

City of Terre Haute
Long Term Control Plan (LTCP)
Program Management
Preferred Alternative Presentation
Public Meeting

January 24, 2011

CSO Long Term Control Plan

Welcome
and
Introductions

Project Technical Team

- City Staff – Engineering, Wastewater and THSD
- HWC – Program Manager
- LimnoTech – River Water Quality Modeling
- HJ Umbaugh – Financial Consultant
- Barnes and Thornburg – Legal Counsel
- Citizens Advisory Committee (CAC)

What is a CSO?

- A CSO is a Combined Sewer Overflow
 - A Combined Sewer System is a sewer system that is designed to collect sanitary and storm flows in the same pipes
 - House sewers, street inlets and downspouts deposit flow into the combined system

What is a CSO?

- A CSO is a Combined Sewer Overflow
 - Most of the time, all of the flow, sanitary and storm, goes to the wastewater treatment plant
 - When the collection system and wastewater treatment plant cannot process the flow during a rain event, the excess flow outlets to the Wabash River

Overflow in Action



Existing CSO Outfalls



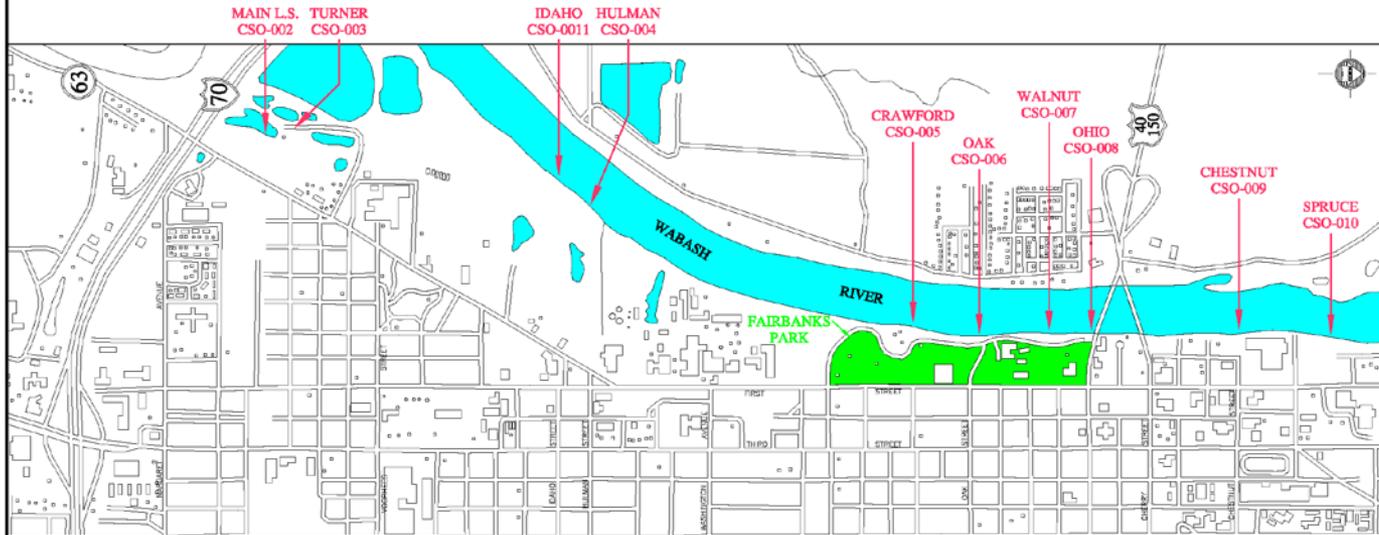
Existing Outfalls

Diversion Structure



Existing Outfalls

Terre Haute CSO Locations



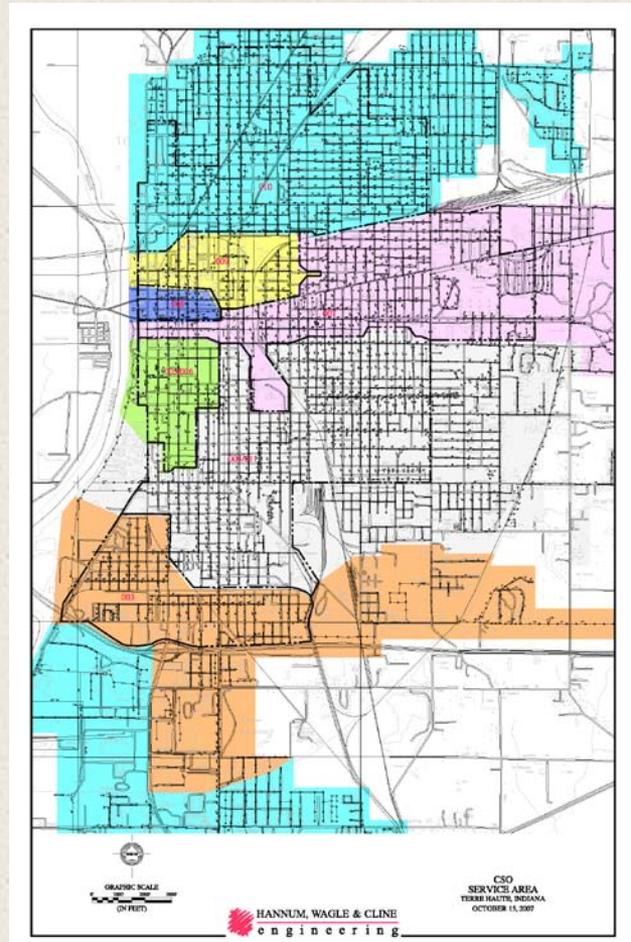
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TERRE HAUTE
A LEVEL ABOVE

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A LEVEL ABOVE

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engineering

Existing CSO System Service Areas



History of the Terre Haute Long Term Control Plan

- Original Long Term Control Plan (LTCP)
 - The LTCP was required in the City's NPDES permit
 - The LTCP was submitted to the Indiana Department of Environmental Management (IDEM) in April 2002
 - Proposed Project Cost: Approximately \$45 Million
 - Total CSO Volume Captured was estimated at 83%
 - (Note: Existing capture of CSO Volume is approximately 65%)

History of the Terre Haute Long Term Control Plan

- The Original LTCP projects included:
 - CSO Interceptor on 1st Street
 - Inline Storage using Inflatable Dams
 - Wastewater Treatment Facility Upgrades
 - Floatable Controls at all remaining outfalls

History of the Long Term Control Plan

- “Early Action Items”
 - Some projects were started before approval of the LTCP
 - Large Diameter Sewer Rehabilitation
 - Approximately 21,000 linear feet of existing sewer was rehabilitated using wire mesh and Shotcrete
 - Hulman Street
 - Walnut Street
 - Spruce/Chestnut
 - 4th Street Sewer Replacement

History of the Long Term Control Plan

- “Early Action Items”
 - Large Diameter Sewer Rehabilitation



Long Term Control Plan

- Why Are We Doing This Again?
 - 2002 LTCP was never reviewed by IDEM or EPA
- New Alternative Screening – IDEM and EPA
 - The City had updated information
 - Outfall flow meters, collection system monitoring
 - An expanded list of alternatives was to be evaluated
 - Evaluate control alternatives based on a “typical year” of rainfall
 - Alternative selection and approval are based on affordability and other factors

Use Attainability Analysis

- The UAA addresses attainability of bacterial water quality standards in wet weather
- The UAA is being done in conjunction with the affordability analysis, as part of the LTCP
- If CSO's will not be completely eliminated, then the UAA would revise the water quality standards to reflect the final LTCP level of control, so that when the City reaches that level, it will be in compliance with all legal requirements
- The process includes some additional steps including public participation

Long Term Control Plan

- State Judicial Agreement (SJA)
 - The City signed a State Judicial Agreement in 2008 to complete a Long Term Control Plan
 - The schedule stated that the City would submit the LTCP by January 31, 2011. (Extended by IDEM from original SJA)

Alternative Evaluation

- Goals:
 - Evaluate a range of alternatives from “No Action” to complete closure of all outfalls
 - Find system-wide solutions to the CSO problem
 - Narrow down the overall system-wide alternatives
 - Evaluate (in detail) 3 final alternatives
 - Determine costs and impact on river water quality (in terms of E. coli)

Alternative Evaluation

- What kind of solutions were considered?
 - Storage (Ponds, Tanks, Inline)
 - Tunnels
 - Additional Interceptors (Outfall Consolidation)
 - Satellite Treatment
 - Complete Separation of the combined system
 - Increased Treatment Plant Capacity
 - “Green” Infrastructure Technology

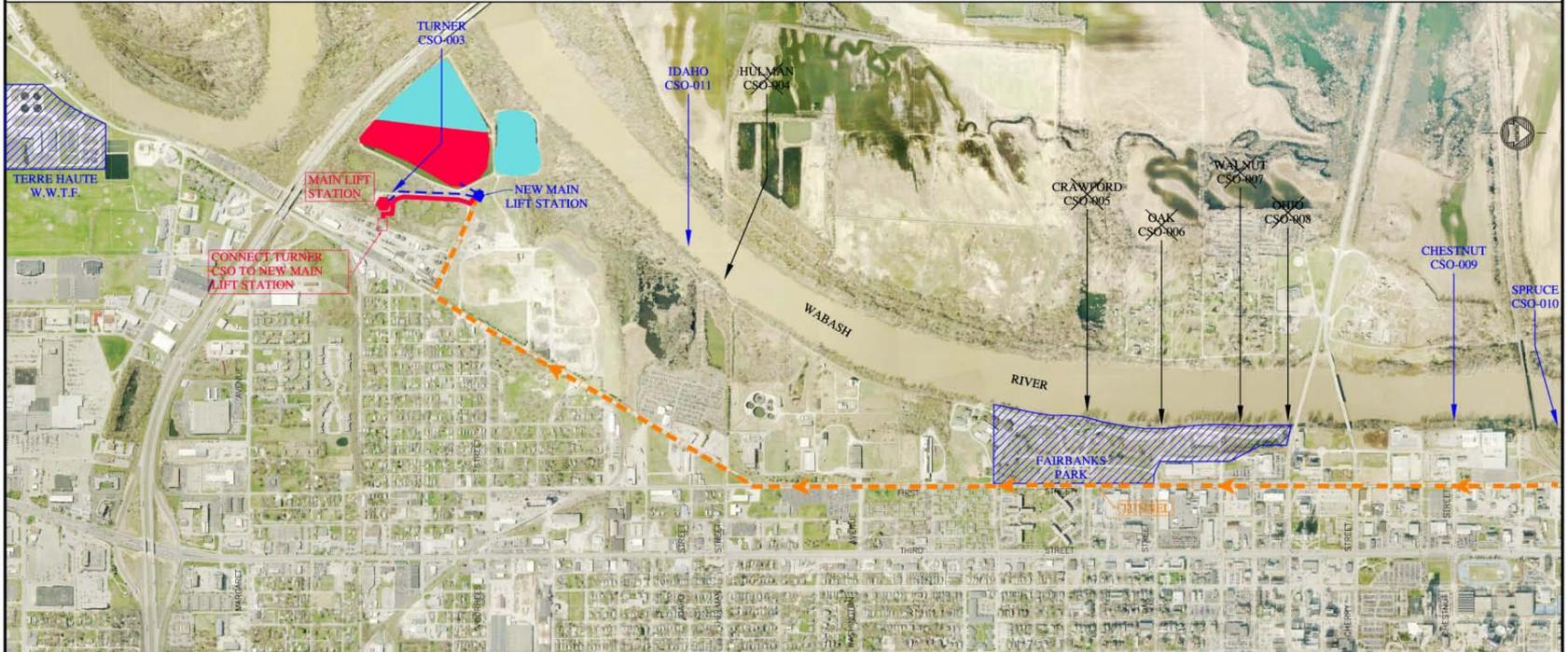
Alternatives Evaluation

- Three alternatives to be evaluated
 - Alternative 7B – Tunnel to new main lift station with IP.
 - Alternative 11 – Relief sewer from Ohio Street to IP storage, consolidation/storage of north CSO's, new main lift station.
 - Hybrid Alternative – Relief Sewer from Ohio Street to IP storage

*All 3 Alternatives Assume Use of IP Storage

Terre Haute CSO LTCP - Tunnel to Main Lift Station w/ International Paper

ALTERNATIVE 7B



LEGEND

- | | | | |
|--|---|--|---|
| | RELIEF SEWER AND FLOW | | CSO-009A
NEW CSO FROM CONSOLIDATION |
| | MAIN LIFT STATION | | EXISTING CSO TO BE ELIMINATED |
| | STORAGE TANK (INCLUDES SIZE AND VOLUME) | | OHIO CSO-008
EXISTING CSO TO REMAIN (SOME REMAIN OPEN AT LESSER LEVELS OF CONTROL) |
| | UC
ULTIMATE CONVEYANCE | | CSO TUNNEL |
| | 12"Ø
RELIEF SEWER SIZE | | |
| | EXISTING INFRASTRUCTURE | | |
| | NEW FORCE MAIN | | |

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Costs and Water Quality Alternative 7B

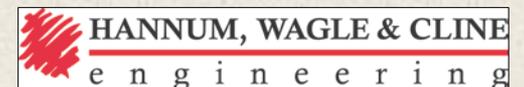
# of Overflows	Total Project Cost	Hours of Exceedance of Water Quality Standards *
Baseline	No Cost	174
12	\$131,078,800.00	54
9	\$145,173,400.00	49
6	\$165,708,300.00	24
0	\$163,904,200.00	0

* Downstream of the Wastewater Treatment Plant

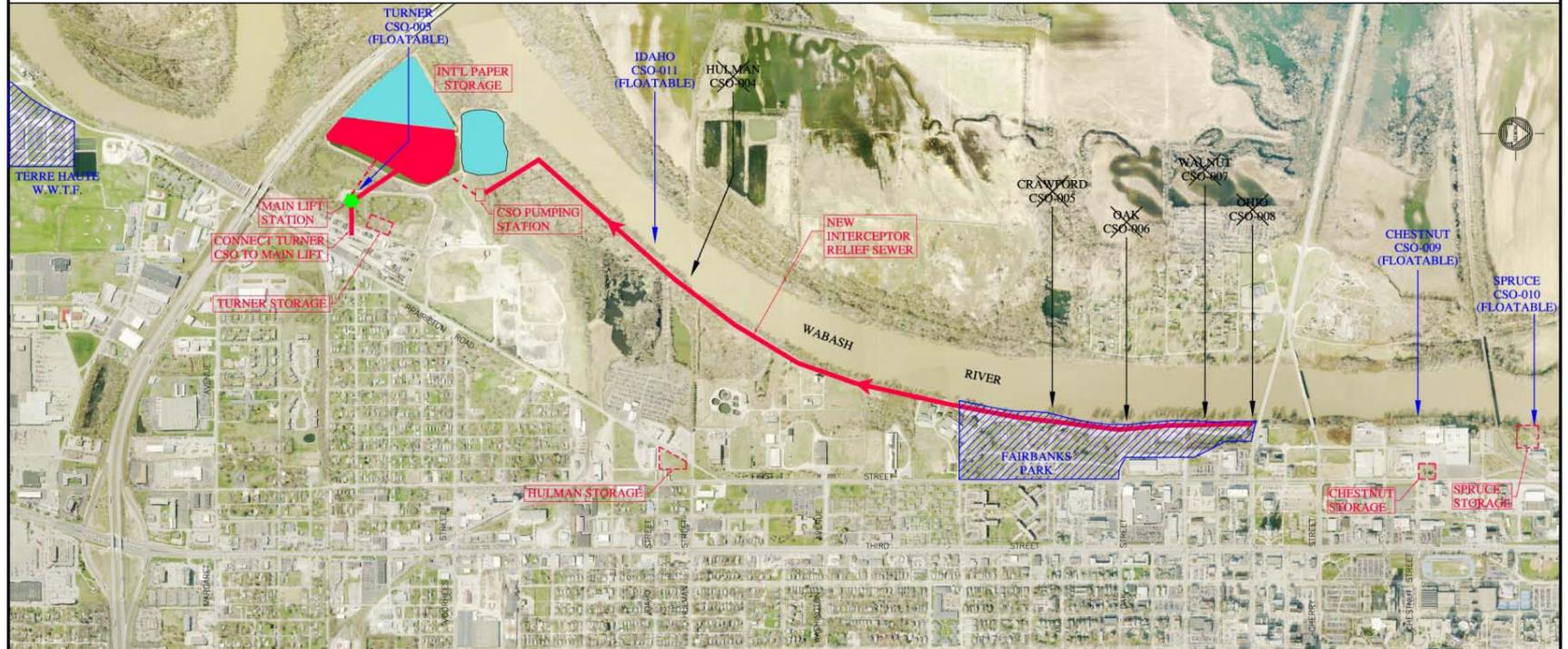
Costs and Water Quality Alternative 11

# of Overflows	Total Project Cost	Hours of Exceedance of Water Quality Standards*
Baseline	No Cost	174
12	\$103,303,100.00	55
9	\$117,777,500.00	51
7	\$119,096,600.00	45
6	\$139,301,200.00	31
4	\$197,664,600.00	24
2	\$265,151,800.00	16
1	\$304,901,000.00	6
0	\$541,792,000.00	0

* Downstream of the Wastewater Treatment Plant



Terre Haute CSO LTCP - Alternative - Hybrid



LEGEND

- | | | | |
|---|-------------------------------|---|-------------------------------|
|  | RELIEF SEWER AND FLOW |  | EXISTING CSO TO BE ELIMINATED |
|  | MAIN LIFT STATION |  | EXISTING CSO TO REMAIN |
|  | RELIEF SEWER SIZE | | |
|  | NEW PUMP STATION OR STRUCTURE | | |
|  | NEW FORCE MAIN | | |

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Costs and Water Quality Alternative Hybrid

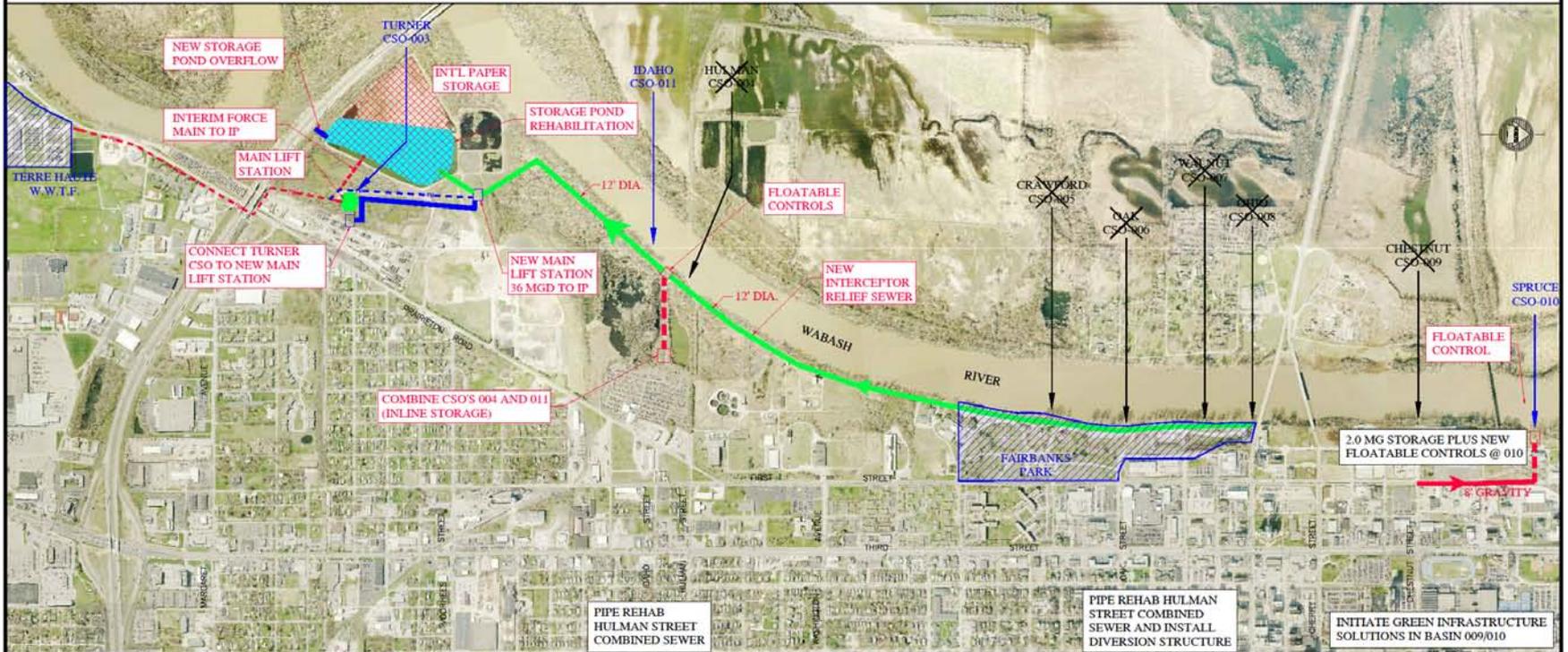
# of Overflows	Total Project Cost	Hours of Exceedance of Water Quality Standards*
Baseline	No Cost	174
12	\$73,629,200.00	55
9	\$83,000,400.00	52
6	\$118,644,900.00	38
4	\$147,078,700.00	27
2	\$312,391,200.00	18
1	\$340,163,700.00	11
0	\$508,782,400.00	0

* Downstream of the Wastewater Treatment Plant

Preferred Alternative

- Alternative 11-7
 - Approximately 96% of CSO Volume Captured
- Benefits:
 - Can be Phased Over 25 Years (Project/Rate)
 - Can Be Reasonably Expanded to Gain More CSO Control (i.e. utilizing green technologies)
 - Allows ISU Development by Consolidating 009/010
 - Provides New Main Lift Station (Designed to Allow for Future Tunnel Connection)
 - Lower Operational Costs Than Hybrid
 - Lower Capital Costs than 7B at Most Overflow Levels

Terre Haute CSO LTCP - Preferred Alternative



LEGEND

- | | | | |
|--|---------------------------------|--|---|
| | RELIEF SEWER AND FLOW | | EXISTING CSO TO BE ELIMINATED |
| | EXISTING MAIN LIFT STATION | | EXISTING CSO TO REMAIN (SOME REMAIN OPEN AT LESSER LEVELS OF CONTROL) |
| | RELIEF SEWER SIZE | | |
| | NEW PUMP STATION OR STRUCTURE | | |
| | NEW FORCE MAIN | | |
| | EXISTING COMBINED SEWER OUTFALL | | |

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DECEMBER 2010

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A LEVEL ABOVE

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How Will This Change My Sewer Rates?

Phase	Estimated Annual Rate*	Estimated Monthly Rate*
Current Rate	\$444	\$37
After WWTF Upgrades	\$565	\$47
After Final CSO Project Complete	\$833	\$69

* Includes the property tax component

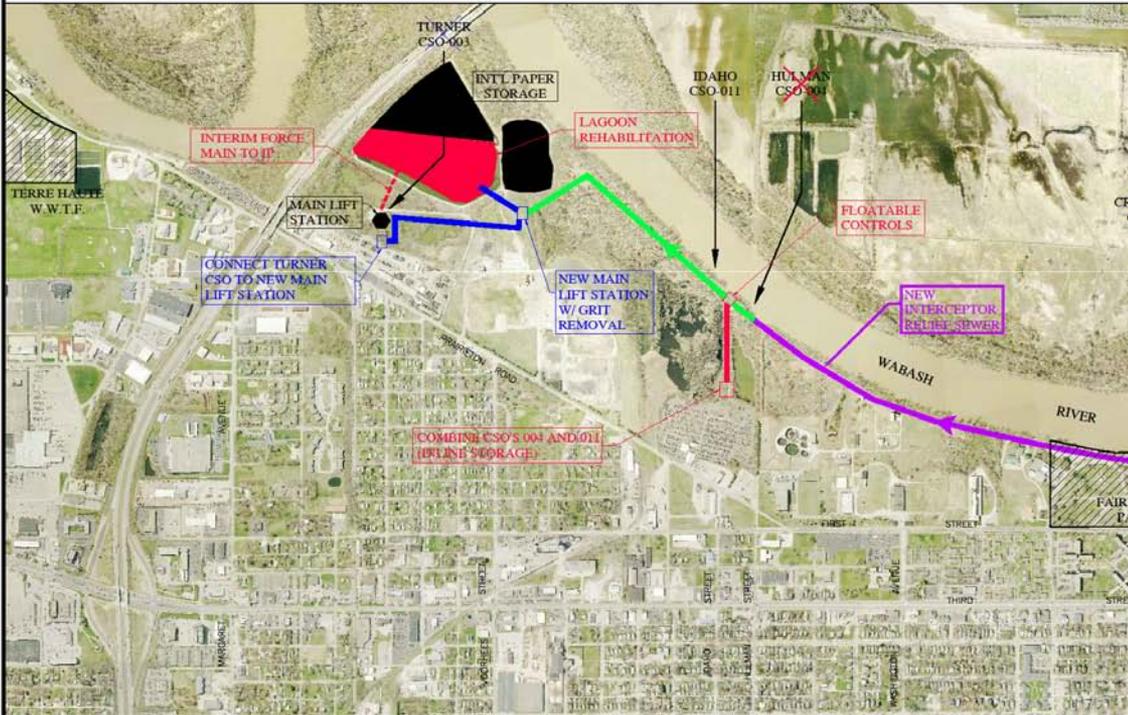
When will this happen?

- Long Term Control Plan Submission 1/31/2011
- Phasing Plan (25 years):

Phase	Proposed Construction Start Date
1	2014
2	2019
3	2024
4	2028
5	2033

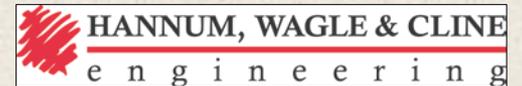
- Project Complete 2036

Terre Haute CSO LTCP - Alternative 1



LEGEND

-  RELIEF SEWER AND FLOW
-  MAIN LIFT STATION
-  RELIEF SEWER SIZE
-  NEW PUMP STATION OR STRUCTURE
-  NEW FORCE MAIN
-  EXISTING CSO TO BE ELIMINATED
-  EXISTING CSO TO REMAIN
-  (Color key)
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Public Awareness

- A key element of the LTCP continues to be public input and awareness
 - The Citizens Action Committee has met to provide input for the new alternatives and priority areas
 - A website has been established to provide information about the Terre Haute CSO process
 - www.terrehautecleanwater.com

Thank you.

Questions?

Terre Haute CSOLTCP Implementation Schedule (25 Years)

Item	Milestone Date
• Complete & Submit CSOLTCP	04/2011
• WWTF Improvements – Complete Phase I Construction	04/2012
• WWTF Improvements – Complete Phase II Design	04/2012
• Finalize Financing, Procure Bids	
• CSOLTCP – Complete Phase I P.E.R.	04/2012
• Initiate Design of Phase I	
• CSOLTCP – Complete Phase I Design	06/2014
• Finalize Financing, Procure Bids	
• WWTF Improvements – Complete Phase III Design	06/2014
• Finalize Financing, Procure Bids	
• WWTF Improvements – Complete Construction of Phase II	03/2015
• WWTF Improvements – Complete Construction of Phase III	03/2016
• CSOLTCP – Complete Construction of Phase I	03/2016
• CSOLTCP – Initiate Monitoring of Phase I and P.E.R. of Phase II	04/2016
• Review and Re-evaluate CSOLTCP	12/2016
• CSOLTCP – Complete Phase I Monitoring and Phase II P.E.R	04/2017
• Initiate Phase II Design	
• CSOLTCP – Complete Phase II Design	03/2019
• Finalize Financing, Procure Bids	
• CSOLTCP – Complete Construction of Phase II	10/2020
• CSOLTCP – Initiate Monitoring of Phase II and P.E.R. of Phase III	11/2020
• CSOLTCP – Complete Phase II Monitoring and Phase III P.E.R.	12/2021
• Initiate Phase III Design	
• Review and Re-evaluate CSOLTCP	12/2021
• CSOLTCP – Complete Phase III Design	02/2024
• Finalize Financing, Procure Bids	
• CSOLTCP – Complete Phase III Construction	07/2025
• CSOLTCP – Initiate Monitoring of Phase III and P.E.R. of Phase IV	08/2025
• CSOLTCP – Complete Phase III Monitoring and Phase IV P.E.R.	08/2026
• Initiate Design of Phase IV	
• Review and Re-evaluate CSOLTCP	12/2026
• CSOLTCP – Complete Phase IV Design	07/2028
• Finalize Financing, Procure Bids	
• CSOLTCP – Complete Phase IV Construction	04/2030
• CSOLTCP – Initiate Monitoring of Phase IV and Phase V P.E.R.	05/2030
• CSOLTCP – Complete Phase IV Monitoring and Phase V P.E.R	05/2031
• Initiate Design of Phase V	
• Review and Re-evaluate CSOLTCP	12/2031
• CSOLTCP – Complete Phase V Design	04/2033
• Finalize Financing, Procure Bids	
• CSOLTCP – Complete Phase V Construction	11/2034
• CSOLTCP – Initiate Monitoring of Phase V	12/2034
• CSOLTCP – Complete Monitoring of Phase V	12/2035
• Review and Re-evaluate CSOLTCP	12/2036

