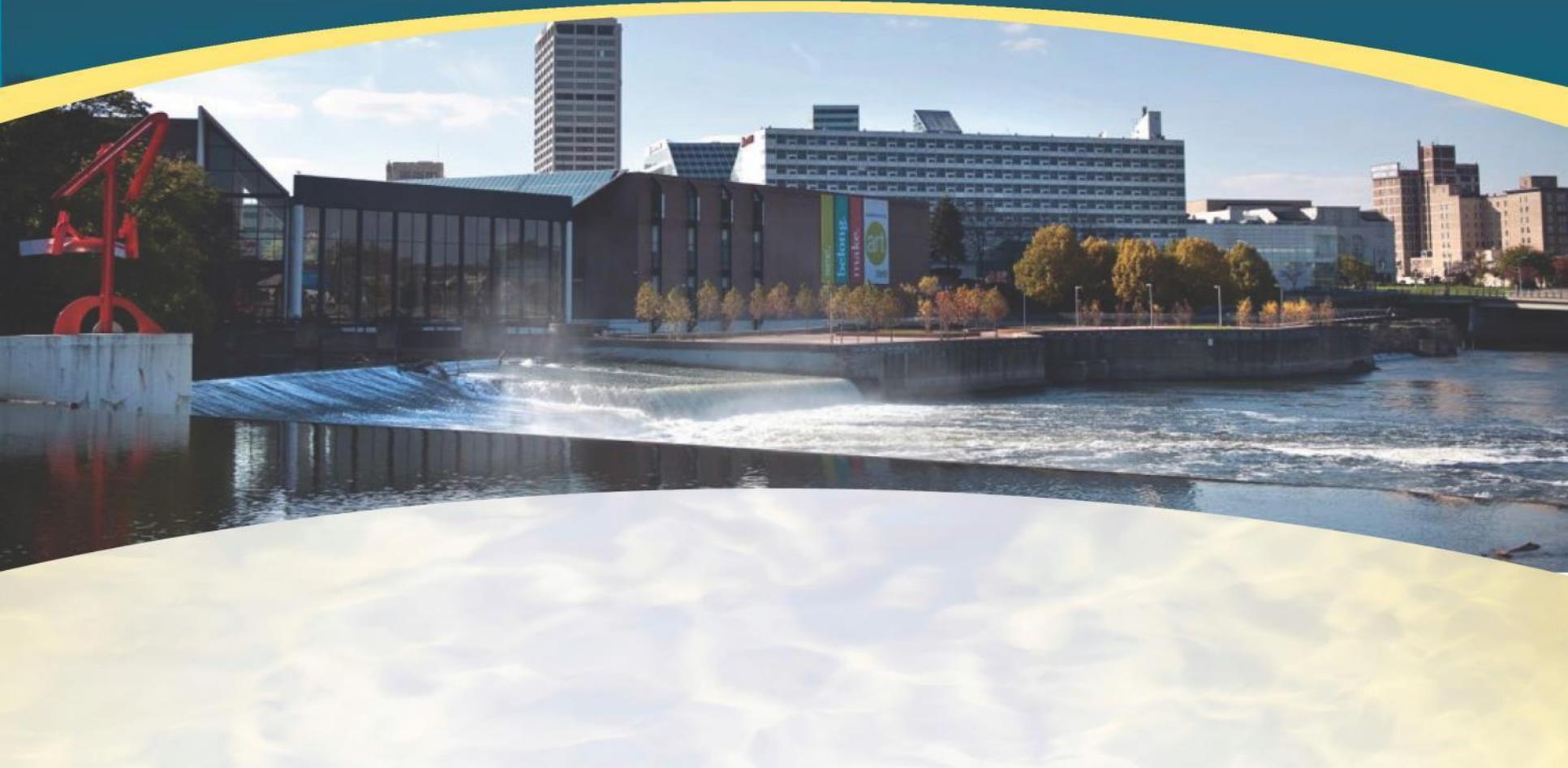


CITY OF SOUTH BEND

City Response to CSO Questions

February 2015



Overview Questions

Tom Ungar

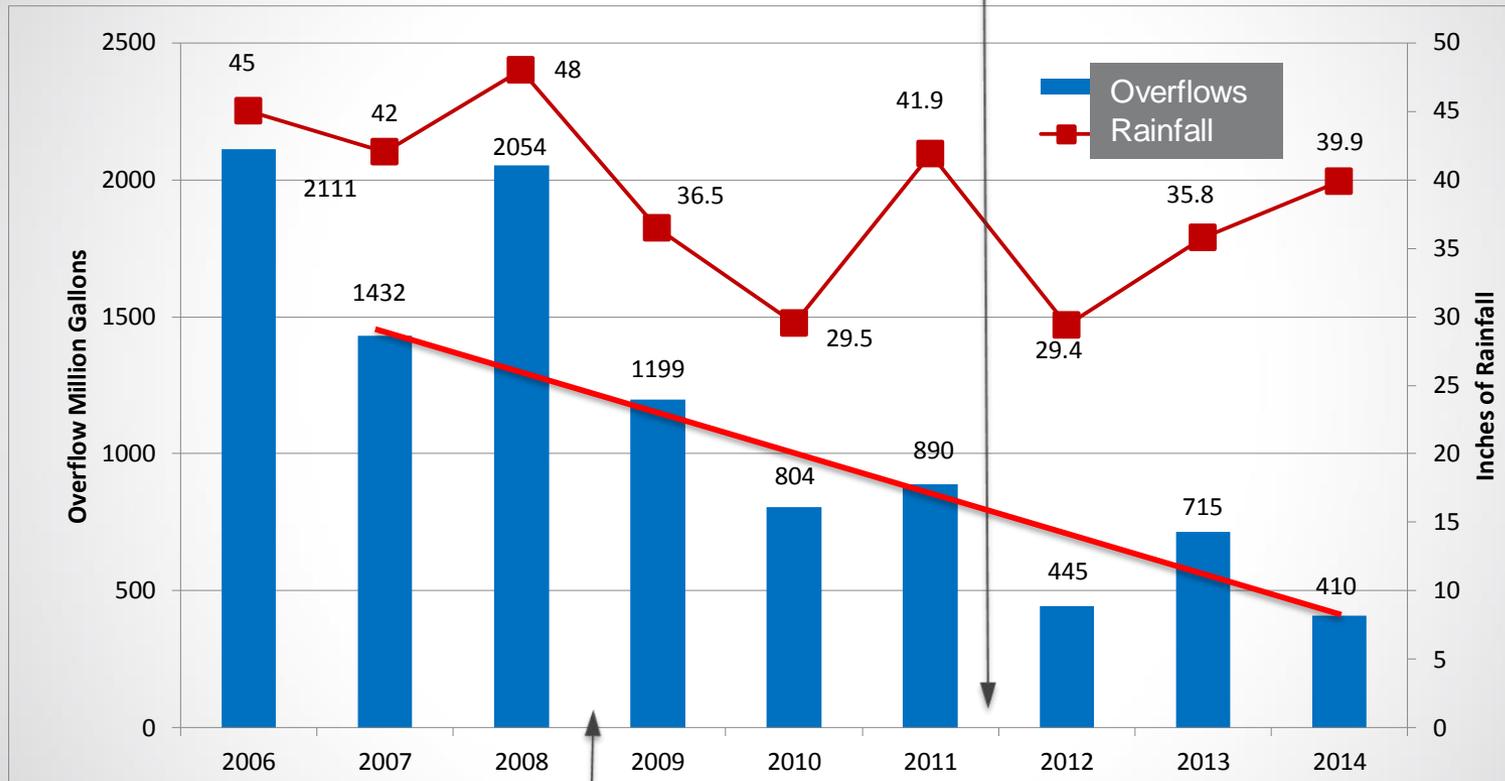


Question and Response to Number 1

- 1. Please provide more detail, both design and financial, on the current CSO plan of record. Please include an up to date accounting summary for project costs by major components (*i.e., EmNet, underground storage tanks, treatment plant upgrades, etc.*) including cost incurred to date, and estimated cost to complete by year until project completion.
- The City has completed \$46M in capital projects over the past 4 years mainly associated with either CSO reduction or WWTP/pump station improvements. Another \$14M is currently in progress. Through sewer separation, real time controls and other improvements, CSO volumes have decreased approximately 70%. This will result in significant cost savings as the CSO LTCP is reassessed

Annual Overflow

**Real-Time Control
System
Commissioned**



**EmNet Monitoring
Commissioned**

Question Number 2

- 2. Why is South Bend's CSO project so much more expensive compared to other cities on a size adjusted basis? South Bend cost per household is \$12,800 based upon the original \$509 million estimate. The combined average CSO project costs of Mishawaka, Elkhart, Ft. Wayne and Indianapolis is \$4,700 per household. Based on the above, South Bend is 2.7 times greater than other cities. If SB was based upon these other cities average cost, it would be an \$188 million project.

Response to Number 2

- It is difficult to compare CSO costs from one city to another due to the following factors:
 - Extent of water quality problem
 - CSO volume to be controlled
 - Age, nature and capacity of existing WWTP and sewer system
 - Technical feasibility of new infrastructure alternatives
 - Application of EPA affordability guidance
 - Other considerations based on EPA negotiations
 - EPA will consider affordability but not cost per household

Response to Number 2

- The cost issue is the main reason why the city is performing the CSO LTCP reassessment, looking to achieve significant savings. Eric Horvath and Kara Boyles were with the City of Elkhart and were key in negotiating favorable terms for that city, including 9 CSOs per year vs 4 or less for South Bend.
- South Bend's LTCP is unique in these ways:
 - CSOs required to meet water quality standards at Michigan state line,
 - Additional CSO disinfection facilities required at storage tanks
 - East Race is a sensitive area, requiring a higher level of control

Question Number 3

- 3. Has anyone consulted with Cities with lower size adjusted costs to determine what they may know that we don't regarding cost efficiencies?
- MWH Team was selected to perform this project because of their proven success of cost savings with other communities, including nearby Indianapolis and Lima, Ohio.



LIMA

Project Experience

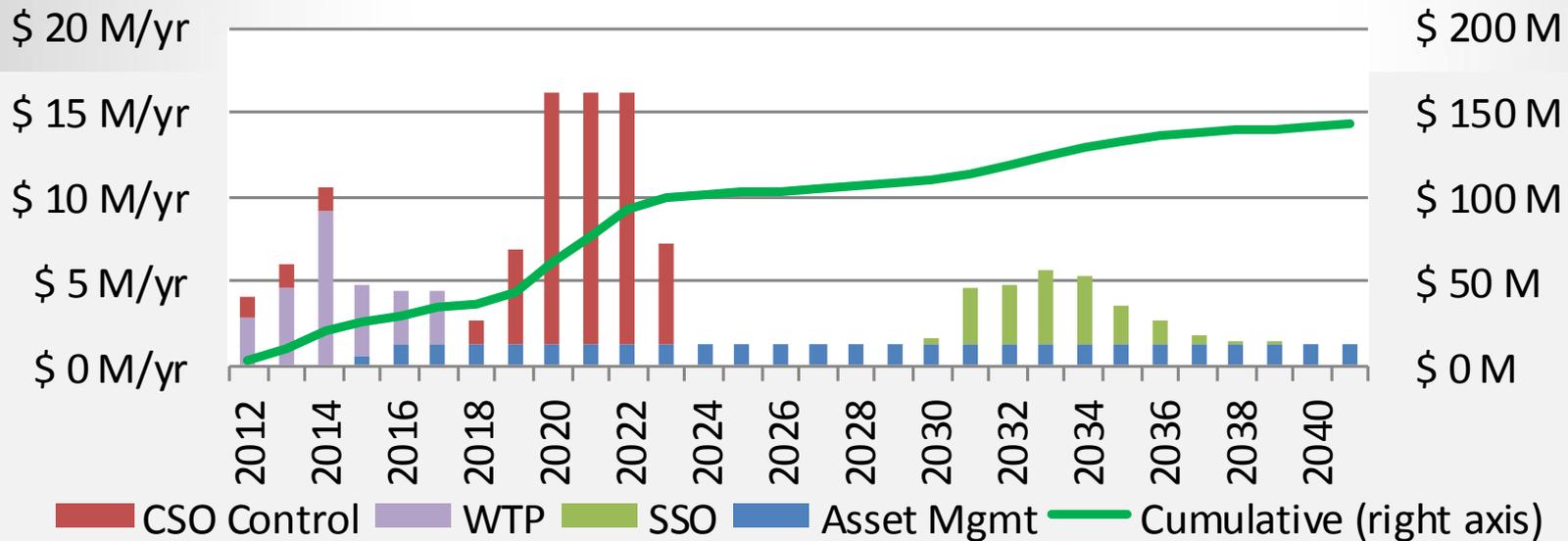
RESULTS

New plan addressed
97% of the wet weather
overflows

*Region 5 approved EPA's
first-ever 28-year compliance
schedule and accepted a re-
opener clause*

Lima Integrated LTCP

- Total cost \$143.5 million over **28 years**
- Buy off on **integration**: asset management, CSO, SSO, SW, WTP
- Prioritized projects based on environmental benefit
- **Re-opener** clause



A photograph of the Indianapolis skyline under a clear blue sky. The image features several prominent skyscrapers, including the Bankers Building and the Indiana State Capitol building with its green dome. A teal-colored graphic overlay is positioned in the foreground, containing text. The text is arranged in a hierarchy: a large yellow title, a white subtitle, a teal section header, and two columns of white and yellow text.

INDIANAPOLIS

Project Experience

RESULTS

In 2010, became *the first City in US to successfully modify an EPA agreement*

Eliminated **6.2BG** of CSO earlier and saved approximately **\$740M**

IPF-Related Questions

Blair Troutman



Question and Response to Number 8

- 8. How much flexibility do we have within the **EPA Consent Decree** to redesign specific aspects of the project in order to lower costs. Have you considered renegotiating the current agreement based upon undue financial burden to the community and ratepayers?
- City not permitted to renegotiate based on financial burden alone, however...
- The EPA guidelines for Integrated Planning afford the City the opportunity to make the case for modifications to its existing enforcement action due to an improved technical approach as well as affordability considerations that may support an extension of time to complete mandated system improvements. EPA Region 5 has not been particularly supportive of proposed modifications to LTCP's and other enforcement actions despite USEPA's assurances that the Regions were on board with using the flexibility in the current law as outlined in EPA's June 5, 2012 policy document, *Integrated Municipal Stormwater and Wastewater Planning Approach Framework*.

IP Provides Platform to Develop a Better Environmental Plan at an Affordable Cost

IP DEVELOPMENT



**LTCP
Optimization**



**Affordability
Analysis**



**Stakeholder
Engagement**

So, why take an Integrated Planning (IP) approach?

Addresses most serious water quality issues sooner

More cost effective, may lower overall cost of compliance

Allows innovative approaches, such as green infrastructure, that are more sustainable

Question and Response to Number 11

- 11. It appears the CSO project was planned and is currently being executed by engineers to solve a singular water/sewage problem. Has the city consulted with a city planner or otherwise considered a comprehensive long term plan that identifies synergetic opportunities that will produce multiple benefits? For example adding permeable road surfaces when streets need to be repaved may be cost effective in the long term when considering the reduced effect of storm water into the sewer system.
- The value of an integrated planning approach is that it is considerate of the totality of need facing a utility to provide sustainable levels of service to its ratepayers. As such, scenarios can be evaluated that include different technical approaches to achieve the greatest benefits at an affordable level of investment. The consideration of “green” alternatives to enhance or replace “grey” solutions can be important components of any integrated plan. It is important that utilities consider the long-term O&M costs associated with these “green” alternatives and not just the initial implementation costs.
- Water quality improvements need to be documented for EPA acceptance of an Integrated Plan.

Question and Response to Number 7

- 7. Did the City complete an **EPA Financial Capability Analysis**? If so, was it completed prior to or after signing the consent decree? Please post the document on the city's website.
- This report was completed 12/16/2008 (attachment 3), prior to the consent decree and has been included on the city website.
- MWH Team is proposing to use a two phase approach to determine affordability.

Team Brings a 2-Tiered Approach To Determine Affordability

Tier 1

Affordability
based on
USEPA 1997
Guidance

Tier 2

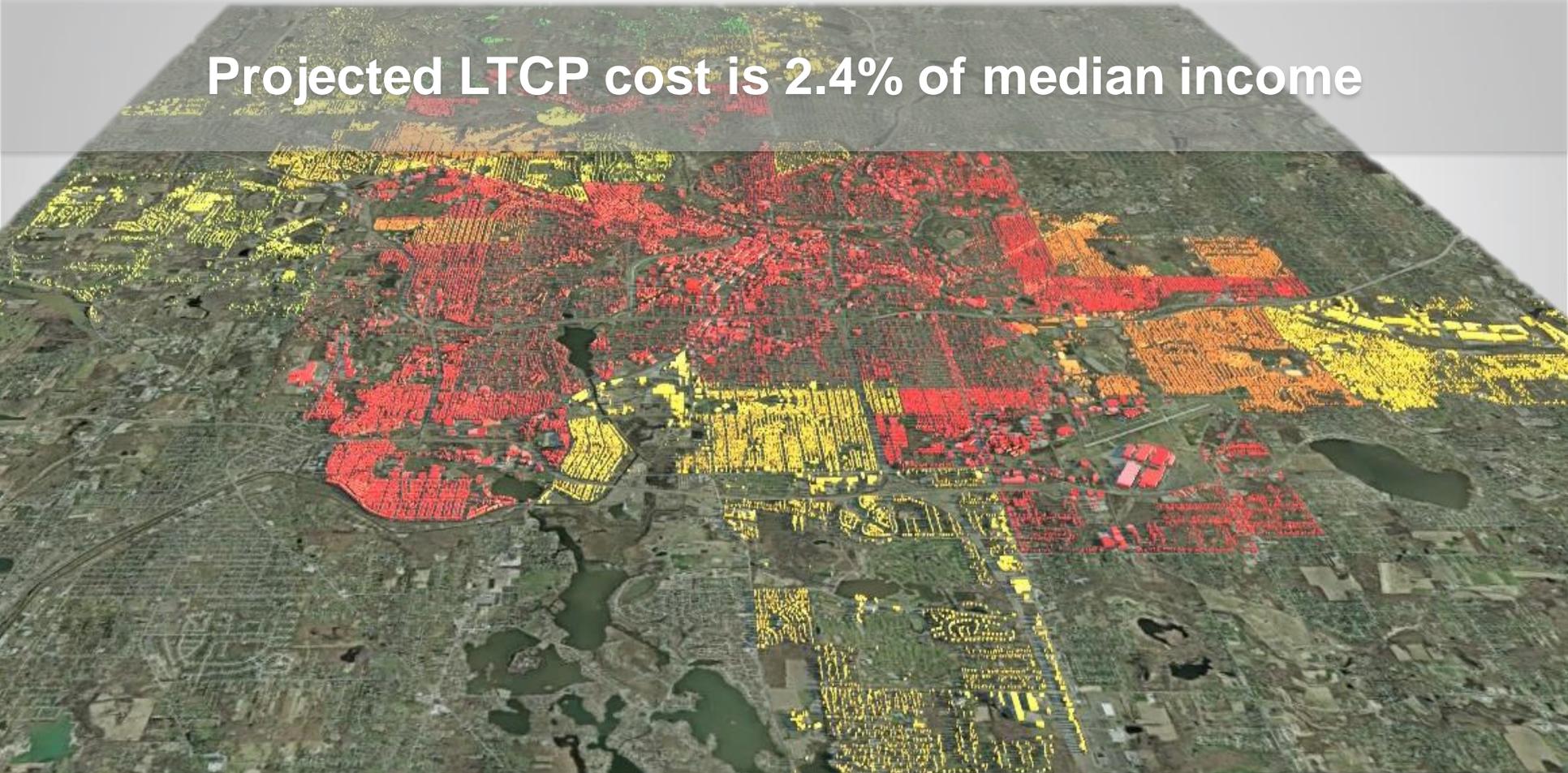
Real costs based on census tract
and income groups

Review of community's financial
capacity based
on 6 criteria

**MWH methodology promoted by USCM and recommended to
EPA as better methodology**

Financial burden on South Bend is high

Projected LTCP cost is 2.4% of median income



Financial-Related Questions

Crowe Horwath



Question Number 4

- 4. Please provide details on how the project will be financed and paid for? Have you considered using TIF financing, federal and state grants, economic development funds or other creative sources of financing that would limit the burden to homeowners? Have you considered placing practical limits on how much will be borrowed with revenue bonds supported by utility rate increases?

Response to Number 4

- In the Crowe Horwath LLP (“Crowe”) Preliminary Rate and Financing Report dated May 14, 2010, (See Attachment 1 for the 2010 Rate Report) and the Crowe Rate and Financing Report dated February 10, 2014, (See Attachment 2 for the 2014 Rate Report), the Long Term Control Plan Combined Sewer Overflow Project (“Project”) during the time period 2010 to 2017 was to be funded primarily from bond proceeds and cash available on an annual basis from sewer revenues. The South Bend Municipal Sewage Works (“Utility”) received a State Revolving Fund Grant in 2010 of almost \$1.2 million and has also received \$3.3 million of Economic Development Income Tax (EDIT) Revenues from the City in 2011 and \$1.3 million of EDIT in 2012 for the Project.
- The Utility has received favorable interest rates on the debt issued to fund the project in 2010, 2011 and 2012. The net interest cost (NIC) on the Sewage Works Revenue Bonds of 2010 was 3.9%. The NIC on the Sewage Works Revenue Bonds of 2011 was 3.8%. The NIC on the Sewage Works Revenue Bonds of 2012 was 2.3%. The Utility is rate “Aa3” by Moody’s Investor Service which is an above average rating for utilities.

Response to Number 4

- On a going-forward basis, the Utility plans to pursue possible federal or state grants that may become available; however, those funding sources cannot be reliably predicted or counted upon from a planning perspective. The process of obtaining grant funding is very competitive and the parameters for receiving those grants may not be known until a future grant program is established. Also, as demonstrated by past practice, the City of South Bend (“City”) is committed to using other funding sources of the City if those sources become available. However, the need to use those funds for other specific purposes must be weighed against the use to fund sewer projects.

Question Number 5

- 5. Please provide projected utility rates per household by year, including underlying assumptions, required to service CSO related debt starting with 2010 as the base year. Does this assume the entire debt load and repayment will be passed through to ratepayers?
- The 2010 Rate Report and the 2014 Rate Report supports the rate increases passed by the City Council through the year 2016. On page 23 of the 2014 Report, the typical monthly bill analysis for a 5/8 inch meter is presented. An average household is assumed to use seven hundred cubic feet (7 CCF). The revenues of the Utility are the only revenues pledged toward the payment on the outstanding bonds.

Question and Response to Number 6

- 6. Did the City ever conduct comprehensive feasibility and long term economic impact studies? If so, what conclusions were reached and have projections been updated for changes? Please make these studies available to the public to review and post to the City's website.
- This information is contained in Section 5, Financial Indicator (Attachment 3) and Residential Indicator (Attachment 4) of 2012 CSO LTCP that was prepared and submitted in 2012. These documents have been included in the folder.
- A twenty year rate impact analysis was prepared at the time of the negotiations with the EPA. We are not sure if these are documents that were publicly discussed. The results of the analysis may not be relevant now as the rate increases projected were only estimates. The 2014 Rate Report is the most relevant update and reflects the rates passed by ordinance through 2016.

Question and Response to Number 15

- 15. Has the City considered the effects of conservation measures on revenues?
- The 2010 Rate Report and the 2014 Rate Report did not consider the effects of conservation measures on revenues. The impact of conservation measures are difficult to predict and their effects would normally be seen on two fronts. To the extent the conservation measures were aimed at reducing sewage flow by decreasing overall customer consumption, the resulting decreased flows would also result in decreased revenues for the Utility. Higher sewer rates will generally promote conservation, especially with commercial and industrial customers, as conservation projects that were previously deemed not cost-effective could now become practical as the monthly savings would increase. Residential conservation programs will generally increase overall utility costs as the overall cost of administering the programs are generally higher than the operational savings that are achieved as part of those programs. The Utility will continue to monitor the need for increased conservation measures but the impact of such programs cannot be reliably predicted for long-term planning purposes.

Engineering Alternative-Related Questions

Rich Raiche

Question Number 9

- 9. There was a comprehensive optimization study of the South Bend CSO design after the consent decree was completed. It found over \$100 million in cost reductions from the plan of record at that time. Have the results of this study been incorporated into the plan?

Response to Number 9

- Members of the MWH Team have met with the individual who led the optimization effort and understand the process that was applied. The results of that study and the intelligence it produced will be incorporated into the reevaluation effort.
- However, the reevaluation effort will also challenge many of the assumptions and findings of the consent decree plan that was used as inputs to the optimization exercise. Consequently, that study is not strictly a starting point for the plan reevaluation.

Question and Response to Number 10

- 10. Has the City considered the effect of reducing storm water flows into the sewer system by requiring disconnecting drains and downspouts from existing structures and impermeable surfaces? Every gallon of rainwater reduction lessens the burden on the existing system. Perhaps a targeted city ordinance and appropriate enforcement should be considered regarding disconnecting and redirecting storm water back into the soil where nature intended.
- Agree, important to reduce or delay flow from the source. Note that downspout disconnection will not eliminate source, but will reduce annual storm volume entering the combined sewers. We will be looking at green infrastructure solutions that will cost effectively reduce CSO costs to the citizens of South Bend.

Green Solutions - Kennedy Park Infiltration Basins



Underground
Infiltration Basin

Coordination-Related Questions

Eric Horvath



Question and Response to Number 12

- 12. Did the City consider permeable pavement with the recent “*Smart Streets*” initiative, for which a \$25 million bond is being sought and includes a significant amount of street repaving, to capture economies of scale by including storm water management? How many square feet of asphalt will be laid down in the “*Smart Streets*” project? If permeable pavement were utilized, how many gallons of storm water could be allowed to filter into the ground rather than directed to the storm/sewer system? Was a cost/benefit analysis performed in this regard?
- The City is incorporating storm water improvements as part of the smart streets initiative. Permeable surfaces and other options are being considered. It is the City’s plan to reduce the overall pavement downtown and increase green space and add trees.

There are many green infrastructure solutions available to the community

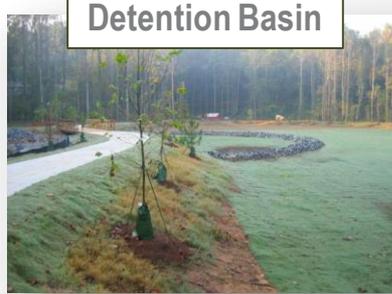
Ecoroof



Constructed Wetlands



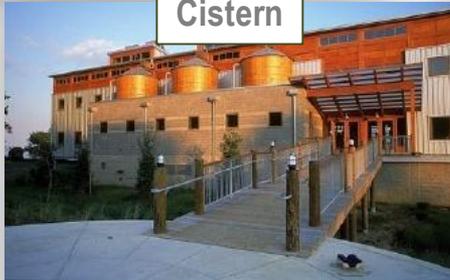
Detention Basin



Bioswale



Cistern



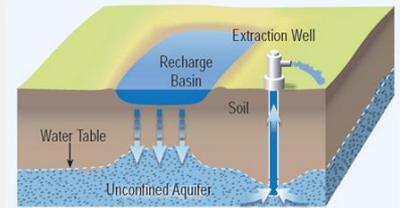
Permeable Pavement



Infiltration Trench



Groundwater recharge



Rooftop Disconnection



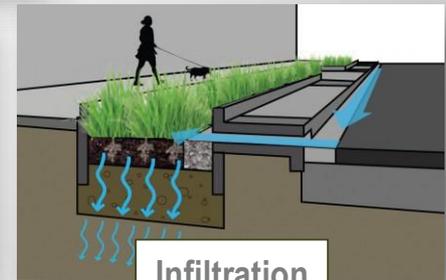
Bioretention



Stream Daylighting



Infiltration



Question and Response to Number 13

- 13. What internal policies, oversight and checks and balances does the City have in place regarding the procurement and bid letting process relative to conflicts of interest, improprieties and illegal acts that could be perpetrated by City employees, suppliers, or contractors bidding work on the project?
- The City requires all vendors to execute a Non-collusion Affidavit with all bids which certifies that no impropriety occurred to give a vendor an advantage over any other vendors during the public bidding process. The State of Indiana requires City employees to disclose potential conflicts of interest with potential vendors. Should a conflict exist, that employ is recused from the negotiating process in an effort to create a fair and transparent bid process.

Question and Response to Number 14

- 14. Does the City have a policy or preference regarding union vs. non-union contractors bidding on CSO construction work?
- The City does not have a policy nor a preference when it comes to both non-union and union contractors bidding on any City project. The City welcomes both non-union and union contractors.

What are the Next Steps?

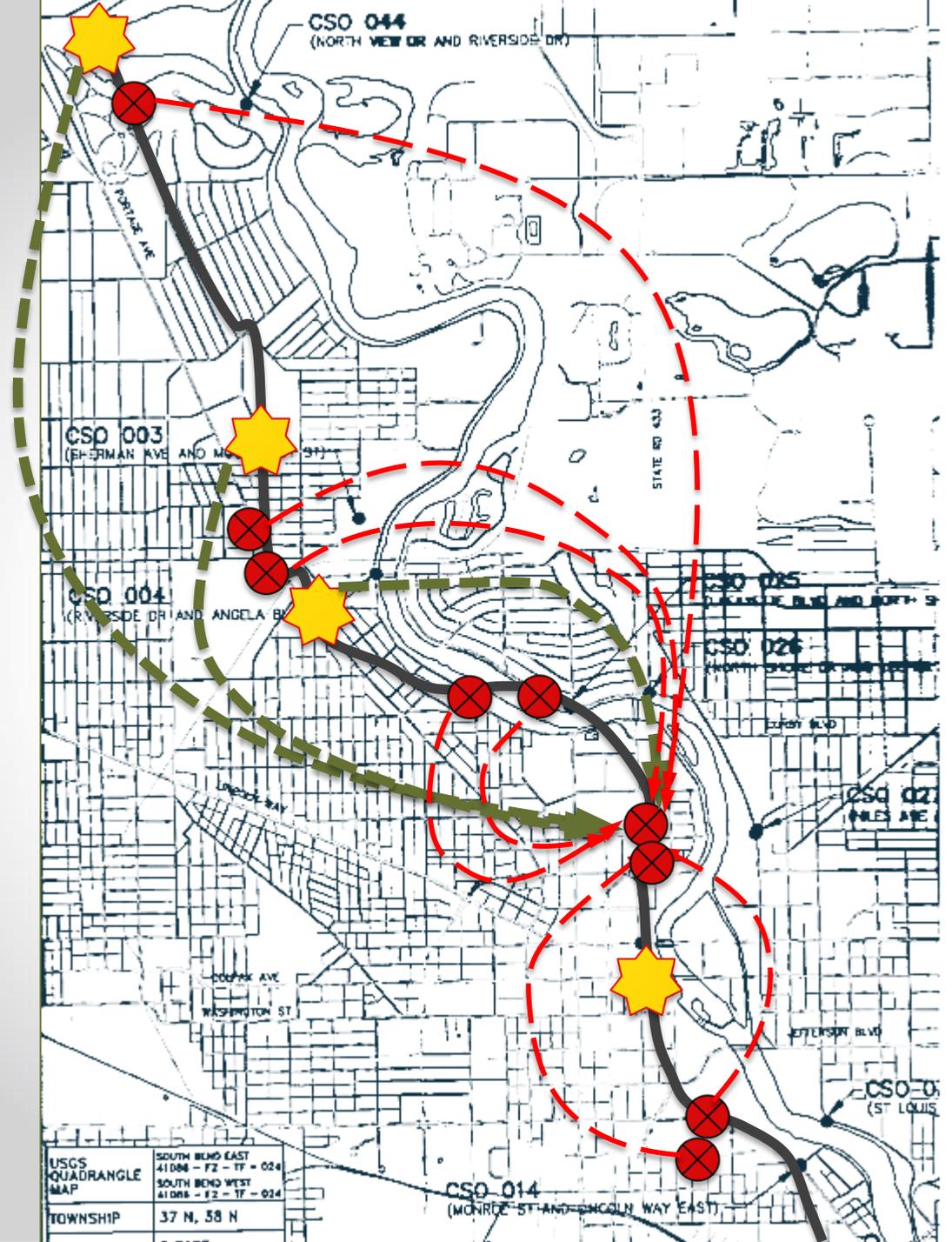


QUESTIONS OR
COMMENTS?

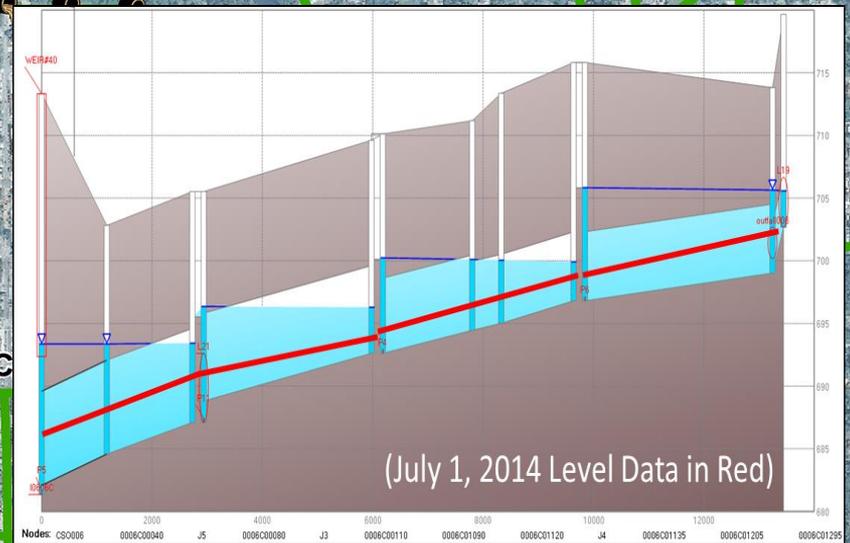
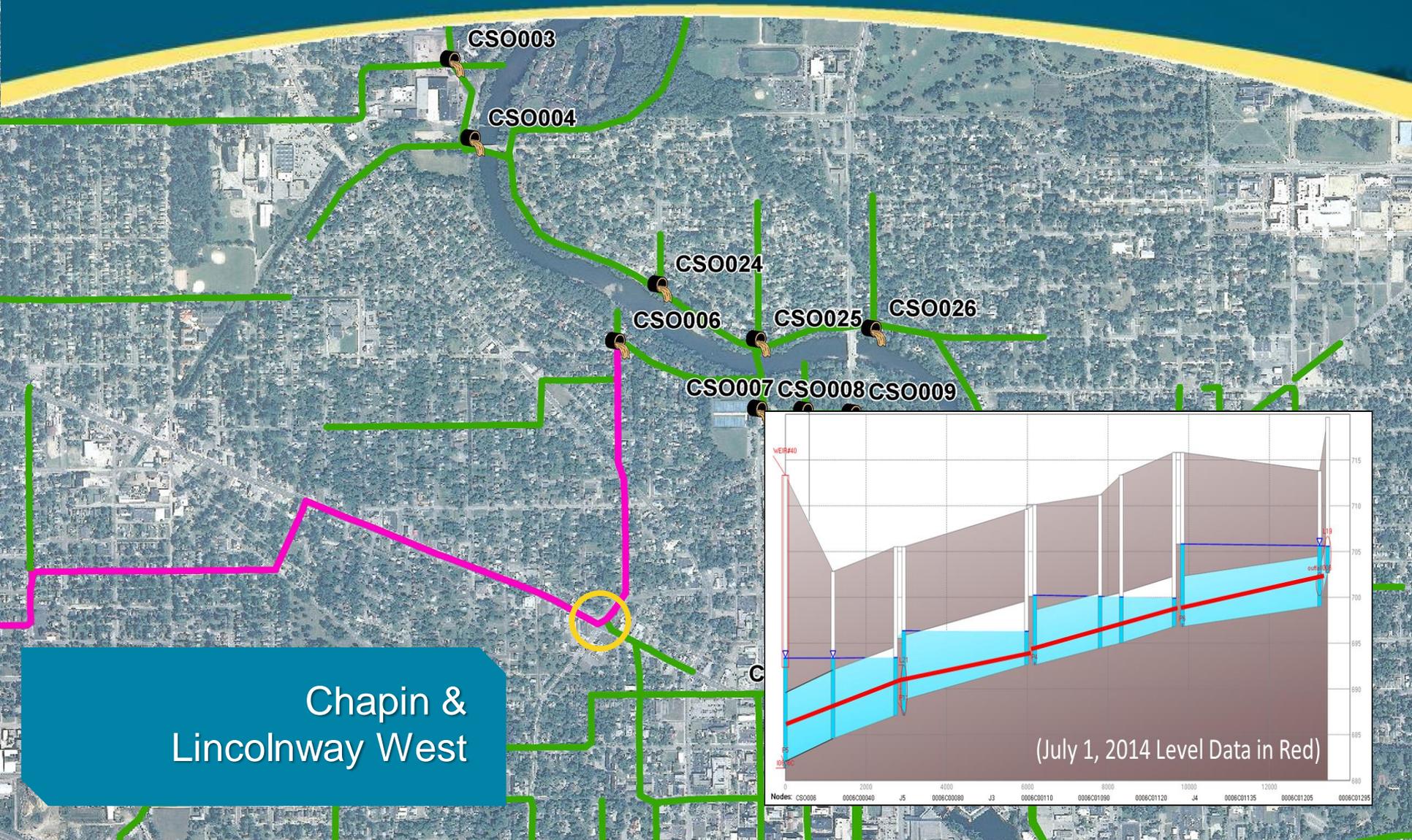


Real Time Control Optimizes Infrastructure

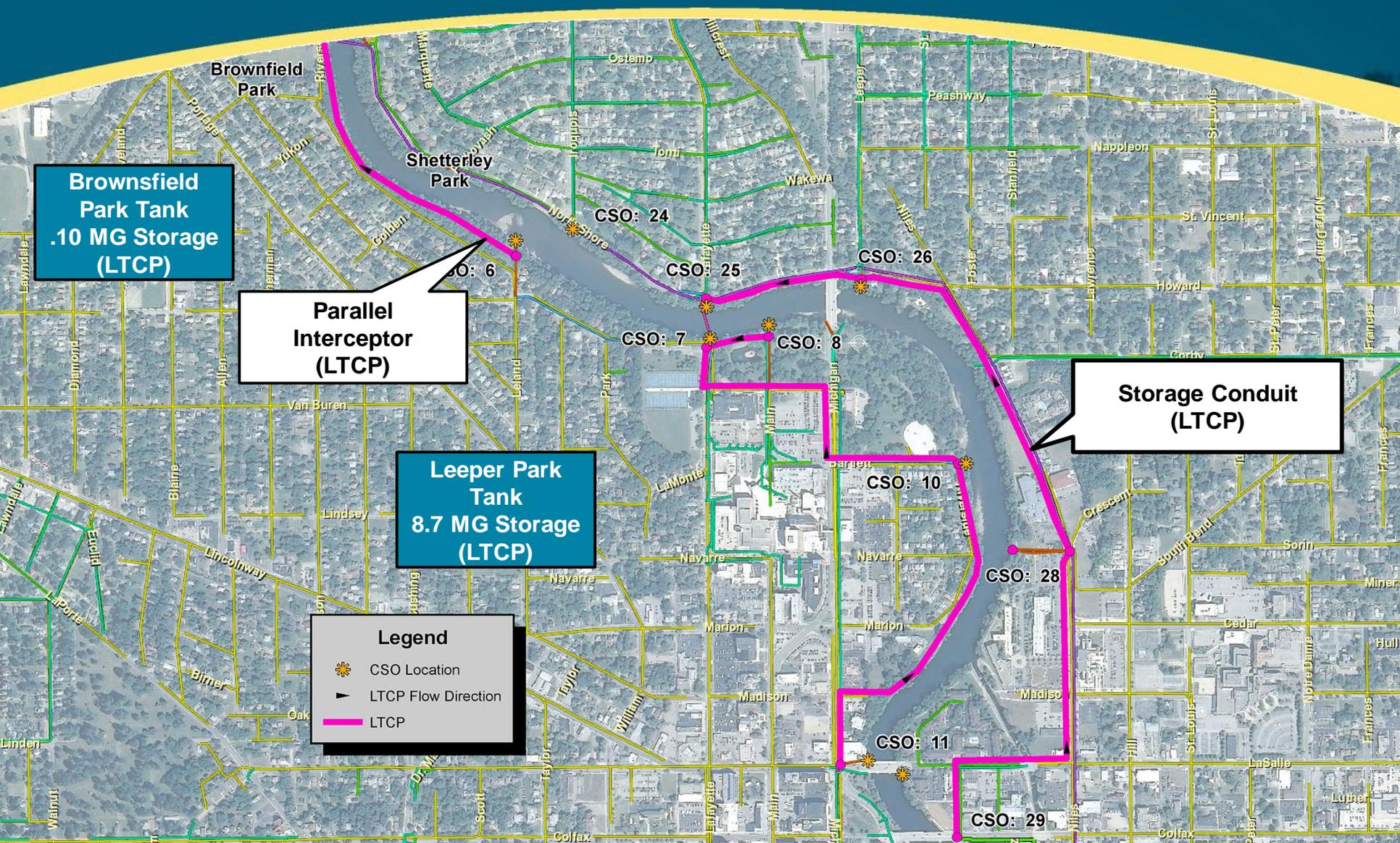
- Each storm is different
- RTC adjusts the system in response to the storm
- Like traffic lights for the sewers
- Coordinate all assets



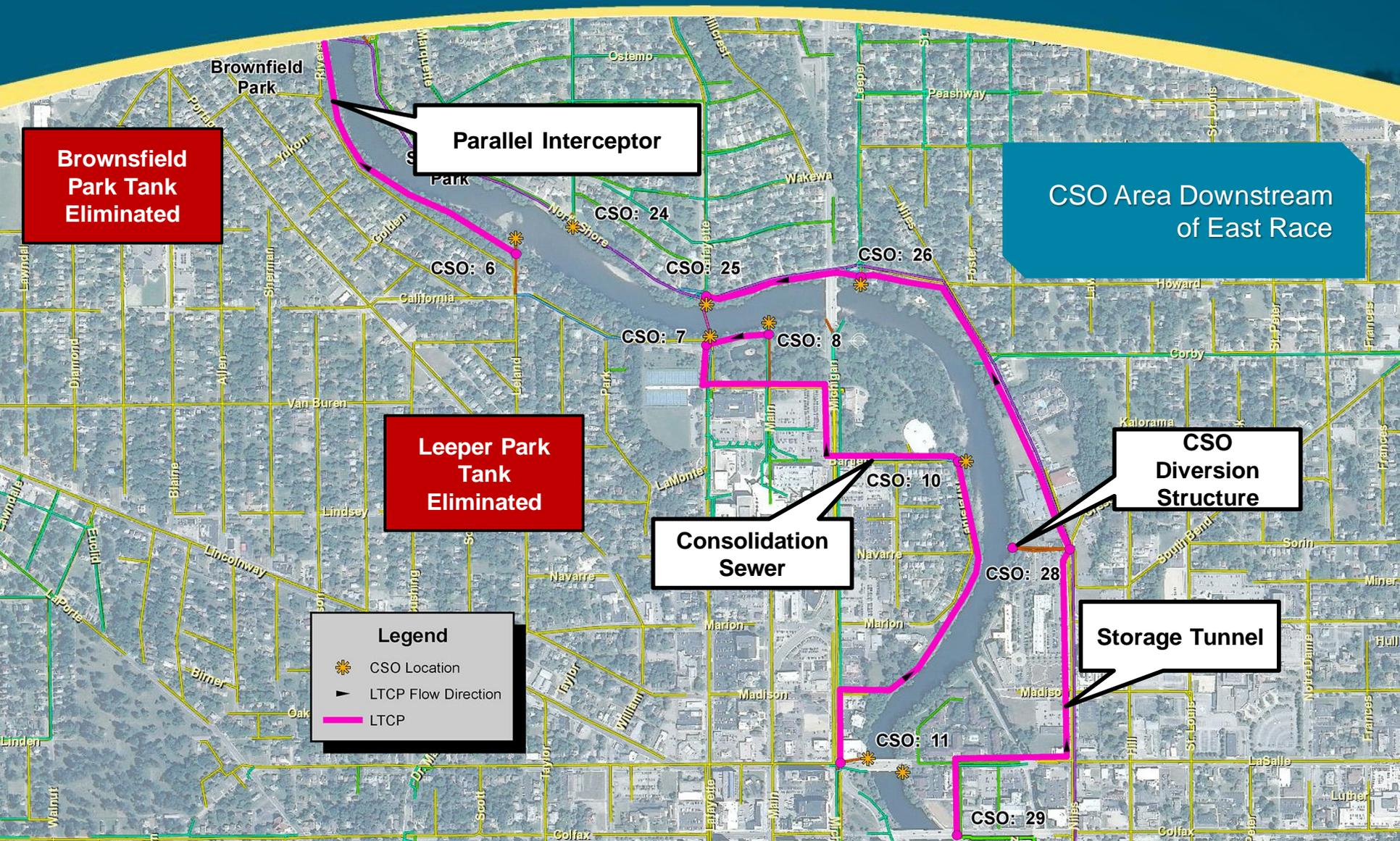
Technical Design Alternatives: In-Line Storage Along CSO 6 Trunkline



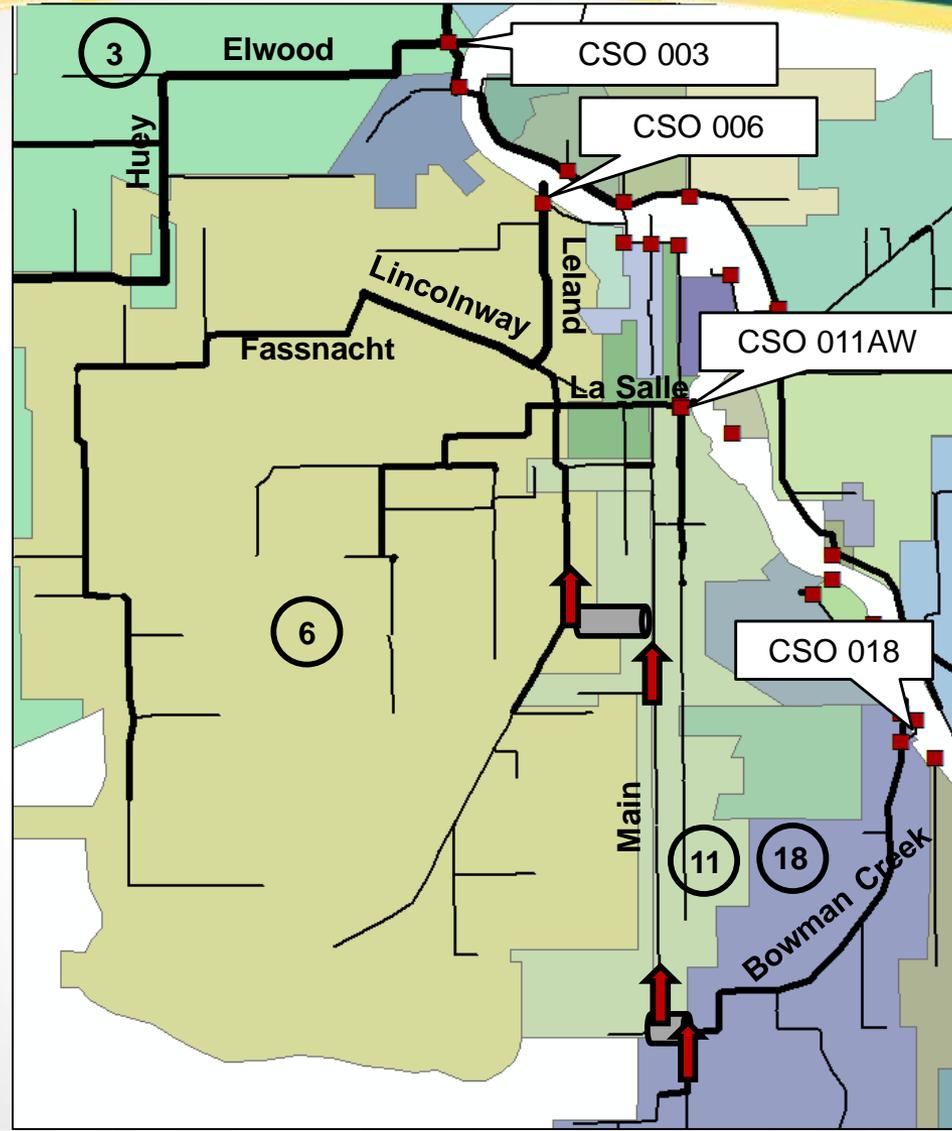
Existing LTCP Downstream of East Race



Conceptual Alternate Options to Save \$



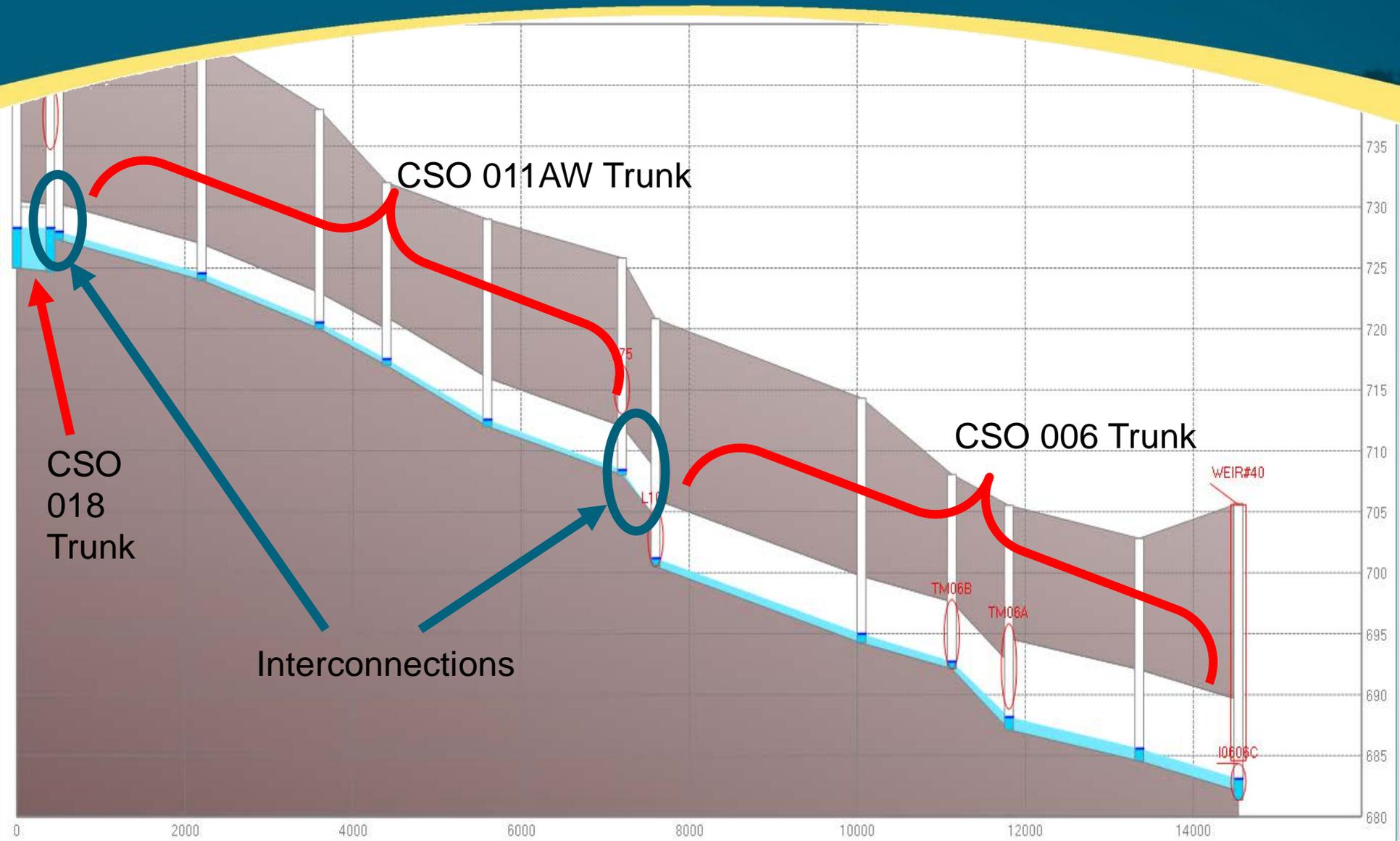
Model Indicates Old Fire Station Tank May Be Eliminated Though 2 New Interconnections Resulting In \$ Savings



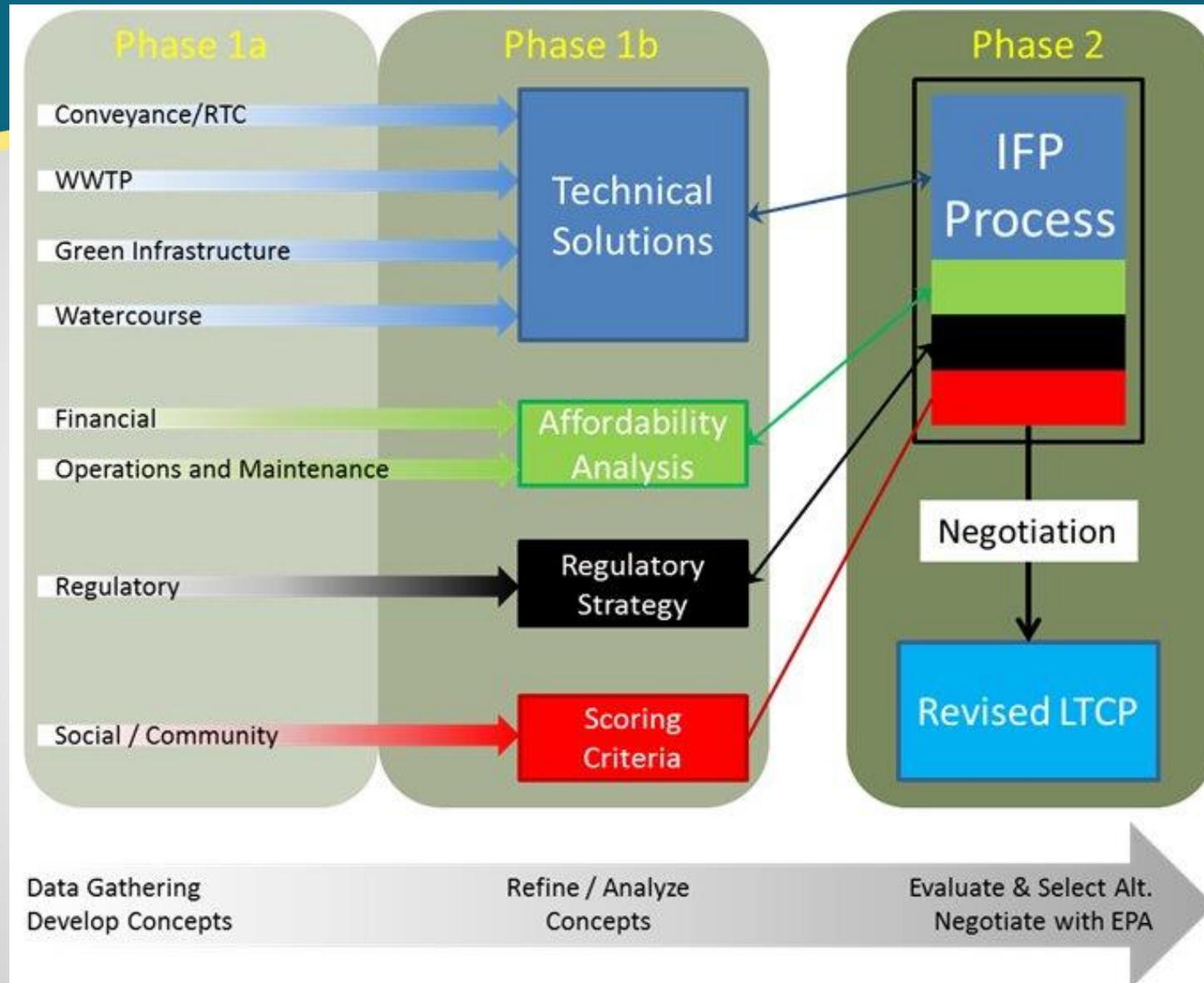
Legend

-  Interconnection
-  Flow Direction
-  CSO Area

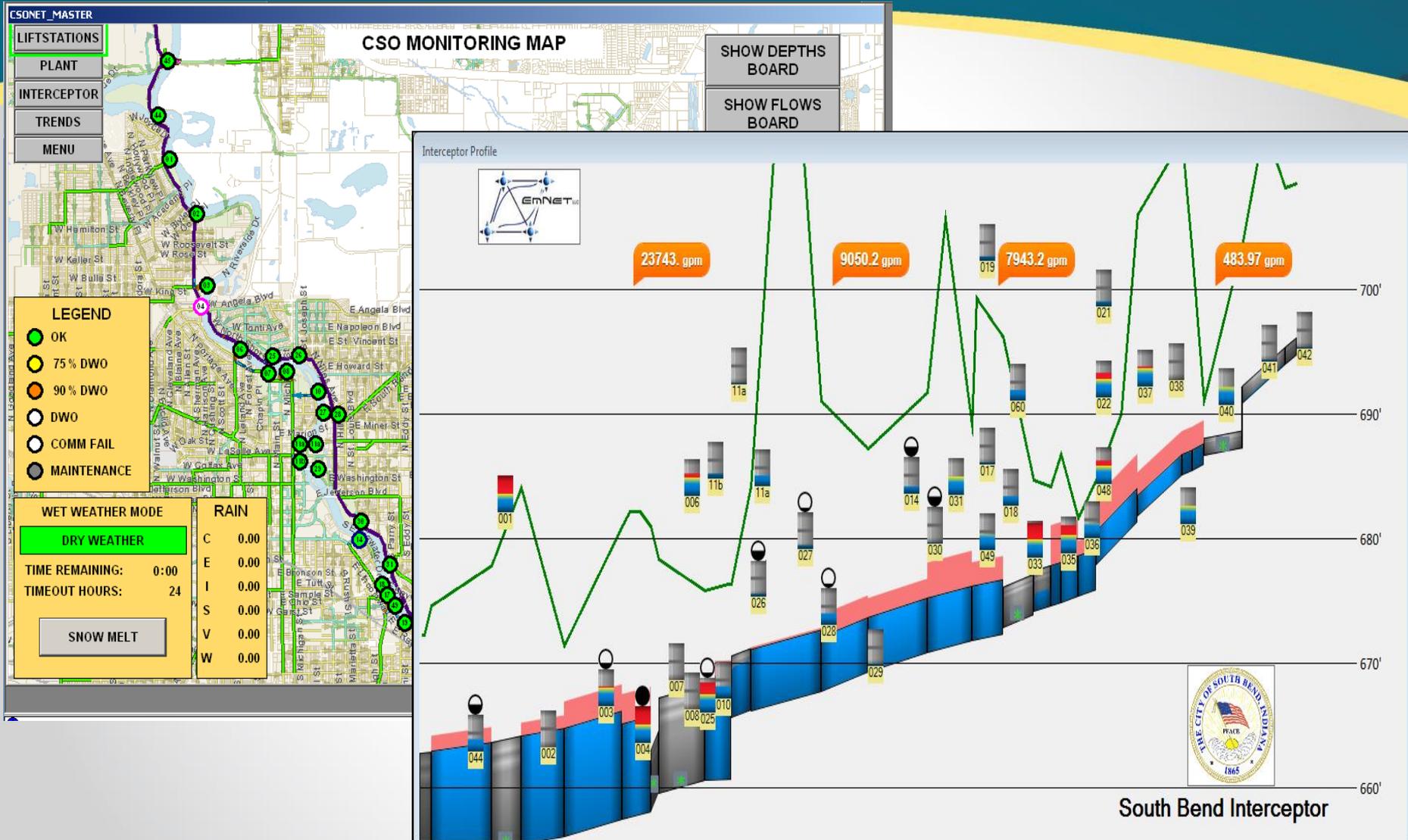
Trunkline Interconnections



South Bend LTCP Reassessment – Project Phasing



Turn data into information



What do we get? – After Phase 1

- Conceptual solutions that will save \$\$
- Range of potential savings
- Better-defined cost of existing LTCP and whether it is affordable by EPA standards
- Computer models to assess environmental improvements and affordability of alternative solutions
- Engaged stakeholder group

What do we get? – After Phase 2

- New LTCP to meet consent decree – Less costly!
- LTCP implementation schedule and budget
- Tools to track progress, performance
- Stakeholder and community understanding

Activities in Phase 1

(Get the tools, fill the toolbox)

- Assess and quantify technical, economic and social impact of current LTCP
- Establish financial and water quality baseline for City
- Develop tools for IFP process:
 - Conveyance, WWTP and Watercourse Models
 - EPA 1997 Phase 1 and Phase 2 Affordability Analyses
 - Financial Rate & Affordability Models
 - Green Infrastructure opportunities
- Develop City-specific evaluation criteria
- Develop City-specific regulatory negotiation strategy



Activities in Phase 2

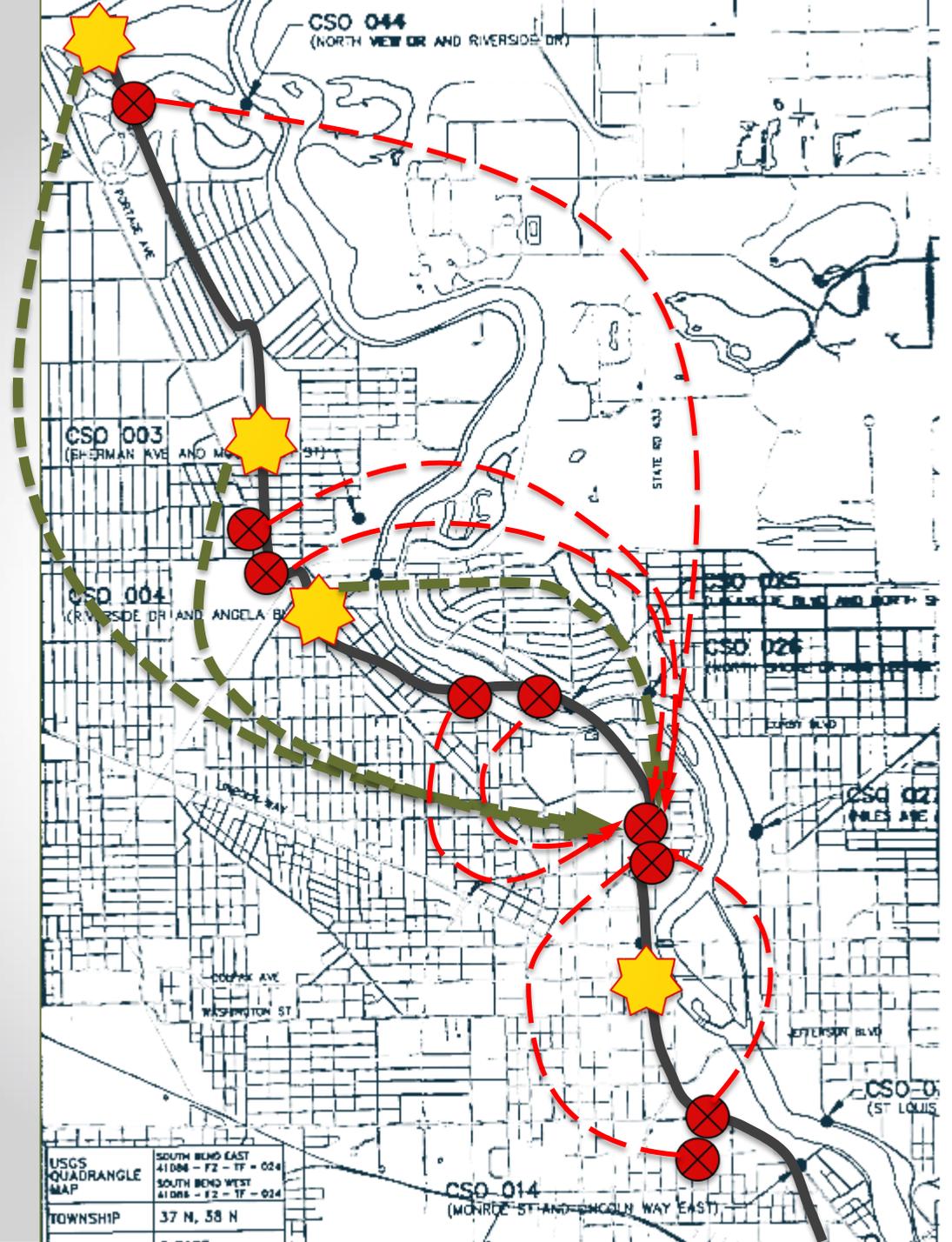
(Build a better plan)

- Utilize tools from Phase 1 to conduct IPF process
 - Achieve water quality goals in a manner that is affordable to the City and its residents
- Evaluate alternatives to find best solution for City
- Take preferred alternative to negotiate with EPA
- Develop new LTCP and modify Consent Decree
 - Project phasing and schedule
 - Identify milestone dates for EPA compliance
 - Cash flow & rate projections



Real Time Control Optimizes Infrastructure

- Each storm is different
- RTC adjusts the system in response to the storm
- Like traffic lights for the sewers
- Coordinate all assets



Sewage Works Capital Projects 2010-14

Sewage Works Capital Projects		-----Year Completed-----				
Project #	Project Name	2010	2011	2012	2013	2014
108-012	Edison Park Sewer Separation-Phase II	4,415,562.25				
110-019	Crest Manor Sewer Extension	31,280.50				
110-052	Chapin St. Storm Sewer Extension-Phase II	604,897.55				
108-005	Eddy Street Commons Utilities-Phase III	1,067,077.92				
110-068	Farmington Lane Sanitary Sewer Extension	51,485.80				
109-008	Southernview Drive Culvert		66,724.27			
108-050	Twyckenham Storm Sewer Separation		5,143,094.13			
109-003	Kennedy Park Sewer Separation		3,395,170.48			
109-019	Embedded Sensor CSO Monitoring-Phase II		2,725,769.64			
109-070B	East Bank Sewer Separation-Phase 1B		2,005,710.51	100,285.53		

Sewage Works Capital Projects 2010-14

109-070B	East Bank Sewer Separation-Phase 1B		2,005,710.5	100,285.53		
109-029	Pleasant St. Sewer Separation-Phase II		1,259,512.34			
20110378	Coveleski Stormwater System			405,954.00		
109-033	Diamond Ave. Storm Sewer-Phase I			4,660,837.23		
109-070A	East Bank Sewer Separation-Phase 1A			2,720,869.20		
109-033B	Diamond Ave. Storm Sewer-Phase II			3,763,477.85		
111-068	East Bank Sewer Separation-Phase II			3,296,692.55		
107-042	LaSalle School Area Sewer Separation			1,954,215.09		
109-009	Triangle Neighborhood Infrastructure			383,626.00		
109-055	Mayflower Rd. Sewer Extension			602,872.00		
111-069	East Bank Sewer Separation-Phase III				2,725,977.05	
112-041	East Bank Sewer Separation-Phase IV					3,197,954.26
109-033C	Diamond Ave. Storm Sewer-Phase III					2,852,362.25

Sewage Works Capital Projects 2010-14

109-079	WWTP Dewatering Bldg. HVAC	198,431.00				
106-068	Clay-Sunnybrook, New London Lake Lift Station Repl.	308,371.35				
108-086	Primary Scum & Final Clarifier Gates #6 & #7		232,191.64			
109-069	Scum & Grease Removal Modifications		285,286.23			
109-039	Raw Sewage Pump #1 Upgrade		318,564.00			
110-060	WWTP Headworks Bldg Air Handler Controls		39,787.00			
110-041	Raw Sewage Pump #3 Upgrade		293,000.00			
109-071	Raw Sewage Pump #3 Right Angle Drive Repl.		289,983.72			
109-074	Blower 1A & 1B Replacement			2,569,370.66		
109-087A	Clay-Cleveland Lift Station Replacement			612,109.74		
109-087B	River Commons Lift Station Replacement			303,877.18		

Sewage Works Capital Projects 2010-14

111-030	Disinfection Gate & Mixer Replacement			700,692.31		
111-008	Michigan St. Lift Station Replacement				511,006.48	83,650.14
112-011A	Organic Resources Site Improvements				478,553.36	
111-070	Automation of DO Controls for Aeration Blowers				831,926.77	
113-039	Sage Rd./Poppy Rd. Lift Station Modifications					579,190.98
113-038	Ferric Chloride Feed System Pump Station					456,821.90
	Completed Project Totals	6,677,106.37	16,054,793.96	22,074,879.34	4,547,463.66	7,169,979.53

Work in Progress

Work in Progress at 12/31/2014						
110-091	Sewer Overflow Sensory Network					525,596.30
112-042	Southwood Sewer Separation					2,264,292.94
113-026	Prairie Avenue Sewer Separation					403,172.54
14U005	East Bank Sewer Sep.-Phase 5					124,280.00
111-071	Primary Clarifier Upgrades					3,610,769.46
111-029	Digester Upgrade at WWTP					6,748,928.17
14T001	Eastgate Lift Station Replacement					104,295.00
14U001	Secondary Clarifier Rehab					554,885.88
114-075	Grit Removal & Influent Screening Impr.					27,361.00
						14,363,581.29

Note: All amounts shown include engineering, construction, and capitalized interest costs.