

# MAPLE RIDGE DRAINAGE

September 16, 2011

# Introductions

Janis Bobrin – Washtenaw County Water Resources Commissioner

Craig Hupy, P.E. – Field Operations Manager

Cresson Slotten, P.E. – Systems Planning Manager

Jennifer Lawson, CSM – Water Quality Manager

Abigail Elias – Chief Assistant City Attorney

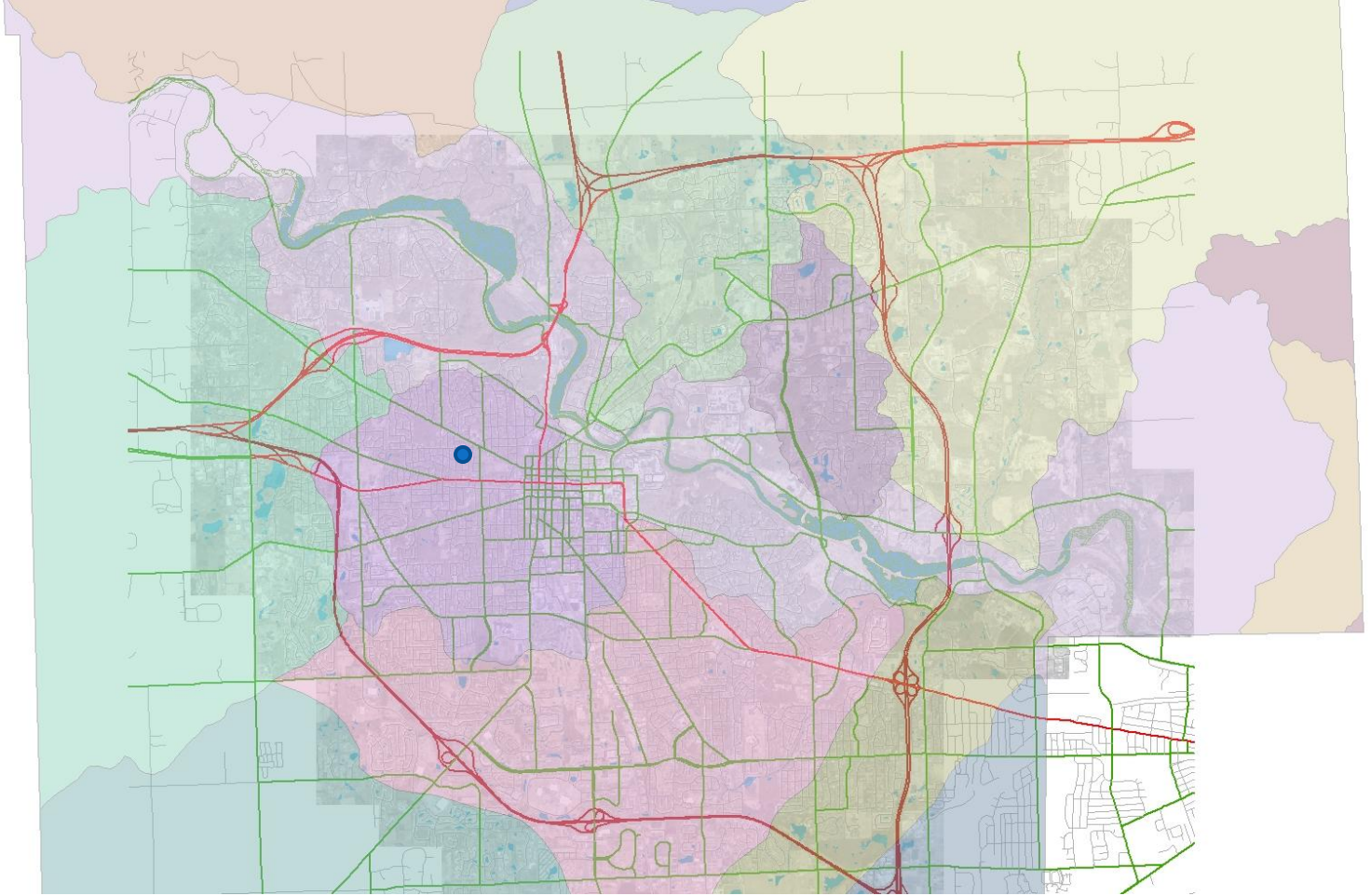
# Overview

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- Summary of City Understanding
- Area Maps
- System Background (including FEMA Maps)
- West Park Project Timeline
- Rainfall Data
- Recent Actions by City and County
- Options, Limitations & Brainstorming

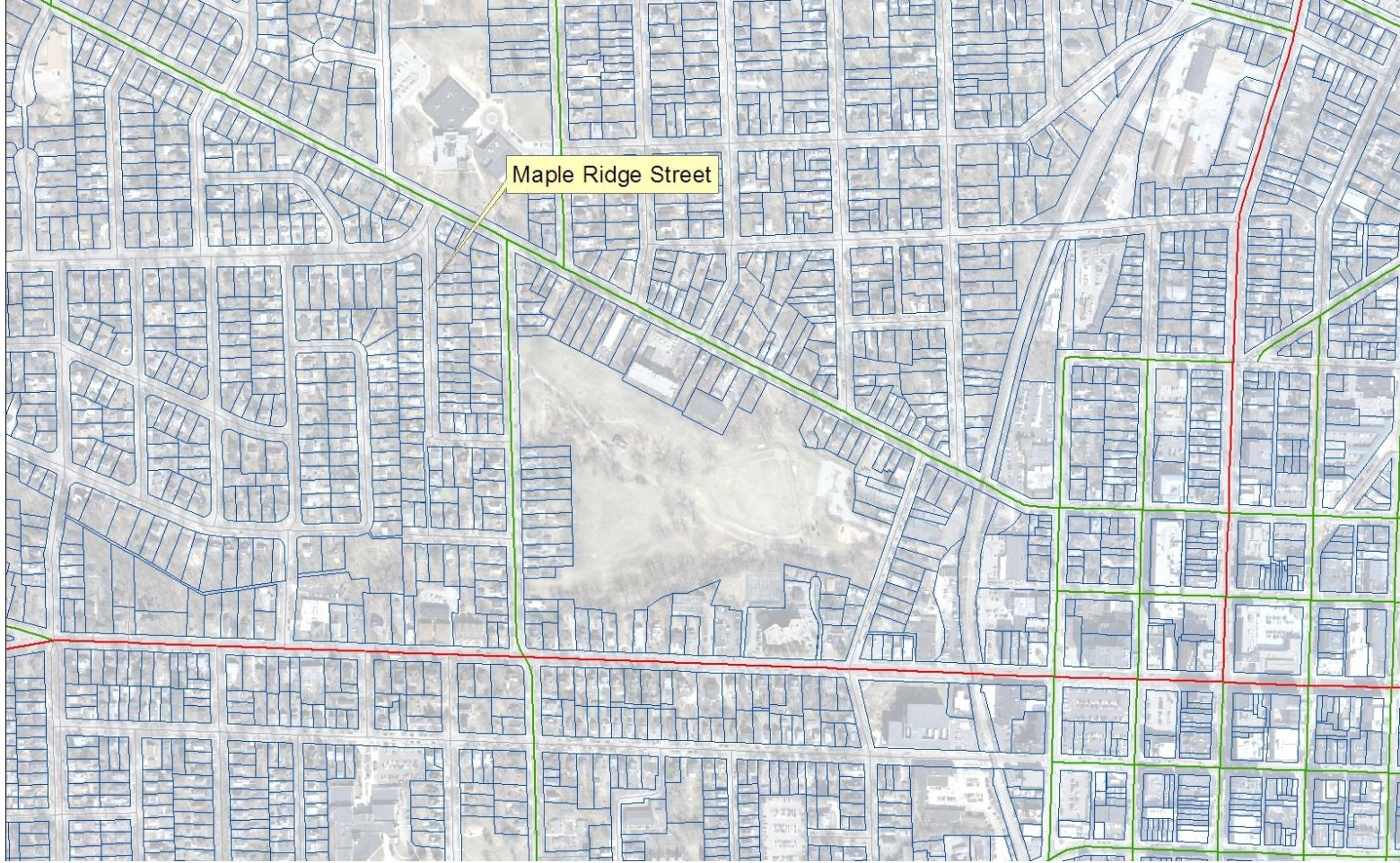
# Summary of City Understanding

- Flooding complaints in the vicinity of Maple Ridge St. and Arborview Blvd.
- Intense rain events produce backwater conditions and flood the streets
- City and County investigations have demonstrated that options are limited due to floodplain and floodway conditions

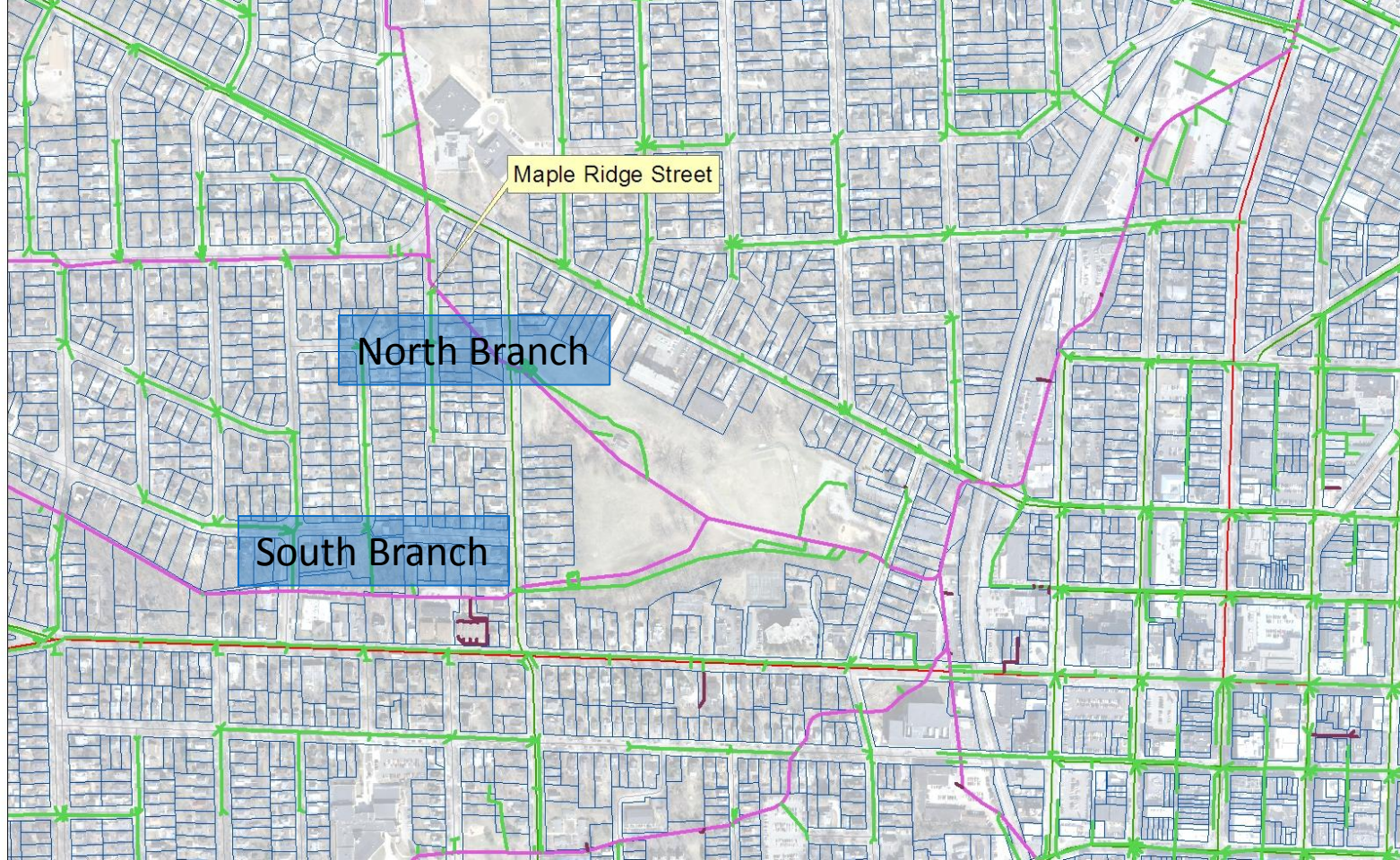


## Site Map

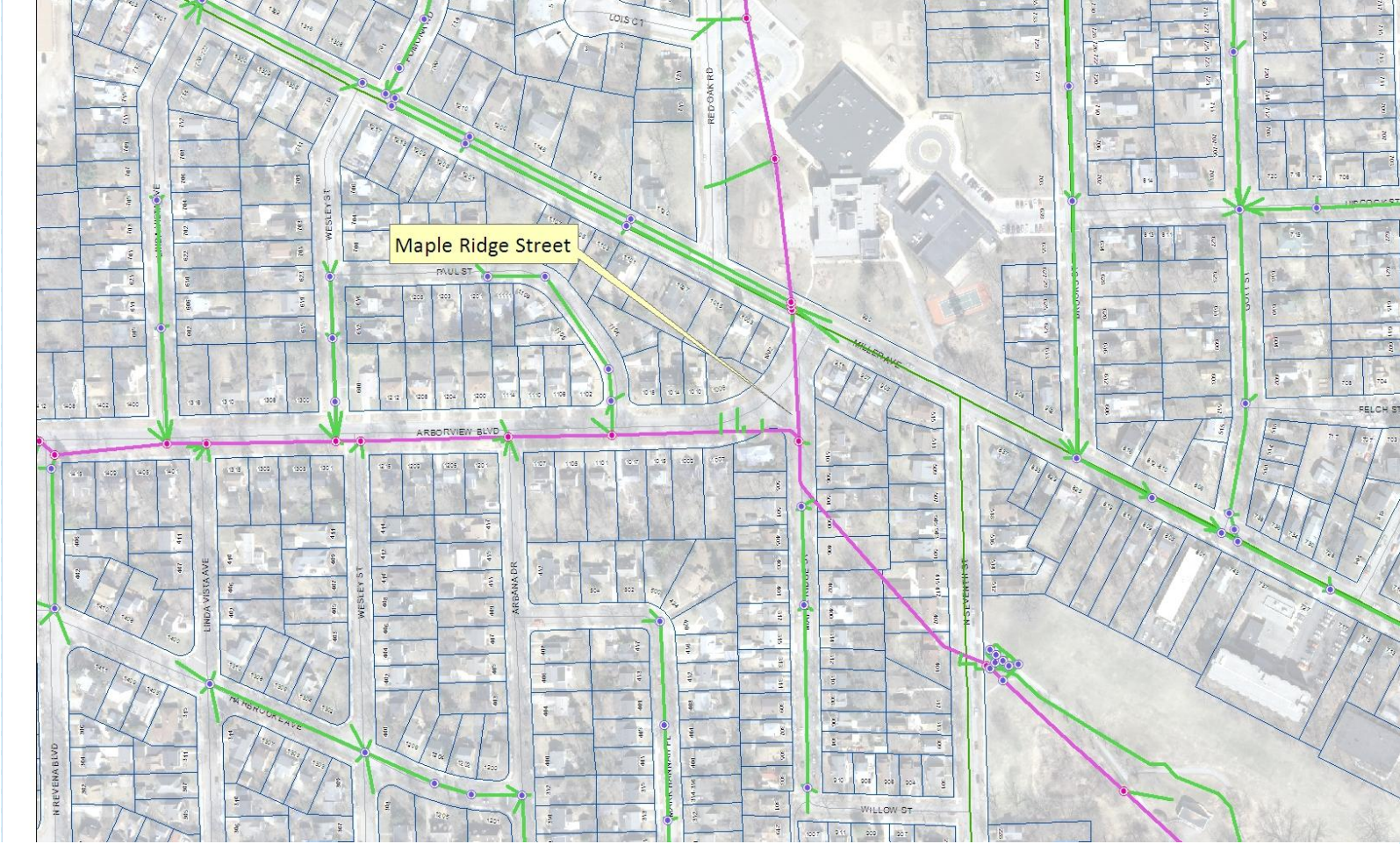
501 Maple Ridge location



## Site Overview

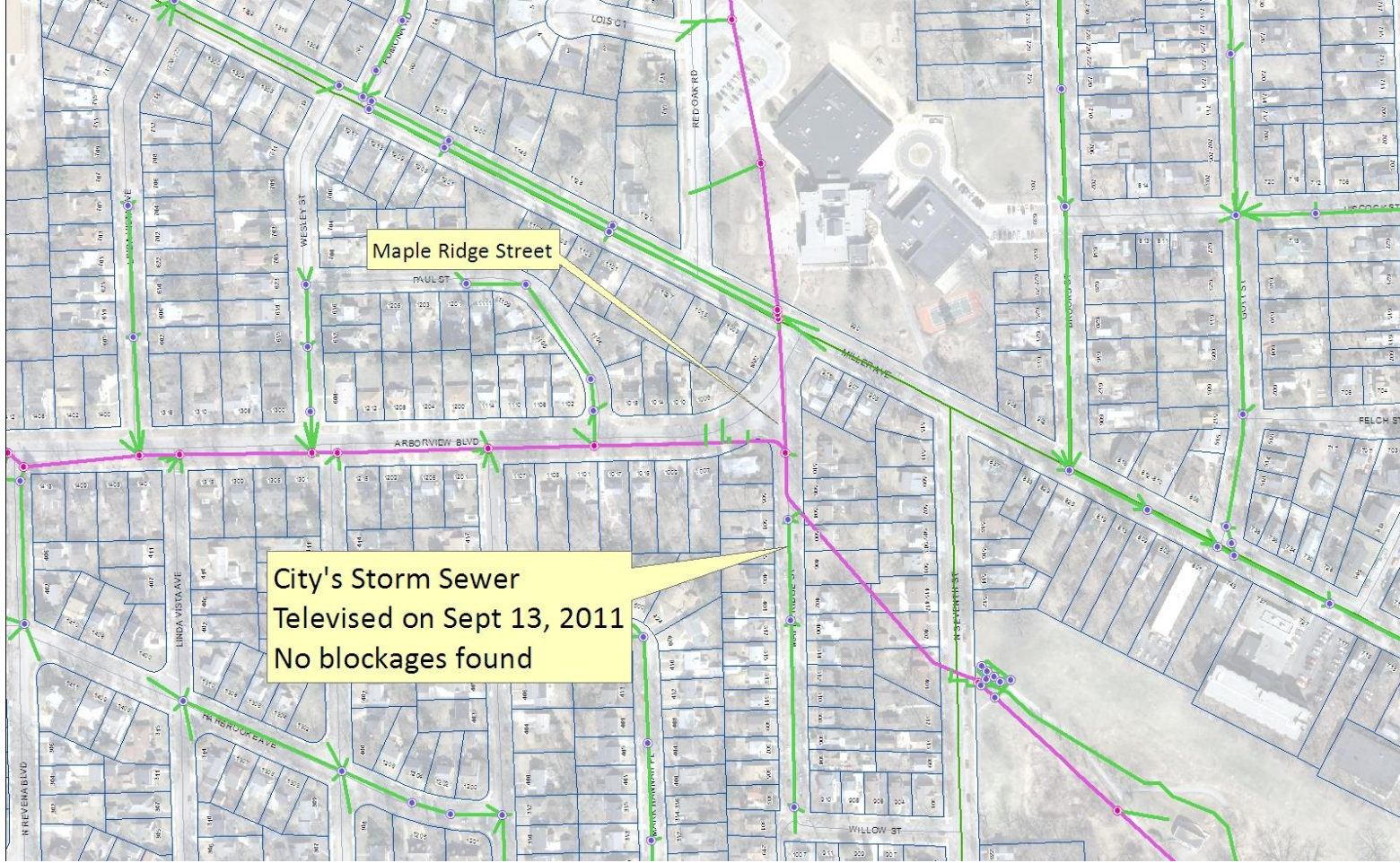


## City and County Storm Sewer Network

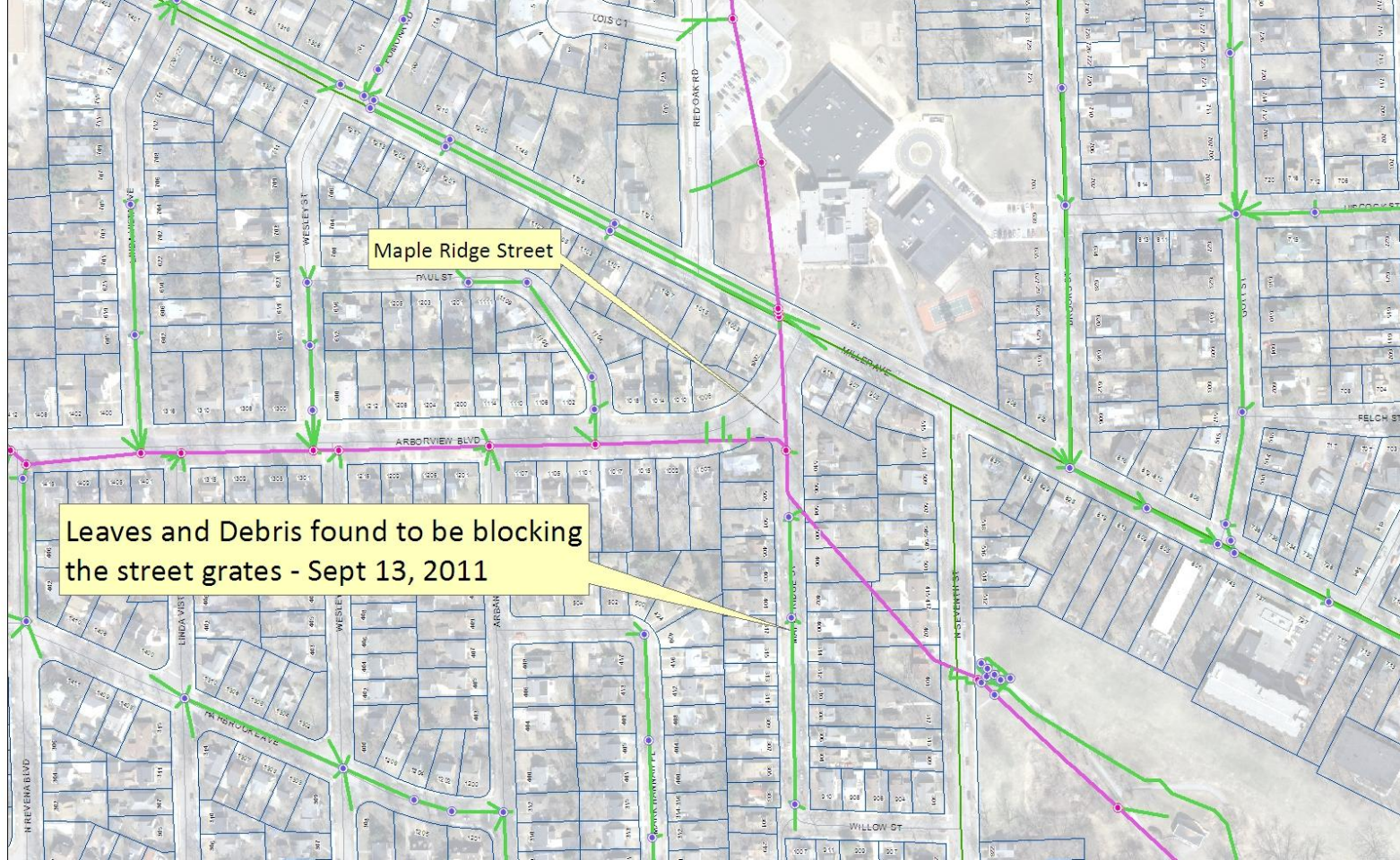


# Site Overview – Neighborhood Scale





## City Investigations



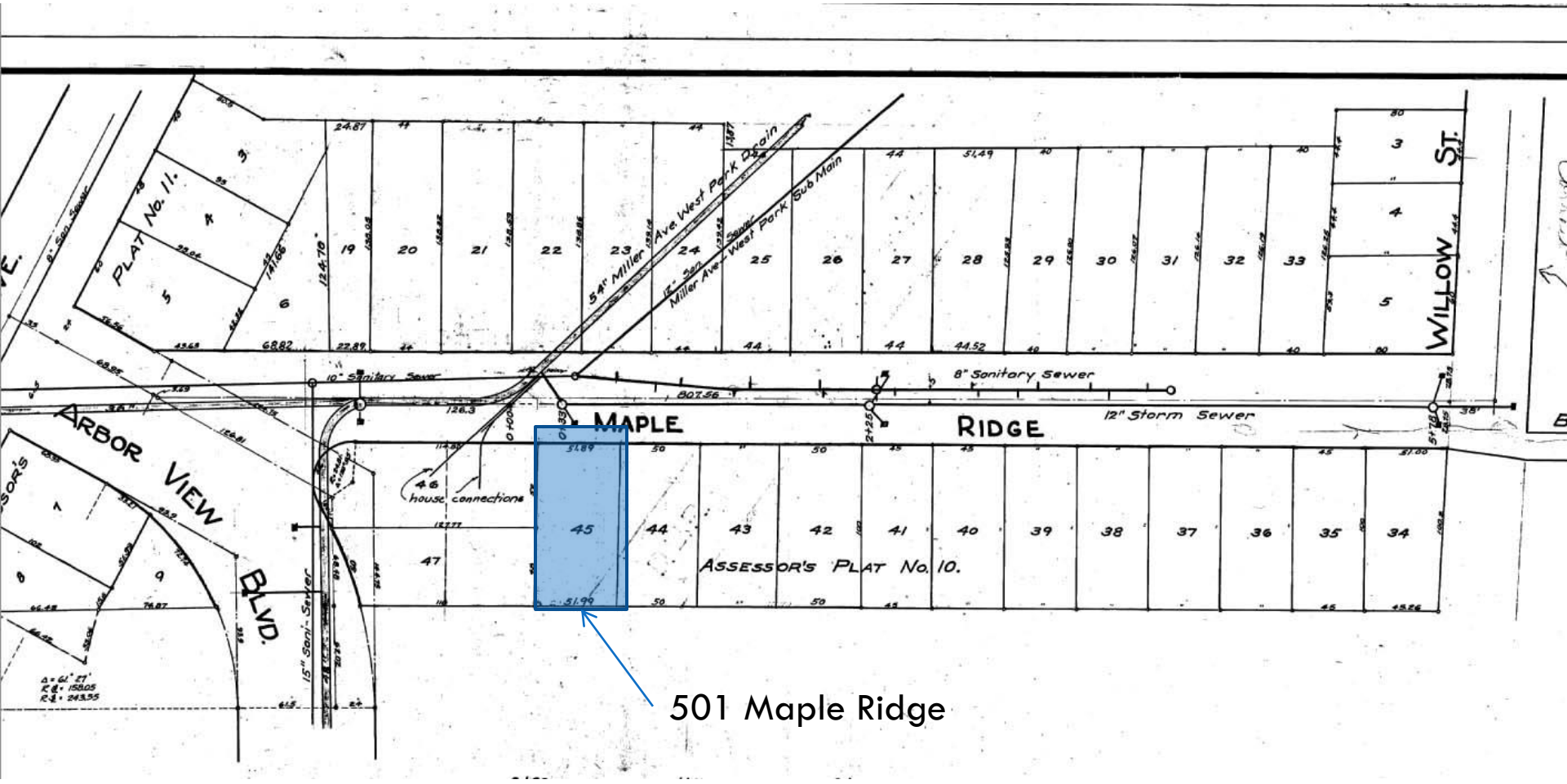
## Found Issues – Resident Opportunity

General Day-to-Day Maintenance – Residents can help by keeping the storm drains cleared to allow flow.



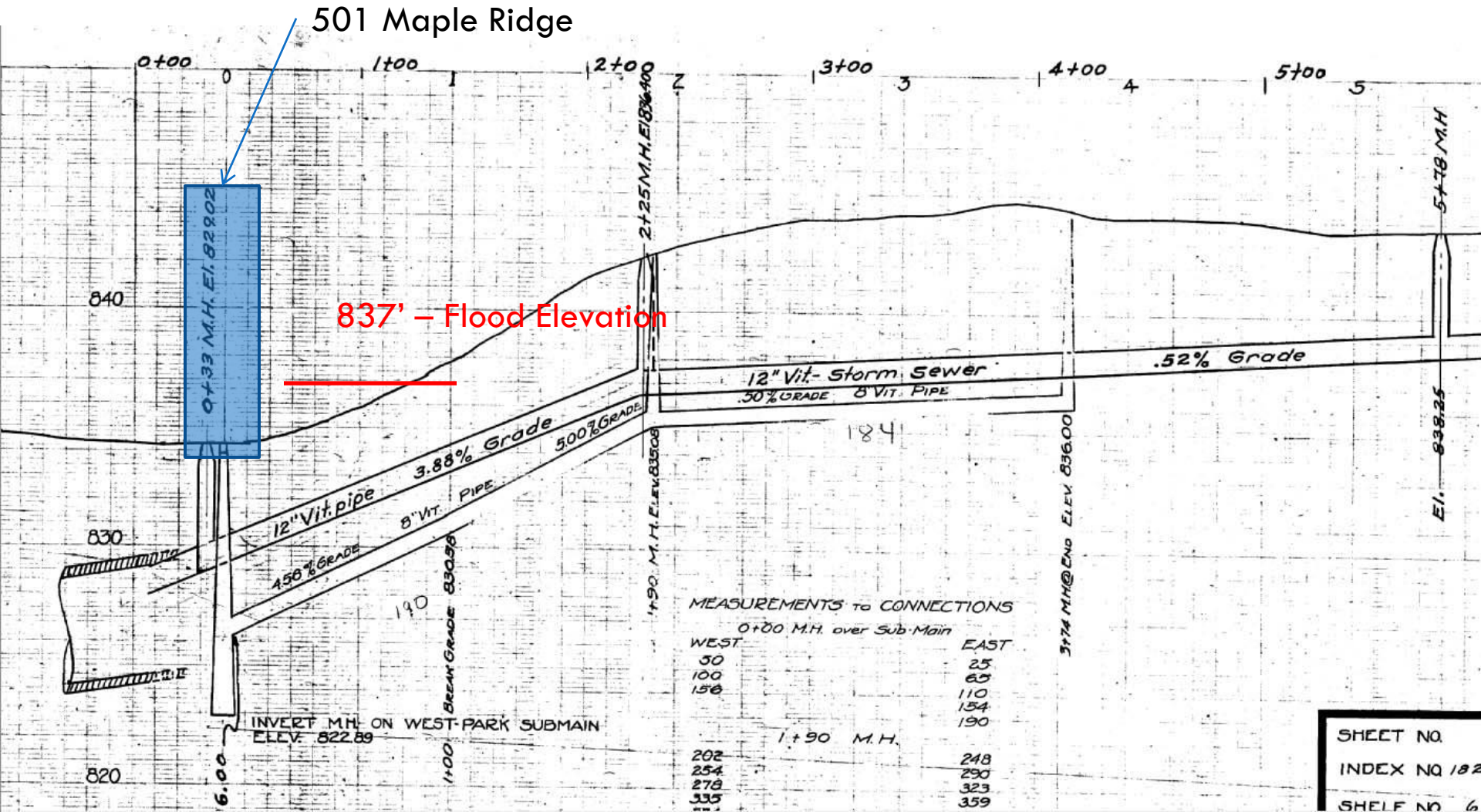
## County Investigations

# Plan of Storm Sewer Network



501 Maple Ridge

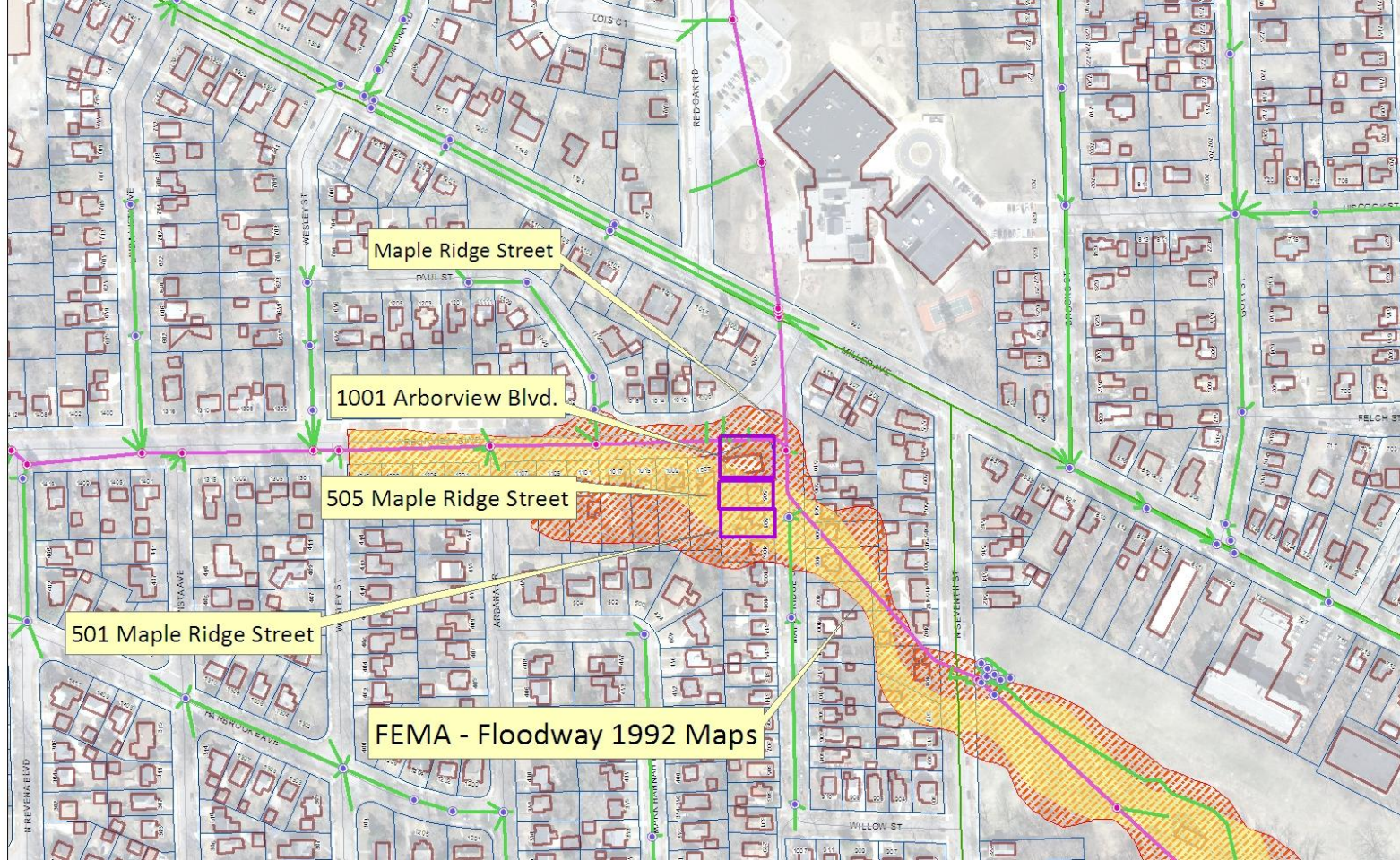
# Profiles of Storm Sewer Network





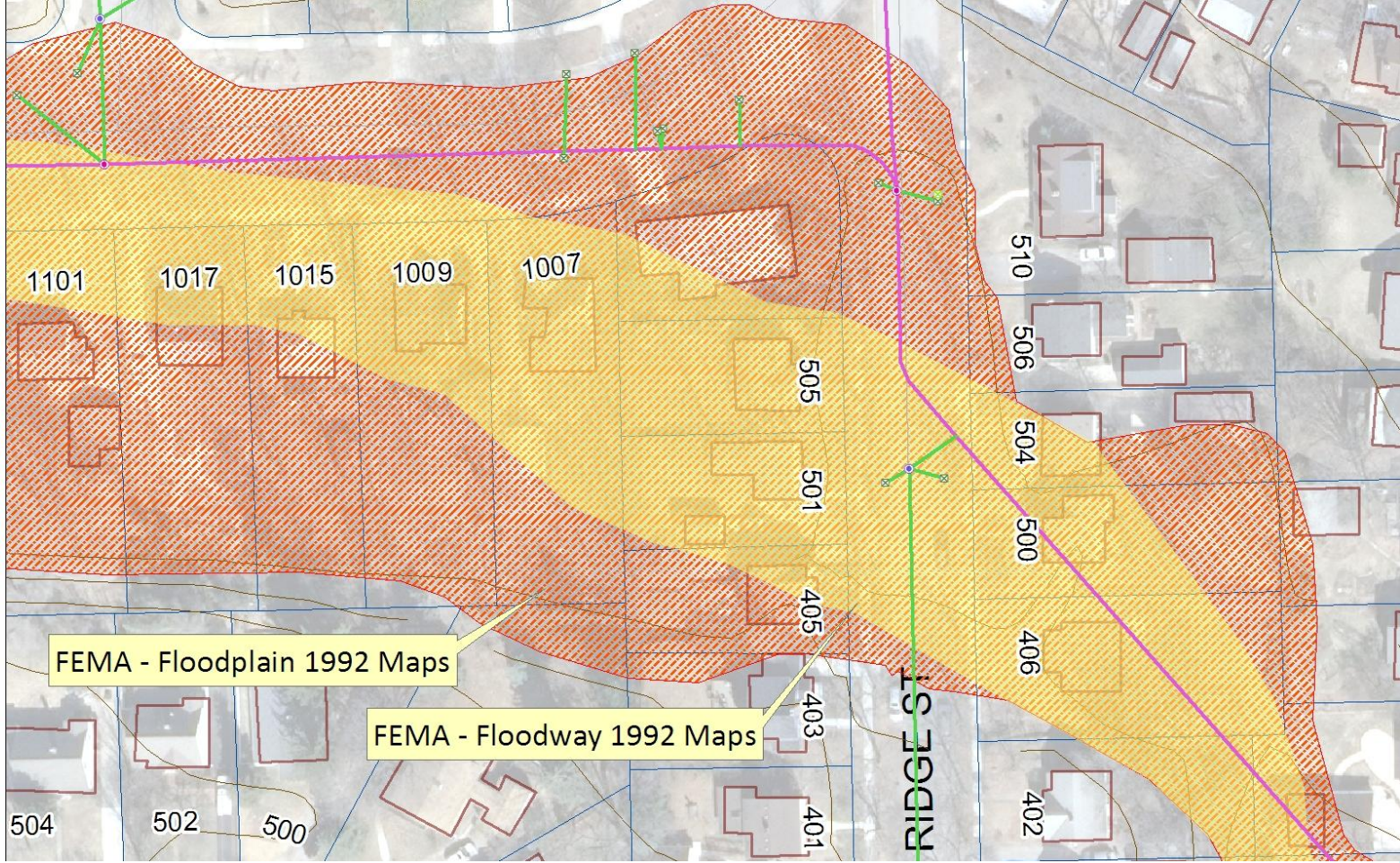
## Floodway Map Designation

FEMA definition: A “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.



## Floodplain

FEMA definition: (Special Flood Hazard Area) SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.



FEMA - Floodplain 1992 Maps

FEMA - Floodway 1992 Maps

RIDGE ST



# Floodplain Considerations

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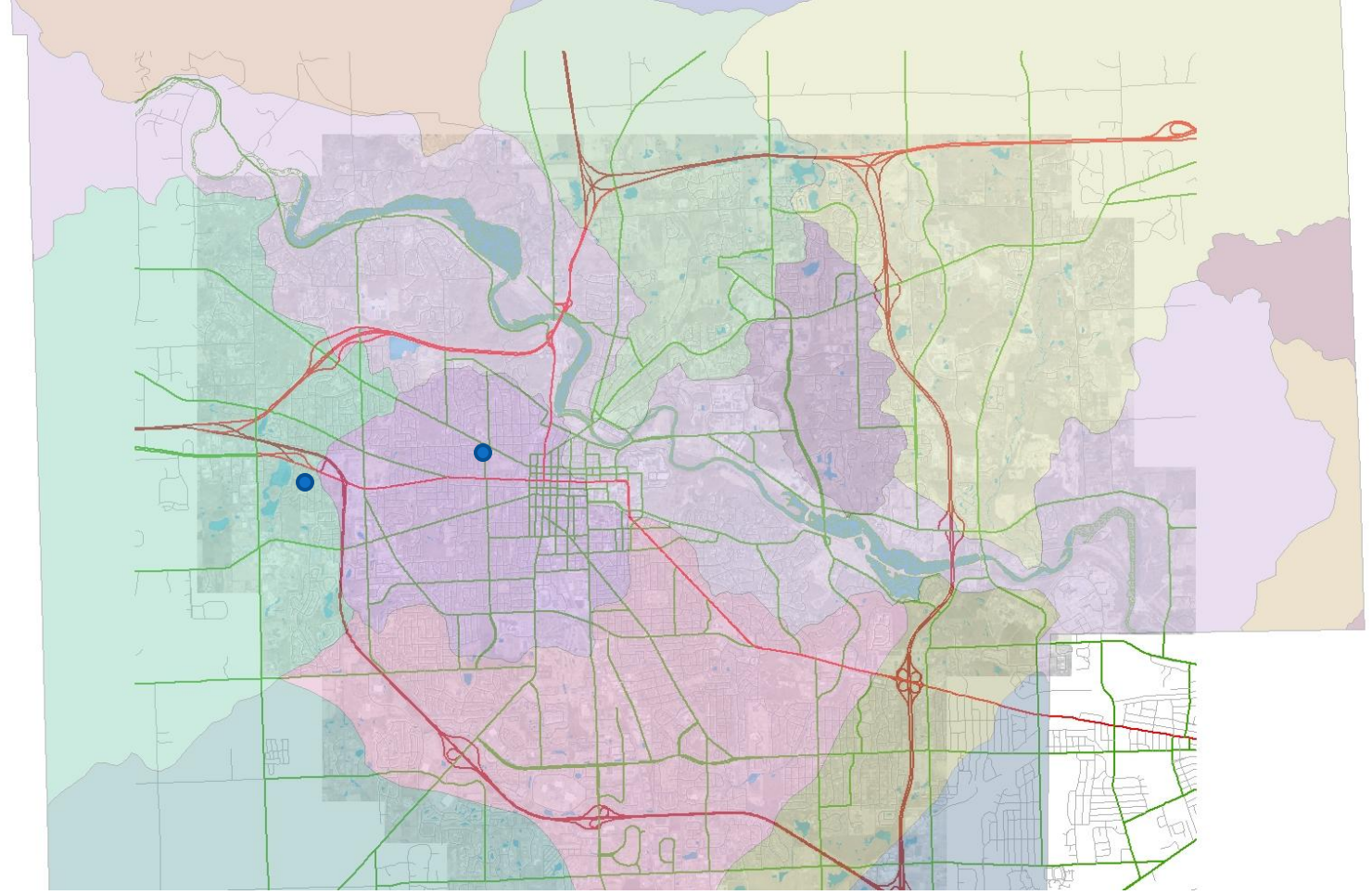
- Floodplains and floodways exist, even after humans install pipes.

# Storm Sewer Design and Background

- City's storm sewer network has a design limitation.
  - Current City Standard (10-yr storm event)
    - Representing standard engineering practice
  - Older systems had variable designs
  
- City's storm sewer inlets have a physical limitation.
  - ~2cfs per inlet
    - Assuming the inlet is not obstructed by debris
  
- The street rights-of-way (including pavement and gutters) store excess rainwater
  - Representing standard engineering practice

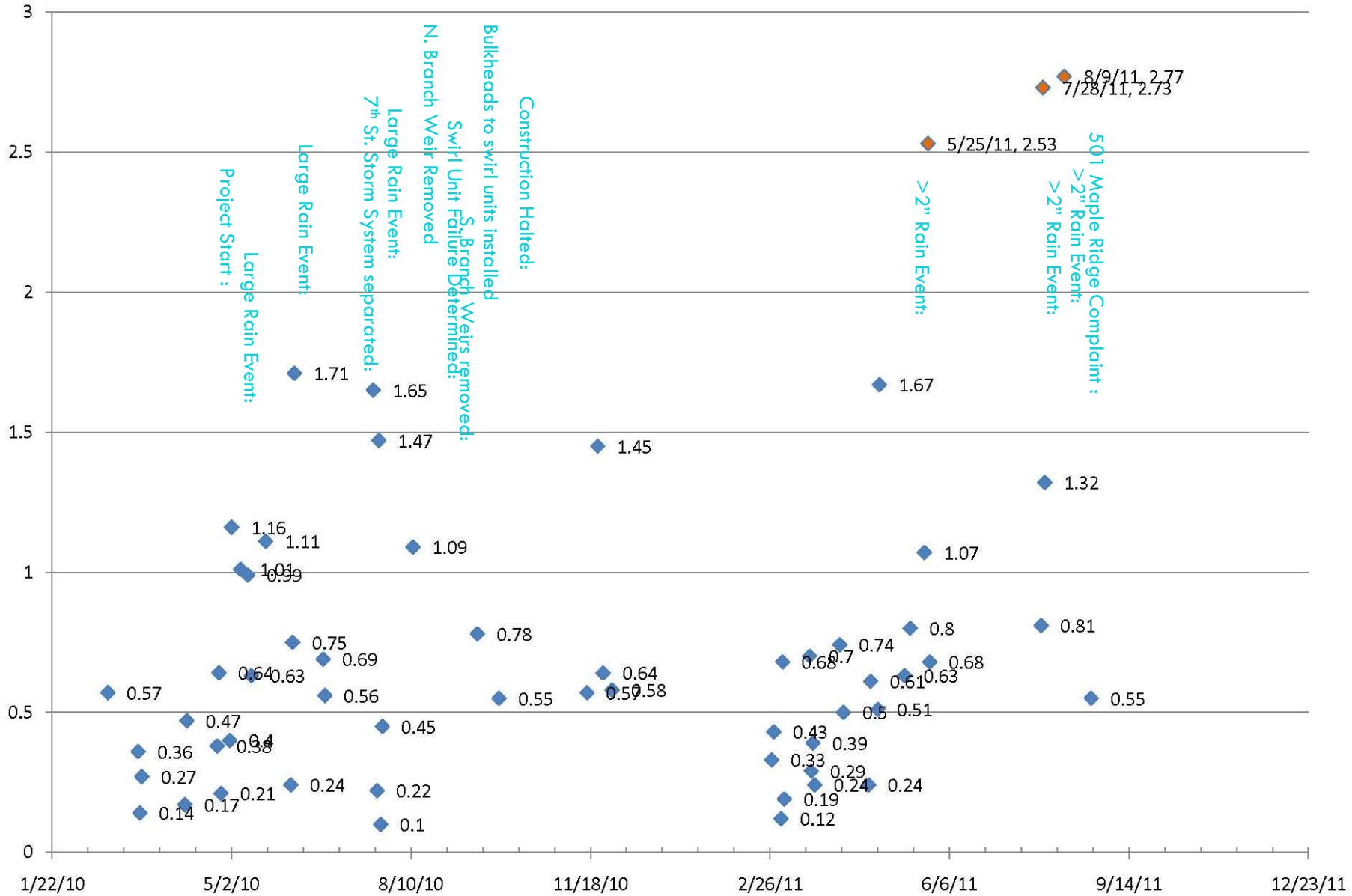
# West Park Timeline

- Project Start: May 2010
- Large Rain Event: June 2010
- Large Rain Event: July 2010
- 7<sup>th</sup> St. Storm System separated: August 2010 (est)
- Large Rain Event: August 2010
- S. Branch Weirs removed: August 16, 2010
- Swirl Unit Failure Determined: October 2010
- N. Branch Weirs removed: October 2010
- Bulkheads to swirl units installed: October 2010
- Construction Halted: October 2010
- >2" Rain Event: May 2011
- >2" Rain Event: July 2011
- >2" Rain Event: August 2011
- 501 Maple Ridge Complaint : August 2011

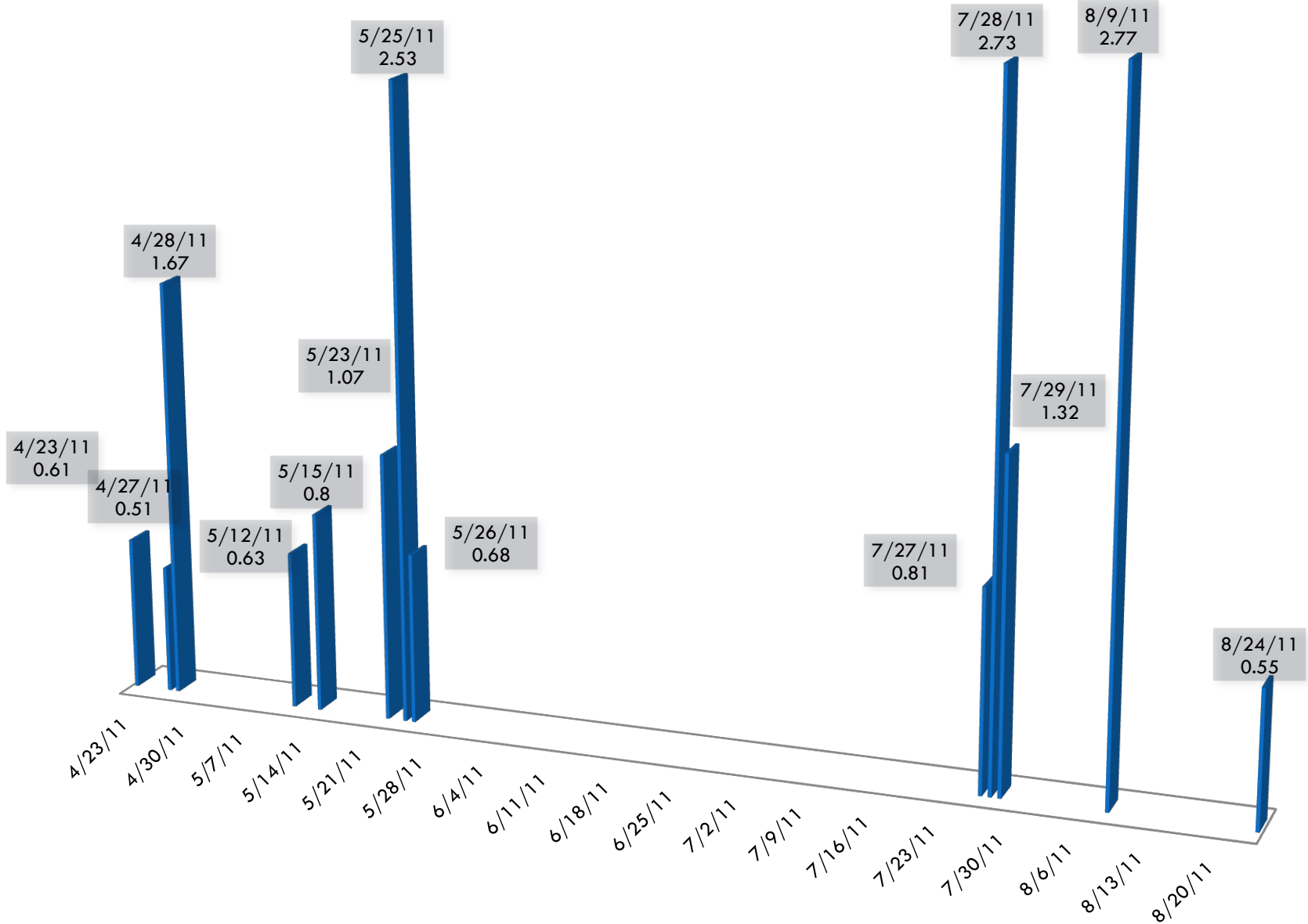


## Rain Gauge Location

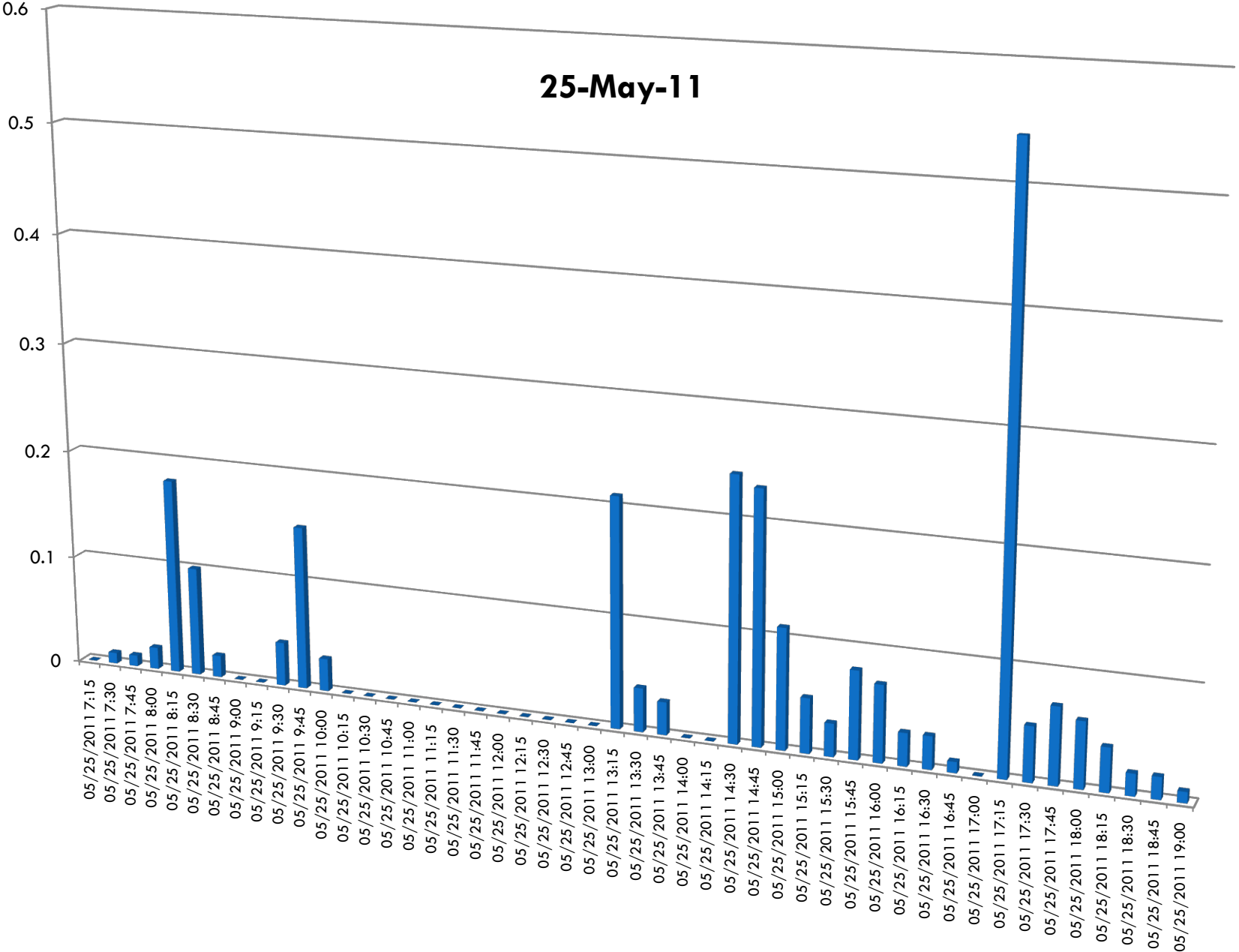
# 24-hr Rainfall Totals at Jackson/Parklake Gauge

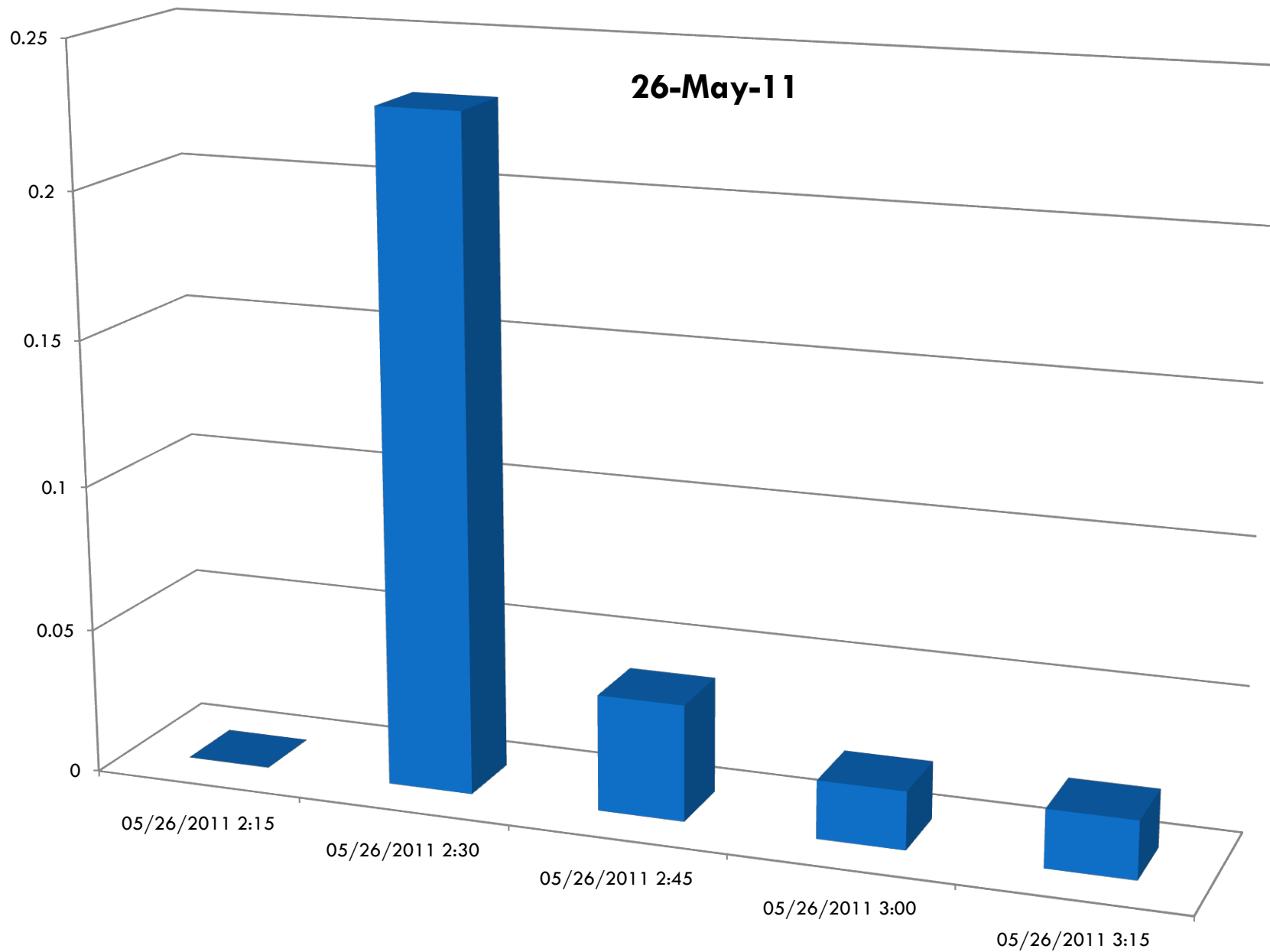


# April 2011 through August 2011



25-May-11

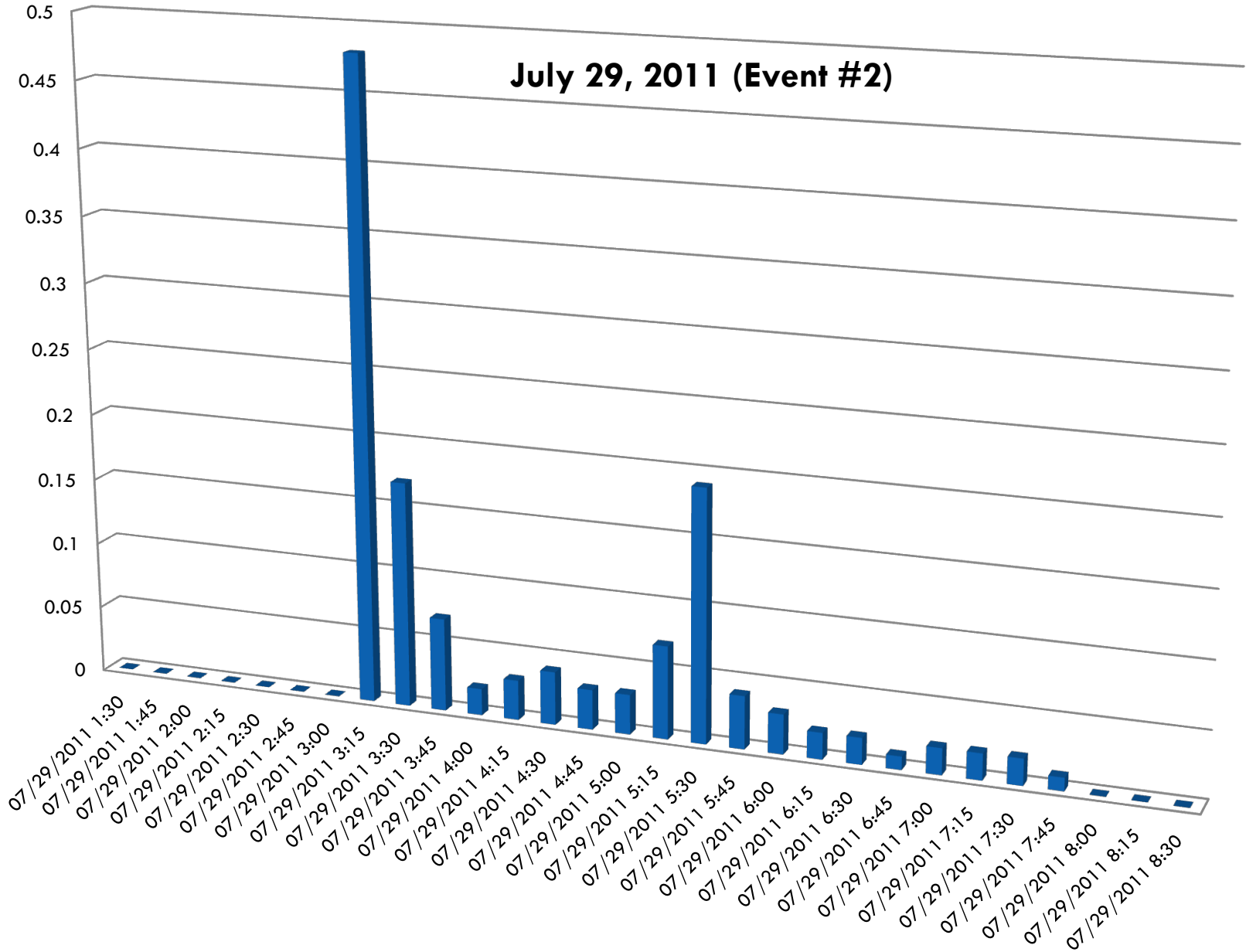




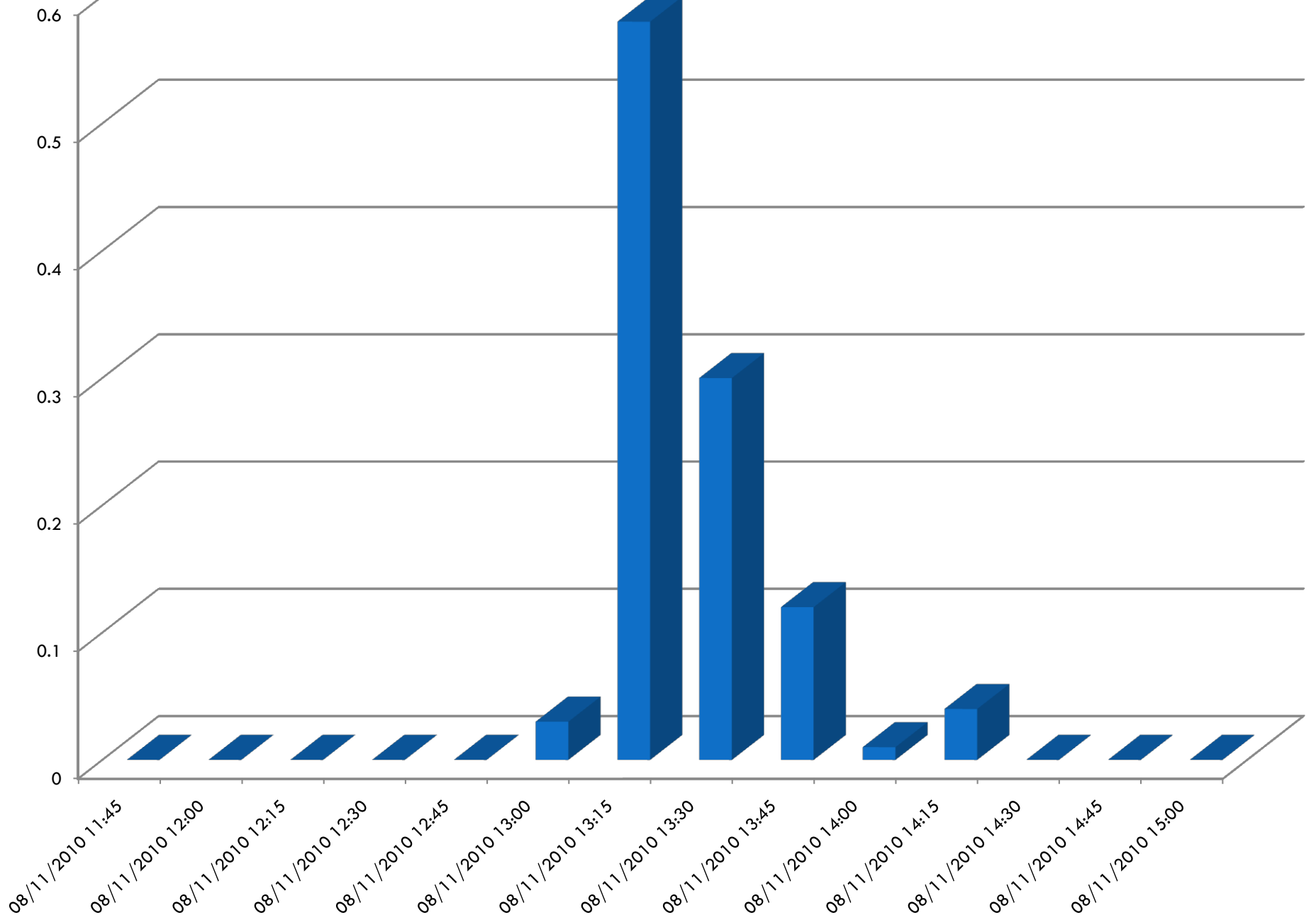




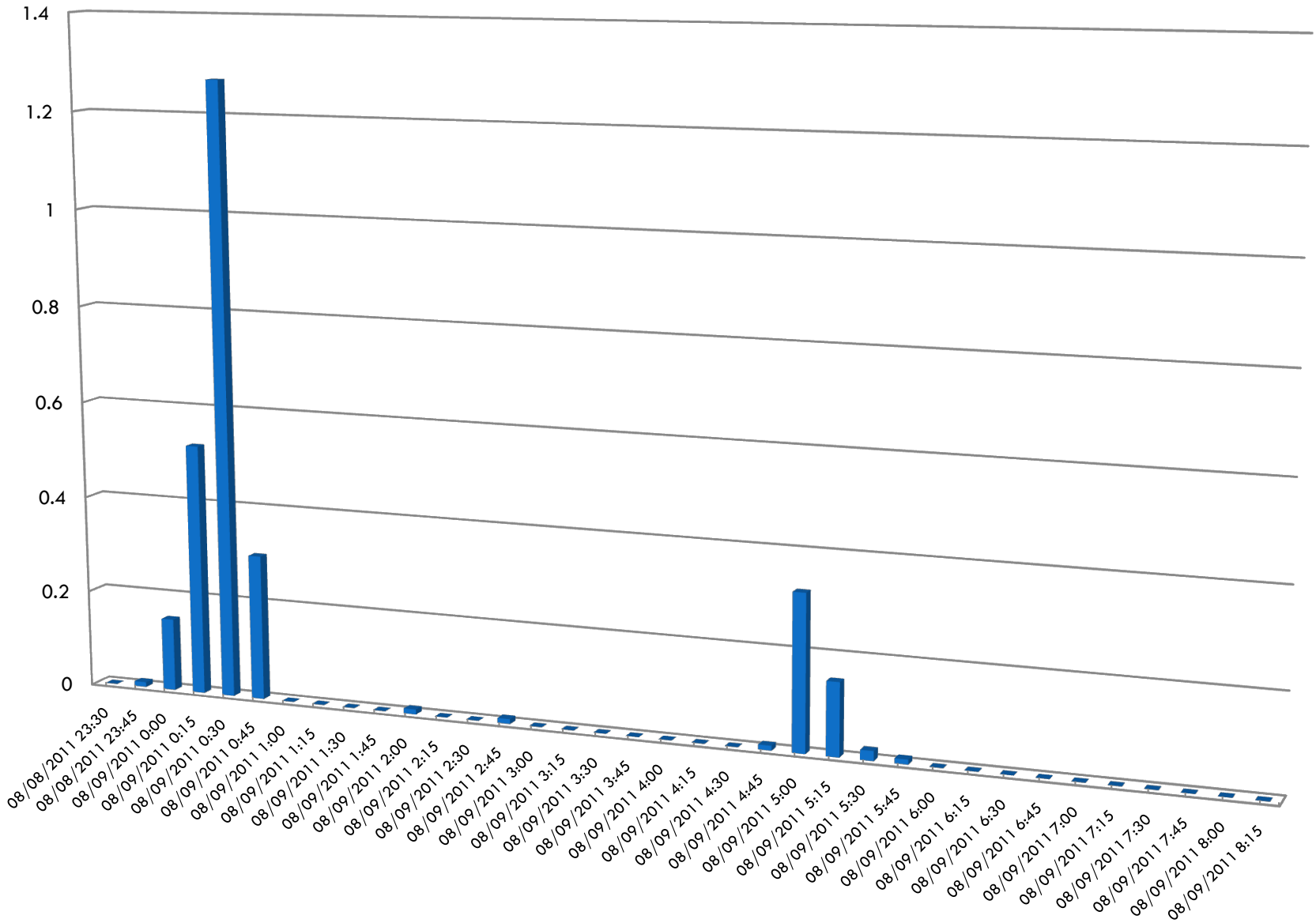
# July 29, 2011 (Event #2)



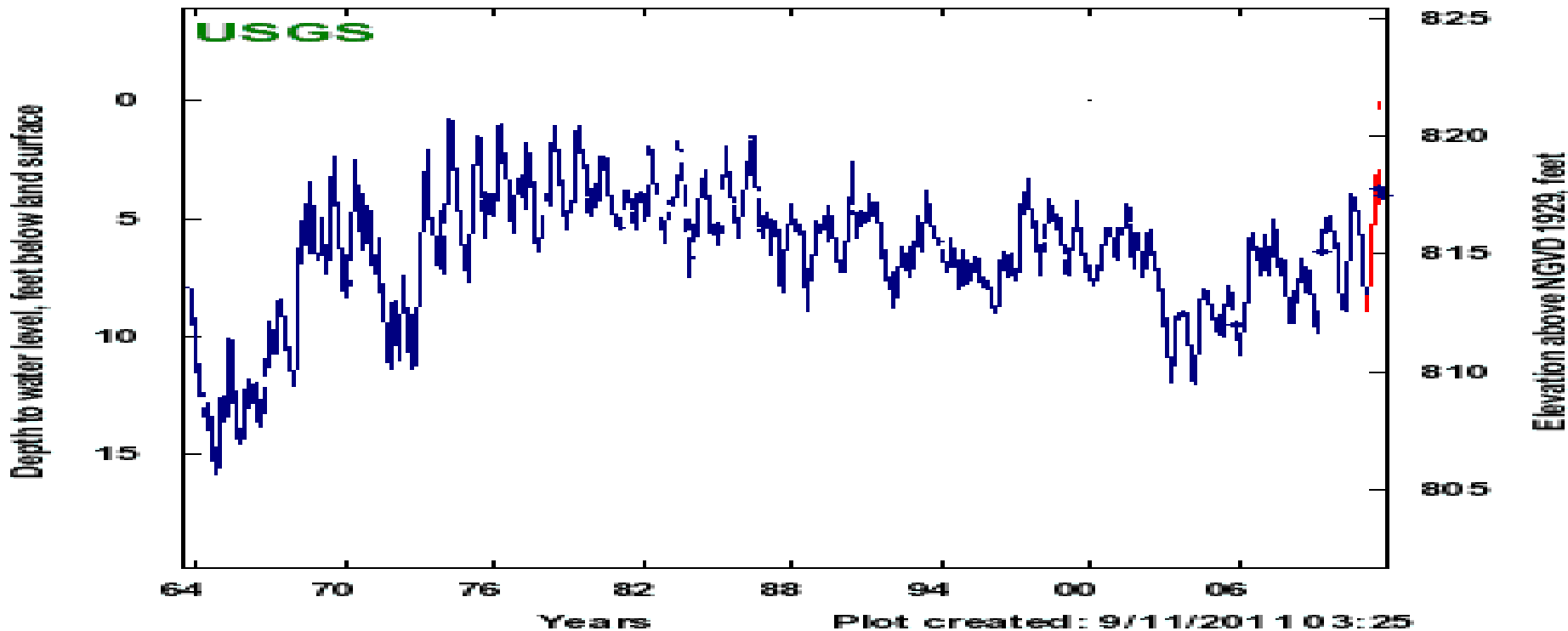
# August 10, 2010 – Rain 15-minute Intervals at Jackson Gauge



# August 8, 2011 - Rain 15-minute Intervals at Jackson Gauge



421322083441301 - 03S 06E 16BCC D 01 WASHTENAW CO (AIRPORT)



1963 through current: (feet below ground surface)

Well depth: 55 feet

Highest GW level: 0.03' 08/30/11

Lowest GW level: 15.86' 10/18/64

# Recent Actions by City and County

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- City televised the City-owned Maple Ridge Storm Sewer
- City televised the County-owned 54" from Arborview to N. Seventh

No blockages found

Pipe is in good condition

System functioning as designed

# Specific Resident Inquiries

- Has the City yet issued the petition required for the County office to investigate and take possible action on the storm sewers?
  - The City and County have been working in partnership since this issue was brought to our collective attention.
  - If a system failure or deficiency had been found, the City would have coordinated with the County to submit a petition for an improvement to the Drainage District.
    - Any costs associated with the Drainage District improvements would be ultimately funded by the City's Stormwater Utility Funds, as funded by Stormwater Ratepayers

# Specific Resident Inquiries

- Residents want compensation for the several thousand dollars of damages, insurance deductibles, etc. that resulted from this August 8th flooding.
  - ▣ Risk Management matter
  - ▣ Claims must meet all requirements of Act 222



# Options, Limitations and Brainstorming

- Expanding stormwater capacity in this reach will only move the problem downstream
- Feasibility of constructing stormwater storage at this location or on this branch
- Site specific improvements to the County Drain
  - The resident or the City can directly petition the County for a Chapter 4 Improvement.
    - Who pays? ONLY the properties affected within that district
- Additional Ideas and Comments?