south of US 60 and
 - US 60 just west of proposed I-69.
 - Kimsey Lane Option
- Proposed upstream and downstream channel improvements for the 3-10'x6' box culverts to improve tailwater conditions and to avoid adverse impact to the railroad.
- Proposed bridges for proposed I-69 and its ramps are to be at least the same size as the existing 3-30 ft span bridge across US 41.

US 41 Alignment Option

- Service Interchange
- Bike Route Options

US 41 Alignment Option

Service Interchange

PROPOSED

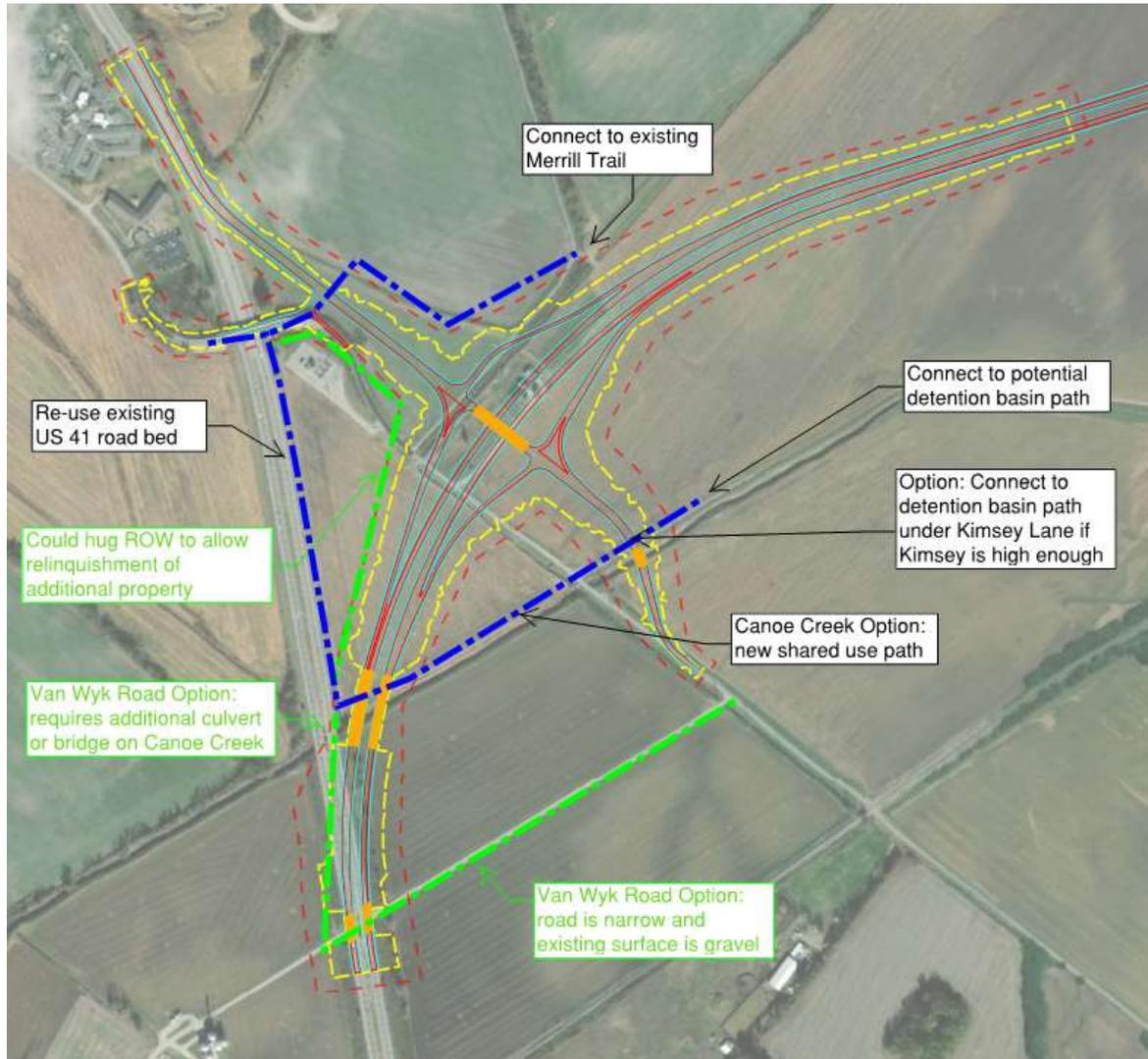


- Edge of Roadway
- Edge of Shoulder
- Bridge Deck
- Construction Limits
- - - Right-of-Way

US 41 Alignment Option

Bike Route Options

PROPOSED



- Edge of Roadway
- Edge of Shoulder
- Bridge Deck
- - - Construction Limits
- - - Right-of-Way