

THE NAPOLEON LTCP: A STORY OF SUCCESS

Presenter: Adam C. Hoff, PE

Date: June 16, 2010

One Team. Infinite Solutions.



INTRODUCTION – COLLECTION SYSTEM

- Original combined elliptical brick arch sewers still in use as the Shelby Street and South Side Interceptors (circa 1900).
- City developed with combined sewers in the downtown area, expanding outwards with separated sewers and lift stations installed in the newer areas.
- Much of existing system in place prior to original WWTP in 1958.
- Downtown area still combined w/ separated sewers passing through.
- Mildly to moderately successful surface load separation projects from 1970's thru 1990's.
- **Originally Five (5) CSO's and Nine (9) SSO's**

INTRODUCTION - WWTP

- Brief History

- Original plant constructed in 1958
- Plant Expansions 1981 & 1997
- 2003 Sludge Handling Improvements

- Current Plant

- Screening, Degritting, Primary Clarification, Trickling Filters, Aeration, Final Clarification & Chlorination/De-Chlorination ... Maumee River
- Rated Plant Capacity - 2.5 MGD & 7.5 MGD Peak
- True Plant Capacity ~ 4.5 to 5.0 MGD sustained

- SWMM model predicts ~20.0 MGD at headworks during 10-Year Storm

- 2.5 MG EQ Basin & UV Disinfection Project currently under construction (LTCP Proj. #14)



INTRODUCTION – LTCP

- Long Term Control Plan & Wastewater Treatment Plant and Collection System Comprehensive Plan prepared in compliance DFFO's, **dated July 25, 2000.**
- Draft submitted to NWDO for review on **December 31, 2003.** OEPA presentations **June 2004** & **May 2005.**
- Final modifications to plan and schedule submitted **December 29, 2005.**
- Final approval by OEPA **April 2006.**
 - Listing of 34 primary projects, with several sub-projects
 - 20-year schedule starting January 2005
 - ~\$35MM in project costs (2004)
 - Current estimates reaching ~\$40MM in total costs
 - “SSES-type” studies and capital improvements in the system and at the WWTP

GOALS OF THE PLAN

- Presumptive Approach ~ No more than 4 events/year.
- Eliminate all SSOs.
- All combined flow reaching the WWTP to receive a minimum of primary equivalent treatment and disinfection.
- All separated sanitary flows to receive full primary and secondary treatment and disinfection.
- Balanced approach of public and private I/I reduction, conveyance, storage and treatment
- *Eliminate the “011 CSO Outfall”*
- Public Involvement & Buy In
- NPDES Permit Modification – vs. – Consent Order
- ***Develop a plan that is technically AND economically feasible.***

LTCP KEY PROJECTS TO-DATE

- I/I Reduction Studies
 - W. Riverview & Haley and South Side
 - CCTV, smoke & dye testing, flow monitoring, SWMM modeling
 - Downspouts, footer tiles, yard drains, etc.
 - CB's, CI's, storm sewer exfiltration, broken laterals, etc.
 - \$415,000 in cost for studies
- Sewer & Pumping Station Projects
 - 13 projects totaling ~\$8.2MM, including other major items (e.g. – curbs, pavement, sidewalks, etc.)
 - W. Riverview & Haley I/I Reduction Projects
- Equalization Basin at WWTP

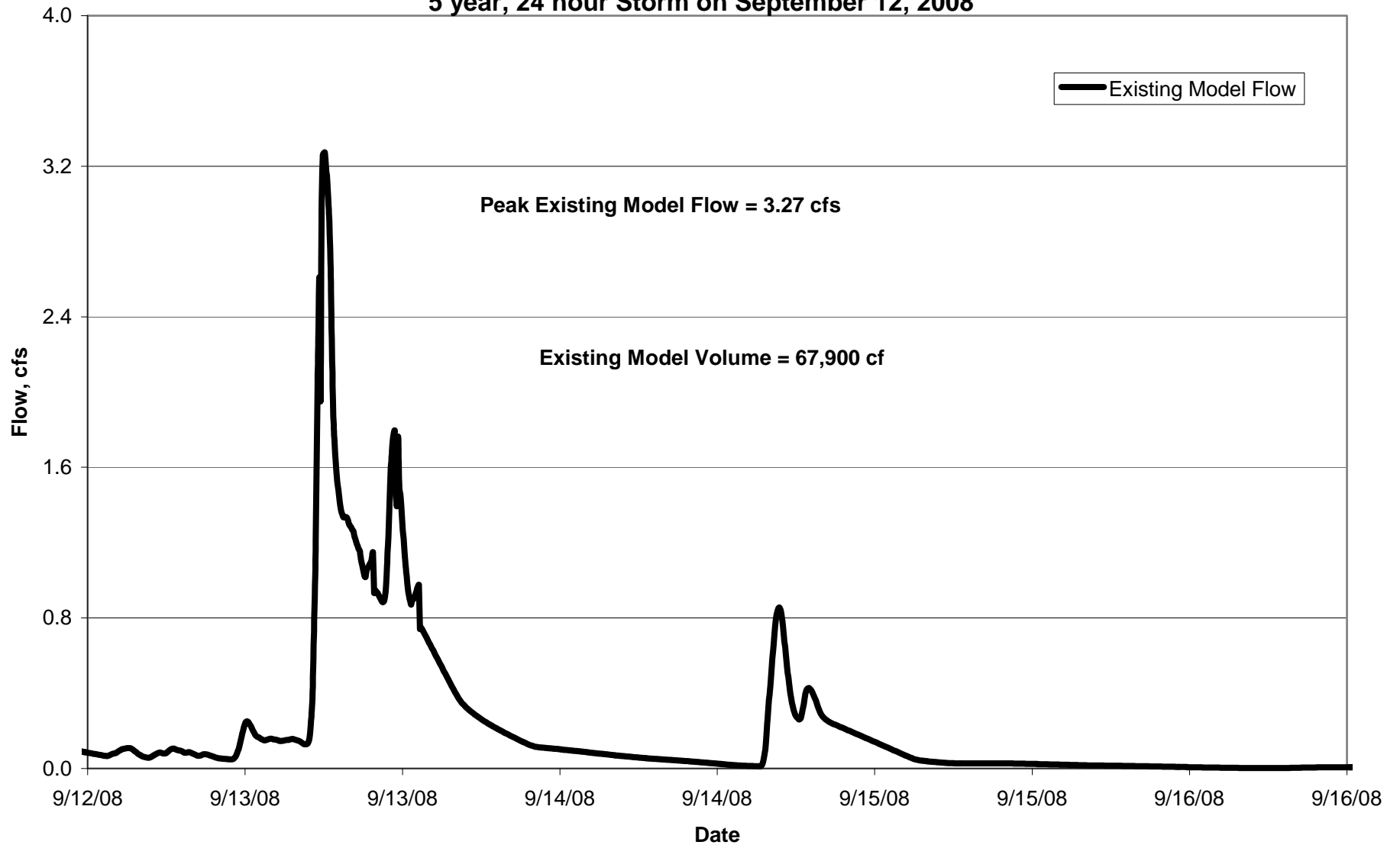
W. RIVERVIEW & HALEY I/I REDUCTION

- Sanitary Sewer
 - Eliminated and replaced vitrified clay with bad joints
 - Replaced failing sections
 - Severe infiltration
 - Broken laterals
 - Consolidation of flows
- Storm Sewer
 - Replaced sections with exfiltration
 - New extensions
 - Storm taps
- \$741,100 capital cost vs. \$1.1MM estimate



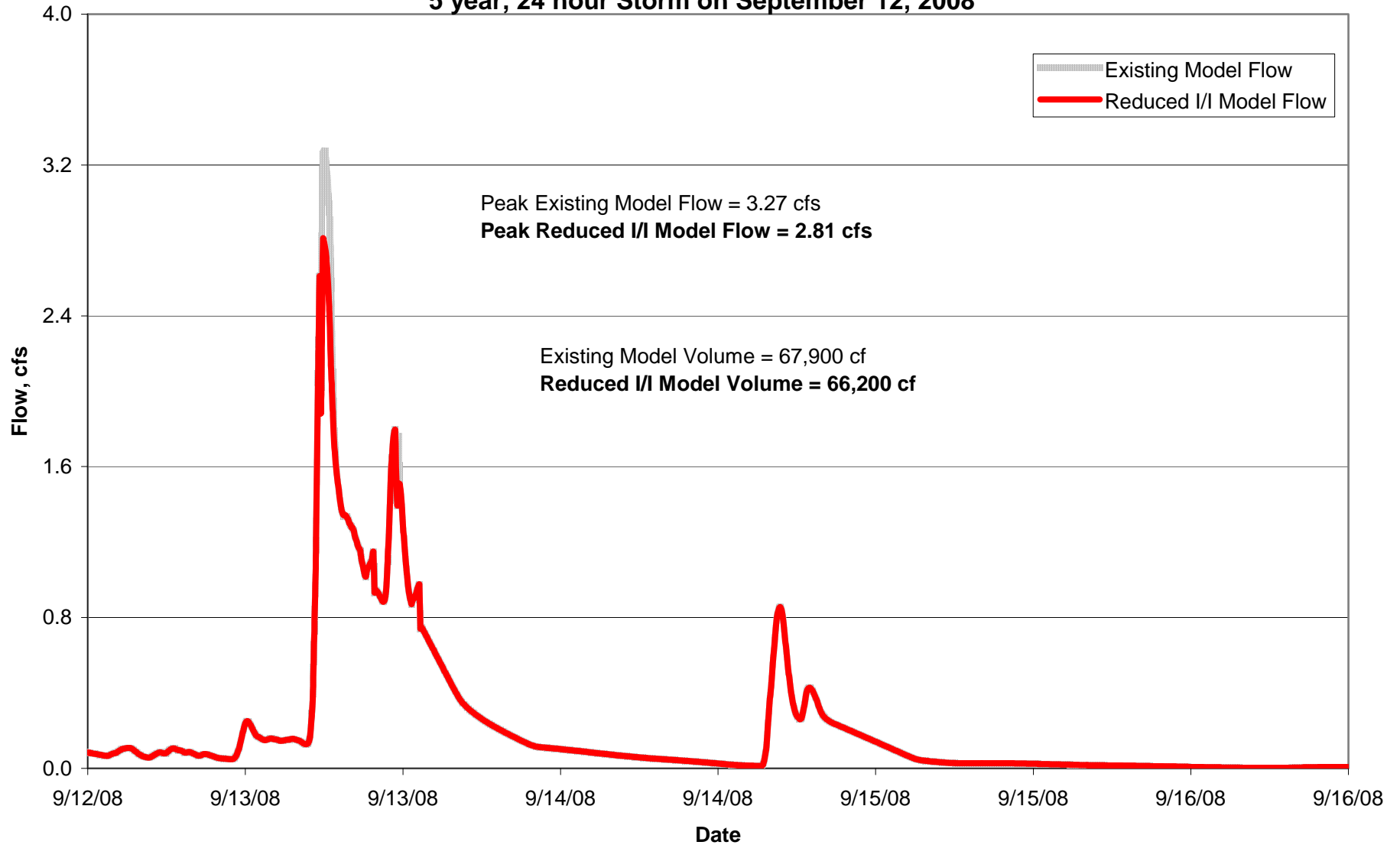
WEST RIVERVIEW I/I REDUCTION PROJECT

Figure 4-1
H-90 (Park Street at W. Riverview Avenue)
5 year, 24 hour Storm on September 12, 2008



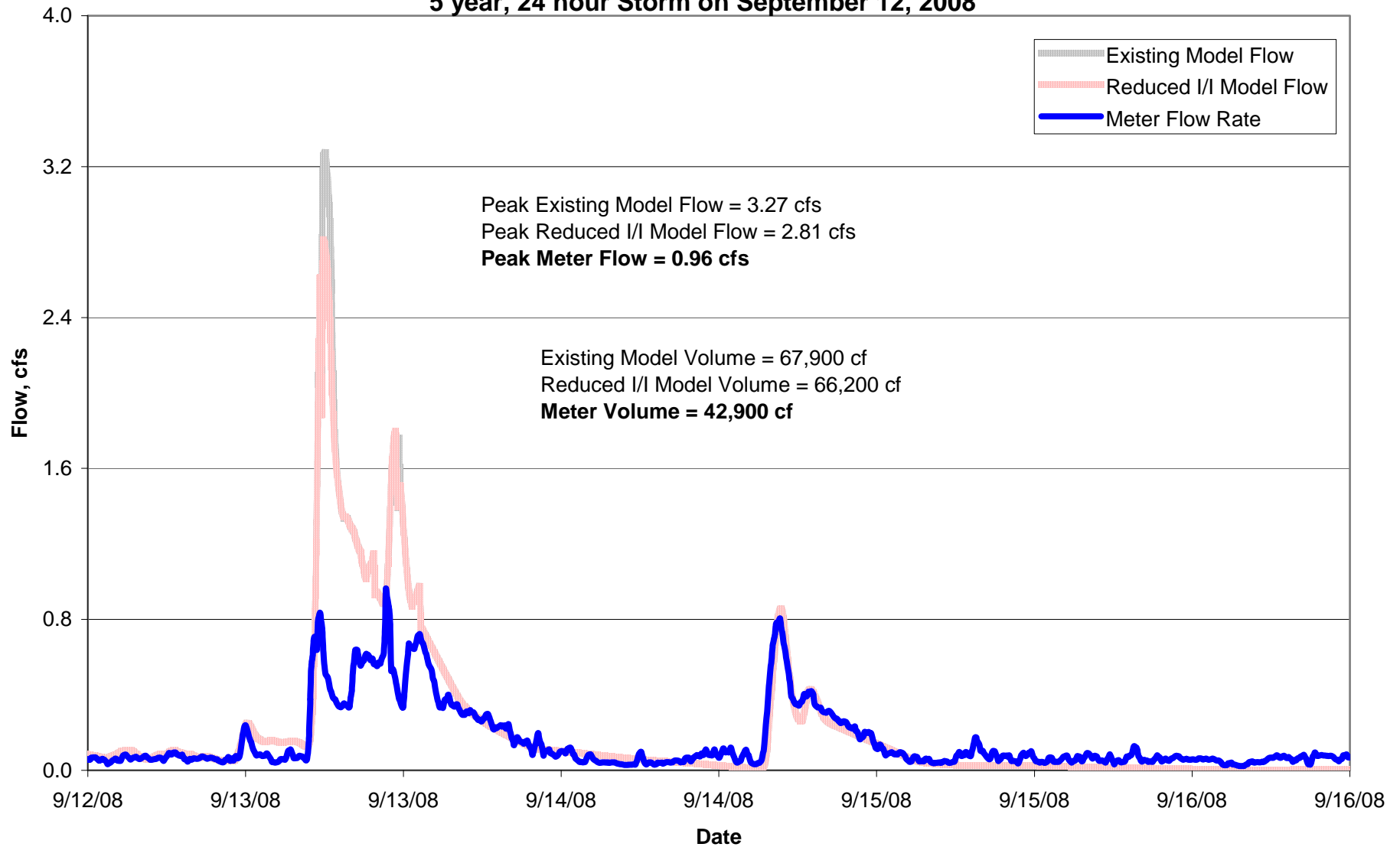
WEST RIVERVIEW I/I REDUCTION PROJECT

Figure 4-1
H-90 (Park Street at W. Riverview Avenue)
5 year, 24 hour Storm on September 12, 2008



WEST RIVERVIEW I/I REDUCTION PROJECT

Figure 4-1
H-90 (Park Street at W. Riverview Avenue)
5 year, 24 hour Storm on September 12, 2008



2.5 MG EQ BASIN PROJECT

- **“Cornerstone Project”**
- Project Elements
 - 2.5 MG Basin
 - Three (3) 10 MGD screw pumps, with room for fourth
 - UV disinfection
 - Three (3) 5 MGD effluent pumps, with room for five (5)
 - 500 KV generator
 - Elimination of chlorine disinfection
 - Future use as headworks
- \$6.97MM bid
- Over 90% complete ~ LTCP schedule December 2010
- <\$50,000 in change orders
- In operation April 29th Active May 11th

2.5 MG EQ BASIN PROJECT



RECENT RAIN EVENT – MAY 2010

- 1.84” of rain over ~40 hours from May 10th to 13th
- Filled 1.92 MG into EQ basin May 11th
- Drained & treated ~0.5 MG on May 12th
- Re-filled basin to 2.3 MG on May 13th

- **No reported basement backups.**
- **No activity found at any CSO or SSO in the system.**
- **Captured & treated 2.8 MG that would have otherwise discharged directly to the Maumee River**

- **SUCCESS!!!** **So far**

Questions?