



# Public Information Meeting

## Willow Brook Flood Mitigation Study



Town of East Hartford, Connecticut | July 15, 2015

# Project Partners



Department of  
**ENERGY & ENVIRONMENTAL PROTECTION**

*State of Connecticut Funding Provided for Capital Improvements for Flood and Erosion Control, Administered by the Connecticut Department of Energy and Environmental Protection.*



**Town of East Hartford**



**MILONE & MACBROOM**

# Purpose of Tonight's Meeting

- Provide an Update on the Willow Brook Flood Mitigation Study Area
- Recap and Summarize our Data Collection Efforts
- Present Initial Alternatives Analysis & Preliminary Findings
- Answer Any Questions



# Previously Identified Concerns and Issues

- High percentage of development and impervious cover in the watershed
- Flat ground adjacent to Willow Brook – wide shallow floodplain
- Property owners in SFHA must carry flood insurance
- Actual flood conditions appear to be inconsistent with flooding predicted by FEMA FIRM mapping

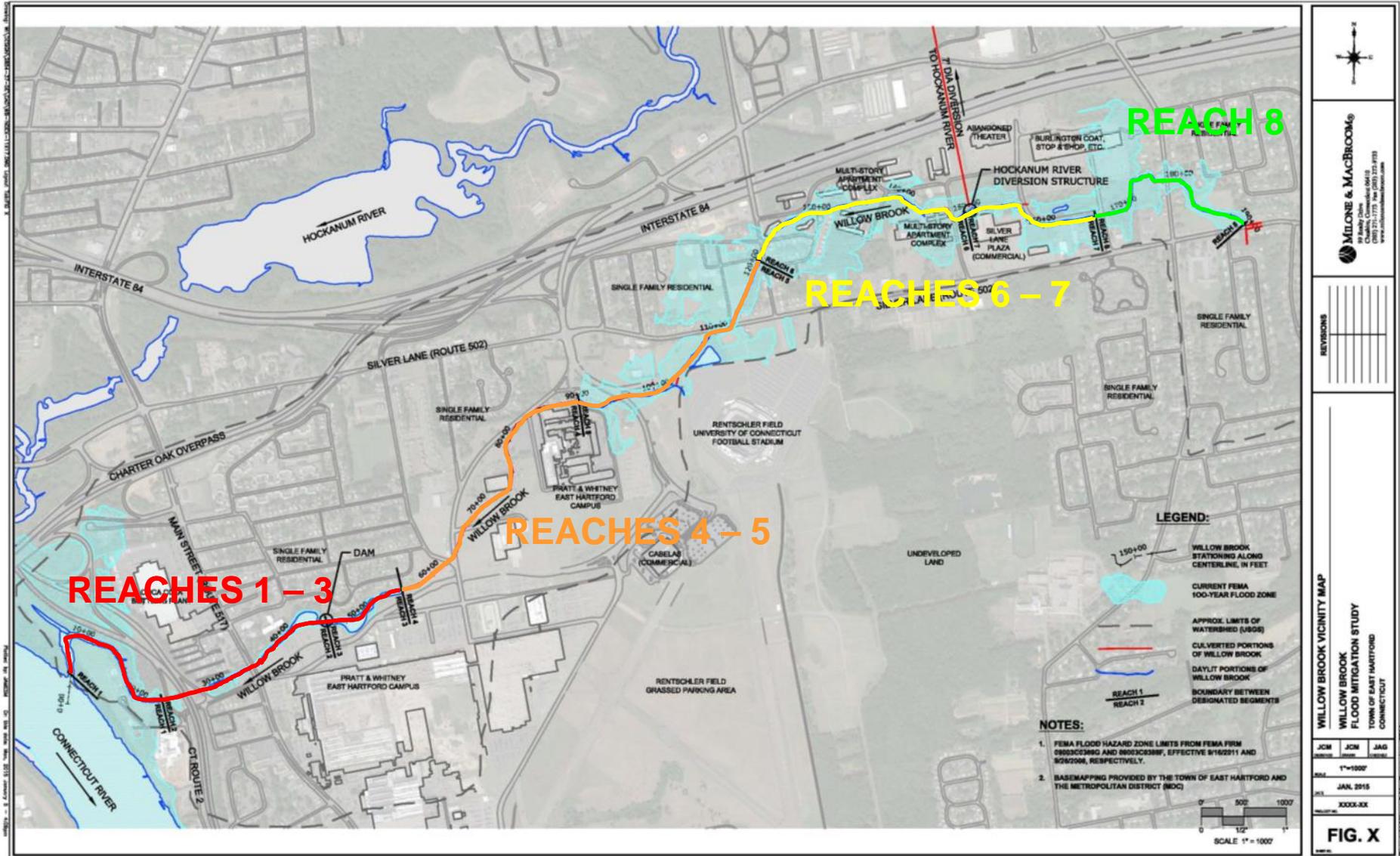


# Project Goals

- Assess Willow Brook and its Contributing Watershed
- Identify Existing Riverine Flooding Issues & Deficiencies
- Identify and Evaluate Potential Solutions to Flooding
- Develop a Master Plan of Improvements
- Minimize Number of Land Owners Subject to Flooding and Flood Insurance



# Willow Brook Project Study Corridor



# Review of Work Completed to Date

1. Data Collection
2. Hydrologic Assessment
3. Hydraulic Assessment
4. Alternatives Analysis

# Data Collection Efforts

- Bridge & Culvert Inventory – Many changes from the original FEMA analysis were identified
- Stormwater Outfall Inventory
- Watershed Composition - Land Use, Geology, Natural Resources
- Topographic Survey
- Field Assessment of Watershed and Stream Corridor, Geomorphic Assessment
- CCTV Survey
- Flood Events and Rainfall History



# Significant Structures

## Pratt & Whitney Conduit



# Significant Structures

## Hockanum River Diversion Structure

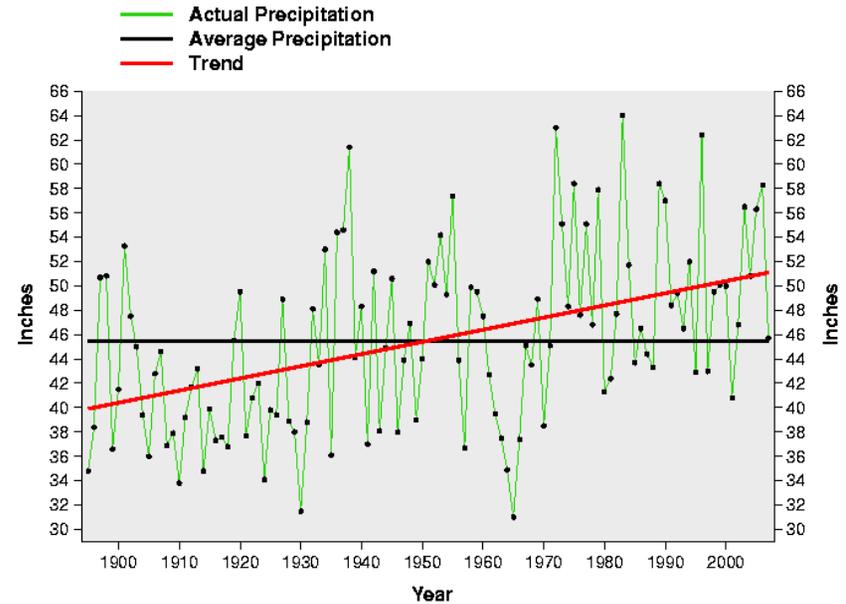


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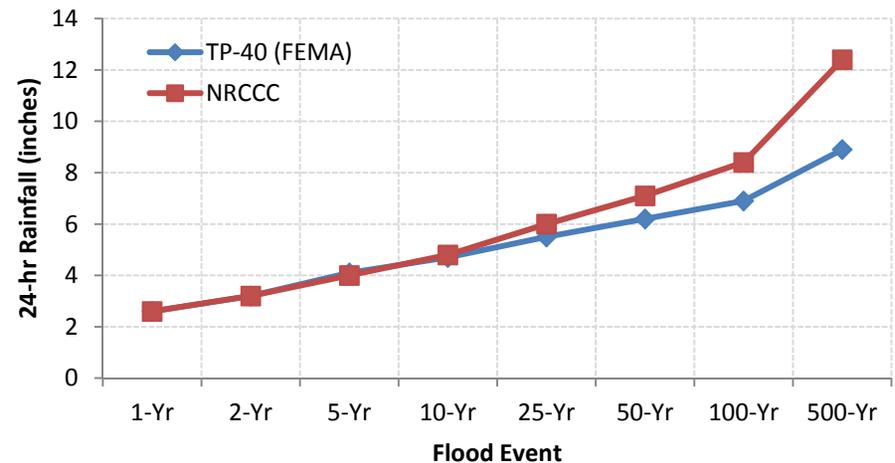
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# Hydrologic Assessment

- Differences Between FEMA Data and Present Day Rainfall Data
- Changes in Rainfall Volume and Intensity
- Changes in Land Use

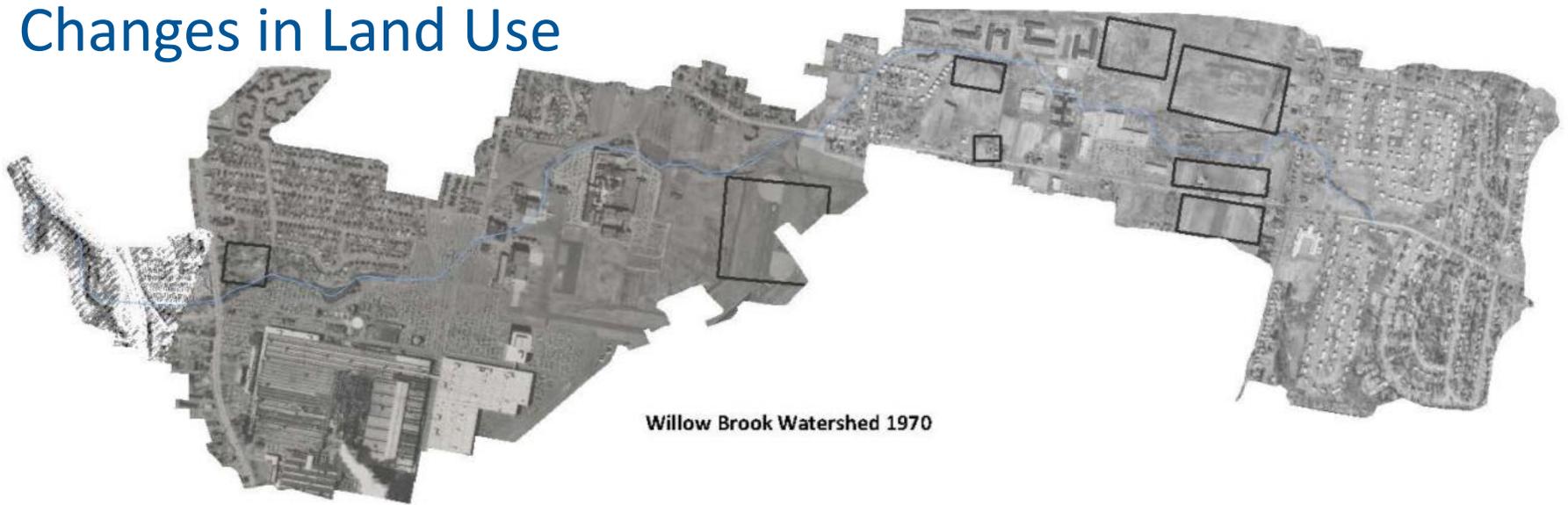


Source: NOAA, National Climatological Data Center



# Hydrologic Assessment

## Changes in Land Use



Willow Brook Watershed 1970



Willow Brook Watershed 2012

# Hydrologic Assessment

- Reduced contributing watershed area based on updated/refined basin data and survey
- Increases in extreme precipitation rainfall, volume and intensity
- Increased runoff from watershed as impervious area has increased
- Changed hydraulics as a result of detailed assessment of Hockanum River Diversion Structure
- Some effects partially counteract, but the current analysis shows an overall increase in stream flows

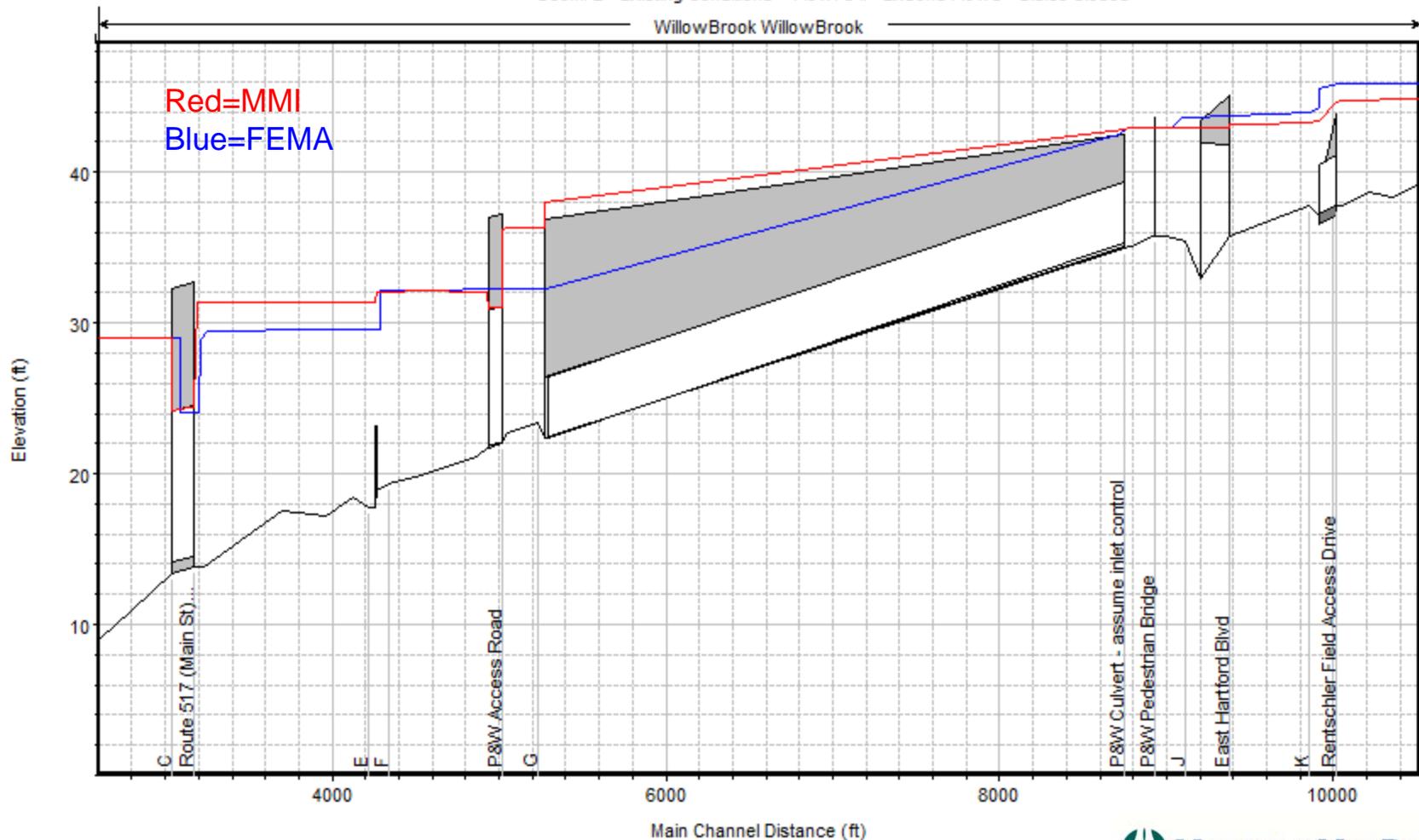
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# Hydraulic Assessment

## Assessment of Floodplain compared with FEMA

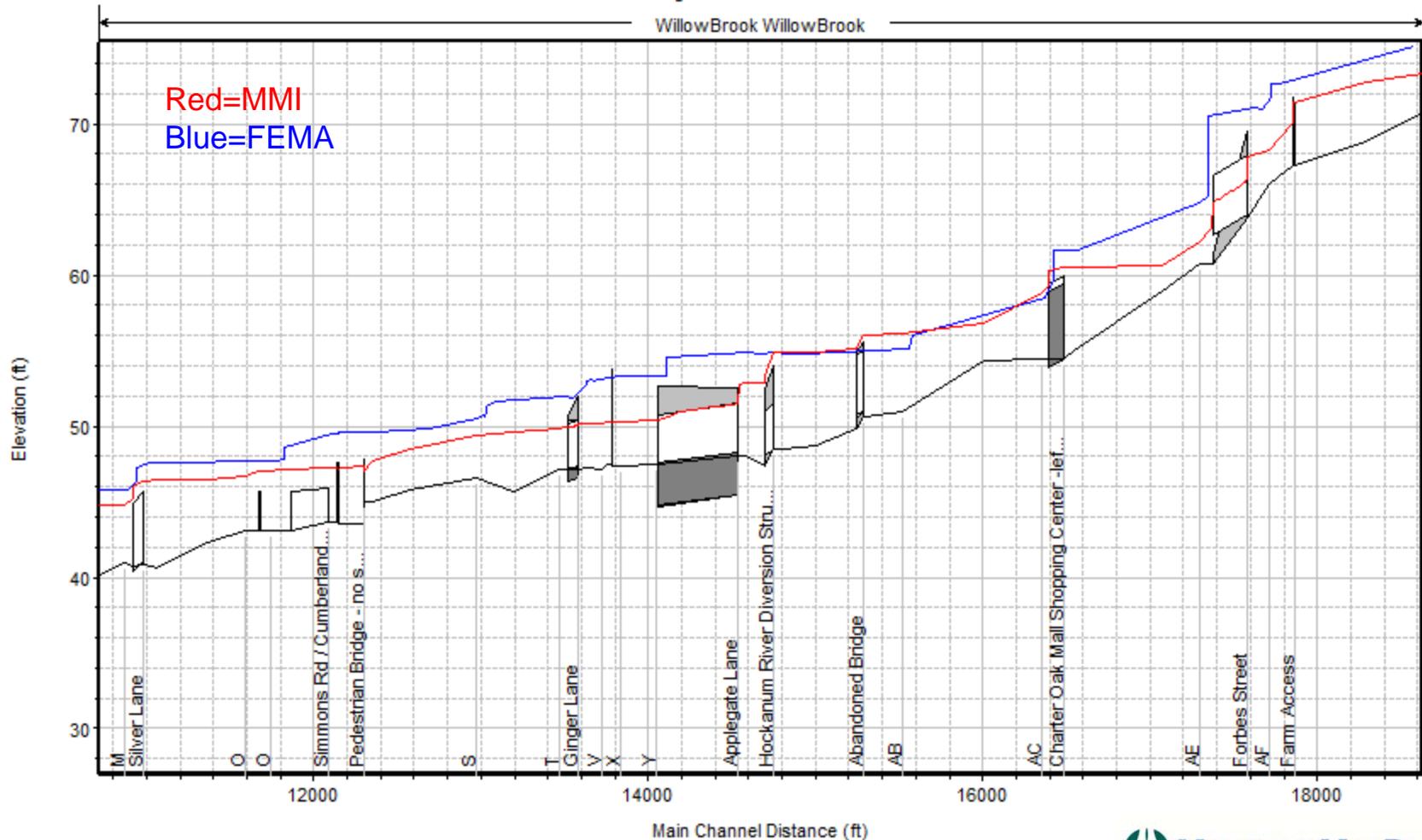
WillowBrook Plan: 1) 1ai - FEMA Dup 5/12/2015 2:56:16 PM 2) 2bii - EC-DIV 6/22/2015 11:18:47 AM  
Geom: 2 - Existing Conditions Flow: b ii - ExCond Flows - Sluice Closed



# Hydraulic Assessment

## Assessment of Floodplain compared with FEMA

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# Alternatives

- Updated Floodplain Analysis (FEMA LOMR/PMR)
- Sediment and Debris Management
- Potential Improvements at Individual Structures
  - Elevate, Relocate, Flood-proof, Levee, Acquisitions
- Evaluate Possibility of Strategic Acquisition of Flood Prone Properties
- Localized Mitigation Alternatives
  - Area 1 – Simmons Road Residential Area
  - Area 2 – Applegate Lane
  - Area 3 – Silver Lane Plaza
  - Area 4 – Charter Oak Shopping Mall
  - Area 5 – Upstream of Forbes Street

# Updated Floodplain Analysis





# Alternatives

## Area 1 – Simmons Road Residential Area



# Alternatives

## Area 2 – Applegate Lane



# Alternatives

## Area 3 – Silver Lane Plaza



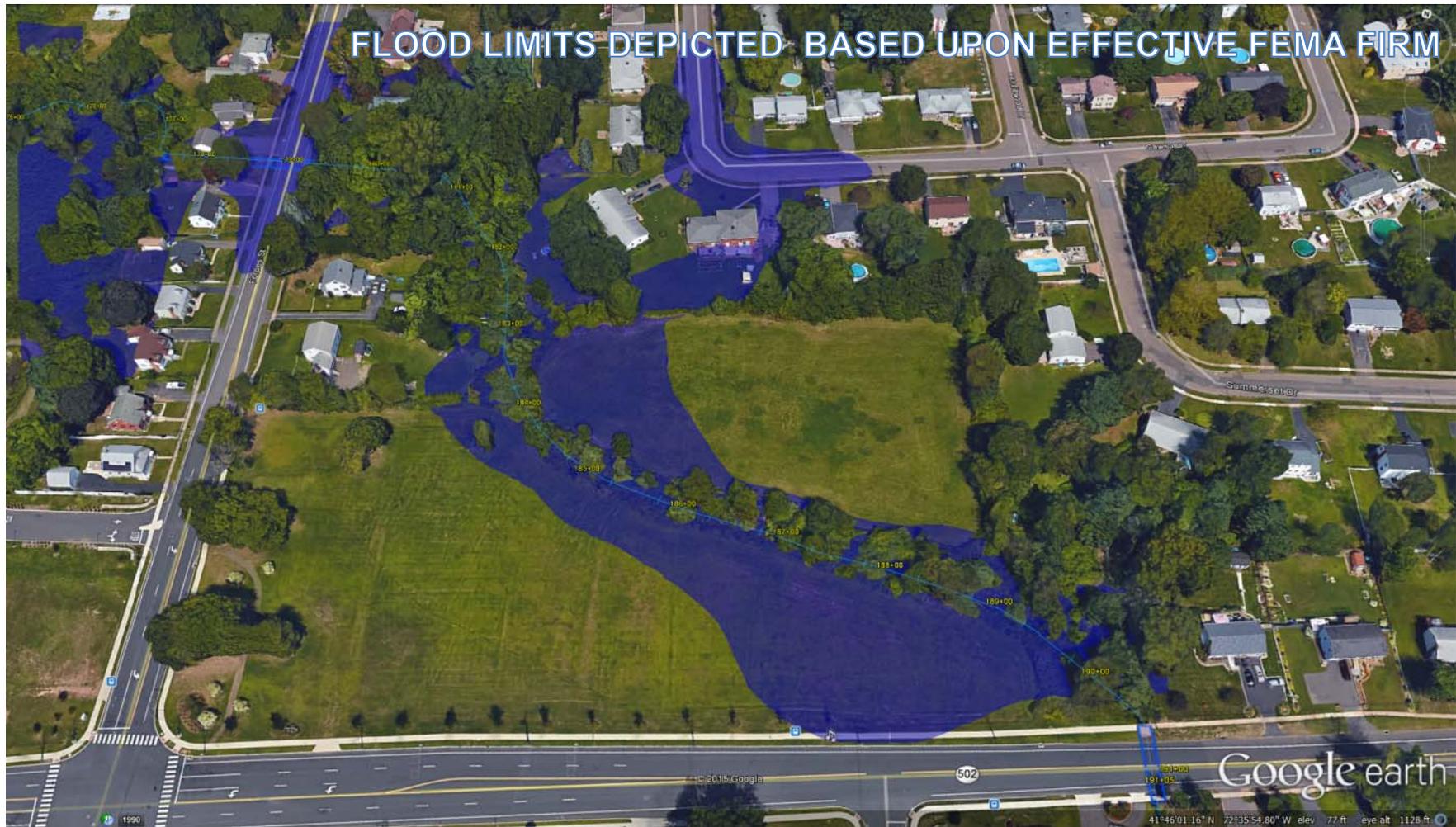
# Alternatives

## Area 4 – Charter Oak Shopping Mall



# Alternatives

## Area 5 – Upstream of Forbes Street



# Next Steps

- Further Develop Alternatives
- Develop Modified Floodplain Mapping based upon Various Alternatives
- Conduct Benefit / Cost Analysis on the Various Alternatives
- Evaluate Potential Funding Sources for Alternatives
- Evaluate if LOMR Application Should Be Submitted to FEMA for Review (optional)
- Finalize Master Plan

# Questions, Comments, Thoughts, Input

