



TWI Current Status Summary

April 2019

CPAC Meeting Water Reclamation

22 April 2019

Control Combined Sewer Overflows LTCP Progress Status Summary - March 2019



City of Toledo Toledo Waterways Initiative Segment 3 - CSO LTCP Implementation Progress								
Number	Project	LTCP Study	Facility Site Planning	Preliminary Design	Final Design			Construction
					60%	90%	100%	
1	O-1 Lockwood/Devilbiss SSES	Done	n/a	n/a	n/a	n/a	n/a	n/a
2	O-2 Lockwood/Devilbiss Sewer Separation	Done	Done	Done	Done	Done	Done	Done
3	W-1 Ash/Columbus Storage Pipeline	Done	Done	Done	Done	Done	Done	Done
4	E-6 Wheeling Area SSES and Sewer Separation	Done	Done	Done	Done	Done	Done	Done
5	S-3 Highland Area SSES and Sewer Separation	Done	Done	Done	Done	Done	Done	Done
6	S-4 Woodsdale Area SSES & Inflow Reduction	Done	Done	Done	Done	Done	Done	Done
7	W-2 Ash Area SSES & Sewer Separation	Done	Done	Done	Done	Done	Done	Done
8	W-5 Williams/Knapp Area SSES & Inflow Reduction	Done	Done	Done	Done	Done	Done	Done
9	W-7 New York Area SSES & Inflow Reduction	Done	Done	Done	Done	Done	Done	Done
10	W-6 Maumee Storage Basin	Done	Done	Done	Done	Done	Done	Done
11	E-7 Bay View Grit Facility	Done	Done	Done	Done	Done	Done	Done
12	O-3 Ayers/Monroe Storage/Conveyance Pipeline	Done	Done	Done	Done	Done	Done	Done
13	E-5 Oakdale Storage Basin	Done	Done	Done	Done	Done	Done	Done
14	S-1A Swan Creek North Tunnel Optimization	Done	Done	Done	Done	Done	Done	Done
15	S-2A Swan Creek South Tunnel Optimization	Done	Done	Done	Done	Done	Done	Done
16	W-4A Downtown Tunnel Optimization	Done	Done	Done	Done	Done	Done	Done
17	O-4A Ottawa River Storage Facility (Conveyance)	Done	Done	Done	Done	Done	Done	Done
18	O-4B Ottawa River Storage Facility (Basin)	Done	Done	Done	Done	Done	Done	Done
19	E-2 Dearborn Storage Pipeline	Done	Done	Done	Done	Done	Done	Done
20	E-3 International Park Storage Basin	Done	Done	Done	Done	Done	Done	Ongoing
21	S-1B Swan Creek North Sewer Separation	Done	Done	Done	Done	Done	Done	Ongoing
22	W-4C Downtown Storage Basin	Done	Done	Done	Done	Done	Done	Ongoing
23	S-2B Swan Creek South In-System Storage	Done	Done	Done	Done	Done	Done	Ongoing
24	E-1 Paine Regulator Modifications	Done	Done	Done	Done	Done	Done	Ongoing
25	E-4 Fassett Regulator Modifications	Done	Done	Done	Done	Done	Done	Ongoing

Progress Through March 31, 2019

Control Combined Sewer Overflows



Where are we today?

CSO Storage in the System will be significant!

- *95 MG Combined Sewer System storage at completion*
 - *20 MG of tunnel storage completed in 1990s*
 - *15 MG of storage in 5 projects*
 - *36 MG of storage Joe E. Brown Park*
 - *7 MG of storage International Park*
 - *17 MG of storage in construction – Downtown SB*

Control Combined Sewer Overflows



Where are we today?

- *Design 99% complete & Construction 95% complete*
- *7 of 8 CSO outfalls eliminated....1 to go (Magnolia)*
- *470 MG /year on average will be eliminated when complete*
 - *8 Inflow reduction & sewer separation projects complete*
 - *3 Optimization projects for ex. CSO Storage Tunnels complete*
 - *6 Storage/conveyance projects complete*
 - *2 Storage & 1 sewer separation project under construction*
 - *2 Regulator projects under construction*

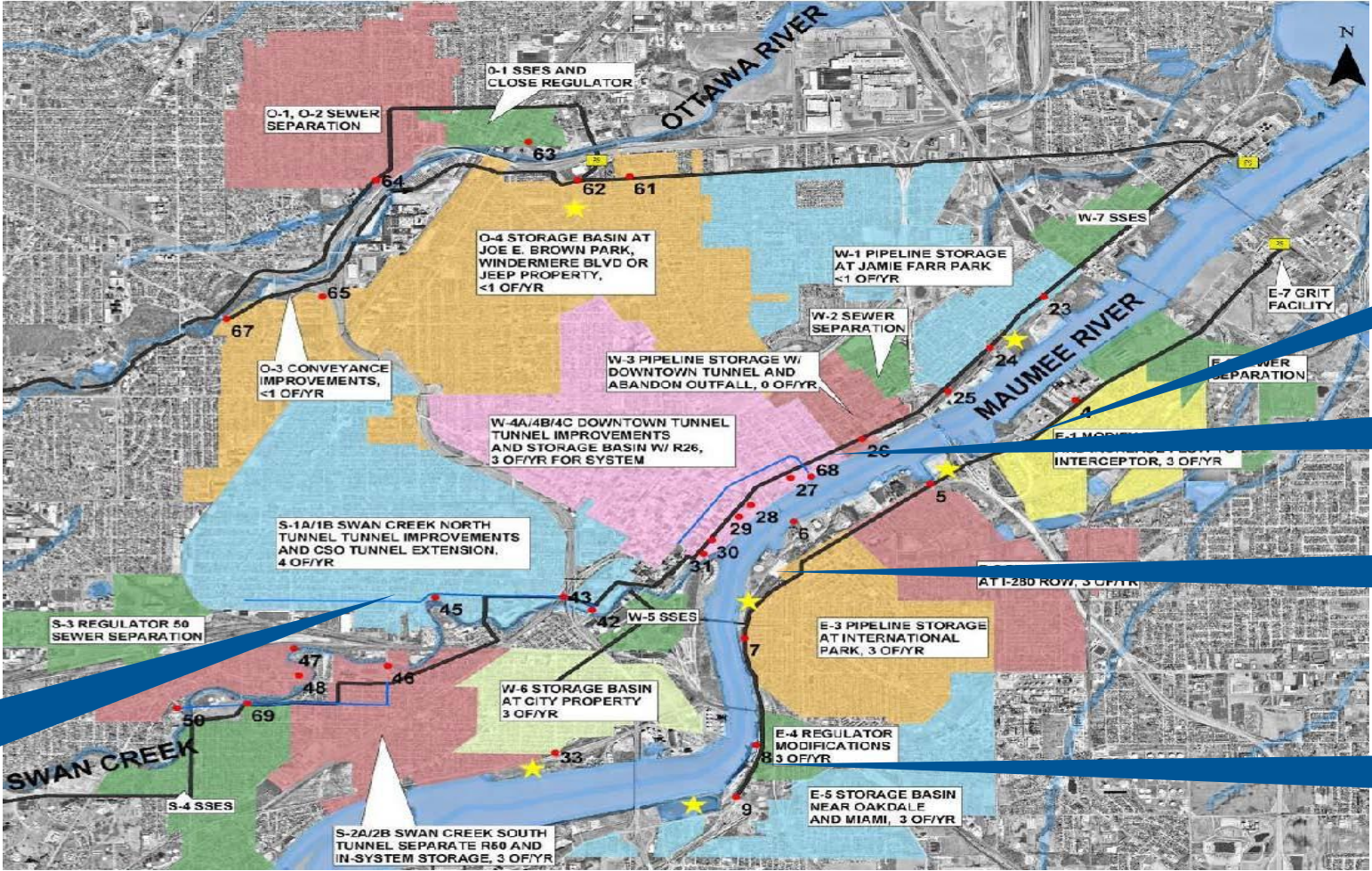
CSO LTCP Construction Safety March 2019



PHASE 2 LTCP PROGRAM-TO-DATE (108 Months - from 02/10 to 03/19)							
Contract	Total PH Worked	Recordable Injury/Illness Rate (IIR)	IIR Frequency Rate (2) x 200K/(1)	Lost Work Day Injury (LWDI)	Days Lost Due To LWDI	LWDI Frequency Rate (4) x 200K/(1)	Severity Rate (5) x 200K/(1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
O-2A	11,191	0	0.0	0	0	0.0	0.0
O-2B	48,140	0	0.0	0	0	0.0	0.0
O-2C	19,948	0	0.0	0	0	0.0	0.0
O-3	24,735	0	0.0	0	0	0.0	0.0
W-1	32,594	0	0.0	0	0	0.0	0.0
E-7	74,288	1	2.7	0	0	0.0	0.0
W-6	38,519	1	5.2	1	6	5.2	31.2
E-5	86,491	2	4.6	1	13	2.3	30.1
W-4A/S-1A/S-2A	69,837	1	2.9	0	0	0.0	0.0
W-4A (Madison)	1,598	0	0.0	0	0	0.0	0.0
E-2	51,070	0	0.0	0	0	0.0	0.0
O-4A/O-4B	451,439	8	3.5	2	25	0.9	11.1
E-3	120,944	4	6.6	1	11	1.7	18.2
W-4C	167,938	4	0.0	0	0	0.0	0.0
PROGRAM TOTAL	1,198,733	21	3.5	5	55	0.8	9.2

- *1,199,000 const. hours + 360,000 Eng. Hours = 1.53 M total*
- *21 recordable injuries. 3.5 IIR. Nat. avg. is 3.5*
- *5 lost workdays due to injuries. 0.8 LWDI. Nat. avg. is 1.1*

Control Combined Sewer Overflows Map of TWI CSO Projects in Construction



Paine Regulator Modification

Downtown Storage Basin

International Park Storage Basin

Fasset Regulator Modification

Swan Creek North Sewer Separation

International Park Storage Basin – April 2019



Paving Restoration



International Park Storage Basin – April 2019



Nevada Diversion Chamber



International Park Storage Basin – April 2019

Control Building Permanent Fencing



International Park Storage Basin – April 2019



International Park Improvements



International Park Storage Basin – April 2019



Trail Improvements and TWI Information Signage



Downtown Storage Basin – Dec 2018



Placing Roof Shoring Tables



Downtown Storage Basin – April 2019



Downtown Storage Basin – Dec 2018



Top Slab Concrete Placement



Downtown Storage Basin



Adams & Superior Drop Shaft



Downtown Storage Basin



Adams & Superior Drop Shaft



Swan Creek North Sewer Separation



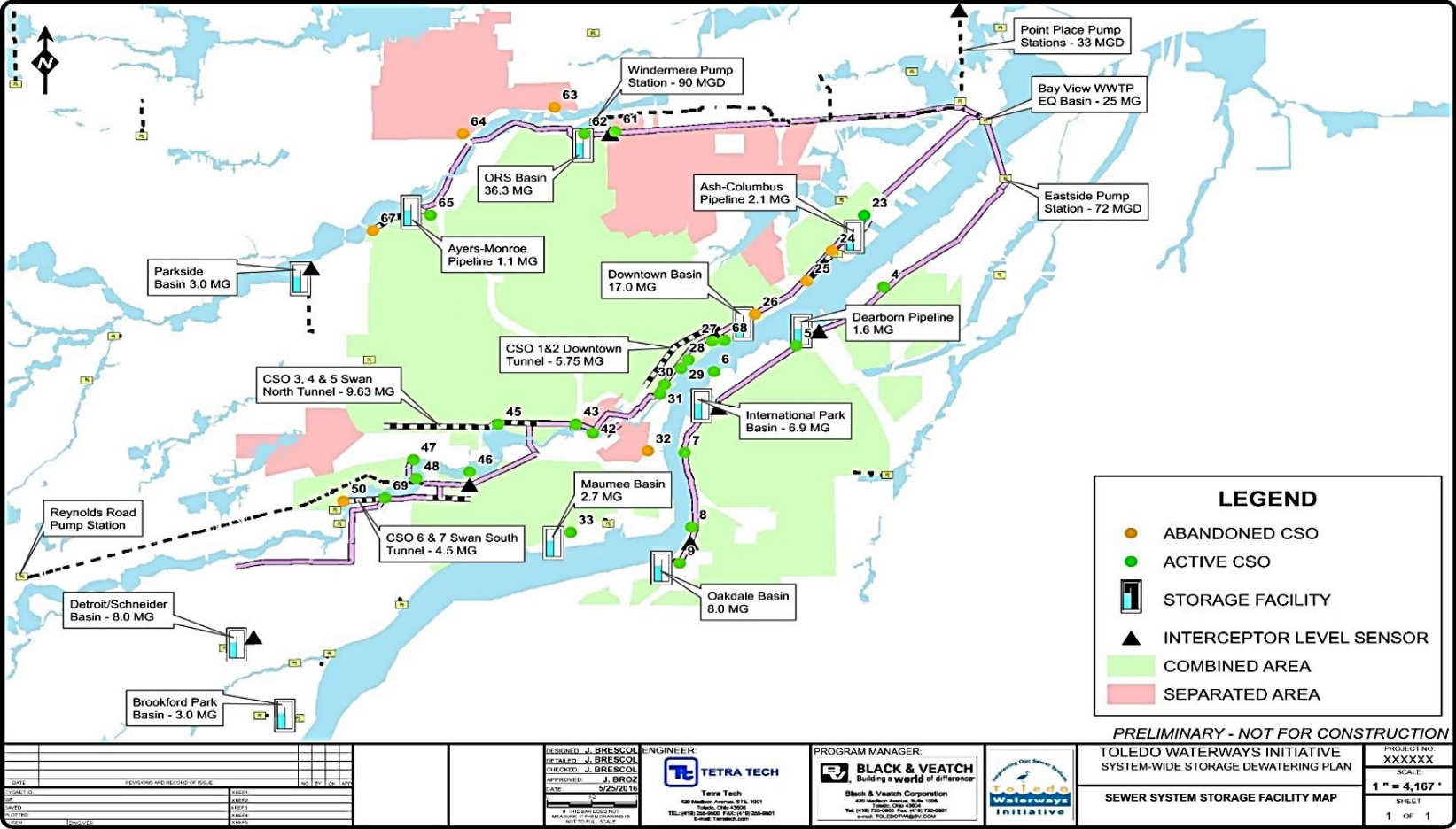
Paine & Fassett Regulator Modifications



Paine & Fasset Regulator Modifications



Bay View Water Reclamation Service Area Sewer System Storage Facility Map



TWI – Total Program . . .

Where are we today?



The Program is 95% complete & on schedule:

- *All 152 Consent Decree milestones to date have been met*
- *66 on Phase 1 and 86 on Phase 2*

Out of 45+ projects, 40 are complete 5 are under construction

TWI – Total Program . . .

Where are we today?



Program cost @ complete projection: **\$527 M**

1. Eliminate WWTP Bypasses - \$135 M & 12 projects

Done! Zero bypasses since 2006 144 MG/yr. removed

2. Eliminate Sanitary Sewer Overflows - \$71 M & 8 projects

Done! Completed in 2014/2017 36 MG/yr. removed

3. Control Combined Sewer Overflows - \$321 M; 25 projects

Design 99% complete & Const. ~95% complete

When complete 470 MG/yr. removed

TWI Program Participating Planning/Design/CM/PR Firms



The Black & Veatch Team



Jones & Henry



Tetra Tech



Stantec

- *TTL*
- *Hull & Associates*
- *Vision Design Group*
- *G Stephens*
- *Northwest Consultants*
- *Funk Lutke Skunda*
- *Hart Associates*

TWI Program Participating General Contractors



- *Rudolph Libbe*
- *Barton Malow*
- *Mosser*
- *ES Wagner*
- *Gleason*
- *Anderzack Pitzen*
- *Crestline*
- *Salenbien*
- *Inland Waters*
- *Miller Brothers*
- *PHC*
- *Ed Kelly & Sons*
- *Irish*
- *Kokosing*
- *Doetsch*
- *Hank's Plumbing*
- *Underground Utilities*
- *L. D'Agostini & Sons*



Questions?

Please visit:

toledowaterwaysinitiative.com



TWI Long-Term Control Plan Compliance Monitoring Program

Community Program Advisory Committee Meeting

22 April 2019

Compliance Monitoring



CSO Post Construction Compliance Monitoring Guidance

May 2012



- LTCP Requirement
- 2009 LTCP Addendum
- Post-Construction Monitoring
- Program Report Card
- Release from Consent Decree

Peer Programs



- Few Great Lake cities have completed
- Mostly smaller communities
- Great Lakes Basin report

Program Components



- 12-Month Performance Monitoring Plan
- Implement Plan
- Run Performance Monitoring Rainfall Data on the System Hydraulic Model
- Compare Model CSO Event Output to Actual CSO Events
- Recalibrate and Adjust Model Parameters (if required)
- Prepare Report on 12-Month Simulation Model Run and Recalibrate if required
- 5-Year Simulation Modeling (1997 – 2001)
- Prepare Report

Performance Monitoring Plan

- Measure and record continuous rainfall data
- Collect overflow event data
- Modeling
- Reporting



Plan Implementation

- Preparation and coordination with Water Reclamation staff
- 12-month rainfall gauging data
- Overflow monitoring (frequency and magnitude)
- On-going data quality review
- Frequent meetings with City and Consultant



System Hydraulic Modeling

- Document results of overflow events and quantity
- Examine results for each regulated outfall
- Compare model results to actual
- Recalibrate/adjust model, if necessary



Performance Criteria



SYSTEM ELEMENT	CSO OUTFALLS	CSO LIMIT (X or fewer)
East Side Maumee River	4 - 8	15
East Side Maumee River	9	13
West Side Maumee River	24	2
West Side Maumee River	27 – 31, 33, 68	15
Ottawa River	61, 62, 65	2
North Side Swan Creek	42, 43, 45, 47	19
South Side Swan Creek	46, 48, 69	15
CSOs to be abandoned	23, 25, 26, 50, 63, 64, 67	zero

Reporting to USEPA and OEPA



- 12-month Simulation Modeling Report
 - Comparison to actual overflows
 - Report review and acceptance
- 5-year Simulation Modeling Report
 - Verified system hydraulic model
 - Comparison of 5-year modeling to performance criteria
 - Final Compliance Monitoring Report

Five-Year Simulation Criteria

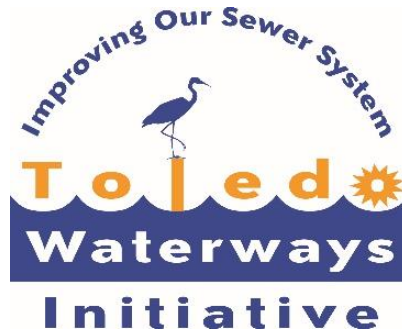


CSO OUTFALLs	LIMIT (Events per Year)
23,25,26,50,63,64,67	Completely eliminated
61,62, 65	0.4
9	2.6
5 -7, 33	3.0
4, 8	3.0 (3.2 6-hr.)
42, 43, 45, 47	3.8
27 – 31, 68, 46, 48, 69	3.0 (4.2 6-hr.)

Schedule



Project Element/Year	2019	2020	2021	2022	2023	2024
Draft Performance Monitoring Plan	X					
EPA Review and Approval						
Final Performance Monitoring Plan		X				
Performance Monitoring						
Model Evaluation and Re-Calibration						
Model Calibration Report						
EPA Review and Approval						
5-Year Simulation Model and Report						
EPA Review and Approval						X



TWI Long-Term Control Plan Compliance Monitoring

Questions/Discussion