BUFFALO

SEWER AUTHORITY

LTCP Optimization Bridging Document

July 6, 2023

xylem

Let's Solve Water

ARCADIS

GHD

JMDavidson

Engineering, D.P.C.

List of Abbreviations 6
Introduction 1
Objective 1
1. Waterbody Level Impacts 2
1.1. Projects 2
1.2. Activations 4
1.3. Costs 4
1.4. Schedule 10
2. CSO Level Impacts 11
2.1. Black Rock Canal: CSO-003 11
2.2. Black Rock Canal: CSO-004 12
2.3. Black Rock Canal: CSO-006 13
2.4. Black Rock Canal: CSO-010 15
2.5. Black Rock Canal: CSO-012 17
2.6. Black Rock Canal: CSO-013 19
2.7. Black Rock Canal: CSO-063 21
2.8. Buffalo River CSO-017 22
2.9. Buffalo River: CSO-026 24
2.10. Buffalo River: CSO-027 26
2.11. Buffalo River: CSO-028 28
2.12. Buffalo River: CSO-033 30
2.13. Buffalo River: CSO-052 32
2.14. Buffalo River: CSO-064 34
2.15. Buffalo River: CSO-066 36
2.16. Cazenovia Creek – C: CSO-037 37
2.17. Erie Basin Marina: CSO-014 38
2.18. Erie Basin Marina: CSO-015 40
2.19. Niagara River: CSO-011 41
2.20. Niagara River: CSO-055 43
2.21. Scajaquada Creek: CSO-053 45
2.22. Scajaquada Creek: CSO-059 49
2.23. Scajaquada Creek: CSO-060 50
3. Approved Projects in LTCP 51
3.1. Underflow Pipe Upsizing (CSO 008/010, 061, 004)/ CSO010_1 Breckenridge Niagara RTC 51
3.2. Northern Relief Sewer / System_1 Northern Relief Tunnel 53

3.3. CSO-013 Satellite Storage, Conveyance, FM & PS / CSO013_1 SPP304 Modification 55
3.4. Hamburg Drain Storage 57
3.5. Fillmore North ILS 58
3.6. SPP075 Optimization 59
3.7. Gibson CSO Line Storage 60
3.8. CSOs 028/044/047 Satellite Storage, Conveyance, FM & PS / CSO028_1 Hopkins & Osage OLS 61
3.9. CSO-052 Satellite Storage, Conveyance, FM & PS 63
3.10. CSO-064 Satellite Storage, Conveyance, FM & PS / CSO064_1.1 CSO-064 ILS 64
3.11. CSO-014/015 Satellite Storage, Conveyance, FM & PS / CSO14_1.2 Erie Basin Marina OLS 66
3.12. CSO-055 Satellite Storage, Conveyance, FM & PS / CSO055_1.5 Military Rd OLS/Hertel OLS 68
3.13. Hertel North East / Hertel Delaware ILS (CSO055_1.1) 70
3.14. SPP 336 A&B (CSO-053) Satellite Storage, Conveyance, FM & PS / CSO053_1.4 SPP336B Sidney Street OLS 72
3.15. Jefferson Avenue & Florida Street (CSO-053) Satellite Storage / CSO053_11 Jefferson Delavan OLS 74
3.16. Colorado ILS/ CSO053_2.5 SPP337 Modification 76
3.17. South Bailey ILS / CSO053_3.1 SPP338 Modification 78
3.18. Amherst Quarry OLS / CSO053_3.2 Bailey & Amherst, Amherst Quarry PS RTC 80
3.19. SPP 341A Optimization Genesee & Kearns, now CSO053_8 SPP341A Modification 82
3.20. East Ferry ILS 84
3.21. SPP 337 (CSO-053) Satellite Storage, Conveyance, FM & PS 85
3.22. Texas (Roslyn ILS) 86
3.23. Green Infrastructure 87
4. New Projects to Be Added 88
4.1. CSO006_2 Gates Circle RTC 88
4.2. CSO006_3 Delavan Drain RTC 89
4.3. CSO006_5 20% GI Implementation 90
4.4. CSO012_1.2 SPP023 Modification 91
4.5. CSO012_2.1 SPP296 Modification 92
4.6. CSO017_1.1 SPP054 Sewer Separation 93
4.7. CSO017_10 SPP051 Modification 94
4.8. CSO017_4 20% GI Implementation 95
4.9. CSO017_6 Bass Alley OLS 96
4.10. CSO017_8 SPP326 Modification 97

4.11. CSO017_9 SPP059 Modification 98
4.12. CSO026_1.3 Collins Park OLS 99
4.13. CSO026_4 20% GI Implementation 100
4.14. CSO027_1 SPP 317 Modification 101
4.15. CSO027_2 Babcock PS Weir Modification....102
4.16. CSO027_3 SPP097 Modification 103
4.17. CSO033_1 Bailey & Regent OLS....104
4.18. CSO033_2 Clinton St. OLS RTC 105
4.19. CSO033_3 SPP104 Modification 106
4.20. CSO064_1.2 SPP 137 Modification 107
4.21. CSO064_2 Perry Street Sanitary Sewer 108
4.22. CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC 109
4.23. CSO011_1.1 20% GI Implementation 110
4.24. CSO011_1.2 SPP024 Modification 111
4.25. CSO055_3 20% GI Implementation 112
4.26. CSO053_1.5 SPP336B Modification....113
4.26a CSO053_1.5 SPP336B Modification....114
4.27. CSO053_10 SPP229A RTC 116
4.28. CSO053_12.1 Jefferson Ave GI....117
4.29. CSO053_12.2 Jefferson Ave GI....118
4.30. CSO053_13 SPP165B Modification....119
4.31. CSO053_14 SPP175, 176, & 177 Modifications 120
4.32. CSO053_3.3 SPP254 Modification 121
4.33. CSO053_5.2 Edison Martha OLS 122
4.34. CSO053_9 20% GI Implementation 123
4.35. System_2 Schiller Park OLS....124
4.36. System_2_3 SPP339 Modification 125
4.37. System_2_4 SPP340 Modification 126
5. Projects from LTCP Completed 127
5.1. Niagara Street Phase 4a: Scajaquada Expressway to Hertel Ave....127
5.2. Bird Ave Underflow SPP 13 Modifications - North Relief Interceptor 128
5.3. Bird RTC Project/ RTC-1/ Bird East/ Bird West....129
5.4. SPP 180 Optimization....130
5.5. SPP 331 Optimization....131
5.6. Niagara Street Phase 3: Hampshire Street to Scajaquada Expressway....132
5.7. PUSH Blue Projects....133

5.8. Niagara Street Phase 2: Virginia Street to Porter Avenue 134
5.9. SPP 283 Optimization 135
5.10. Carlton Street Porous Asphalt 136
5.11. Willert Park 137
5.12. CSO No. 026 RTC Structure/ Smith at Perry RTC/ Smith Street Storage/Smith CSO Line Storage 138
5.13. CSO No. 026 Sewer Separation 139
5.14. Montgomery CSO (Smith at Eagle) 140
5.15. SPP 217 Optimization 141
5.16. SPP 318 Optimization 142
5.17. Babcock Pump Station In-Line Storage 143
5.18. SPP 097A Optimization 144
5.19. Ohio Street 145
5.20. SPP 211 Optimization 146
5.21. SPP 122 Optimization 147
5.22. Niagara Street Phase 1: Elmwood Street to Virginia Street 148
5.23. SPPs 206A&B (CSO 014/015) 149
5.24. Genesee Street/Genesee Gateway Project 150
5.25. SPP 035 (CSO 014/015) 151
5.26. SPP 036 152
5.27. Kenmore Avenue 153
5.28. Hertel at Deer/ Hertel Northwest/ Hertel South In-Line Storage 154
5.29. SPP 001 Optimization 155
5.30. Fillmore Avenue Porous Parking and Green Lots 156
5.31. Hazelwood (Kay) In-Line Storage 157
5.32. Lang RTC Project / RTC-1 / Hagen St RTC 158
5.33. North Bailey In-Line Storage 159
5.34. Northland Ave 160
5.35. 612 Northland Ave 161
5.36. SPP 163 Optimization - 163A 162
5.37. SPP 165 Optimization 163
5.38. SPP 165A Optimization 164
5.39. SPP 178 Optimization 165
5.40. SPP 335B Optimization 166
5.41. SPP 336A Optimization 167
5.42. SPP 342B Optimization 168
5.43. SPP 183 Optimization 169

5.44. CSO 060 GI Project 170
5.45. 2001 - 2016 Commercial and Industrial Demolitions 171
5.46. 2001-2016 Residential (traditional) Demolitions 172
5.47. 2017 - 2024 Demolitions 173
5.48. Green Demolition Pilot Project 174

List of Abbreviations

BSA	Buffalo Sewer Authority
CEJST	Climate and Economic Justice Screening Tool
CEQ	Council on Environmental Quality
CCI	Construction Cost Index
CSO	Combined Sewer Overflow
ENR	Engineering News Record
GCCS	Globally Coordinated Control Strategy
GI	Green Infrastructure
ILS	In-line Storage
LF	Linear Feet
LTCP	Long Term Control Plan
MBO	Market Based Optimization
NYSDEC	New York State Department of Environmental Conservation
OLS	Off-line Storage
OPCC	Opinions of Probable Construction Cost
RTC	Real-Time Control
SF	Square Feet
SPP	Sewer Patrol Point
SWMM	Stormwater Management Model
TBM	Tunnel Boring Machine
USEPA	United States Environmental Protection Agency

Introduction

The Buffalo Sewer Authority's (BSA's) Combined Sewer Overflow Long Term Control Plan (LTCP) was accepted and approved on March 18, 2014, by the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA). The approved document outlined a multi-year plan for implementing projects to reduce overflows in the BSA sewer collection system to target levels. Potential projects included a mix of in-line storage (ILS), off-line storage (OLS), real time control (RTC), and green infrastructure (GI). The collection system hydraulic model used in the LTCP was updated after completion of the first phase of LTCP projects. Simulations from the updated LTCP model suggest that some projects envisioned in the LTCP are no longer feasible and that other planned projects can be further optimized to meet targets.

The project team has worked collaboratively to compile a revised list of potential projects to be considered. The list included both new projects and those projects from the 2014 LTCP preferred alternative which have not since been ruled infeasible or unnecessary. An optimization process was then leveraged to evaluate the impacts of implementing different variations and combinations of these projects with the goal of minimizing both CSO activations and construction costs. The project team also optimized the distributed control scheme to find the optimal combination of control set points that maximize the system's conveyance and storage capacity. The result of these activities is a new set of recommended projects (the Selected Alternative) for achieving LTCP compliance. This process and the Selected Alternative are further described herein.

Objective

The intent of this document is to provide a detailed comparison of the projects remaining from the 2014 LTCP that have not been completed and the alternative projects proposed in the "LTCP Optimization Selected Alternative" memo submitted on January 31, 2023. The justification for keeping, modifying, removing, or replacing original LTCP projects will be presented in terms of cost, schedule, water quality goals, and other site-specific considerations.

1. Waterbody Level Impacts

1.1. Projects

i. Original LTCP Projects Unfinished

Table 1: Original LTCP Projects Unfinished

No.	Project Name and Tag	Most Impacted CSO	Most Impacted Waterbody	Included as Specified (S), Modified (M), or Removed (R)
1	Underflow Upsizing (CSO 008/010, 061, 004)	CSO-010	Black Rock Canal	(M) Replaced by CSO010_1 Breckenridge Niagara RTC
2	Northern Relief Sewer/ North Relief - Interceptor	CSO-011, 012, 055	Black Rock Canal & Niagara River	(M) New Configuration, tagged as System_1 Northern Relief Tunnel
3	CSO-013 (0.3 MG)	CSO-013	Black Rock Canal	(M) Replaced with CSO013_1 SPP304 Modification
4	Hamburg Drain Storage (5 MG) / Foundation 4	CSO-017	Buffalo River	(R)
5	Fillmore North ILS	CSO-026	Buffalo River	(R)
6	SPP075 Optimization	CSO-026	Buffalo River	(R)
7	Gibson CSO Line Storage	CSO-026	Buffalo River	(R)
8	CSO-028/044/047 (2.3 MG)	CSO-028	Buffalo River	(M) Updated to smaller tank: CSO028_1 0.95 MG Hopkins & Osage OLS
9	CSO-052 (0.6 MG)	CSO-052	Buffalo River	(R)
10	CSO-064 (0.1 MG)	CSO-064	Buffalo River	(M) Replaced with CSO064_1.1 CSO-064 ILS
11	CSO-014/015 (0.8 MG)	CSO-014	Erie Basin Marina	(M) Updated to larger tank: CSO014_1.2 5.55 MG Erie Basin Marina OLS
12	CSO-055 (7.5 MG)	CSO-055	Niagara River	(M) Updated to larger tank with new location: CSO055_1.5 11.55 MG Military Rd OLS
13	Hertel North East ILS	CSO-055	Niagara River	(M) Updated design (CSO055_1.1)
14	SPP 336 A/B (SPP165A, SPP165B, SPP336A, SPP 336B) (4.2 MG)	CSO-053	Scajaquada Creek	(M) Replaced by CSO053_1.4 3.26 MG Sidney OLS
15	Jefferson & Florida (SPP 170B) (2.6 MG)	CSO-053	Scajaquada Creek	(M) Replaced by CSO053_11 1.5 MG Canisius/Jefferson Delevan OLS
16	Colorado ILS	CSO-053	Scajaquada Creek	(M) Replaced by CSO053_2.5 SPP337 Modification
17	South Bailey ILS	CSO-053	Scajaquada Creek	(M) Replaced with CSO053_3.1 SPP338 Modification
18	Amherst Quarry OLS	CSO-053	Scajaquada Creek	(M) Now CSO053_3.2 Bailey & Amherst, Amherst Quarry PS RTC
19	SPP 341A Optimization Genesee & Kearns	CSO-053	Scajaquada Creek	(M) Replaced by CSO053_8 SPP341A Modification
20	East Ferry ILS	CSO-053	Scajaquada Creek	(R)
21	SPP 337 (0.7 MG)	CSO-053	Scajaquada Creek	(R)
22	Texas (Roslyn ILS)	CSO-053	Scajaquada Creek	(R)
23	Green Infrastructure	Multiple	Multiple	(M) Separate CSO Basin GI projects will be listed as “New” projects under CSO Level Impacts

ii. New Projects to be Added

Table 2: New Projects to be Added

No.	Project Name and Tag	Most Impacted CSO	Most Impacted Waterbody
1	CSO006_2 Gates Circle RTC	CSO-006	Black Rock Canal
2	CSO006_3 Delavan Drain Weir Raising & RTC	CSO-006	Black Rock Canal
3	CSO006_5 20% GI Implementation	CSO-006	Black Rock Canal
4	CSO012_1.2 SPP023 Modification	CSO-012	Black Rock Canal
5	CSO012_2.1 SPP296 Modification	CSO-012	Black Rock Canal
6	CSO017_1.1 SPP054 Sewer Separation	CSO-017	Buffalo River
7	CSO017_10 SPP051 Modification	CSO-017	Buffalo River
8	CSO017_4 20% GI Implementation	CSO-017	Buffalo River
9	CSO017_6 Bass Alley OLS	CSO-017	Buffalo River
10	CSO017_8 SPP326 Modification	CSO-017	Buffalo River
11	CSO017_9 SPP059 Modification	CSO-017	Buffalo River
12	CSO026_1.3 Collins Park OLS	CSO-026	Buffalo River
13	CSO026_4 20% GI Implementation	CSO-026	Buffalo River
14	CSO027_1 SPP 317 Modification	CSO-027	Buffalo River
15	CSO027_2 Babcock PS Weir Modification	CSO-027	Buffalo River
16	CSO027_3 SPP097 modification	CSO-027	Buffalo River
17	CSO033_1 Bailey & Regent OLS (Moreland Park)	CSO-033	Buffalo River
18	CSO033_2 Clinton St OLS	CSO-033	Buffalo River
19	CSO033_3 SPP104 Modification	CSO-033	Buffalo River
20	CSO064_1.2 SPP 137 Modification	CSO-064	Buffalo River
21	CSO064_2 Perry Street Sanitary Sewer	CSO-064	Buffalo River
22	CSO014_1.1 SPP206A&B RTC	CSO-014	Erie Basin Marina
23	CSO011_1.1 20% GI Implementation	CSO-011	Niagara River
24	CSO011_1.2 SPP024 Modification	CSO-011	Niagara River
25	CSO055_3 20% GI Implementation	CSO-055	Niagara River
26	CSO053_1.5 SPP336B Modification	CSO-053	Scajaquada Creek
27	CSO053_10 SPP229A RTC	CSO-053	Scajaquada Creek
28	CSO053_12.1 Jefferson Ave GI	CSO-053	Scajaquada Creek
29	CSO053_12.2 Jefferson Ave GI	CSO-053	Scajaquada Creek
30	CSO053_13 SPP165B Modification	CSO-053	Scajaquada Creek
31	CSO053_14 SPP175 Modification	CSO-053	Scajaquada Creek
32	CSO053_3.3 Bailey & Minnesota SPP254 Modification	CSO-053	Scajaquada Creek
33	CSO053_5.2 Edison Martha OLS	CSO-053	Scajaquada Creek
34	CSO053_9 20% GI Implementation	CSO-053	Scajaquada Creek
35	System_2 Schiller Park OLS	CSO-053	Scajaquada Creek
36	System_2_3 SPP339 Modification	CSO-053	Scajaquada Creek
37	System_2_4 Schiller Park OLS SPP340 Modification	CSO-053	Scajaquada Creek

1.2. Activations

Compliance is defined by the number of activations allowed in the typical year (Level of Control or LOC) for each CSO's receiving waterbody as shown in Table 3 below.

Table 3: Activations by Waterbody

Waterbody	Activation Goals (Level of Control)	Old Model LTCP Completion Activations	New Model LTCP Completion Activations	Selected Alternative Completion Activations
Black Rock Canal	0-4	5	15	4
Buffalo River	0-6	6	15	6
Cazenovia Creek - B	0-0	0	0	0
Cazenovia Creek - C	0-6	6	5	5
Erie Basin Marina	0-2	2	2	2
Niagara River	0-9	9	16	9
Scajaquada Creek	0-4	4	26	4
Overall	**0-9**	**9**	**26**	**9**

1.3. Costs

The costs in the following tables are represented in both 2012 dollars and 2022 dollars to facilitate comparison between project alternatives and within project estimates over time. Cost estimates referred to as "Inflation Only Adjusted Costs" were prepared in 2012 and escalated to 2022 dollars using the change in ENR Construction Cost Index (CCI) during that time period, but not updated with respect to specific line items. Cost estimates referred to as "Updated Estimates in 2012 Dollars" and "Updated Estimates in 2022 Dollars" were revised in substance in 2022 by adding cost elements not considered in the initial 2012 estimates, following consultation with construction professionals and additional design engineers. These more comprehensive estimates developed in 2022 were therefore converted back to 2012 dollars where relevant. Further information on the development of these cost estimates can be found in the January 2023 "LTCP Optimization Selected Alternative" technical memo. Cost estimates for any unfinished LTCP projects that have been removed are not included in the Costs for Collection System Projects by Waterbody table below

i. Costs for Collection System Projects by Waterbody

Table 4: Costs for Collection System Projects by Waterbody

Water Body	List of LTCP Projects included in Waterbody Cost Estimate	Cost in LTCP 2012 Dollars	Inflation Only Adjusted Costs of LTCP Projects	True Cost Adjusted Costs of LTCP Projects	List of Proposed Projects included in Waterbody Cost Estimate	Cost of Proposed Projects in 2012 Dollars	2022 Cost of Proposed Projects
Black Rock Canal	CSO-013 (300,000 gallons)	$3,000,000	$4,192,149	$7,700,000	CSO006_2 Gates Circle RTC	$2,028,998	$2,835,287
	North Relief Sewer	$36,000,000	$50,305,784	$72,810,744	CSO006_3 Delavan Drain Storage/Delavan Drain Weir Raising & RTC	$2,862,494	$4,000,000
	Underflow Upsizing (CSO-008/010, 061, 004)	$500,000	$698,691	$675,000	CSO006_5 20% GI Implementation	$7,518,340	$10,506,000
					CSO010_1 Breckenridge Niagara RTC	$2,602,448	$3,636,617
					CSO012_1.2 SPP023 Modification	$42,937	$60,000
					CSO012_2.1 SPP296 Modification	$42,937	$60,000
					CSO013_1 SPP304 Modification	$42,937	$60,000
	SUBTOTAL	***$39,500,000***	***$55,196,624***	***$81,185,744***	***SUBTOTAL***	***$15,141,093***	***$21,157,904***

Table 4: Costs for Collection System Projects by Waterbody (Cont.)

Buffalo River	CSO-028/044/047* (2,300,000 gallons)	$12,200,000	$17,048,071	$29,200,000	CSO017_1.1 SPP054 Sewer Separation	$500,936	$700,000
	CSO-052 (600,000 gallons)	$3,900,000	$5,449,793	$9,900,000	CSO017_10 SPP051 modification	$42,937	$60,000
	CSO-064 (100,000 gallons)	$2,000,000	$2,794,766	$5,500,000	CSO017_4 20% GI Implementation	$5,360,020	$7,490,000
					CSO017_6 Bass Alley OLS	$23,343,638	$32,620,000
					CSO017_8 SPP326 Modification	$42,937	$60,000
					CSO017_9 SPP059 Modification (SPP059_w)	$42,937	$60,000
					CSO026_1.3 Collins Park OLS	$21,540,267	$30,100,000
					CSO026_4 20% GI Implementation	$17,965,012	$25,104,000
					CSO027_1 Weir #35, SPP 317 modification	$42,937	$60,000
					CSO027_2 Babcock PS WEIR#42 modification	$42,937	$60,000
					CSO027_3 SPP97 Modification (WEIR#10)	$42,937	$60,000
					CSO027_4 SPP067 Modification (WEIR#9)	$42,937	$60,000
					CSO028_1 Hopkins & Osage OLS	$12,623,598	$17,640,000
					CSO033_1 Bailey & Regent OLS	$38,371,731	$53,620,000
					CSO033_2 Clinton St OLS RTC	$117,219,125	$163,800,000
					CSO033_3 SPP104 Modification (WEIR#53)	$42,937	$60,000
					CSO064_1.2 SPP 137 Modification	$42,937	$60,000
					CSO064_2 Perry Street Sanitary Sewer	$3,434,993	$4,800,000
	SUBTOTAL	***$5,900,000***	***$8,244,559***	***$15,400,000***	***SUBTOTAL***	***$240,745,755***	***$336,414,000***
Cazenovia Creek	N/A*	N/A	N/A	N/A	N/A	N/A	N/A

*In Table ES-6 of the Approved LTCP, this project was associated with Cazenovia Creek-C due to the inclusion of CSOs 047 & 044 together with CSO 028. As CSO 028 is the only remaining CSO of these three not in compliance in the new model, this project has been reallocated to the Buffalo River

Table 4: Costs for Collection System Projects by Waterbody (Cont.)

Erie Basin Marina	CSO-014/015 (800,000 gallons)	$6,700,000	$9,362,465	$16,600,000	CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC	$2,862,494	$4,000,000
					CSO014_1.2 Erie Basin Marina OLS	$44,683,530	$62,440,000
	SUBTOTAL	***$6,700,000***	***$9,362,465***	***$16,600,000***	***SUBTOTAL***	***$47,546,023***	***$66,440,000***
Niagara River (including Cornelius Creek)	CSO-055 (7,500,000 gallons)	$18,500,000	$25,851,584	$45,200,000	CSO011_1.1 20% GI Implementation	$2,849,613	$3,982,000
					CSO011_1.2 SPP024 Modification	$42,937	$60,000
					CSO055_1.1 Hertel at Delaware ILS/Hertel North East	$2,862,494	$4,000,000
					CSO055_1.5 Military Rd OLS	$69,329,602	$96,880,000
					CSO055_3 20% GI Implementation	$37,235,320	$52,032,000
					System_1 Northern Relief Tunnel	$52,105,077	$72,810,744
	SUBTOTAL	***$18,500,000***	***$25,851,584***	***$45,200,000***	***SUBTOTAL***	***$164,425,044***	***$229,764,744***

Table 4: Costs for Collection System Projects by Waterbody (Cont.)

Scajaquada Creek	Jefferson & Florida (SPP 170B) (2,600,000 gallons)	$9,500,000	$13,275,138	$23,800,000	CSO053_1.4 SPP336B OLS	$19,837,083	$27,720,000
	SPP 336 a/b (SPP165A, SPP165B, SPP 336A, SPP336B) (4,200,000 gallons)	$11,500,000	$16,069,903	$31,200,000	CSO053_1.5 Schiller Park OLS SPP336B Modification	$42,937	$60,000
	SPP 337	$4,000,000	$5,589,532	$10,000,000	CSO053_10 SPP229A RTC	$2,146,870	$3,000,000
					CSO053_11 Canisius OLS	$21,468,704	$30,000,000
					CSO053_12.1 Jefferson Ave Main Beverly	$329,187	$460,000
					CSO053_12.2 Jefferson Ave Best Beverly	$1,087,748	$1,520,000
					CSO053_13 SPP165B Modification	$42,937	$60,000
					CSO053_14 SPP175 Modification	$42,937	$60,000
					CSO053_2.5 SPP337 Modification	$42,937	$60,000
					CSO053_3.1 South Bailey DUC/ILS	$2,862,494	$4,000,000
					CSO053_3.2 Amherst & Bailey RTC	$1,539,214	$2,150,872
					CSO053_3.3 SPP254 modification	$166,300	$232,385
					CSO053_5.2 Edison Martha OLS	$26,649,818	$37,240,000
					CSO053_8 SPP341A Modification	$42,937	$60,000
					CSO053_9 20% GI Implementation	$2,393,045	$3,344,000
					System_2 Schiller Park OLS	$61,514,994	$85,960,000
					System_2_3 Schiller Park OLS SPP339 Modification	$42,937	$60,000
					System_2_4 Schiller Park OLS SPP340 Modification	$42,937	$60,000
	SUBTOTAL	***$25,000,000***	***$34,934,572***	***$65,000,000***	***SUBTOTAL***	***$140,296,019***	***$196,047,257***
TOTAL		**$107,800,000**	**$150,637,876**	**$252,585,744**	**TOTAL**	**$608,153,933**	**$849,823,905**

ii. Costs for No Feasible Alternative (NFA)

In addition to the projects within the collection system, the No Feasible Alternative (NFA) Evaluation indicated several projects at the wastewater treatment plant to maximize the amount of flow that could be treated at the plant during wet weather events before discharge to the Niagara River. The table below shows the costs for the three phases of the projects recommended in the NFA.

Table 5: Costs for NFA

NFA Phase	Description	Cost in 2012 LTCP Dollars	Inflation Only Adjusted Costs (2022 Dollars)	Updated Estimates in 2012 Dollars	Updated Estimates in 2022 Dollars
1	1. Remove Grit from System 2. Replace Aerators and Aeration Piping 3. Replace RAS Lines (Including Creating Redundant System) 4. Replace RAS Valves 5. Install Tank Isolation Gates	N/A	N/A	$51,453,328	$71,900,000
2	1. Rehab of Primary Pumpstation (Full-Building Gut) 2. Primary Clarifier Restoration 3. Primary Chlorine Contact Tank Installation 4. Primary Chlorine Storage and Metering Facility Upgrade 5. New Primary Treatment Pumping Station (to utilize existing outfall 001 for primary treated only flows from the Primary Chlorine Contact Tank)	$40,500,000	$56,594,007	$52,956,137	$74,000,000
3	1. Installation of New Flow Channels for Secondary Clarifiers 2. Installation of Two new Secondary Clarifiers 3. Installation of Third Chlorine Contact Tank 4. Upgrade and Rehabilitation of Existing Chlorine Contact Tanks			$53,671,760	$75,000,000 *(no formal estimating undertaken as of yet)*
Total		**$40,500,000**	**$56,594,007**	**$158,081,225**	**$220,900,000**

Note: N/A refers to costs for Phase 1 which were not originally envisioned within the NFA and the 2014 LTCP. This phase was only realized later on, as Phase 3 was starting to be implemented.

iii. Overall Costs

Table 6: Overall Costs

	Cost in 2012 LTCP Dollars	Inflation Only Adjusted Costs (2022 Dollars)	Updated Estimates in 2012 Dollars	Updated Estimates in 2022 Dollars
Collection System Projects	$107,800,000	$150,637,876	$608,153,933	$849,823,905
NFA	$40,500,000	$56,594,007	$158,081,225	$220,900,000
Total	**$188,800,000**	**$207,231,883**	**$766,235,158**	**$1,070,723,905**

Note: Inflation Only Adjusted Costs for collection system projects are baseline costs for unfinished LTCP projects. Updated Estimates represent the Proposed Alternative projects.

1.4. Schedule

Table 7 shows the schedule for the improvements for the tributary areas for each receiving waterbody as originally envisioned in the LTCP and as currently envisioned. The revised schedule has a target Substantial Completion date of 6/2/2038.

Table 7: Schedule by Waterbody

	Start of Engineering (LTCP)	Substantial Completion (LTCP)	Start of Engineering (Proposed)	Substantial Completion (Proposed)	Delta Start (Months)	Delta Completion (Months)
Black Rock Canal	Pre-2014	3/18/2026	Pre-2014	6/2/2038	0	+147
Buffalo River	Pre-2014	3/18/2034	Pre-2014	3/5/2038	0	+48
Cazenovia Creek	Pre-2014	3/18/2034	Pre-2014	Pre-2014	0	-240
Erie Basin Marina	Pre-2014	3/18/2015	Pre-2014	3/5/2032	0	+84
Niagara River	Pre-2014	3/18/2034	Pre-2014	6/2/2038	0	+47
Scajaquada Creek	Pre-2014	3/18/2030	Pre-2014	3/1/2032	0	+24
NFA (Phases I-III)	3/18/2015	3/18/2022	11/25/2019	9/3/2029	+56	+91
Overall	**Pre-2014**	**3/18/2034**	**Pre-2014**	**6/2/2038**	**0**	**+51**

2. CSO Level Impacts

2.1. Black Rock Canal: CSO-003

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Niagara Street Phase 4a: Scajaquada Expressway to Hertel Ave	N/A	3/18/2024	9/21/2022

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-003	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	6	0		5	
New Model	4	4	4	4	3	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.2. Black Rock Canal: CSO-004

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Bird Ave Underflow SPP 13 Modifications - North Relief Interceptor	N/A	N/A	12/11/2018
Bird RTC Project	RTC-1, Bird East, Bird West	9/2/2014	5/6/2016

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-004	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	5	0		3	
New Model	4	5	5	4	5	2

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.3. Black Rock Canal: CSO-006

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
SPP 180 Optimization	N/A	3/18/2017	12/16/2015
SPP 331 Optimization	N/A	3/18/2017	12/16/2015

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO006_2 Gates Circle RTC	$2,028,997.93	$2,835,287.00
CSO006_3 Delavan Drain Storage/Delavan Drain Weir Raising & RTC	$2,862,493.89	$4,000,000.00
CSO006_5 20% GI Implementation	$7,518,340.20	$10,506,000.00
Total Cost	**$12,409,832.02**	**$17,341,287.00**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO006_2 Gates Circle RTC	N/A	$2,028,997.93	$2,835,287.00
CSO006_3 Delavan Drain Storage/Delavan Drain Weir Raising & RTC	N/A	$2,862,493.89	$4,000,000.00
CSO006_5 20% GI Implementation	N/A	$7,518,340.20	$10,506,000.00
Total Cost	**N/A**	**$12,409,832.02**	**$17,341,287.00**

iii. Activations

CSO-006	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	65	10		4	
New Model	4	47	15	15	15	1

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO006_2 Gates Circle RTC	3/1/2022	7/16/2024	5/18/2026
CSO006_3 Delavan Drain Storage/Delavan Drain Weir Raising & RTC	9/1/2029	5/6/2032	4/6/2034
CSO006_5 20% GI Implementation	9/1/2030	12/15/2033	3/2/2035
Overall Dates	**3/1/2022**	**7/16/2024**	**3/2/2035**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO006_2 Gates Circle RTC	3/1/2022	7/16/2024	5/18/2026
CSO006_3 Delavan Drain Storage/Delavan Drain Weir Raising & RTC	9/1/2029	5/6/2032	4/6/2034
CSO006_5 20% GI Implementation	9/1/2030	12/15/2033	3/2/2035
Overall Dates	**3/1/2022**	**7/16/2024**	**3/2/2035**

2.4. Black Rock Canal: CSO-010

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
No LTCP projects completed for this CSO.			

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
Underflow Upsizing (CSO 008/010, 061, 004)	(M) Replaced by Breckenridge Niagara RTC (CSO010_1)	$500,000	$2,602,448.48	$3,636,617.00
Total Cost		**$500,000**	**$2,602,448.48**	**$3,636,617.00**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
Underflow Upsizing (CSO 008/010, 061, 004) / CSO010_1 Breckenridge Niagara RTC	$500,000	$2,602,448.48	$3,636,617.00
Total Cost	**$500,000**	**$2,602,448.48**	**$3,636,617.00**

iii. Activations

CSO-010	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	44	2		1	
New Model	4	14	14	14	0	0

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
Underflow Upsizing (CSO 008/010, 061, 004)	(M) Replaced by Breckenridge Niagara RTC (CSO010_1)	3/18/2021	3/18/2023	3/18/2024
Overall Dates		**3/18/2021**	**3/18/2023**	**3/18/2024**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
Underflow Upsizing (CSO 008/010, 061, 004) / CSO010_1 Breckenridge Niagara RTC	3/1/2022	11/4/2024	2/1/2027
Overall Dates	**3/1/2022**	**11/4/2024**	**2/1/2027**

2.5. Black Rock Canal: CSO-012

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Niagara Street Phase 3: Hampshire Street to Scajaquada Expressway	N/A	3/18/2024	4/25/2022
PUSH Blue Projects	N/A	3/18/2018	7/1/2015

ii. Future Projects

a. Original LTCP Projects Unfinished*

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
North Relief Sewer	(M) New configuration, tagged as Northern Relief Tunnel (System_1)	$36,000,000	$52,105,077.42	$72,810,744
Total Cost		**$36,000,000**	**$52,105,077.42**	**$72,810,744**

**Note that the SPP modifications for CSO-012 were considered as part of the approved LTCP North Relief Sewer project and are now shown as separate projects. These projects did not have specific costs associated with them in the original LTCP.*

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO012_1.2 SPP023 Modification	$42,937	$60,000
CSO012_2.1 SPP296 Modification	$42,937	$60,000
Total Cost	**$85,874**	**$120,000**

c. All Projects in Selected Alternative

	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
North Relief Sewer/Northern Relief Tunnel (System_1)	$36,000,000	$52,105,077.42	$72,810,744
CSO012_1.2 SPP023 Modification	N/A	$42,937	$60,000
CSO012_2.1 SPP296 Modification	N/A	$42,937	$60,000
Total Cost	$36,000,000	$52,148,014	$72,930,744

iii. Activations

CSO-012	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	42	7		2	
New Model	4	35	35	35	0	3

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
North Relief Sewer	(M) New configuration, tagged as Northern Relief Tunnel (System_1)	3/18/2019	3/18/2022	3/18/2026
Overall Dates		**3/18/2019**	**3/18/2022**	**3/18/2026**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO012_1.2 SPP023 Modification	9/1/2025	7/2/2027	11/19/2027
CSO012_2.1 SPP296 Modification	9/1/2025	7/2/2027	11/19/2027
Overall Dates	**9/1/2025**	**7/2/2027**	**11/19/2027**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
North Relief Sewer/ System_1 Northern Relief Tunnel	2/25/2027	8/30/2034	6/2/2038
CSO012_1.2 SPP023 Modification	9/1/2025	7/2/2027	11/19/2027
CSO012_2.1 SPP296 Modification	9/1/2025	7/2/2027	11/19/2027
Overall Dates	**9/1/2025**	**7/2/2027**	**6/2/2038**

2.6. Black Rock Canal: CSO-013

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Niagara Street Phase 2: Virginia Street to Porter Avenue	N/A	3/18/2018	11/16/2017

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-013 (300,000 gallons)	(M) Replaced with SPP304 Modification (CSO013_1)	$3,000,000	$42,937.41	$60,000.00

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-013 (300,000 gallons) / CSO013_1 SPP304 Modification	$3,000,000	$42,937.41	$60,000.00
Total Cost	**$3,000,000**	**$42,937.41**	**$60,000.00**

iii. Activations

CSO-013	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	7	0		4	
New Model	4	4	4	4	0	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-013 (300,000 gallons)	(M) Replaced with SPP304 Modification (CSO013_1)	1/1/2020	1/1/2021	1/1/2023
Overall Dates		**1/1/2020**	**1/1/2021**	**1/1/2023**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-013 (300,000 gallons) / CSO013_1 SPP304 Modification	9/1/2025	7/2/2027	11/19/2027
Overall Dates	**9/1/2025**	**7/2/2027**	**11/19/2027**

2.7. Black Rock Canal: CSO-063

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
SPP 283 Optimization	N/A	3/18/2017	Prior to 1/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-063	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	13	9		4	
New Model	4	3	2	2	2	2

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.8. Buffalo River CSO-017

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Carlton Street Porous Asphalt	N/A	3/18/2018	7/25/2014
Willert Park	Miami St and Louisiana St Sewer Improvements	3/18/2018	4/26/2019

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
Hamburg Drain Storage (5 MG)	(R)	$19,960,000	N/A	N/A

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO017_1.1 SPP054 Sewer Separation	$500,936	$700,000
CSO017_4 20% GI Implementation	$5,360,020	$7,490,000
CSO017_6 Bass Alley OLS	$23,343,638	$32,620,000
CSO017_8 SPP326 Modification	$42,937	$60,000
CSO017_9 SPP059 Modification (SPP059_w)	$42,937	$60,000
CSO017_10 SPP051 Modification	$42,937	$60,000
Total Cost	**$29,333,405**	**$40,990,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO017_1.1 SPP054 Sewer Separation	N/A	$500,936	$700,000
CSO017_4 20% GI Implementation	N/A	$5,360,020	$7,490,000
CSO017_6 Bass Alley OLS	N/A	$23,343,638	$32,620,000
CSO017_8 SPP326 Modification	N/A	$42,937	$60,000
CSO017_9 SPP059 Modification (SPP059_w)	N/A	$42,937	$60,000
CSO017_10 SPP051 Modification	N/A	$42,937	$60,000
Total Cost	**N/A**	**$29,333,405**	**$40,990,000**

iii. Activations

CSO-017	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	49	5		4	
New Model	6	24	21	21	10	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
Hamburg Drain Storage (5 MG)	(R)	3/18/2028	3/18/2030	3/18/2032
Overall Dates		**3/18/2028**	**3/18/2030**	**3/18/2032**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO017_1.1 SPP054 Sewer Separation	9/1/2032	6/5/2035	6/3/2036
CSO017_4 20% GI Implementation	9/1/2031	12/15/2034	2/29/2036
CSO017_6 Bass Alley OLS	9/1/2030	5/4/2034	3/5/2037
CSO017_8 SPP326 Modification	9/1/2025	7/2/2027	11/19/2027
CSO017_9 SPP059 Modification (SPP059_w)	9/1/2028	7/4/2030	11/21/2030
CSO017_10 SPP051 Modification	9/1/2028	7/4/2030	11/21/2030
Overall Dates	**9/1/2025**	**7/2/2027**	**3/5/2037**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO017_1.1 SPP054 Sewer Separation	9/1/2032	6/5/2035	6/3/2036
CSO017_4 20% GI Implementation	9/1/2031	12/15/2034	2/29/2036
CSO017_6 Bass Alley OLS	9/1/2030	5/4/2034	3/5/2037
CSO017_8 SPP326 Modification	9/1/2025	7/2/2027	11/19/2027
CSO017_9 SPP059 Modification (SPP059_w)	9/1/2028	7/4/2030	11/21/2030
CSO017_10 SPP051 Modification	9/1/2028	7/4/2030	11/21/2030
Overall Dates	**9/1/2025**	**7/2/2027**	**3/5/2037**

2.9. Buffalo River: CSO-026

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
CSO No. 026 Sewer Separation	Smith Street Storage	3/18/2017	6/22/2016
CSO No. 026 RTC Structure	Smith at Perry RTC, Smith Street Storage, Smith CSO Line Storage	3/18/2017	10/9/2017
Montgomery CSO (Smith at Eagle) In-Line Storage	N/A	3/18/2024	12/31/2021
SPP 217 Optimization	N/A	3/18/2017	12/21/2015
SPP 318 Optimization	N/A	3/18/2017	12/21/2015

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
Fillmore North ILS	(R)	$2,015,000	N/A	N/A
Gibson CSO Line Storage	(R)	$2,015,000	N/A	N/A
SPP075 Optimization	(R)	$100,000	N/A	N/A
Total Cost		**$4,130,000.00**	**N/A**	**N/A**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO026_1.3 Collins Park OLS	$21,540,267	$30,100,000
CSO026_4 20% GI Implementation	$17,965,012	$25,104,000
Total Cost	**$39,505,279**	**$55,204,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO026_1.3 Collins Park OLS	N/A	$21,540,267	$30,100,000
CSO026_4 20% GI Implementation	N/A	$17,965,012	$25,104,000
Total Cost		**$39,505,279**	**$55,204,000**

iii. Activations

CSO-026	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	63	65		3	
New Model	6	9	8	8	8	6

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
Fillmore North ILS	(R)	3/18/2022	3/18/2023	3/18/2024
Gibson CSO Line Storage	(R)	3/18/2022	3/18/2023	3/18/2024
SPP075 Optimization	(R)	3/18/2014	3/18/2015	3/18/2017
Overall Dates		**3/18/2014**	**3/18/2015**	**3/18/2024**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO026_1.3 Collins Park OLS	9/1/2026	7/29/2030	5/30/2033
CSO026_4 20% GI Implementation	9/1/2032	12/18/2035	3/2/2037
Overall Dates	**9/1/2026**	**7/29/2030**	**3/2/2037**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO026_1.3 Collins Park OLS	9/1/2026	7/29/2030	5/30/2033
CSO026_4 20% GI Implementation	9/1/2032	12/18/2035	3/2/2037
Overall Dates	**9/1/2026**	**7/29/2030**	**3/2/2037**

2.10. Buffalo River: CSO-027

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Babcock Pump Station In-Line Storage	Not in original LTCP, was added later	3/18/2024	9/21/2021
SPP 097A Optimization	N/A	3/18/2017	12/16/2015

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in LTCP				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO027_1 Weir #35, SPP 317 Modification	$42,937	$60,000
CSO027_2 Babcock PS WEIR#42 Modification	$42,937	$60,000
CSO027_3 SPP97 Modification (WEIR#10)	$42,937	$60,000
Total Cost	**$128,811**	**$180,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO027_1 Weir #35, SPP 317 Modification	N/A	$42,937	$60,000
CSO027_2 Babcock PS WEIR#42 Modification	N/A	$42,937	$60,000
CSO027_3 SPP97 Modification (WEIR#10)	N/A	$42,937	$60,000
Total Cost	**N/A**	**$128,811**	**$180,000**

iii. Activations

CSO-027	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	36	3		6	
New Model	6	10	11	12	11	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO027_1 Weir #35, SPP 317 Modification	9/1/2026	7/3/2028	11/20/2028
CSO027_2 Babcock PS WEIR#42 Modification	9/1/2026	7/3/2028	4/9/2029
CSO027_3 SPP97 Modification (WEIR#10)	9/1/2028	7/4/2030	11/21/2030
Overall Dates	**9/1/2026**	**7/3/2028**	**11/21/2030**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO027_1 Weir #35, SPP 317 Modification	9/1/2026	7/3/2028	11/20/2028
CSO027_2 Babcock PS WEIR#42 Modification	9/1/2026	7/3/2028	4/9/2029
CSO027_3 SPP97 Modification (WEIR#10)	9/1/2028	7/4/2030	11/21/2030
Overall Dates	**9/1/2026**	**7/3/2028**	**11/21/2030**

2.11. Buffalo River: CSO-028

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
No LTCP projects completed for this CSO			

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-028/044/047 (2,300,000 gallons)	(M) Updated to smaller tank: 0.95 MG Hopkins & Osage OLS (CSO028_1)	$12,200,000	$12,623,598	$17,640,000
Total Cost		**$12,200,000**	**$12,623,598**	**$17,640,000**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-028/044/047 (2,300,000 gallons) / CSO028_1 Hopkins & Osage OLS	$12,200,000	$12,623,598	$17,640,000
Total Cost	**$12,200,000**	**$12,623,598**	**$17,640,000**

iii. Activations

CSO-028	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	69	29		6	
New Model	6	33	33	33	1	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-028/044/047 (2,300,000 gallons)	(M) Updated to smaller tank: 0.95 MG Hopkins & Osage OLS (CSO028_1)	3/18/2028	3/18/2031	3/18/2034*
Overall Dates		**3/18/2028**	**3/18/2031**	**3/18/2034**

**In Table ES-6 of the Approved LTCP, this project was associated with Cazenovia Creek-C due to the inclusion of CSOs 047 & 044 together with CSO 028. As CSO 028 is the only remaining CSO of these three not in compliance in the new model, this project has been reallocated to the Buffalo River. The approved substantial completion date for the original project is presented under Cazenovia Creek in Table 7.*

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-028/044/047 (2,300,000 gallons) / CSO028_1 Hopkins & Osage OLS	9/1/2030	5/4/2034	3/5/2037
Overall Dates	**9/1/2030**	**5/4/2034**	**3/5/2037**

2.12. Buffalo River: CSO-033

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
No LTCP projects completed for this CSO.			

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO033_1 Bailey & Regent OLS	$38,371,731	$53,620,000
CSO033_2 Clinton St OLS RTC	$117,219,125	$163,800,000
CSO033_3 SPP104 Modification (WEIR#53)	$42,937	$60,000
Total Cost	$155,633,793	$217,480,000

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO033_1 Bailey & Regent OLS	N/A	$38,371,731	$53,620,000
CSO033_2 Clinton St OLS RTC	N/A	$117,219,125	$163,800,000
CSO033_3 SPP104 modification (WEIR#53)	N/A	$42,937	$60,000
Total Cost	N/A	$155,633,793	$217,480,000

iii. Activations

CSO-033	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	9	5		5	
New Model	6	15	15	15	15	2

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO033_1 Bailey & Regent OLS	9/1/2031	5/4/2035	3/5/2038
CSO033_2 Clinton St OLS RTC	9/1/2028	5/8/2031	3/9/2034
CSO033_3 SPP104 Modification (WEIR#53)	9/1/2028	7/4/2030	11/21/2030
Overall Dates	**9/1/2028**	**7/4/2030**	**3/5/2038**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO033_1 Bailey & Regent OLS	9/1/2031	5/4/2035	3/5/2038
CSO033_2 Clinton St OLS RTC	9/1/2028	5/8/2031	3/9/2034
CSO033_3 SPP104 Modification (WEIR#53)	9/1/2028	7/4/2030	11/21/2030
Overall Dates	**9/1/2028**	**7/4/2030**	**3/5/2038**

2.13. Buffalo River: CSO-052

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
No LTCP projects completed for this CSO.			

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-052 (0.6 MG)	(R)	$3,900,000	$7,084,672	$9,900,000
Total Cost		**$3,900,000**	**$7,084,672**	**$9,900,000**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-052	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	10	6		3	
New Model	6	0	0	0	0	0

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-052 (0.6 MG)	(R)	3/18/2030	3/18/2032	3/18/2034
Overall Dates		**3/18/2030**	**3/18/2032**	**3/18/2034**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.14. Buffalo River: CSO-064

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Ohio Street	N/A	3/18/2018	12/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-064 (0.1 MG)	(M) Replaced with CSO-064 ILS (CSO064_1.1)	$2,000,000	$3,935,929	$5,500,000
Total Cost		**$2,000,000**	**$3,935,929**	**$5,500,000**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO064_1.2 SPP 137 Modification	$42,937	$60,000
CSO064_2 Perry Street Sanitary Sewer	$3,434,993	$4,800,000
Total Cost	**$3,477,930**	**$4,860,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-064 (0.1 MG) / CSO064_1.1 CSO-064 ILS	$2,000,000	$3,935,929	$5,500,000
CSO064_1.2 SPP 137 Modification	N/A	$42,937	$60,000
CSO064_2 Perry Street Sanitary Sewer	N/A	$3,434,993	$4,800,000
Total Cost	**$2,000,000**	**$7,413,859**	**$10,360,000**

iii. Activations

CSO-064	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	56	3		3	
New Model	6	10	10	10	6	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-064 (0.1 MG)	(M) Replaced with CSO-064 ILS (CSO064_1.1)	3/18/2030	3/18/2032	3/18/2034
Overall Dates		**3/18/2030**	**3/18/2032**	**3/18/2034**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO064_1.2 SPP 137 Modification	9/1/2029	7/3/2031	11/20/2031
CSO064_2 Perry Street Sanitary Sewer	9/1/2032	6/5/2035	6/3/2036
Overall Dates	**9/1/2029**	**7/3/2031**	**6/3/2036**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-064 (0.1 MG) / CSO064_1.1 CSO-064 ILS	9/1/2029	6/3/2032	3/10/2033
CSO064_1.2 SPP 137 Modification	9/1/2029	7/3/2031	11/20/2031
CSO064_2 Perry Street Sanitary Sewer	9/1/2032	6/5/2035	6/3/2036
Overall Dates	**9/1/2029**	**7/3/2031**	**6/3/2036**

2.15. Buffalo River: CSO-066

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
SPP 211 Optimization	N/A	3/18/2017	Prior to 1/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-066	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	6	10	3		4	
New Model	6	4	4	4	4	3

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.16. Cazenovia Creek – C: CSO-037

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
SPP 122 Optimization	N/A	3/18/2017	Prior to 1/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-037	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	0	13	6		6	
New Model	0	10	6	5	5	5

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.17. Erie Basin Marina: CSO-014

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Niagara Street Phase 1: Elmwood Street to Virginia Street	N/A	3/18/2018	12/1/2016
SPPs 206A&B	N/A	3/18/2015	12/29/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-014/015 (800,000 gallons)	(M) Updated to larger tank: CSO014_1.2 5.55 MG Erie Basin Marina OLS	$6,700,000	$44,683,530	$62,440,000
Total Cost		**$6,700,000**	**$44,683,530**	**$62,440,000**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC	$2,862,494	$4,000,000
Total Cost	**$2,862,494**	**$4,000,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-014/015 (800,000 gallons) / CSO014_1.2 Erie Basin Marina OLS	$6,700,000	$44,683,530	$62,440,000
CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC	N/A	$2,862,494	$4,000,000
Total Cost	**$6,700,000**	**$47,546,024**	**$66,440,000**

iii. Activations

CSO-014	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	2	4	1		2	
New Model	2	12	10	10	2	2

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-014/015 (800,000 gallons)	(M) Updated to larger tank: 5.55 MG Erie Basin Marina OLS (CSO014_1.2)	Prior to 1/1/2014	Prior to 1/1/2014	3/18/2015*
Overall Dates		**Prior to 1/1/2014**	**Prior to 1/1/2014**	**3/18/2015***

**Work was completed in 2014 to meet the purpose of the 0.8 MG Off-line Storage Facility as prescribed in Table 12-8 of the LTCP, however updated modeling indicates that this has not resulted in compliance for CSO-014. Therefore, this project is listed as "Unfinished".*

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC	9/1/2025	5/4/2029	3/5/2032
Overall Dates	**9/1/2025**	**5/4/2029**	**3/5/2032**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-014/015 (800,000 gallons) / CSO014_1.2 Erie Basin Marina OLS	9/1/2025	5/4/2029	3/5/2032
CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC	9/1/2024	5/6/2027	2/10/2028
Overall Dates	**9/1/2024**	**5/6/2027**	**3/5/2032**

2.18. Erie Basin Marina: CSO-015

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Genesee Street	Genesee Gateway Project	3/18/2018	6/1/2017
SPP 035	N/A	3/18/2015	5/31/2014
SPP 036	N/A	3/18/2015	12/5/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-015	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	2	12	0		1	
New Model	2	0	0	0	0	0

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.19. Niagara River: CSO-011

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
No LTCP projects completed for this CSO.			

ii. Future Projects

a. Original LTCP Projects Unfinished*

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in LTCP.				

**Note that the SPP modification for CSO-011 was included as part of the approved LTCP North Relief Sewer project (listed under Black Rock Canal CSO-012) and did not have a separate cost associated with it. This is now considered a separate project.*

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO011_1.1 20% GI Implementation	$2,849,612.67	$3,982,000.00
CSO011_1.2 SPP024 Modification	$42,937.41	$60,000.00
Total Cost	**$2,892,550**	**$4,042,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO011_1.1 20% GI Implementation	N/A	$2,849,612.67	$3,982,000.00
CSO011_1.2 SPP024 Modification	N/A	$42,937.41	$60,000.00
Total Cost		**$2,892,550**	**$4,042,000**

iii. Activations

CSO-011	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	9	41	16		4	
New Model	9	39	35	35	5	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO011_1.1 20% GI Implementation	9/1/2031	12/15/2034	2/29/2036
CSO011_1.2 SPP024 Modification	9/1/2025	7/2/2027	11/19/2027
Overall Dates	**9/1/2025**	**7/2/2027**	**2/29/2036**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO011_1.1 20% GI Implementation	9/1/2031	12/15/2034	2/29/2036
CSO011_1.2 SPP024 Modification	9/1/2025	7/2/2027	11/19/2027
Overall Dates	**9/1/2025**	**7/2/2027**	**2/29/2036**

2.20. Niagara River: CSO-055

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Kenmore Avenue	N/A	3/18/2018	3/1/2017
Hertel Northwest (Hertel at Deer) In-Line Storage	N/A	3/18/2024	5/6/2020
Hertel South (Hertel at Deer) In-Line Storage	N/A	3/18/2024	5/6/2020
SPP 001 Optimization	N/A	3/18/2017	12/12/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-055 (7,500,000 gallons)	(M) Updated to larger tank with new location: CSO055_1.5 11.55 MG Military Rd OLS	$18,500,000	$69,329,602	$ 96,880,000
Hertel North East ILS	(M) Updated design (CSO055_1.1)	$2,875,000	$2,862,494	$4,000,000
Total Cost		**$21,375,000**	**$72,192,096**	**$100,880,000**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO055_3 20% GI Implementation	$37,235,320	$52,032,000
Total Cost	**$37,235,320**	**$52,032,000**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO-055 (7,500,000 gallons) / CSO055_1.5 11.55 MG Military Rd OLS	$18,500,000	$69,329,602	$96,880,000
Hertel North East ILS	$2,875,000	$2,862,494	$4,000,000
CSO055_3 20% GI Implementation	N/A	$37,235,320	$52,032,000
Total Cost	**$21,375,000**	**$109,427,416**	**$152,912,000**

iii. Activations

CSO-055	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	9	41	15		9	
New Model	9	38	31	33	16	9

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-055 (7,500,000 gallons)	(M) CSO055_1.5 Military Rd OLS	3/18/2027	3/18/2030	3/18/2034
Hertel North East ILS	(M) Updated design (CSO055_1.1)	3/18/2022	3/18/2023	3/18/2024
Overall Dates		**3/18/2022**	**3/18/2023**	**3/18/2034**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO055_3 20% GI Implementation	9/1/2033	12/17/2036	3/2/2038
Overall Dates	**9/1/2033**	**12/17/2036**	**3/2/2038**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO-055 (7,500,000 gallons) / CSO055_1.5 11.55 MG Military Rd OLS	2/25/2027	12/24/2031	1/3/2035
CSO055_1.1 Hertel at Delaware ILS/Hertel North East	9/1/2033	7/2/2036	6/2/2038
CSO055_3 20% GI Implementation	9/1/2033	12/17/2036	3/2/2038
Overall Dates	**2/25/2027**	**12/24/2031**	**6/2/2038**

2.21. Scajaquada Creek: CSO-053

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
Fillmore Avenue Porous Parking and Green Lots	N/A	3/18/2018	4/23/2015
Lang RTC Project	RTC-1 / Hagen St RTC	9/2/2014	5/9/2016
Hazelwood (Kay) In-Line Storage	N/A	3/18/2024	6/19/2019
North Bailey In-Line Storage	N/A	3/18/2024	5/27/2020
Northland Ave	N/A	3/18/2018	12/17/2019
612 Northland Ave	N/A	3/18/2024	12/1/2019
SPP 163 Optimization	163A	3/18/2017	8/6/2015
SPP 165 Optimization	N/A	3/18/2017	Prior to 1/1/2014
SPP 165A Optimization	N/A	3/18/2017	11/3/2014
SPP 178 Optimization	N/A	3/18/2017	Prior to 1/1/2014
SPP 335B Optimization	N/A	3/18/2017	Prior to 1/1/2014
SPP 336A Optimization	N/A	3/18/2017	12/16/2015
SPP 342B Optimization	N/A	3/18/2017	Prior to 1/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
Jefferson & Florida (SPP 170B) (2,600,000 gallons)	(M) Replaced by CSO053_11 1.5 MG Canisius/Jefferson Delavan OLS	$9,500,000	$21,468,704	$30,000,000
SPP 336 a/b (SPP165A, SPP165B, SPP 336A, SPP336B) (4,200,000 gallons)	(M) Replaced by CSO053_1.4 3.26 MG Sidney OLS	$11,500,000	$19,837,083	$27,720,000
SPP 337 (0.7 MG)	(R)	$4,000,000	N/A	N/A
SPP341A Optimization Genesee & Kearns	(M) Replaced by CSO053_8 SPP341A Modification	$190,000	$42,937	$60,000
South Bailey ILS	(M) Replaced with CSO053_3.1 SPP 338 Modification	$2,025,000	$2,862,494	$4,000,000
Texas (Roslyn ILS)	(R)	$2,170,000	N/A	N/A
Amherst Quarry OLS	(M) Now Bailey & Amherst, Amherst Quarry PS RTC (CSO053_3.2)	$2,875,000	$1,539,214	$2,150,872
East Ferry ILS	(R)	$2,040,000	N/A	N/A
Colorado ILS	(M) Replaced by CSO053_2.5 SPP337 Modification	$2,025,000	$42,937	$60,000
Total Cost		**$36,325,000**	**$45,793,369**	**$63,990,872**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
CSO053_12.1 Jefferson Ave Main Beverly	N/A	$329,187	$460,000
CSO053_12.2 Jefferson Ave Best Beverly	N/A	$1,087,748	$1,520,000
CSO053_1.5 SPP336B Modification	N/A	$42,937	$60,000
CSO053_10 SPP229A RTC	N/A	$2,146,870	$3,000,000
CSO053_13 SPP165B Modification	N/A	$42,937	$60,000
CSO053_14 SPP175 Modification	N/A	$42,937	$60,000
CSO053_3.3 SPP254 Modification	N/A	$166,300	$232,385
CSO053_5.2 Edison Martha OLS	N/A	$26,649,818	$37,240,000
CSO053_9 20% GI Implementation	N/A	$2,393,045	$3,344,000
System_2 Schiller Park OLS	N/A	$61,514,994	$85,960,000
System_2_3 SPP339 Modification	N/A	$42,937	$60,000
System_2_4 SPP340 Modification	N/A	$42,937	$60,000
Total Cost		**$94,459,710**	**$131,996,385**

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
Jefferson & Florida (SPP 170B) (2,600,000 gallons) / CSO053_11 1.5 MG Canisius/Jefferson Delavan OLS	$9,500,000	$21,468,704	$30,000,000
SPP 336 a/b (SPP165A, SPP165B, SPP 336A, SPP336B) (4,200,000 gallons) / CSO053_1.4 Sidney OLS	$11,500,000	$19,837,083	$27,720,000
CSO053_10 SPP229A RTC	N/A	$2,146,870	$3,000,000
CSO053_13 SPP165B Modification	N/A	$42,937	$60,000
CSO053_1.5 SPP336B Modification	N/A	$42,937	$60,000
SPP341A Optimization Genesee & Kearns / CSO053_8 SPP341A Modification	$190,000	$42,937	$60,000
CSO053_12.1 Jefferson Ave Main Beverly	N/A	$329,187	$460,000
CSO053_12.2 Jefferson Ave Best Beverly	N/A	$1,087,748	$1,520,000
CSO053_14 SPP175 Modification	N/A	$42,937	$60,000
South Bailey ILS / CSO053_3.1 South Bailey DUC/ILS	N/A	$2,862,494	$4,000,000
Amherst Quarry OLS / CSO053_3.2 Amherst & Bailey RTC	N/A	$1,539,214	$2,150,872
Colorado ILS / CSO053_2.5 SPP337 Modification	$2,025,000	$42,937	$60,000
CSO053_3.3 SPP254 modification	N/A	$166,300	$232,385
CSO053_5.2 Edison Martha OLS	N/A	$26,649,818	$37,240,000
CSO053_9 20% GI Implementation	N/A	$2,393,045	$3,344,000
System_2 Schiller Park OLS	N/A	$61,514,994	$85,960,000
System_2_3 SPP339 Modification	N/A	$42,937	$60,000
System_2_4 SPP340 Modification	N/A	$42,937	$60,000
Total Cost	**$23,215,000**	**$140,296,016**	**$196,047,257**

iii. Activations

CSO-053	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	65	24		4	
New Model	4	37	37	37	26	4

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
Jefferson & Florida (SPP 170B) (2,600,000 gallons)	(M) Replaced by CSO053_11 1.5 MG Canisius/Jefferson Delavan OLS	3/18/2025	3/18/2027	3/18/2030
SPP 336 a/b (SPP165A, SPP165B, SPP 336A, SPP336B) (4,200,000 gallons)	(M) Replaced by CSO053_1.4 3.26 MG Sidney OLS	3/18/2024	3/18/2026	3/18/2029
SPP 337 (0.7 MG)	(R)	3/18/2023	3/18/2025	3/18/2027
SPP341A Optimization Genesee & Kearns	(M) Replaced by CSO053_8 SPP341A Modification	1/1/2014	N/A	3/18/2017
South Bailey ILS	(M) Replaced with CSO053_3.1 SPP338 Modification	3/18/2022	3/18/2023	3/18/2024
Texas (Roslyn ILS)	(R)	3/18/2022	3/18/2023	3/18/2024
Amherst Quarry OLS	(M) Now CSO053_3.2 Bailey & Amherst, Amherst Quarry PS RTC	3/18/2022	3/18/2023	3/18/2024
East Ferry ILS	(R)	3/18/2022	3/18/2023	3/18/2024
Colorado ILS	(M) Replaced by CSO053_2.5 SPP337 Modification	3/18/2022	3/18/2023	3/18/2024
Overall Dates		**1/1/2014**	**3/18/2023**	**3/18/2030**

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
CSO053_12.1 Jefferson Ave Main Beverly	3/1/2022	6/16/2025	6/15/2026
CSO053_12.2 Jefferson Ave Best Beverly	3/1/2022	6/16/2025	6/15/2026
CSO053_1.5 SPP336B Modification	9/1/2023	7/3/2025	11/20/2025
CSO053_10 SPP229A RTC	3/1/2022	1/1/2024	7/19/2024
CSO053_13 SPP165B Modification	9/1/2023	7/3/2025	11/20/2025
CSO053_14 SPP175 Modification	9/1/2023	7/3/2025	11/20/2025
CSO053_3.3 SPP254 Modification	3/1/2022	1/1/2024	7/19/2024
CSO053_5.2 Edison Martha OLS	9/1/2023	6/29/2028	5/1/2031
CSO053_9 20% GI Implementation	9/1/2027	12/17/2030	3/1/2032
System_2 Schiller Park OLS	9/1/2024	7/27/2028	5/29/2031
System_2_3 SPP339 Modification	9/1/2024	7/2/2026	11/19/2026
System_2_4 SPP340 Modification	9/1/2024	7/2/2026	4/8/2027
Overall Dates	**3/1/2022**	**1/1/2024**	**3/1/2032**

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
Jefferson & Florida (SPP 170B) (2,600,000 gallons) / CSO053_11 1.5 MG Canisius/Jefferson Delavan OLS	12/1/2021	6/9/2026	4/10/2029
SPP 336 a/b (SPP165A, SPP165B, SPP 336A, SPP336B) (4,200,000 gallons) / CSO053_1.4 Sidney OLS	9/1/2023	7/29/2027	5/30/2030
CSO053_10 SPP229A RTC	3/1/2022	1/1/2024	7/19/2024
CSO053_13 SPP165B Modification	9/1/2023	7/3/2025	11/20/2025
CSO053_1.5 SPP336B Modification	9/1/2023	7/3/2025	11/20/2025
SPP341A Optimization Genesee & Kearns / CSO053_8 SPP341A Modification	9/1/2023	7/3/2025	11/20/2025
CSO053_12.1 Jefferson Ave Main Beverly	3/1/2022	6/16/2025	6/15/2026
CSO053_12.2 Jefferson Ave Best Beverly	3/1/2022	6/16/2025	6/15/2026
CSO053_14 SPP175 Modification	9/1/2023	7/3/2025	11/20/2025
South Bailey ILS / CSO053_3.1 South Bailey DUC/ILS	9/1/2023	7/2/2026	6/1/2028
Amherst Quarry OLS / CSO053_3.2 Amherst & Bailey RTC	12/1/2021	8/6/2024	7/7/2026
Colorado ILS / CSO053_2.5 SPP337 Modification	9/1/2023	7/3/2025	11/20/2025
CSO053_3.3 SPP254 modification	3/1/2022	1/1/2024	7/19/2024
CSO053_5.2 Edison Martha OLS	9/1/2023	6/29/2028	5/1/2031
CSO053_9 20% GI Implementation	9/1/2027	12/17/2030	3/1/2032
System_2 Schiller Park OLS	9/1/2024	7/27/2028	5/29/2031
System_2_3 SPP339 Modification	9/1/2024	7/2/2026	11/19/2026
System_2_4 SPP340 Modification	9/1/2024	7/2/2026	4/8/2027
Overall Dates	**12/1/2021**	**1/1/2024**	**3/1/2032**

2.22. Scajaquada Creek: CSO-059

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
SPP 183 Optimization	N/A	3/18/2017	Prior to 1/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-059	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	0	2		0	
New Model	4	12	1	1	1	1

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

2.23. Scajaquada Creek: CSO-060

i. Past Projects

LTCP Project Name	Alternate Project Name	LTCP Completion Date	Actual Completion Date
CSO 060 GI Project	N/A	9/2/2014	Prior to 1/1/2014

ii. Future Projects

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M) / Removed (R)	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No unfinished projects for this CSO in the LTCP.				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No new projects for this CSO in the Selected Alternative.		

c. All Projects in Selected Alternative

Project Name and Tag	LTCP Estimate 2012 Dollars	Updated Estimate 2012 Dollars	Updated Estimate 2022 Dollars
No projects for this CSO in the Selected Alternative.			

iii. Activations

CSO-060	Waterbody Maximum	Baseline	Scheduled Work 3/18/2022	Actual Work Completed 3/18/2022	Approved LTCP Completion	Proposed (Selected Alternative)
Old Model	4	5	19		0	
New Model	4	0	0	0	0	0

iv. Schedule

a. Original LTCP Projects Unfinished

Project Name and Tag	Included as Specified (S) / Included as Modified (M)/ Removed (R)	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No unfinished projects for this CSO in LTCP				

b. New Projects to be Added in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No new projects for this CSO in the Selected Alternative.			

c. All Projects in Selected Alternative

Project Name and Tag	Engineering Start Date	Construction NTP Date	Substantial Completion Date
No projects for this CSO in the Selected Alternative.			

3. Approved Projects in LTCP

3.1. Underflow Pipe Upsizing (CSO 008/010, 061, 004)/ CSO010_1 Breckenridge Niagara RTC

i. Project Description

All CSOs Impacted: 008,010,061,004 (Listed under CSO-010 in CSO Level Impact)
Location: Between Breckenridge Street and Brace Street along the I-190 with an extension along Brace Street across Niagara Street.
Size: Varying upsizing of the underflow piping for CSO 010, 008, 061, and potentially 004.

ii. Activation Reductions

Old Model: Together with other LTCP Projects, Underflow Pipe Upsizing (CSO 008/010, 061, 004) project was projected to reduce CSO discharges into the Black Rock Canal. The expected activations reductions were from 5 to 3 for CSO 004, from 39 to 0 for CSO 008, from 44 to 1 for CSO 010, and from 10 to 2 for CSO-061 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Underflow Pipe Upsizing (CSO 008/010, 061, 004) project was projected to maintain 5 activations for CSO 004, reduce from 33 to 0 activations for CSO 008, and reduce from 14 to 0 activations for CSO 010. In the new model's baseline and 2014 LTCP scenarios, there were no activations at CSO-061.

Selected Alternative: Regarding the Selected Alternative model, the proposed Breckenridge Niagara RTC is planned to replace the Underflow Pipe Upsizing project. In this Selected Alternative, it is anticipated that the new project with other LTCP projects will reduce activations from 5 to 2 for CSO 004, from 33 to no activations for CSO 008, and from 14 to no activations for CSO 010 upon completion of the Selected Alternative. In the new model's baseline and Selected Alternative scenarios, CSO-061 is already in compliance.

iii. Implementation Issue

The project was updated because CSO-061 already met its target activations in the baseline model. CSO-004 was already in compliance based on actual work completed by March 2022. There were also constructability concerns because these underflows are located near railroad and NYS DOT properties.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2021	3/18/2023	3/18/2024
Proposed	3/1/2022	11/4/2024	2/1/2027

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$500,000	$698,691
Updated Estimate	$2,602,448	$3,636,617

vi. Modified/Eliminated/Included in Updated Model

Modification: Replaced by Breckenridge Niagara RTC (CSO010_1)

The Breckenridge Niagara RTC project is being proposed as an alternative to the CSO-061, 008/010, and 004 underflow upsizing project in the LTCP baseline plan. Since the target activations are already met at CSO-008, CSO-061, and CSO-004, the project only needs to address activations at CSO-010. The proposed design was similar to the Smith St. and Mill Race RTC projects, with a static weir in the 36" diameter pipe upstream of SPP021 diverting flow to a new controlled connection to the North Interceptor. This project also has the potential to reduce overflows at CSO-011 (SPP024) and CSO-055 (SPP001).

Due to additional information on site and construction constraints and community feedback acquired during the detailed design for Breckenridge Niagara RTC, this project may become a sewer redirection/replacement project with a similar impact.

Impact on Cost: The cost significantly increased in this area.

Impact on Schedule: The modified project is projected to be completed 3 years after the approved LTCP project completion date.

Reason for Modifications: CSO-008, CSO-061, and CSO-004 were already in compliance and there were constructability concerns for the original design.

Are changes significant enough to require further public participation: Yes.

The changes in project type and location have impacts, and involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.2. Northern Relief Sewer / System_1 Northern Relief Tunnel

i. Project Description

All CSOs Impacted: 011, 012, 055 (Listed in CSO Level Impacts under CSO-012)
Location: Niagara Street between Bird Avenue and Albany Street with an additional line connecting the tunnel to the WWTP influent siphon.
Size: 5,310' of 96" pipe and 571' of 120" pipe

ii. Activation Reductions

Old Model: Together with other LTCP Projects, the Northern Relief Sewer project was projected to reduce CSO activations from 42 to 2 for CSO-012 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Northern Relief Sewer project was projected to reduce activations from 35 to 0 for CSO-012 upon completion of the approved 2014 LTCP.

Selected Alternative: In the Selected Alternative, it is anticipated that the proposed tunnel together with other projects will reduce activations from 35 to 3 for CSO-012.

iii. Implementation Issue

Preliminary subsurface investigation in conjunction with the North Relief-Interceptor concept has revealed concerns with the location of bedrock and the feasibility of the proposed tunnel location. As an initial phase of replacement, the Bird Avenue Underflow Sewer Project has been completed. Additionally, a significant blockage in a previously unmapped sewer was removed, which resulted in decreased overflows to the Black Rock Canal.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2019	3/18/2022	3/18/2026
Proposed	2/25/2027	8/30/2034	6/2/2038

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$36,000,000	$50,305,784
Updated Estimate	$52,105,077	$72,810,744

vi. Modified/Eliminated/Included in Updated Model

Modification: New Configuration, tagged as Northern Relief Tunnel (System_1)
The Northern Relief Tunnel is designed to create more conveyance capacity to the WWTP, supplement capacity in the North and South Interceptors, and increase the ability of the system to store wet-weather flows. It is anticipated that the tunnel will have an inside diameter of 12-feet based on the most recent system simulations. This is subject to change if alternate RTC sites are constructed as the LTCP evolves. This tunnel system is anticipated to have three parts, North of Scajaquada Creek, South of Scajaquada Creek, and the Southern Relief Tunnel.
North of Scajaquada Creek is anticipated to be constructed as a potential replacement for the Military Road OLS project. The anticipated route for the tunnel will be to start at Tonawanda Street and head south. The launch shaft will also be needed for open cut connections to the large parallel sewers that connect to SPP 1 from Hertel Avenue. This section of the tunnel is currently under

development as multiple alignment options are being investigated. The alignment is required to pick up flow from the north, near Arthur St. or Hertel Ave., and extend to the southern end of Scajaquada Creek towards Breckenridge St. at the Breckenridge Siphons. These siphons would then connect the new system to the Bird Island Treatment Facility. The entire length of tunnel is estimated to be approximately 2.3 miles and would be constructed in multiple sections using a Tunnel Boring Machine (TBM).

The Southern Relief Tunnel is anticipated to start at Albany Street and connect to the proposed junction chamber near the Breckenridge Siphons. The general route for this sewer will be to flow North on the western Side of Niagara Street. The Proposed Swan Trunk connection and associated sewers will need to be reconfigured at this area to relieve the South Interceptor and convey flow to the WWTP. The approximate length of this section is 700 feet.

The anticipated tunnel operation is to flow by gravity into the siphons. To operate this way, the tunnel invert will need to be higher than the existing Breckenridge Siphons. This places the tunnel in a position where the northern tunnel will be installed below the water table and mixed rock/soft material conditions. This type of construction will likely require use of soft ground TBM, which is an appropriate tool for mixed conditions but is ideal for soft, wet ground. It may be possible to install the entire tunnel below bedrock if the tunnel can be dewatered by pumping. Next steps for tunnel design include bedrock and soils characterization along anticipated routes, an engineering evaluation to optimize the tunnel alignment, and acquisition of easements and property to construct access shafts.

Impact on Cost: Initial engineering estimates now place costs for this Interceptor sewer at over $70,000,000, though this cost may rise significantly due to potential contaminated soils and property acquisition issues.

Impact on Schedule: The January 31, 2023 proposed schedule pushes this project back significantly to begin design in February 2027 and complete Substantial Completion in June of 2038 to allow for exploration of additional cost saving concepts including the potential transformation of the Hertel Avenue Offline storage facility into an extension of the North Relief Tunnel. This would also allow work to focus first on the Scajaquada Creek system where there is greater water quality impact.

Reason for Modifications: Availability of more detailed geological assessments, environmental considerations, and cost-efficiency analysis information gathered in more detailed tunnel route evaluation than provided in the original LTCP.

Are changes significant enough to require further public participation: Yes.
The new tunnel configuration goes beyond the original Northern Relief Sewer Interceptor alignment. These changes have significant impacts, and involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.3. CSO-013 Satellite Storage, Conveyance, FM & PS / CSO013_1 SPP304 Modification

i. Project Description

All CSOs Impacted: 013
Location: Virginia Street
Size: 0.3 MG satellite storage facility with pumping station and forcemain discharge.

ii. Activation Reductions

Old Model: Together with other LTCP projects, CSO-013 Satellite Storage was projected to reduce CSO discharges into the Black Rock Canal. The expected activations reductions were from 7 to 4 for CSO-013 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP project, CSO-013 Satellite Storage was projected to sustain the target of 4 CSO activations at CSO-013 in the Black Rock Canal from the initial baseline conditions to the completion of the approved 2014 LTCP in the new model.

Selected Alternative: Regarding the Selected Alternative model, the proposed SPP304 Modification (CSO013_1) is planned to replace the CSO-013 Satellite Storage. In this Selected Alternative, it is anticipated that the target of 4 CSO activations at CSO-013 in the Black Rock Canal will be sustained from the initial baseline conditions to the implementation of the Selected Alternative.

iii. Implementation Issue

Rather than an off-line storage system at this location, the removal of an existing underflow orifice plate in combination with upstream proposed off-line storage projects are expected to achieve compliance under the revised model.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	1/1/2020	1/1/2021	1/1/2023
Proposed	9/1/2025	7/2/2027	11/19/2027

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$3,000,000	$4,192,149
Updated Estimate	$42,937	$60,000

vi. Modified/Eliminated/Included in Updated Model

Modification: The CSO-013 offline storage was replaced with SPP304 Modification (CSO013_1).
For this SPP modification project, SPP304 (CSO-013, Virginia St. & Busti Ave.) would be modified by removing the underflow orifice plate. Since this project sends more flow to the Swan Trunk, it would benefit from the implementation of OLS projects in the South Central District.

Impact on Cost: Cost reduction is achieved with the smaller SPP modification project.

Impact on Schedule: The modified project is anticipated to be completed 4 years after the original LTCP project completion date.

Reason for Modifications: SPP modification is more cost effective than OLS to address small out of compliance activations in final version of Selected Alternative.

Are changes significant enough to require further public participation: No.
The SPP modifications have lesser impact than an OLS structure. Further public participation is not required.

3.4. Hamburg Drain Storage

i. Project Description

All CSOs Impacted: 017, 022, and 064 (Listed under CSO-017 in CSO Level Impacts)
Location: Hamburg Basin along the Riverline Trail
Size: 5.0 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, this project was projected to reduce CSO discharges into the Buffalo River. The expected activations reductions were from 49 to 4 for CSO-017 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Hamburg Drain Storage project was projected to reduce activations from 24 to 4 for CSO from the initial baseline conditions to the completion of the approved 2014 LTCP in the new model.

Selected Alternative: Regarding the Selected Alternative model, the Hamburg Drain Storage was eliminated and replaced with more efficient/constructable alternatives. Therefore, this project is not included in the Selected Alternative scenario.

iii. Implementation Issue

The Hamburg Drain Storage Project was conceived as being constructed on privately held lands. The feasibility of acquiring these lands in a timely and economical matter is highly suspect. The 5.0 MG storage facility would not achieve the desired number of activations for CSO-017. Alternative options are therefore being proposed.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	2015	2016	2018
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$19,960,000	$27,891,763
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Eliminated: The Hamburg Drain Storage has been removed and more efficient/constructable alternatives are being considered to ensure that BSA achieves the water quality goals of the Administrative Order within the anticipated schedule.

3.5. Fillmore North ILS

i. Project Description

All CSOs Impacted: 026
Location: Fillmore Avenue from Sienkiewicz to William
Size: 2500 ft of detention within 75" Brick Egg Shaped Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, Fillmore North ILS was projected to reduce CSO discharges into the Buffalo River. The expected activations reductions were from 63 to 3 for CSO-026 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Fillmore North ILS project was projected to reduce activations from 9 to 6 for CSO-026 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the Fillmore North ILS was eliminated, therefore, this project is not included in the Selected Alternative scenario.

iii. Implementation Issue

This project did not provide any changes in activations in the updated model and is therefore no longer being pursued.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,015,000	$2,815,727
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Elimination: In the updated model, this project did not provide any changes in activations and is therefore no longer being pursued.

3.6. SPP075 Optimization

i. Project Description

All CSOs Impacted: 026
Location: Perry Street and Smith Street
Size: Upsize underflow pipe to have a capacity of 3.5 cfs and remove underflow orifice.

ii. Activation Reductions

Old Model: Together with other LTCP Projects, SPP075 Optimization project was projected to reduce CSO discharges into the Buffalo River. The expected activations reductions were from 63 to 3 for CSO-026 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the SPP075 Optimization project was projected to reduce activations from 9 to 6 for CSO-026 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the SPP075 Optimization project was eliminated and is not included in the Selected Alternative scenario.

iii. Implementation Issue

The weir crest elevation at SPP075 was raised in 2010 to 1.5 ft in the BSA datum. Additional SPP optimization work was planned along with the Smith Street RTC but was never implemented. Costs to increase the pipe diameter were very high and did not show significant impact in preliminary modeling. This project was removed and replaced with more cost-effective projects upstream of CSO-026.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2014	3/18/2015	3/18/2017
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$100,000	$139,738
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Elimination: SPP Optimization deemed no longer necessary when running the updated PC-SWMM model using the typical year rainfall because this SPP has no activations.

3.7. Gibson CSO Line Storage

i. Project Description

All CSOs Impacted: 026
Location: Gibson St from Stanislaus to Siekiewicz
Size: 1800 ft of detention within 78" Precast Concrete Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, Gibson CSO Line Storage was projected to reduce CSO discharges into the Buffalo River. The expected activations reductions were from 63 to 3 for CSO-026 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Gibson CSO Line Storage project was projected to reduce activations from 9 to 6 for CSO-026 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the Gibson CSO Line Storage was eliminated and is not included in the Selected Alternative scenario.

iii. Implementation Issue

This project did not provide any changes in activations in the updated model and is therefore no longer being pursued.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,015,000	$2,815,727
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Eliminated: This project did not provide any changes in activations in the updated model and is therefore no longer being pursued.

3.8. CSOs 028/044/047 Satellite Storage, Conveyance, FM & PS / CSO028_1 Hopkins & Osage OLS

i. Project Description

All CSOs Impacted: 028/044/047 (Listed under CSO-028 in CSO Level Impacts)
Location: underneath the Tops parking lot between South Park Avenue and the Buffalo River
Size: 2.3 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, CSOs 028/044/047 Satellite Storage project was projected to reduce activations from 69 to 6 for CSO-028, from 7 to 2 for CSO-044, and from 44 to 3 for CSO-047 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, CSOs 028/044/047 Satellite Storage project was projected to reduce activations from 33 to 1 for CSO 28 upon completion of the approved 2014 LTCP. Both CSO-044 and CSO-047 were in compliance in the new model's baseline and the approved 2014 LTCP scenarios.

Selected Alternative: Regarding the Selected Alternative model, the proposed Hopkins & Osage OLS (CSO028_1) is planned to replace the CSOs 028/044/047 Satellite Storage. In this Selected Alternative, it is anticipated that the smaller proposed tank, together with other LTCP Projects, will reduce activations from 33 to 4 for CSO-028. Both CSO-044 and CSO-047 are in compliance in the new model's baseline and the Selected Alternative scenarios.

iii. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2028	3/18/2031	3/18/2034
Proposed	9/1/2030	5/4/2034	3/5/2037

iv. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$12,200,000	$17,048,071
Updated Estimate	$12,623,598	$17,640,000

v. Modified/Eliminated/Included in Updated Model

Modification: Updated to smaller tank, 0.95 MG Hopkins & Osage OLS (CSO028_1)
The LTCP model results showed that storage was no longer needed to achieve compliance for CSO-044 and CSO-047. To address CSO-028 overflows, the Hopkins and Osage OLS would store flow from the Hopkins Street sewer in a 0.95 MG tank at the eastern end of Osage Street. The storage would dewater when there is available capacity in the South Park Avenue sewer and no risk of overflow at the downstream SPPs 125 and 126. The Proposed OLS configuration requires a pump station for dewatering. This project also includes raising the weir at SPP123A to 2.40 ft (City datum) to send flow to the downstream off-line storage and further reduce CSO-028 overflows.

Impact on Cost: The cost of the re-located tank is about the same as the original cost estimate.

Impact on Schedule: The modified project is projected to complete Substantial Completion 3 years after the approved LTCP project.

Reason for Modifications: Preliminary model results showed storage was no longer needed to achieve compliance for CSO-044 and CSO-047.

Are changes significant enough to require further public participation: Yes.
The proposed modifications include a smaller 0.95 MG storage tank in a new location. These changes have impacts, and involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.9. CSO-052 Satellite Storage, Conveyance, FM & PS

i. Project Description

All CSOs Impacted: 052
Location: Ogden Street between Mineral Springs Road and Cazenovia Creek
Size: 0.6 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, CSO-052 Satellite Storage was projected to reduce CSO discharges into the Buffalo River. The expected activations reductions were from 10 to 3 for CSO-052 upon completion of the approved 2014 LTCP.

New Model: No activations were observed for CSO-052 when running updated PC-SWMM model using the typical year rainfall for the baseline and the approved 2014 LTCP scenarios

Selected Alternative: Regarding the Selected Alternative model, the CSO-052 Satellite Storage was eliminated and is not included in the Selected Alternative scenario.

iii. Implementation Issue

This CSO is already in compliance, so a project in this area is no longer warranted.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2030	3/18/2032	3/18/2034
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$3,900,000	$5,449,793
Updated Estimate	$7,084,672	$9,900,000

vi. Modified/Eliminated/Included in Updated Model

Eliminated: Deemed to no longer be necessary when running the updated PC-SWMM model using the typical year rainfall because the downstream SPP was in compliance.

3.10. CSO-064 Satellite Storage, Conveyance, FM & PS / CSO064_1.1 CSO-064 ILS

i. Project Description

All CSOs Impacted: 064
Location: Near the confluence of Ohio, Louisiana and Saint Claire Streets.
Size: 0.1 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, CSO-064 Satellite Storage project was projected to reduce CSO discharges into the Buffalo River. Expected activations reductions were from 56 to 3 for CSO-064 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, CSO-064 Satellite Storage project was projected to reduce activations from 10 to 6 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed CSO-064 ILS (CSO064_1.1) is planned to replace CSO-064 Satellite Storage. It is anticipated that the proposed project together with other proposed projects will reduce activations from 10 to 4 for CSO-064 upon completion of the Selected Alternative.

iii. Implementation Issue

There are significant hydraulic challenges preventing the construction of the original design of the satellite storage project. It is BSA's preference to rely on gravity rather than pumped flow and to construct in the existing right-of-way where possible.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2030	3/18/2032	3/18/2034
Proposed	9/1/2029	6/3/2032	3/10/2033

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,000,000	$2,794,766
Updated Estimate	$2,862,494	$4,000,000

vi. Modified/Eliminated/Included in Updated Model

Modification: The new project includes replacing the CSO-064 Satellite Storage with two 60-inch ILS (CSO064_1.1).
The existing 24" sewer upstream of SPP137 between South Street and Republic Street along Louisiana Street would be replaced by two 60" diameter sewers. These sewers would provide in-line storage volume to help reduce overflows at SPP137.

Impact on Cost: The cost estimate increased compared to the original estimate.

Impact on Schedule: The modified ILS project is projected to complete construction in 2033, 1 year earlier than the original OLS project schedule.

Reason for Modifications: The OLS project is replaced with a more efficient/constructable project to ensure that BSA achieves the water quality goals of the Administrative Order within the anticipated schedule.

Are changes significant enough to require further public participation: Yes.
The proposed modifications may have less impact on the public than an OLS project. However, involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.11. CSO-014/015 Satellite Storage, Conveyance, FM & PS / CSO14_1.2 Erie Basin Marina OLS

i. Project Description

All CSOs Impacted: 014, 015
Location: Trenton Road and Fourth Street
Size: 0.8 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, CSO-014/015- Satellite Storage was projected to reduce CSO discharges into the Erie Basin Marina. Expected activations reductions were from 4 to 2 for CSO-014 and from 12 to 1 for CSO-015 upon the completion of the approved 2014 LTCP

New Model: Together with other LTCP Projects, CSO-014/015- Satellite Storage was projected to reduce CSO discharges into the Erie Basin Marina. Specifically, it was expected to reduce activations from 12 to 2 for CSO-014. In the new model's baseline and 2014 LTCP scenarios, there were no activations at CSO-015.

Selected Alternative: Regarding the Selected Alternative model, the proposed Erie Basin Marina OLS (CSO014_1.2) is planned to replace the CSO-014/015 Satellite Storage. In this Selected Alternative, it is anticipated that the new project together with other LTCP projects will reduce activations from 12 to 2 for CSO-014. In the new model's baseline and the Selected Alternative scenarios, there were no activations observed at CSO-015.

iii. Implementation Issue

The New Model typical year results indicated that additional storage would be required to achieve compliance for Erie Basin Marina.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	Prior to 1/1/2014	Prior to 1/1/2014	3/18/2015
Proposed	9/1/2025	5/4/2029	3/5/2032

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$6,700,000	$9,362,465
Updated Estimate	$44,683,530	$62,440,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Updated to larger tank, 5.55 MG Erie Basin Marina OLS (CSO014_1.2)

To address CSO-014 overflows, flow from Swan Trunk would be diverted to the proposed Erie Basin Marina OLS. The OLS would consist of a 5.55 MG tank north of the intersection of Trenton Road and Fourth Street. The storage would dewater when there is available capacity in the Swan

trunk sewer. The Proposed OLS configuration requires a pump station for dewatering. The inlet for this storage is near SPP206A&B, so it would be beneficial to implement the OLS in conjunction with the SPP206A&B RTC project.

Impact on Cost: Increase in cost to accommodate larger tank size.

Impact on Schedule: Modifying the CSO/014/015 project to achieve compliance at SPP206A&B extends the schedule for work in this area to 2032.

Reason for Modifications: The remaining out of compliance activations at SPP206A&B exceeded the capacity of the original CSO014/015 tank size. This situation arose due to an increase in inflow, as reported by the Erie County Sewer District (ECSD), resulting in a higher number of activations at SPP206A&B. In addition, the implementation of this OLS helps mitigate overflows at other nearby SPPs, such as SPP024 and SPP097.

Are changes significant enough to require further public participation: Yes.
The proposed modifications, including a larger 5.55 MG storage tank and Real-Time Control modifications, go beyond the initial plan of a 0.8 MG tank. These changes have significant impacts, and involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.12. CSO-055 Satellite Storage, Conveyance, FM & PS / CSO055_1.5 Military Rd OLS/Hertel OLS

i. Project Description

All CSOs Impacted: 055
Location: upstream of the SPP001 regulator, near Military Road
Size: 7.5 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, CSO-055 Satellite Storage project was projected to reduce CSO discharges into the Niagara River. The expected activations reductions were from 41 to 9 for CSO-055 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, CSO-055 Satellite Storage project was projected to reduce activations from 38 to 16 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed Military Rd OLS (CSO055_1.5) is planned to replace the CSO-055 Satellite Storage. In this Selected Alternative, it is anticipated that the proposed larger tank together with other LTCP Projects will reduce activations from 38 to 9 for CSO-055 upon completion of the Selected Alternative.

iii. Implementation Issue

A few different alternatives were considered in this area due to maintenance and constructability concerns. The size and number of activations at CSO-055 also required additional storage to achieve compliance.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2027	3/18/2030	3/18/2034
Proposed	2/25/2027	12/24/2031	1/3/2035

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$18,500,000	$25,851,584
Updated Estimate	$69,329,602	$96,880,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Updated to larger tank with new location: 11.55 MG Military Rd OLS (CSO055_1.5)

The proposed Military Road OLS project is a 11.55 MG tank that stores flow diverted from the Hertel Avenue South barrel at the intersection of Hertel Avenue and Military Road. The currently proposed location for the storage tank is the parking lot for West Hertel Academy at 245 Hertel. The inlet of the offline storage is directly upstream of the existing Hertel at Deer RTC structure and would store when the Hertel at Deer ILS is full. The storage would dewater via a pump station when there is no risk of overflow at SPP001. Note that this OLS may not be implemented as it is currently configured if the North of Scajaquada Creek section of the Northern Relief Tunnel is

constructed. Compliance in this area will be further evaluated during the Northern Relief Tunnel detailed design phase, and the Military OLS project will be adjusted as needed to minimize overall program costs while still achieving compliance.

Impact on Cost: Significant cost increase due to larger tank size. The cost impact may change if the North of Scajaquada Creek section of the Northern Relief Tunnel is constructed.

Impact on Schedule: The modified project is projected to be completed 1 year after the approved LTCP project completion.

Reason for Modifications: The capacity of the original CSO055 tank size proved insufficient as volume for the remaining out of compliance activations at SPP001 exceeded it. Additionally, an increase in inflow, as reported by the ECSD, resulted in a higher number of activations and a greater total overflow volume at SPP001. In addition, to address challenges related to land acquisition, a new location was chosen for the project. Moreover, the implementation and size of CSO055_1.5 are dependent on a detailed design evaluation for the Northern Relief Tunnel.

Are changes significant enough to require further public participation: Yes.
The proposed modifications, including a larger 11.55 MG storage tank in a new location, go beyond the initial plan of a 7.5 MG tank. These changes have significant impacts, and involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.13. Hertel North East / Hertel Delaware ILS (CSO055_1.1)

i. Project Description

All CSOs Impacted: 055
Location: Hertel Avenue between Colvin and Shoshone
Size: 2500 ft of detention within 102" Reinforced Concrete Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, Hertel North East / Hertel Delaware ILS (CSO055_1.1) project was projected to reduce CSO discharges into the Niagara River. The expected activations reductions were from 41 to 9 for CSO-055 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, Hertel North East / Hertel Delaware ILS (CSO055_1.1) project was projected to reduce activations from 38 to 16 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed updated design of the Hertel North East / Hertel Delaware ILS (CSO055_1.1) together with other LTCP Projects will reduce activations from 38 to 9 for CSO-055 upon completion of the Selected Alternative.

iii. Implementation Issue

There are existing flooding concerns in the vicinity and significant traffic issues that will need to be addressed. Additionally, this project in and of itself while impacting the volume of overflows, will have minimal impact on water quality and/or overflow events. There are also significant seiche influences at CSO-055 that will be addressed with a backwater gate project.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	9/1/2033	7/2/2036	6/2/2038

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,185,000	$3,053,282
Updated Estimate	$2,862,494	$4,000,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Updated to Hertel Delaware ILS (CSO055_1.1)
The Hertel North East / Hertel Delaware ILS (CSO055_1.1) is designed to take advantage of additional storage capacity available on Hertel Avenue North barrel upstream of the existing Hertel at Deer RTC structure. Since there is a short travel time between the two locations, the preliminary control strategy would start storage when the depth upstream of the Hertel North East / Hertel Delaware ILS (CSO055_1.1) structure indicates wet weather. This project will work in conjunction with the CSO-055/ Military Road OLS project.

Impact on Cost: Increase in cost compared to original design.

Impact on Schedule: The modified ILS project is projected to complete construction 14 years after the approved LTCP completion year.

Are changes significant enough to require further public participation? No.
The modifications to this project do not significantly change the size/location. However, this is a high traffic area that will require additional public participation to ensure the public is aware of how construction will impact traffic patterns.

3.14. SPP 336 A&B (CSO-053) Satellite Storage, Conveyance, FM & PS / CSO053_1.4 SPP336B Sidney Street OLS

i. Project Description

All CSOs Impacted: 053
Location: Humboldt Parkway on each side of the Scajaquada Drain
Size: 4.2 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, SPP 336 A&B (CSO-053) Satellite Storage project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, SPP 336 A&B (CSO-053) Satellite Storage project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed Sidney OLS (CSO053_1.4) is planned to replace the SPP 336 A&B (CSO-053) Satellite Storage. In this Selected Alternative, it is anticipated that the proposed smaller tank together with other LTCP Projects will reduce activations from 37 to 4 for CSO-053 upon completion of the Selected Alternative.

iii. Implementation Issue

The updated model indicates that 336A is already in compliance. Additionally, as described in the LTCP, this project would require the acquisition and demolition of occupied homes in East Buffalo near the site of the May 14, 2022, Tops Friendly Markets racially motivated massacre. Alternatives were explored on vacant land that would require less disruption in this neighborhood.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2024	3/18/2026	3/18/2029
Proposed	9/1/2023	7/29/2027	5/30/2030

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$11,500,000	$16,069,903
Updated Estimate	$19,837,083	$27,720,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Replaced 3.26 MG Sidney OLS (CSO053_1.4)

The SPP 336 A&B (CSO-053) Satellite Storage at Humboldt Parkway will be replaced with a smaller 3.26 MG tank at the corner of Sidney Street and Lark Street. This area is currently vacant land that will be maintained as a parking lot or pocket park after Substantial Completion. To reduce flows at SPP336B, the Sidney Street OLS will store flow diverted from the sewer along Humboldt

Parkway. The storage would dewater via gravity when there is sufficient available capacity in the Scajaquada Tunnel Interceptor.

Impact on Cost: The combined cost of the Proposed Alternative projects is higher than the original SPP336A&B satellite storage project.

Impact on Schedule: The updated schedule projects Substantial Completion in 2030 instead of 2029 in the approved LTCP.

Reason for Modifications: SPP165A and SPP336A were in compliance in the preliminary model results. Also, there is an opportunity to coordinate when to send flows to Scajaquada Tunnel with new projects such as Schiller Park OLS, resulting in the reduction in storage capacity for the new proposed OLS.

Are changes significant enough to require further public participation: Yes.
The proposed project consisting of a 3.6 MG tank has a smaller footprint than the original project. However, since the project is in a new location, involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.15. Jefferson Avenue & Florida Street (CSO-053) Satellite Storage / CSO053_11 Jefferson Delavan OLS

i. Project Description

All CSOs Impacted: 053
Location: Near the intersection of Jefferson Avenue and Florida Street.
Size: 2.6 MG satellite storage facility with pumping station and forcemain discharge

ii. Activation Reductions

Old Model: Together with other LTCP Projects, Jefferson Avenue & Florida Street (CSO-053) Satellite Storage project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, Jefferson Avenue & Florida Street (CSO-053) Satellite Storage project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed Canisius/Jefferson Delevan OLS (CSO053_11) is planned to replace the Jefferson Avenue & Florida Street (CSO-053) Satellite Storage. In this Selected Alternative, it is anticipated that the proposed smaller tank together with other LTCP Projects will reduce activations from 37 to 4 for CSO-053 upon completion of the Selected Alternative.

iii. Implementation Issue

BSA has explored different alternatives in this area to accommodate property rights issues and potential environmental contamination. Alternatives being explored include a tunnel within the right of way of East Delavan and an underground storage tank on Canisius College owned property.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2025	3/18/2027	3/18/2030
Proposed	12/1/2021	6/9/2026	4/10/2029

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$9,500,000	$13,275,138
Updated Estimate	$21,468,704	$30,000,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Replaced by 1.5 MG Canisius/Jefferson Delevan OLS (CSO053_11)
There is a new opportunity to move the tank location north and utilize an existing parking garage area at Jefferson and Delavan proposed to be demolished for the construction of a new surface parking lot. In the updated configuration and location, flow at SPP333 is routed to a 1.5 MG offline storage tank with an RTC at SPP229A. The storage would dewater via gravity when there is capacity available in the Scajaquada Tunnel. Rock is present at shallow depths in this area which

would impact construction costs and scheduling. Note the Proposed Alternative assumed an off-line storage facility would be implemented. This project is currently in preliminary design and progressing towards a tunnel alternative to avoid private property and community impact issues.

Impact on Cost: The cost significantly increased from the original unfinished LTCP project.

Impact on Schedule: The modified project is projected to meet the Substantial Completion year of 2029, 1 year earlier than the approved LTCP project.

Reason for Modifications: The availability of an existing parking garage area at Jefferson and Delavan proposed to be demolished for the construction of a new surface parking lot presented a new opportunity to locate the tank in this area to prevent land acquisition related challenges. Since this initial proposal, land acquisition in this area has proven to be more challenging.

Are changes significant enough to require further public participation: Yes.
The new project consisting of a 1.5 MG tank has a smaller footprint than the original project. However, since the project is in a new location, involving the public in the decision-making process would ensure transparency, allow stakeholders to provide input, and address any concerns.

3.16. Colorado ILS/ CSO053_2.5 SPP337 Modification

i. Project Description

All CSOs Impacted: 053
Location: Colorado Street & Scajaquada to East Delavan & Northumberland
Size: 2500 ft of detention within 60" Brick Egg Shaped Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, Colorado ILS project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon the completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, Colorado ILS project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed CSO053_2.5 SPP337 Modification is planned to replace the Colorado ILS project. In the Selected Alternative, it is anticipated that the proposed project together with other LTCP Projects will reduce activations from 37 to 4 for CSO-053 upon completion of the Selected Alternative.

iii. Implementation Issue

This project was to be located on Colorado Street near Scajaquada Street within the footprint of the former American Axle property on East Delavan Street. Construction of an RTC structure at this location would require an easement from a private property owner in a known Superfund site and would entail excavation within what are highly suspected to be contaminated soils. Due to the high cost-benefit ratio and the extended legal process entailed with this project, implementation was delayed indefinitely.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	9/1/2023	7/3/2025	11/20/2025

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,025,000	$2,829,700
Updated Estimate	$42,937	$60,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Replaced by CSO053_2.5 SPP337 Modification

The SPP 337 (CSO-053) offline storage was replaced with SPP337 Modification (CSO053_2.5). For this project, SPP337 would be modified by incorporating an additional 30" diameter underflow pipe. This modification would reduce overflows at CSO-053 and would benefit from the implementation of the Schiller Park OLS or Sidney OLS to free up capacity in the Scajaquada Tunnel.

Impact on Cost: The cost of the SPP modification is significantly lower than the original satellite storage facility cost estimate.

Impact on Schedule: The modified project is projected to complete Substantial Completion 1 year after the approved LTCP completion date.

Reason for Modifications: SPP modification is more cost effective than OLS to address small out of compliance activations in the final version of the Selected Alternative.

Are changes significant enough to require further public participation: No.
SPP modifications have lesser impact than an OLS structure. Further public participation is not required.

3.17. South Bailey ILS / CSO053_3.1 SPP338 Modification

i. Project Description

All CSOs Impacted: 053
Location: Bailey from Dorris to Scajaquada
Size: 3250 ft of detention within 66" Brick Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, the South Bailey ILS project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the South Bailey ILS project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed SPP338 Modification (CSO053_3.1) would replace the South Bailey ILS project. It is anticipated that the proposed project together with other proposed projects will reduce activations from 37 to 4 for CSO-053 upon completion of the Selected Alternative.

iii. Implementation Issue

A modification of SPP 338 without real-time control was found to have similar impacts to this project and require less long-term maintenance.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	9/1/2023	7/2/2026	6/1/2028

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,025,000	$2,829,700
Updated Estimate	$2,862,494	$4,000,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Replaced with SPP338 Modification (CSO053_3.1)
South Bailey ILS will be replaced by SPP338 Modification (CSO053_3.1). SPP338 is located south of the intersection of Scajaquada Street and Bailey Avenue. For this project, the SPP338 underflow orifice would be enlarged. The overflow weir would be raised to 55.24 ft (City datum), and the length increased to 30'. To prevent construction in the intersection, another version of this project is under consideration that diverts flow upstream of the SPP at Bailey Avenue and Northland Avenue along public open land to tie in to the Scajaquada Tunnel at Scajaquada Street. Either version of this project would reduce overflows at CSO-053 and would benefit from the implementation of the Schiller Park OLS or Sidney OLS.

Impact on Cost: The proposed alternative version of this project will have higher costs than the original project.

Impact on Schedule: The modified project is projected to be complete 4 years after the approved LTCP project completion.

Reason for Modifications: replaced with more efficient/constructable project to ensure that BSA achieves the water quality goals of the Administrative Order within the anticipated schedule.

Are changes significant enough to require further public participation: No.
SPP modifications projects have a relatively small impact and further public participation is not required.

3.18. Amherst Quarry OLS / CSO053_3.2 Bailey & Amherst, Amherst Quarry PS RTC

i. Project Description

All CSOs Impacted: 053
Location: Area bounded by Parkridge Avenue, East Amherst Street, and Hewitt Avenue.
Size: Real-time control to maximize existing system

ii. Activation Reductions

Old Model: Together with other LTCP Projects, the Amherst Quarry OLS project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Amherst Quarry OLS project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed CSO053_3.2 Bailey & Amherst, Amherst Quarry PS RTC would replace the Amherst Quarry OLS. It is anticipated that the proposed project together with other proposed projects will reduce activations from 37 to 4 for CSO-053 upon completion of the Selected Alternative.

iii. Implementation Issue

This project is being progressed in phases. In the interest of ensuring competitive bidding, RTC implementation at Bailey & Amherst is being combined with other RTC projects as the "Scajaquada Creek and Black Rock Canal Smart Sewer Project." The second phase of the Amherst Quarry pump station project is expected to start engineering in 2023 and consist of the station rehabilitation and logic improvements.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	12/1/2021	8/6/2024	7/7/2026

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,875,000	$4,017,476
Updated Estimate	$1,539,214	$2,150,872

vi. Modified/Eliminated/Included in Updated Model

Modification: Now Bailey & Amherst, Amherst Quarry PS RTC (CSO053_3.2)
This RTC project includes adding RTC at SPP255 (Bailey Avenue and East Amherst Street) as well as improving the efficiency of Amherst Quarry dewatering operations to reduce overflows. The SPP255 RTC component was not part of the 2014 LTCP. RTC at this location would send more flow from the North Bailey sewer to the Amherst Quarry when it has available storage capacity, and the Amherst Quarry pump station would dewater the quarry when there is no risk for overflow at Scajaquada SPPs. This project includes updating sensors at Amherst Quarry and adding instrumentation at SPP338 (Bailey Ave & Kerns Ave).

The second phase of this project, Amherst Quarry PS RTC, will consist of the station rehabilitation and logic improvements.

Impact on Cost: The modifications reduced the overall project cost in this area.

Impact on Schedule: The modified projects in this area are projected to be completed 2 years after the approved LTCP completion date.

Reason for Modifications: Modifications were made to take advantage of a road improvement project on Bailey Ave.

Are changes significant enough to require further public participation: Yes.
Additional public participation is already underway for this project. Public meetings have been held to inform the public and address concerns regarding construction impacts.

3.19. SPP 341A Optimization Genesee & Kearns, now CSO053_8 SPP341A Modification

i. Project Description

All CSOs Impacted: 053
Location: Genesee Street east of Kerns Avenue
Size: Increase underflow orifices to 7.1 sf and upsize underflow piping to 36" diameter

ii. Activation Reductions

Old Model: Together with other LTCP Projects, SPP 341A Optimization Genesee & Kearns project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, SPP 341A Optimization Genesee & Kearns project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: Regarding the Selected Alternative model, the proposed CSO053_8 SPP341A Modification
is planned to replace the SPP 341A Optimization Genesee & Kearns project. It is anticipated that the proposed project together with other proposed projects will reduce activations from 37 to 4 for CSO-053 upon completion of the Selected Alternative.

iii. Implementation Issue

This Optimization involved significantly more work than originally anticipated due to site conditions and was not completed by 2017 with the other Foundation 2 SPP Optimizations. Due to its complexity, for bidding purposes, this project is best accomplished in tandem with larger scale system modifications.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	1/1/2014	N/A	3/18/2017
Proposed	9/1/2023	7/3/2025	11/20/2025

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$190,000	$265,503
Updated Estimate	$42,937	$60,000

vi. Modified/Eliminated/Included in Updated Model

Modification: Replaced by CSO053_8 SPP341A Modification
For this project, SPP341A would be modified by incorporating an additional 18" diameter underflow pipe and raising the overflow weir to 55.60 ft (City datum), reducing overflows at CSO-

053. This modification would benefit from the implementation of the Schiller Park OLS or Sidney OLS to free up capacity in the Scajaquada Tunnel.

Impact on Cost: Reduction in cost compared to original project.

Impact on Schedule: As the revised model indicates the need for this project, design is planned to begin in September 2023 and be bid together with other additional optimizations to the Scajaquada system.

Reason for Modifications: The 314A Optimization project is replaced with more efficient/constructable SPP341A Modification (CSO053_8) project to ensure that BSA achieves the water quality goals of the Administrative Order within the anticipated schedule**.**

Are changes significant enough to require further public participation: No.
SPP modifications projects have a relatively small impact and further public participation is not required.

3.20. East Ferry ILS

i. Project Description

All CSOs Impacted: 053
Location: East Ferry from Kensington Expressway to Cornwall
Size: 5800 ft of detention within 75" Brick Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, the East Ferry ILS project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the East ILS project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: The East Ferry ILS project has been eliminated and is not included in the Selected Alternative scenario.

iii. Implementation Issue

Investigations have demonstrated that storage is not available in this section due to low basement and side sewer connections. This project is therefore no longer being contemplated.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,040,000	$2,850,661
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Eliminated: This project is not feasible due to low sewer connections. Alternative projects to address overflows within the Scajaquada-Black Rock system have been provided in the October 24, 2022 and January 31, 2023 submittals to the regulators.

3.21. SPP 337 (CSO-053) Satellite Storage, Conveyance, FM & PS

i. Project Description

All CSOs Impacted: 053
Location: Northwest of Intersection of Scajaquada Street and Colorado Avenue
Size: 0.7 MG satellite storage facility with pumping station and forcemain discharge located on privately owned lands within a potential brownfield site.

ii. Activation Reductions

Old Model: Together with other LTCP Projects, the SPP 337 (CSO-053) Satellite Storage project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the SPP 337 (CSO-053) Satellite Storage project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: The SPP 337 (CSO-053) Satellite Storage project has been eliminated and is not included in the Selected Alternative scenario.

iii. Implementation Issue

This satellite storage project was associated with significant land acquisition and constructability concerns. It also did not achieve compliance in the New Model, therefore other projects are currently being proposed.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2023	3/18/2025	3/18/2027
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$4,000,000	$5,589,532
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Eliminated: Other projects for systemwide storage are being considered in areas that are more feasible.

3.22. Texas (Roslyn ILS)

i. Project Description

All CSOs Impacted: 053
Location: Texas St & Lang to Suffolk & Proctor
Size: 3000 ft of detention within 72" Reinforced Concrete Sewer

ii. Activation Reductions

Old Model: Together with other LTCP Projects, the Texas (Roslyn ILS) project was projected to reduce CSO discharges into Scajaquada Creek. The expected activations reductions were from 65 to 4 for CSO-053 upon completion of the approved 2014 LTCP.

New Model: Together with other LTCP Projects, the Texas (Roslyn ILS) project was projected to reduce activations from 37 to 26 upon completion of the approved 2014 LTCP.

Selected Alternative: The Texas (Roslyn ILS) project has been eliminated and is not included in the Selected Alternative scenario.

iii. Implementation Issue

This project reduced but did not eliminate overflows of SPP 339. There were also multiple low sewers coming into the main combined sewer, potentially resulting in basement back-ups.

iv. Schedule

	Engineering Start Date	NTP Date	Substantial Completion
Approved LTCP	3/18/2022	3/18/2023	3/18/2024
Proposed	N/A	N/A	N/A

v. Costs

	2012 Dollars	2022 Dollars
LTCP Estimate	$2,170,000	$3,032,321
Updated Estimate	N/A	N/A

vi. Modified/Eliminated/Included in Updated Model

Eliminated: The Texas ILS project was deemed to be infeasible and the SPP modification project was able to achieve compliance for SPP339 in the Proposed Alternative.

3.23. Green Infrastructure

i. Project Description

All CSOs Impacted: Multiple
Location: Multiple
Size: Unfinished Green Infrastructure projects from the LTCP included projects to manage 1,620 acres of impervious land. Separate sections for GI in each CSO basin included in the Selected Alternative are presented in the following section, New Projects to be Added.

4. New Projects to Be Added

4.1. CSO006_2 Gates Circle RTC

i. Project Description

CSO Impacted: 006
Location: Gates Circle (Delaware Ave and Lafayette Ave)
Size: Real-Time Controlled gate structure at SPP 332. Additional instrumentation will also be installed at the Niagara Metering Station (SPP 330) to inform gate control.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO 006 discharges to Scajaquada Creek from 47 to 1 activation.	$2,028,998	$2,835,287	3/1/2022	7/16/2024	5/18/2026

4.2. CSO006_3 Delavan Drain RTC

i. Project Description

CSO Impacted: 006
Location: Intersection of West Delavan Ave and Niagara St
Size: Replace existing permanently closed sluice gate with dynamically real-time controlled interconnection between the Delavan Drain and North Interceptor. Modification (raising of weir) of SPP 170A to divert flows from Scajaquada Creek to the Delavan Drain during only the most extreme storm events for flood prevention purposes. This project requires that upstream Scajaquada Creek projects be completed to bring CSO 053 into compliance to ensure Creek rather than CSO waters are being restored to the Lower Scajaquada Creek. This project would also benefit from the additional conveyance capacity created by the Northern Relief Tunnel project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO 006 discharges to Scajaquada Creek from 47 to 1 activation.	$2,862,494	$4,000,000	9/1/2029	5/6/2032	4/6/2034

4.3. CSO006_5 20% GI Implementation

i. Project Description

CSO Impacted: 006
Location: Various CSO 006 Basin
Size: Green infrastructure projects would be constructed within the basin sufficient to control runoff from 20% of the impervious area within the basin (52.5 acres managed). The exact list of projects to be implemented would be determined during the design phase, but would likely consist of some combination of the following project types, as originally defined in the BSA's Green Infrastructure Implementation Plan:

- Street permeable pavement
- Parking lot permeable pavement
- Rain Gardens
- Bioswales
- Downspout disconnections

For this evaluation, street permeable pavement was applied as the representative GI project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO 006 discharges to Scajaquada Creek from 47 to 1 activation.	$7,518,340	$10,506,000	9/1/2030	12/15/2033	3/2/2035

4.4. CSO012_1.2 SPP023 Modification

i. Project Description

CSO Impacted: 012
Location: West of Albany St and Niagara St intersection
Size: Enlarge SPP 023 underflow opening to 5 ft by 5 ft and by raise the overflow weir to 1.55' (City Datum). This project would benefit from the additional downstream conveyance capacity provided by the Northern Relief Tunnel and OLS projects in the South Central District.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-012 discharges to Black Rock Canal from 35 to 3 activation.	$42,937	$60,000	9/1/2025	7/2/2027	11/19/2027

4.5. CSO012_2.1 SPP296 Modification

i. Project Description

CSO Impacted: 012
Location: West of Albany St and Niagara St intersection
Size: Enlarge SPP 296 underflow opening to 5 ft by 5 ft and by raise the overflow weir to 1.55' (City Datum). This project would be implemented after or in parallel with the SPP023 modification since it is directly upstream of the SPP023 underflow.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-012 discharges to Black Rock Canal from 35 to 3 activation.	$42,937	$60,000	9/1/2025	7/2/2027	11/19/2027

4.6. CSO017_1.1 SPP054 Sewer Separation

i. Project Description

CSO Impacted: 017
Location: near Exchange Street between Hamburg Street and Larkin Street
Size: Convert the sewer upstream of SPP054 to a separate storm sewer. This would eliminate SPP054 as an SPP.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-017 discharges to Buffalo River from 24 to 4 activation.	$500,936	$700,000	9/1/2032	6/5/2035	6/3/2036

4.7. CSO017_10 SPP051 Modification

i. Project Description

CSO Impacted: 017
Location: South of the intersection of Exchange Street and Chicago Street
Size: Remove orifice plate and raise overflow weir to -1.35 ft (City Datum). This project would benefit from the implementation of the Clinton St OLS (CSO033_2) project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-017 discharges to Buffalo River from 24 to 4 activation.	$42,937	$60,000	9/1/2028	7/4/2030	11/21/2030

4.8. CSO017_4 20% GI Implementation

i. Project Description

CSO Impacted: 017
Location: Various CSO 017 Basin
Size: 37.5 acres of impervious area
The exact list of projects to be implemented would be determined during the design phase, but would likely consist of some combination of the following project types, as originally defined in the BSA's Green Infrastructure Implementation Plan:

- Street permeable pavement
- Parking lot permeable pavement
- Rain Gardens
- Bioswales
- Downspout disconnections

For this evaluation, street permeable pavement was applied as the representative GI project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-017 discharges to Buffalo River from 24 to 4 activations.	$5,360,020	$7,490,000	9/1/2031	12/15/2034	2/29/2036

4.9. CSO017_6 Bass Alley OLS

i. Project Description

CSO Impacted: 017
Location: South of the intersection of Swan Street and Oak Street
Size: 3.60 MG Storage Tank with Dewatering Pump Station

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-017 discharges to Buffalo River from 24 to 4 activation.	$23,343,638	$32,620,000	9/1/2030	5/4/2034	3/5/2037

4.10. CSO017_8 SPP326 Modification

i. Project Description

CSO Impacted: 017
Location: South of the intersection of Swan Street and Oak Street
Size: Upsize SPP 326 underflow pipe to 36” to utilize capacity created by CSO014_1.2 Erie Basin Marina OLS.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-017 discharges to Buffalo River from 24 to 4 activation.	$42,937	$60,000	9/1/2025	7/2/2027	11/19/2027

4.11. CSO017_9 SPP059 Modification

i. Project Description

CSO Impacted: 017
Location: near the intersection of Hamburg Street and Seneca Street
Size: Upsize underflow pipe to 24”; Raise overflow weir to 3.25’ (City Datum)

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-017 discharges to Buffalo River from 24 to 4 activations.	$42,937	$60,000	9/1/2028	7/4/2030	11/21/2030

4.12. CSO026_1.3 Collins Park OLS

i. Project Description

CSO Impacted: 026
Location: Collins Park Field between Smith Street and Clifford Street
Size: 2.56 MG Storage Tank with Gravity Dewatering

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-026 discharges to Buffalo River from 9 to 6 activations.	$21,540,267	$30,100,000	9/1/2026	7/29/2030	5/30/2033

4.13. CSO026_4 20% GI Implementation

i. Project Description

CSO Impacted: 026
Location: Various CSO-026 Basin
Size: The CSO-026 basin would have green infrastructure managing 125.5 acres of impervious area. See CSO006_5 description for details.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-026 discharges to Buffalo River from 9 to 6 activations.	$17,965,012	$25,104,000	9/1/2032	12/18/2035	3/2/2037

4.14. CSO027_1 SPP 317 Modification

i. Project Description

CSO Impacted: 027
Location: north of the intersection of Clinton Street and Fillmore Avenue
Size: SPP317 overflow weir would be lowered to 7.25 ft (City datum). Lowering the weir would result in increased flows being directed to the Smith Street ILS facility, while lowering the flows in the Swan Trunk. The lowered flows in the Swan Trunk results in a reduction in overflows at CSO-027. This project would benefit from the additional downstream storage capacity provided by the Collins Park OLS facility.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-027 discharges to Buffalo River from 10 to 4 activations.	$42,937	$60,000	9/1/2026	7/3/2028	11/20/2028

4.15. CSO027_2 Babcock PS Weir Modification

i. Project Description

CSO Impacted: 027
Location: Babcock St
Size: Babcock Pump Station operates as an RTC facility to store flows in an upstream 11 ft by 11 ft box culvert during wet weather. The CSO027_2 modification project redirects flow from a 48" sewer to the box culvert instead of the sewer downstream of the pump station. This increases the in-line storage utilization and reduces the flow sent to the Swan Trunk in wet weather.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-027 discharges to Buffalo River from 10 to 4 activations.	$42,937	$60,000	9/1/2026	7/3/2028	4/9/2029

4.16. CSO027_3 SPP097 Modification

i. Project Description

CSO Impacted: 027
Location: Babcock Street, 555 ft north of the Buffalo River.
Size: The SPP097 underflow pipe would be upsized to 48 inches. The overflow weir would be raised to 0.82 ft (City datum) with an associated length increase to 100 ft. Upstream diversion alternatives that achieve the same impact as the SPP097 modification are also being considered in this area.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-027 discharges to Buffalo River from 10 to 4 activations.	$42,937	$60,000	9/1/2028	7/4/2030	11/21/2030

4.17. CSO033_1 Bailey & Regent OLS

i. Project Description

CSO Impacted: 033
Location: Moreland Field between Regent Street and Moreland Street along Bailey Avenue
Size: 4.50 MG tank at Moreland Field between Regent Street and Moreland Street along Bailey Avenue. The storage would dewater when there is available capacity in the downstream sewer and no risk of overflow at the downstream SPP 104. The Proposed OLS configuration requires a pump station for dewatering.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-033 discharges to Buffalo River from 15 to 2 activations.	$38,371,731	$53,620,000	9/1/2031	5/4/2035	3/5/2038

4.18. CSO033_2 Clinton St. OLS RTC

i. Project Description

CSO Impacted: 033
Location: Clinton Street near Kelburn Street
Size: The Clinton St. OLS project includes adding a new 60” diameter sewer that starts on Clinton Street near Kelburn Street and routes wet weather flow through Houghton Park to a 21.72 MG storage tank. An orifice plate and weir would be added at the intersection of Bailey Avenue and Clinton Street to route more flow to the tank via Clinton Street. An automatically controlled gate at the downstream end of the tank would close to store flow when SPP104 (CSO-033) is at risk for overflow and would open to prevent basement backups upstream. ECSD#4 would get priority in sending flows for treatment, and the storage tank would drain via gravity when there is conveyance capacity available downstream.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-033 discharges to Buffalo River from 15 to 2 activations.	$117,219,125	$163,800,000	9/1/2028	5/8/2031	3/9/2034

4.19. CSO033_3 SPP104 Modification

i. Project Description

CSO Impacted: 033
Location: Bailey Avenue, north of Littell Avenue
Size: The SPP104 overflow weir would be raised to 6.85 ft (City datum), and the length increased to 40'. These modifications would reduce overflows at CSO-017. Since this project is near the Clinton St. OLS, it would be beneficial to implement the SPP104 modification in parallel or after the OLS is constructed.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-033 discharges to Buffalo River from 15 to 2 activations.	$42,937	$60,000	9/1/2028	7/4/2030	11/21/2030

4.20. CSO064_1.2 SPP 137 Modification

i. Project Description

CSO Impacted: 064
Location: intersection of Louisiana Street and Republic Street.
Size: The SPP137 overflow weir would be raised to 0.50 ft (City datum). In addition, the underflow orifice plate would be removed. These modifications would reduce overflows at CSO-064 and would be implemented in conjunction with the CSO-064 ILS (CSO064_1.1) project

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-064 discharges to Buffalo River from 10 to 4 activations.	$42,937	$60,000	9/1/2029	7/3/2031	11/20/2031

4.21. CSO064_2 Perry Street Sanitary Sewer

i. Project Description

CSO Impacted: 064
Location: Scott St near Illinois St to Louisiana St
Size: This project would replace an existing sewer partially built into Hamburg Drain. The new sewer would start on Scott St near Illinois St to Louisiana St, then continue along Perry St to the Hamburg St. Pump Station. The total length of new sewer would be 6,417 ft, with the largest pipe diameter being 42”.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-064 discharges to Buffalo River from 10 to 4 activations.	$3,434,993	$4,800,000	9/1/2032	6/5/2035	6/3/2036

4.22. CSO014_1.1 SPP206A&B ILS Optimization/206 A&B RTC

i. Project Description

CSO Impacted: 014
Location:
Size: The proposed RTC project adds a 24” dewatering gate and connection to the South Interceptor. The gate would open to send more flow to the South Interceptor when it has available capacity, and close when it is near full capacity. This would further reduce overflows at SPP206A&B and could provide additional benefit downstream at SPP024 (CSO-011).

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-014 discharges to Erie Basin Marina from 12 to 2 activation.	$2,862,494	$4,000,000	9/1/2024	5/6/2027	2/10/2028

4.23. CSO011_1.1 20% GI Implementation

i. Project Description

CSO Impacted: 011
Location: Multiple
Size: Green infrastructure projects would be constructed within the basin sufficient to control runoff from 20% of the impervious area within the basin (19.9 acres managed). The exact list of projects to be implemented would be determined during the design phase, but would likely consist of some combination of the following project types, as originally defined in the BSA's Green Infrastructure Implementation Plan:

- Street permeable pavement
- Parking lot permeable pavement
- Rain Gardens
- Bioswales
- Downspout disconnections

For this evaluation, street permeable pavement was applied as the representative GI project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-011 discharges to Niagara River from 39 to 4 activation.	$2,849,613	$3,982,000	9/1/2031	12/15/2034	2/29/2036

4.24. CSO011_1.2 SPP024 Modification

i. Project Description

CSO Impacted: 011
Location: West of Albany St and Niagara St intersection
Size: SPP024 (CSO-011) would be modified by enlarging the underflow opening to 4.8 ft, which would send more flow to South Interceptor and reduce overflows at CSO-011. This project would benefit from the additional downstream conveyance capacity provided by the Northern Relief Tunnel and OLS projects in the South Central District.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-011 discharges to Niagara River from 39 to 4 activation.	$42,937	$60,000	9/1/2025	7/2/2027	11/19/2027

4.25. CSO055_3 20% GI Implementation

i. Project Description

CSO Impacted: 055
Location: Multiple
Size: The CSO-055 basin would have green infrastructure managing 260.2 acres of impervious area. The exact list of projects to be implemented would be determined during the design phase, but would likely consist of some combination of the following project types, as originally defined in the BSA's Green Infrastructure Implementation Plan:

- Street permeable pavement
- Parking lot permeable pavement
- Rain Gardens
- Bioswales
- Downspout disconnections

For this evaluation, street permeable pavement was applied as the representative GI project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-055 discharges to Niagara River from 38 to 9 activations.	$37,235,320	$52,032,000	2033	2036	2038

4.26. CSO053_1.5 SPP336B Modification

i. Project Description

CSO Impacted: 053
Location: in the Kensington Expressway, north of Hamlin Road
Size: SPP336B would be modified by removing the underflow orifice plate, reducing overflows at CSO-053. It would be beneficial to implement this modification after or in parallel with the Sidney OLS project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$42,937	$60,000	9/1/2023	7/3/2025	11/20/2025

4.26a CSO053_1.5 SPP336B Modification

iii. Project Description

CSO Impacted: 053

Location: 28 Sidney St, Buffalo, NY 14211

Size: To reduce flows at SPP336B, the Sidney Street OLS would store flow diverted from the sewer along Humboldt Parkway in a 3.26 MG tank at the corner of Sidney Street and Lark Street. The storage would dewater via gravity when there is sufficient available capacity in the Scajaquada Tunnel Interceptor.

iv. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$19,837,083	$ 27,720,000.00	9/1/2023	7/29/2027	5/30/2030

4.27. CSO053_10 SPP229A RTC

i. Project Description

CSO Impacted: 053
Location: intersection of Florida Street and Jefferson Avenue
Size: SPP229A would be modified by incorporating an additional 24" diameter underflow pipe downstream of a 24" dynamically controlled gate. The gate would open when there is available capacity in the Scajaquada Tunnel or there is a risk for overflow at SPP229A.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$2,146,870	$3,000,000	3/1/2022	1/1/2024	7/19/2024

4.28. CSO053_12.1 Jefferson Ave GI

i. Project Description

CSO Impacted: 053

Location: Jefferson Avenue from the intersection with Main Street to the intersection with Beverly Road

Size: Permeable pavement would be installed in the parking lanes along Jefferson Avenue from the intersection with Main Street to the intersection with Beverly Road. The design for this project is not complete, but it is assumed that the depth and pore space would match the Kenmore GI project. This project would manage 2.3 acres of impervious area upstream of SPP333.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$329,187	$460,000	3/1/2022	6/16/2025	6/15/2026

4.29. CSO053_12.2 Jefferson Ave GI

i. Project Description

CSO Impacted: 053

Location: Jefferson Avenue from the intersection with Beverly Road to the intersection with Best Street.

Size: Permeable pavement would be installed in the parking lanes along Jefferson Avenue from the intersection with Beverly Road to the intersection with Best Street. The design for this project is not complete, but it is assumed that the depth and pore space would match the Kenmore GI project. This project would manage 7.6 acres of impervious area upstream of SPP229A.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$1,087,748	$1,520,000	3/1/2022	6/16/2025	6/15/2026

4.30. CSO053_13 SPP165B Modification

i. Project Description

CSO Impacted: 053
Location: intersection of East Delavan Avenue and Humboldt Parkway
Size: SPP165B underflow orifice would be upsized to 24" and underflow pipe to 36". The overflow weir would also be raised to 54.81 ft (City datum). These modifications would reduce overflows at CSO-053. This project would benefit from the implementation of the Sidney OLS project to make more capacity available in the Scajaquada Tunnel.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$42,937	$60,000	9/1/2023	7/3/2025	11/20/2025

4.31. CSO053_14 SPP175, 176, & 177 Modifications

i. Project Description

CSO Impacted: 053
Location: Multiple
Size: SPP175 at Dodge Street and Michigan Ave would be raised to 56.10 ft (City datum). SPP176 at Michigan Avenue and Riley Street and SPP177 at Michigan Avenue and Glenwood Avenue would both be raised to 52.85 ft (City datum). These modifications are upstream of the Gates Circle RTC project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$42,937	$60,000	9/1/2023	7/3/2025	11/20/2025

4.32. CSO053_3.3 SPP254 Modification

i. Project Description

CSO Impacted: 053
Location: intersection of Minnesota Avenue and Bailey Avenue
Size: The overflow weir at SPP254 (located at the intersection of Minnesota Avenue and Bailey Avenue) would be replaced. The new weir elevation would be 82.90 ft (City datum), which is slightly lower than the weir elevation in the LTCP model. Lowering the weir results in more flow being routed to the Amherst Quarry PS storage.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$166,300	$232,385	3/1/2022	1/1/2024	7/19/2024

4.33. CSO053_5.2 Edison Martha OLS

i. Project Description

CSO Impacted: 053
Location: northwest corner of Edison Avenue and Kensington Expressway
Size: 2.61 MG tank at the northwest corner of Edison Avenue and Kensington Expressway. The storage would dewater via gravity when there is available capacity in the Edison Avenue trunk sewer.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$26,649,818	$37,240,000	9/1/2023	6/29/2028	5/1/2031

4.34. CSO053_9 20% GI Implementation

i. Project Description

CSO Impacted: 053
Location: Multiple
Size: The CSO-053 basin would have green infrastructure managing 16.7 acres of impervious area. The exact list of projects to be implemented would be determined during the design phase, but would likely consist of some combination of the following project types, as originally defined in the BSA's Green Infrastructure Implementation Plan:

- Street permeable pavement
- Parking lot permeable pavement
- Rain Gardens
- Bioswales
- Downspout disconnections

For this evaluation, street permeable pavement was applied as the representative GI project.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$2,393,045	$3,344,000	9/1/2027	12/17/2030	3/1/2032

4.35. System_2 Schiller Park OLS

i. Project Description

CSO Impacted: 012, 053, 055 (Listed under CSO-053 for CSO Level Impact)
Location: Schiller Park
Size: 8.0 MG offline storage project to divert inflows from Cheektowaga to an 8.00 MG storage facility during wet weather until the BSA collection system has capacity to receive and treat it. This project would help buffer peak flows to the Bird Island Treatment Facility and reduce overflows at SPPs along the North and South Interceptor, including SPP001 and SPP024. The OLS is currently configured as gravity-driven storage with dynamically controlled inlet and outlet gates.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-012 discharges to Black Rock Canal from 35 to 3 activations., CSO-053 discharges to Scajaquada Creek from 37 to 4 activations, and CSO-055 discharges to Niagara River from 38 to 9 activations.	$61,514,994	$85,960,000	9/1/2024	7/27/2028	5/29/2031

4.36. System_2_3 SPP339 Modification

i. Project Description

CSO Impacted: 053
Location: north of the intersection of Kerns Avenue and Texas Street
Size: SPP339 would be modified by increasing the diameter of the underflow pipe to 48”, and by raising the elevation of the overflow weir to 52.71 ft (City datum). These modifications would reduce CSO-053 overflows and would benefit from the implementation of Schiller Park OLS or Sidney OLS to free up capacity in the Scajaquada Tunnel.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$42,937	$60,000	9/1/2024	7/2/2026	11/19/2026

4.37. System_2_4 SPP340 Modification

i. Project Description

CSO Impacted: 053
Location: north of the intersection of Kerns Avenue and Hagen Street.
Size: SPP340 would be modified by increasing the diameter of the underflow orifice to 24". A flap gate would also be applied to prevent backflow from the Scajaquada Drain. This modification would reduce CSO-053 overflows and would benefit from the implementation of Schiller Park OLS or Sidney OLS to free up capacity in the Scajaquada Tunnel.

ii. Impact

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, this project is projected to reduce CSO-053 discharges to Scajaquada Creek from 37 to 4 activations.	$42,937	$60,000	9/1/2024	7/2/2026	4/8/2027

5. Projects from LTCP Completed

5.1. Niagara Street Phase 4a: Scajaquada Expressway to Hertel Ave

i. Project Description Specified

Location: Part of Niagara Street from Niagara Square to Ontario Street
Physical Size: Overall project 4 miles x 55 feet
Capacity: Overall project to control 35.8 acres of Impervious area
Impact: (Cost and Dates for Overall Project)

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO-003 to 5 activations	$3,250,000.00	$4,031,200.00	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: Scajaquada Expressway to Hertel Ave
Physical Size: Approximately 24,274 SF
Capacity: Manages 3.7 acres of impervious area, 21,202 CF storage capacity, 0.159 MG storage capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO-003 to 4 activations	$1,006,672.22	$1,271,898.80	10/28/2015	6/13/2018	9/21/2022

5.2. Bird Ave Underflow SPP 13 Modifications - North Relief Interceptor

i. Project Description Specified

N/A: This project was not in original LTCP, it was added later.

ii. Project Description As-Built

Location: Intersection of Bird Ave and Niagara St
Physical Size: Weir raised to 2.75’ elevation, 120 LF of 60" pipe
Capacity: 74.71 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO 004 to 4 activations	$1,834,157.11	$2,412,228.05	5/15/2015	4/24/2018	12/11/2018

5.3. Bird RTC Project/ RTC-1/ Bird East/ Bird West

i. Project Description Specified

Location: Bird from Dewitt to Baynes (Bird West)
Bird& Baynes to Delaware & E. Delavan (Bird East)
Physical Size: Available capacity of 78" x 114" sewer
Capacity: 1.1 MG of storage
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO 004 to 3 activations	$1,565,000.00	$1,941,180.00	3/18/2016	3/18/2023	3/18/2024
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO 004, to 3 activations	$2,025,000.00	$2,511,750.00	3/18/2016	3/18/2023	3/18/2024

ii. Project Description As-Built

Location: Bird Avenue between Parkdale Avenue and Hoyt Street
Physical Size: Available capacity of 78" x 114" sewer
Capacity: 0.63 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO 004 to 4 activations	$1,219,610.78	$1,512,766.11	2/24/2014	5/6/2016	10/1/2016

5.4. SPP 180 Optimization

i. Project Description Specified

Location: Delaware Avenue at the intersection with West Delavan
Physical Size: SPP 180 weir raised 2.0-ft along its entire length
Capacity: 36 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO 006 to 4 activations	$20,000.00	$25,853.28	3/1/2014	3/1/2014	3/1/2014

ii. Project Description As-Built

Location: Delaware Avenue at the intersection with West Delavan
Physical Size: SPP 180 weir raised 2.0-ft along its entire length
Capacity: 36 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO 006 to 15 activations	$20,000.00	$25,853.28	3/1/2014	3/1/2014	3/1/2014

5.5. SPP 331 Optimization

i. Project Description Specified

Location: Delaware Avenue at the intersection with West Delavan
Physical Size: Redirect SPP331's underflow to the Bird Avenue trunk sewer using a 1700' long D=30" sewer; Increase the area of the underflow orifice by 100% to 2.5 SF
Capacity: 3.2 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO 006 to 4 activations	$3,235,000.00	$4,012,590.00	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Delaware Avenue at the intersection with West Delavan & northeast quadrant of Gates Circle
Physical Size: SPP 180 weir raised 1.75-ft & bench located in SPP 332 removed and replaced with 6.2-ft high weir
Capacity: 3.2 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO 006 to 15 activations	$127,025.72	$164,201.60	Prior to 1/1/2014	9/8/2015	12/16/2015

5.6. Niagara Street Phase 3: Hampshire Street to Scajaquada Expressway

i. Project Description Specified

Location: Part of Niagara Street from Niagara Square to Ontario Street
Physical Size: Overall project 4 miles x 55 feet
Capacity: Overall project to control 35.8 acres of Impervious area
Impact: (Cost and Dates for Overall Project)

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO-012 to 2 activations	$3,250,000.00	$4,031,200.00	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: Hampshire St to Scajaquada Expressway
Physical Size:

- 1610 SF of standalone tree pits
- 22,915 SF of stormwater planters

Capacity: Manages 11.1 acres of impervious area, 38,278 CF Storage capacity, 0.286 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO-012 to 35 activations	$2,455,762.12	$3,102,778.45	10/28/2015	3/21/2018	4/25/2022

5.7. PUSH Blue Projects

i. Project Description Specified

Location: Within the CSO-012 sewershed

Physical Size:

- 20 rain gardens to capture the runoff from a total of 71,050 SF
- Four cisterns for use as a water source for community gardens with a capture area of 10,771 SF and 5,000 gallons of storage capacity
- Two green roofs with a capture area of 4,219 SF
- Three porous pavement projects on three lots with a total design area of 5,657 SF

Capacity: Designed to control stormwater flow from 1 acre of impervious area

Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Black Rock Canal through CSO-012 to 2 activations	$0.00	$0.00	3/18/2019	3/18/2023	3/18/2018

ii. Project Description As-Built

Location: Within the CSO-012 sewershed

Physical Size:

- 20 rain gardens to capture the runoff from a total of 71,050 SF
- 1 green roof with a capture area of 3069 sq ft
- 1 porous pavement project with a design capacity of 144 CF
- 4 cisterns with 5,000 cf of storage capacity

Capacity: 1 impervious acre managed, 427 CF storage capacity, 0.003 MG Storage Capacity

Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Black Rock Canal through CSO-012 to 35 activations	$0.00	$0.00	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.8. Niagara Street Phase 2: Virginia Street to Porter Avenue

i. Project Description Specified

Location: Part of Niagara Street from Niagara Square to Ontario Street
Physical Size: Overall project 4 miles x 55 feet
Capacity: Overall project to control 35.8 acres of Impervious area
Impact: (Cost and Dates for Overall Project)

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO-013 to 4 activations	$3,250,000.00	$4,031,200.00.	3/1/2014	3/18/2016.	3/18/2018

ii. Project Description As-Built

Location: Virginia St to Porter Ave
Physical Size: Approximately 47,756 SF
Capacity: 7.3 impervious acres managed, 30,928 CF storage capacity, 0.231 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO-013 to 4 activations	$1,417,903.47	$1,832,873.10	Prior to 1/1/2014	6/3/2015[7].	11/16/2017

5.9. SPP 283 Optimization

i. Project Description Specified

Location: Located in the median between the I-190 South ramp to Porter Avenue and a service road near the West Side Rowing Club
Physical Size: Remove orifice plate & install 1-ft weir
Capacity: 1.3 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Black Rock Canal through CSO 063 to 4 activations	$5,000.00[3.]	$6,463.32[3.]	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Located in the median between the I-190 Southbound exit ramp to Porter Avenue and the Empire State Trail near the West Side Rowing Club
Physical Size: Remove orifice plate & install 1-ft weir
Capacity: 1.3 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Black Rock Canal through CSO 063 to 2 activations	$5,237.75	$6,770.65	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.10. Carlton Street Porous Asphalt

i. Project Description Specified

Location: From the area tributary to the Right-of-Way on Carlton Street between Michigan and Jefferson Avenues in the City of Buffalo
Physical Size: The provided porous pavement area will cover 38,280 square-feet of roadway Existing roadway will be reduced in width by 2.0 linear feet along the south side of the roadway
Capacity: Designed to control stormwater flow from 1 acre of impervious area
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-017 to 4 activations	$387,211.88	$500,534.95	3/18/2019	3/18/2023[5.]	3/18/2018

ii. Project Description As-Built

Location: From the area tributary to the Right-of-Way on Carlton Street between Michigan and Jefferson Avenues in the City of Buffalo
Physical Size: The provided porous pavement area will cover 38,280 square-feet of roadway Existing roadway will be reduced in width by 2.0 linear feet along the south side of the roadway
Capacity: 2.1 impervious acres managed, 26,676 CF storage capacity, 0.200 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Buffalo River through CSO-017 to 21 activations	$411,107.00	$531,423.31	Prior to 1/1/2014	Prior to 1/1/2014[7.]	Prior to 1/1/2014

5.11. Willert Park

i. Project Description Specified

N/A: This project was not in original LTCP, it was added later.

ii. Project Description As-Built

Location: William Street between Michigan and Jefferson in the City of Buffalo

Physical Size:

- Approximately 2,400 LF of storm sewer pipe which range in size from 12-inches to 30-inches in diameter along Louisiana Street and Miami St
- JFK Community Center, installation of 2 bioretention cells
- Pratt Willert Community Center, Installation of a bioretention cell
- William St Improvements, installation of several bioretention cells in the roadway median and the installation of sections of pervious pavement

Capacity: 13.88 impervious acres managed, 40,610 CF storage capacity, 0.304 MG Storage Capacity

Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Buffalo River through CSO-017 to 21 activations	$3,624,681.07	$4,685,495.57	6/1/2016	2/1/2017	4/26/2019

5.12. CSO No. 026 RTC Structure/ Smith at Perry RTC/ Smith Street Storage/Smith CSO Line Storage

i. Project Description Specified: Smith Street Storage

Location: Base of Smith Street (Red Jacket Park)
Physical Size: 500,000 gallon tank and constructed wetland
Capacity: Together with the CSO No. 026 Sewer Separation, this project is designed to divert and detain 1.94 MG storage volume.
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-026 to 6 activations or less	$7,260,000.00	$9,384,742.31	3/18/2014	3/18/2015	3/18/2017

ii. Project Description Specified: Smith CSO Line Storage

Location: Smith from Eagle to Perry
Physical Size: 3000 ft of detention within 192” Reinforced Concrete Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-026 to 6 activations or less	$2,015,000.00	$2,499,340.00	3/18/2016	3/18/2023	3/18/2024

iii. Project Description As-Built

Location: West side of Smith St North of I-190 and South of Clifford St
Physical Size: 142' overflow weir
Capacity: 1.9 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Buffalo River through CSO-026 to 8 activations	$4,216,805.55	$5,450,913.7	Prior to 1/1/2014	7/13/2016	10/9/2017

5.13. CSO No. 026 Sewer Separation

i. Project Description Specified

N/A: This project was not in original LTCP, it was added later.

ii. Project Description As-Built

Location: Leddy Street, South Park Avenue, Owahn Place, Prenatt Street, Bolton Place, St. Stephen's Place, and Buffalo River Place
Physical Size: Approx. 3,700' of storm sewer, 32 catch basins,14 Storm sewer manholes
Capacity: Together with the CSO No. 026 RTC structure, this project is designed to divert and detain 1.94 MG storage volume.
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Buffalo River through CSO-026 to 8 activations	$2,573,356.03	$3,326,485.28	Prior to 1/1/2014	7/8/2015	6/22/2016

5.14. Montgomery CSO (Smith at Eagle)

i. Project Description Specified

Location: Fillmore & Eagle to Smith & Peckham
Physical Size: 4500 ft of detention within 108” Reinforced Concrete Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-026 to 6 activations or less	$2,015,000.00	$2,604,718.42	3/18/2016	3/18/2023	3/18/2024

ii. Project Description As-Built

Location: Smith St approx. 200' south of East Eagle St
Physical Size: Although the project was put into operation on 12/31/21, As-built drawings are not available yet as the contract is being kept open due to supply chain issues.
Capacity: 7.19 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Buffalo River through CSO-026 to 8 activations	$2,213,371.45	$2,861,146.11	4/4/2019	7/13/2020	12/31/2021

5.15. SPP 217 Optimization

i. Project Description Specified

Location: Emslie Street at its intersection with Eagle Street
Physical Size: Increased the area of the underflow orifice to 12.6 sf
Capacity:
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-026 to 6 activations or less	$5,000.00	$6,463.32	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Emslie Street at its intersection with Eagle Street
Physical Size: Removal of two bottom orifice plates totaling 1.42' in height
Capacity: 12.2 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Buffalo River through CSO-026 to 8 activations	$8,368.91	$10,818.19	Prior to 1/1/2014	7/8/2015	12/21/2015

5.16. SPP 318 Optimization

i. Project Description Specified

Location: East of the intersection of Fillmore Avenue and Clinton Street
Physical Size: Increase the area of the underflow orifice by 30% to 1.8 SF
Capacity:
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-026 to 6 activations or less	$5,000.00	$6,463.32	3/1/2014	3/1/8/2015	3/18/2017

ii. Project Description As-Built

Location: East of the intersection of Fillmore Avenue and Clinton Street
Physical Size: Increase the area of the underflow orifice by 30% to 1.8 SF
Capacity: 6.4 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Buffalo River through CSO-026 to 8 activations	$8,368.91	$10,818.19	Prior to 1/1/2014	7/8/2015	12/21/2015

5.17. Babcock Pump Station In-Line Storage

i. Project Description Specified

Location: N/A: This Project was not in original LTCP, it was added later
Physical Size: N/A
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
N/A	N/A	N/A	N/A	N/A	N/A

ii. Project Description As-Built

Location: New Babcock Street at Howard Street
Physical Size: 2-3700 GPM Pumps
Capacity: 1.4 MG storage
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Buffalo River through CSO-027 to 12 activations	$1,728,797.39	$2,234,754.55	6/19/2019	7/24/2020	9/21/2021

5.18. SPP 097A Optimization

i. Project Description Specified

Location: Orlando St and the intersection of the extension of Prenatt and Orlando Streets
Physical Size: Upsize the underflow pipe to have a capacity of 1.25 cfs (L=10') - slope of existing underflow pipe not available, so required diameter TBD
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Buffalo River through CSO-027 to 6 activations	$100,000.00	$129,266.42	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Orlando St and the intersection of the extension of Prenatt and Orlando Streets
Physical Size: Abandoned an inactive combined sewer, converting another to a storm sewer and abandoning the underflow connection.
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Buffalo River through CSO-027 to 12 activations	$11,702.71	$15,127.67	Prior to 1/1/2014	9/8/2015	12/16/2015

5.19. Ohio Street

i. Project Description Specified

Location: From the area tributary to the Right-of-Way on Ohio Street in the City of Buffalo
Physical Size: Reduction of travel lanes resulting in a 30% reduction of road surface. Implementation of porous pavement for shared use path along the majority of the west side project length & porous pavement for parking lanes along the west side on the north end of the project. Creation of a 5 to 13 foot wide green snow storage area between the road and the path/sidewalk on the east and west sides for the entire length of the project.Over 260 trees will be planted throughout the length of the project
Capacity: Designed to control stormwater flow from 6.1 total acres of impervious area, of which approx. 2.1 acres will be applied to the GI target acreage
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO-064 to 3 activations	$141,800.85	$183,300.88	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: From the area tributary to the Right-of-Way on Ohio Street in the City of Buffalo
Physical Size: 3.2 acres of impervious area removed. 260 trees planted. 12ft wide path and parking lanes installed with porous pavement installed.
Capacity: 6.1 impervious acres managed, 21,036 CF storage capacity, 0.157 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Buffalo River through CSO-064 to 10 activations	$170,896.69	$220,912.04	Prior to 1/1/2014	Prior to 1/1/2014[7].	Prior to 1/1/2014

5.20. SPP 211 Optimization

i. Project Description Specified

Location: South East corner of the intersection of Clinton and South Ogden Streets
Physical Size: Added a weir at SPP211 with a crest elevation of 584 ft
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Buffalo River through CSO 066 to 4 activations	$20,000.00	$25,853.28	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: South East corner of the intersection of Clinton and South Ogden Streets
Physical Size: Overflow invert was raised to elev. 8.50’
Capacity: 1.8 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Buffalo River through CSO 066 to 4 activations	$6,600.88	$8,532.71	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.21. SPP 122 Optimization

i. Project Description Specified

Location: South Legion Drive just north of the intersection with Meriden Street
Physical Size: SPP 122 weir raised by 0.5-ft along its entire length
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other LTCP projects, projected to reduce discharges to Cazenovia Creek - C through CSO-037 to 6 activations	$20,000.00	$25,853.28	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: South Legion Drive just north of the intersection with Meriden Street
Physical Size: SPP 122 weir raised by 0.5-ft along its entire length
Capacity: 36.9 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other LTCP projects, reduced discharges to the Cazenovia Creek - C through CSO-037 to 5 activations	$9,457.97	$12,225.97	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.22. Niagara Street Phase 1: Elmwood Street to Virginia Street

i. Project Description Specified

Location: Part of Niagara Street from Niagara Square to Ontario Street
Physical Size: Overall project 4 miles x 55 feet
Capacity: Overall project to control 35.8 acres of Impervious area
Impact: (Cost and Dates for Overall Project)

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Erie Basin Marina through CSO-014 to 2 activations	$3,250,000.00	$4,031,200.00	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: Elmwood Ave to Virginia St
Physical Size: 6,483 SF
Capacity: 2 impervious acres managed, 6,897 CF storage capacity, 0.052 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Erie Basin Marina through CSO-014 to 10 activations	$696,590.87	$900,458.10	Prior to 1/1/2014	7/9/2014	12/1/2016

5.23. SPPs 206A&B (CSO 014/015)

i. Project Description Specified

Location: Trenton Road/ Village Court north east of Fourth Street
Physical Size: 0.8 MG in-line storage and optimization
Capacity: 0.8 MG with SPP 035
Impact: (Cost and Dates for Overall Project)

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Erie Basin Marina through CSO-014 to 2 activations	$6,700,000.00	$8,310,470.00	Prior to 1/1/2014	3/18/2014	3/18/2015

ii. Project Description As-Built

Location: SPP 206A & 206B - Trenton Rd/Village Ct & 4th St, North side of Village Ct ~230' NE of intersection
Physical Size: 113,000 gallon in-line storage facility was constructed in association with SPPs 206 A&B
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Erie Basin Marina through CSO-014 to 10 activations	$1,163,368.02	$1,503,844.22	Prior to 1/1/2014	5/30/2014	12/29/2014

5.24. Genesee Street/Genesee Gateway Project

i. Project Description Specified

N/A: This project was not in original LTCP, it was added later.

ii. Project Description As-Built

Location: From the area tributary to the Right-of-Way on Genesee Street in the City of Buffalo
Physical Size: 3,091.6 SF
Capacity: 2.8 impervious acres managed, 4,364 CF storage capacity, 0.033 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Erie Basin Marina through CSO-015 to 0 activations	$493,636.53	$638,106.29	Prior to 1/1/2014	6/8/2015	6/1/2017

5.25. SPP 035 (CSO 014/015)

i. Project Description Specified

Location: Northwest of the intersection of South Elmwood Avenue and West Genesee Street
Physical Size: 50,000 gallon in-line storage facility in association with SPP 035
Capacity: 0.8 MG with SPPs 206A&B
Impact: (Cost and Dates for Overall Project)

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Erie Basin Marina through CSO-015 to 1 activation	$6,700,000.00	$8,310,470.00	Prior to 1/1/2014	3/18/2014	3/18/2015

ii. Project Description As-Built

Location: Northwest of the intersection of South Elmwood Avenue and West Genesee Street
Physical Size: 50,000 gallon in-line storage facility in association with SPP 035
Capacity: 50,000 gal
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Erie Basin Marina through CSO-015 to 0 activations	$1,187,477.02	$1,535,009.07	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.26. SPP 036

i. Project Description Specified

Location: Church Street between the off and on ramps of the Skyway bridge (State Route 5)
Physical Size: 35' of 30" sewer
Capacity: 2.7 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduce discharges to the Erie Basin Marina through CSO-015 to 1 activation	$5,000.00	$6,463.32	Prior to 1/1/2014	3/18/2014	3/18/2015

ii. Project Description As-Built

Location: Church St, Ctr, 20' W of W Cb of Upper Terrace (State Route 5)
Physical Size: 35' of 30" sewer
Capacity: 4.7 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Erie Basin Marina through CSO-015 to 0 activations	$485,275.65	$627,298.47	Prior to 1/1/2014	5/30/2014	12/5/2014

5.27. Kenmore Avenue

i. Project Description Specified

Location: From the area tributary to the Right-of-Way on Kenmore Avenue in the City of Buffalo
Physical Size: 22,882 SF
Capacity: Designed to control stormwater flow from 4.1 total acres of impervious area
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Niagara River through CSO-055 to 9 activations	$520,193.74	$672,435.84	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: From the area tributary to the Right-of-Way on Kenmore Avenue in the City of Buffalo
Physical Size: 22,882 SF
Capacity: 4.4 impervious acres managed, 25,170 CF storage capacity, 0.188 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Niagara River through CSO-055 to 33 activations	$370,726.53	$479,224.93	4/30/2014	4/20/2015	3/1/2017

5.28. Hertel at Deer/ Hertel Northwest/ Hertel South In-Line Storage

i. Project Description Specified: Hertel Northwest In-line Storage

Location: Hertel between Norris & Colvin
Physical Size: 6000 ft of detention within 102" Reinforced Concrete Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Niagara River through CSO-055 to 9 activations	$2,185,000.	$2,824,471[3].	3/18/2016	3/18/2023	3/18/2024

ii. Project Description Specified: Hertel South In-Line Storage

Location: Hertel between Foundry & Colvin
Physical Size: 9,700 ft of detention within 99" Brick Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Niagara River through CSO-055 to 9 activations	$4,095.000.00.	$5,079,310.00	3/18/2016	3/18/2023	3/18/2024

iii. Project Description As-Built

Location: Intersection of Hertel Ave and Deer St. Project location is within the northern portion of the two large combined sewers which are located under Hertel Avenue
Physical Size: 41'x36' 26' below grade
Capacity: 3.95 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Niagara River through CSO-055 to 33 activations	$3,205,400	$4,143,506	1/19/2018	2/9/2019	5/6/2020

5.29. SPP 001 Optimization

i. Project Description Specified

Location: Located at the discharge of Cornelius Creek into the Niagara River
Physical Size: Raise weir of SPP001 by 1-ft
Capacity: 104.6 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to the Niagara River through CSO-055 to 9 activations	$230,000.00	$297,312.77	3/18/2015	3/1/2014	3/18/2017

ii. Project Description As-Built

Location: Located at the discharge of Cornelius Creek into the Niagara River
Physical Size: Raise weir of SPP001 by 1-ft
Capacity: 104.6 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to the Niagara River through CSO-055 to 33 activations	$460,467.67	$595,230.09	Prior to 1/1/2014	9/25/2014	12/12/2014

5.30. Fillmore Avenue Porous Parking and Green Lots

i. Project Description Specified

Location: From the area tributary to the Right-of-Way of Fillmore Avenue in the City of Buffalo
Physical Size: 41,850 SF
Capacity: Designed to control stormwater flow from 0.4 total acres of impervious area
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$15,156.02	$19,591.65	3/18/2019	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: From the area tributary to the Right-of-Way of Fillmore Avenue in the City of Buffalo
Physical Size: 41,850 SF
Capacity: 0.4 impervious acres managed, 1,379 CF storage capacity, 0.010 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$217,507.38	$281,164.01	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.31. Hazelwood (Kay) In-Line Storage

i. Project Description Specified

Location: Kay & Millicent to Hazelwood & Lang
Physical Size: 10,000 ft detention in 72" Reinforced Concrete Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$2,015,000.00	$2,604,718.42	3/18/2016	3/18/2023	3/18/2024

ii. Project Description As-Built

Location: Hazelwood Avenue between East Delavan and Easton Avenues, approx. 150' south of Easton Ave
Physical Size: 32'-10" x 22'-4" RTC Structure, 2- 5'x5' gates, 63.1 Weir elevation
Capacity: 0.8 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$1,343,141.71	$1,736,231.24	8/9/2016	2/2/2018	6/19/2019

5.32. Lang RTC Project / RTC-1 / Hagen St RTC

i. Project Description Specified

Location: Hagen& Kerns to Hazelwood & East Delavan
Physical Size: 2,500 ft detention within 102" Reinforced Concrete Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through SPP 340 to CSO-053, to 4 activations	$4,085,000.00	$5,066,903.05	Prior to 1/1/2014	3/17/2014	9/2/2014

ii. Project Description As-Built

Location: Lang Avenue between Courtland Avenue and Hagen Street
Physical Size: 30'x20', 17' below grade. 2- 5'x5' sluice gates
Capacity: 0.84 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through SPP 340 to CSO-053, to 37 activations	$1,219,610.78	$1,512,766.11	Prior to 1/1/2014	2/24/2014	5/9/2016

5.33. North Bailey In-Line Storage

i. Project Description Specified

Location: North Bailey Avenue from E. Amherst to Dorris
Physical Size: 4,800 ft detention within 78” Brick Sewer
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$2,025,000.00	$2,617,645.07	3/18/2016	3/18/2017	3/18/2024

ii. Project Description As-Built

Location: Bailey Avenue north of Scajaquada Street
Physical Size: 18'x53' RTC Structure, 2-4'x4' gates, 61.40’ Weir elevation
Capacity: 0.41 MG storage volume
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$1,898,182.90	$2,453,713.13	12/8/2017	10/16/2018	5/27/2020

5.34. Northland Ave

i. Project Description Specified

N/A: This project was not in original LTCP, it was added later.

ii. Project Description As-Built

Location: Northland Avenue between Fillmore and Grider in the City of Buffalo
Physical Size: 10,788 SF
Capacity: 6.08 impervious acres managed, 20,967 CF storage capacity, 0.157 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$561,645.88	$726,019.54	7/1/2016	3/1/2017	12/17/2019

5.35. 612 Northland Ave

i. Project Description Specified

N/A: This project was not in original LTCP, it was added later.

ii. Project Description As-Built

Location: 612 Northland Ave
Physical Size: 2,118 SF of Storm Water Rain Garden; 1,253 SF of Permeable Gravel Pavement; 1,422 SF of Conversion Pavement to Lawn/Shrubs;
Capacity: 0.263 impervious acres managed, 907 CF storage capacity, 0.007 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$20,189.36	$26,098.06	1/1/2019	6/1/2019	12/1/2019

5.36. SPP 163 Optimization - 163A

i. Project Description Specified

Location: East of the intersection of Fillmore Avenue and Northland on Northland Avenue
Physical Size: Raise weir of SPP163 by 0.75-ft, and increased weir length to 10-ft
Capacity: 10.4 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$185,000.00[3.]	$239,142.88[.]	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: East of the intersection of Fillmore Avenue and Northland on Northland Avenue
Physical Size: Raised weir of SPP163 by 0.75-ft
Capacity: 10.4 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$449,360.50	$580,872.25	3/1/2014	3/1/2015	8/6/2015

5.37. SPP 165 Optimization

i. Project Description Specified

Location: Fillmore Avenue just north of the intersection with East Delavan Street
Physical Size: Raised weir of SPP165 by 0.5-ft
Capacity: 9.3 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$20,000.00	$25,853.28	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Fillmore Avenue just north of the intersection with East Delavan Street
Physical Size: Raised weir of SPP165 by 0.5-ft
Capacity: 9.3 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$7,389.03	$9,551.54	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.38. SPP 165A Optimization

i. Project Description Specified

Location: Intersections of Fillmore and Kensington Avenues
Physical Size: Upsize the existing underflow pipe between nodes 4228 and 12072 to 18 inches (L=550 feet), raise weir of SPP165A by 0.75-ft, and increase weir length to 10 feet
Capacity: 3.8 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$805,000.00	$1,040,594.71	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Intersections of Fillmore and Kensington Avenues
Physical Size: Raised weir of SPP165A by 0.75-ft & upsized 675' of 15" pipe to 18” pipe
Capacity: 3.8 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$294,647.71	$380,880.55	Prior to 1/1/2014	7/25/2014	11/3/2014

5.39. SPP 178 Optimization

i. Project Description Specified

Location: Masten Avenue just north of the intersection with Northland Avenue
Physical Size: Raised weir of SPP178 by 0.5-ft
Capacity: 8.9 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$20,000.00	$25,853.28	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Masten Avenue just north of the intersection with Northland Avenue
Physical Size: Raised weir of SPP178 by 0.5-ft
Capacity: 8.9 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$9,260.93	$11,971.27	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.40. SPP 335B Optimization

i. Project Description Specified

Location: Hager Street just south of the intersection with Florida Street
Physical Size: Raised weir of SPP335B by 1-ft
Capacity: 4.1 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$20,000.00	$25,853.28	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Hager Street just south of the intersection with Florida Street
Physical Size: Raised weir of SPP335B by 1-ft
Capacity: 4.1 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$12,216.54	$15,791.88	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.41. SPP 336A Optimization

i. Project Description Specified

Location: Humboldt Parkway North of the Scajaquada Drain
Physical Size: Increase the area of the underflow orifices to 4.9 SF (D=2.5 feet), Upsize the existing underflow pipe to D=30 inches (L=28 feet)
Capacity: 16.2 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$130,000.00	$168,046.35	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Humboldt Parkway North of the Scajaquada Drain
Physical Size: Removed a sluice gate and orifice plate and modified the existing structure by changing the existing side channel opening from 24" to 30"
Capacity: 16.2 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$27,018.12	$34,925.37	Prior to 1/1/2014	9/8/2015	12/16/2015

5.42. SPP 342B Optimization

i. Project Description Specified

Location: Sprenger Avenue adjacent to Schiller Park
Physical Size: Raised weir of SPP342B by 1-ft
Capacity: 2.7 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO-053 to 4 activations	$20,000.00[3.]	$25,853.28[3.]	3/1/2014	3/18/2015	3/18/2017

ii. Project Description As-Built

Location: Sprenger Avenue adjacent to Schiller Park
Physical Size: Raised weir of SPP342B by 1-ft
Capacity: 2.7 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO-053 to 37 activations	$12,216.54	$15,791.88	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.43. SPP 183 Optimization

i. Project Description Specified

Location: Intersection of Bradley Avenue and Fernwood
Physical Size: Raise weir of SPP183 by 0.5-ft
Capacity: 25.5 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO 059 to 0 activations	$20,000.00	$25,853.28	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

ii. Project Description As-Built

Location: Intersection of Bradley St & Fernwood Avenue
Physical Size: Raise weir of SPP183 by 2.0-ft
Capacity: 25.5 MGD
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO 059 to 1 activation	$20,000.00	$25,853.28	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.44. CSO 060 GI Project

i. Project Description Specified

Location: Windsor, Parkdale and Elmwood Avenues between Bird and Forest Avenues, Clarendon and Claremont Avenues between Bird and Forest Avenues, Bird Avenue and Granger Place & SPPs located at Parkdale and Forest Ave, Baynes St and Forest Ave, Tremont and Forest Ave, Forest Ave west of Claremont Ave, Intersection of Forest and Elmwood Ave, South side of Forest Ave and Lincoln Parkway, South side of Forest and Windsor Ave, Forest Ave and Berkley Pl, North side of Forest and Windsor Ave, North side of Forest Ave and Lincoln Parkway, East of Elmwood and Forest intersection

Physical Size: 4768 CF of rain garden, 39,600 SF of permeable pavement, 6,125 LF of 12-30 inch sewer, weirs were raised in SPPs 230, 231, 232, 233, 234, 235, 236, 237, 238, 239,240 and 241

Capacity: Treat 0.10 MG of stormwater runoff from the 0.9 inch water quality storm event and remove 31.99 MG of peak flow from the combined sewer system

Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, projected to reduce discharges to Scajaquada Creek through CSO 060 to negligible activations and flow	$5,065,000.00[3.]	$6,547,344.33[3.]	Prior to 1/1/2014	Prior to 1/1/2014	9/2/2014

ii. Project Description As-Built

Location: Windsor, Parkdale and Elmwood Avenues between Bird and Forest Avenues, Clarendon and Claremont Avenues between Bird and Forest Avenues, Bird Avenue and Granger Place & SPPs located at Parkdale and Forest Ave, Baynes St and Forest Ave, Tremont and Forest Ave, Forest Ave west of Claremont Ave, Intersection of Forest and Elmwood Ave, South side of Forest Ave and Lincoln Parkway, South side of Forest and Windsor Ave, Forest Ave and Berkley Pl, North side of Forest and Windsor Ave, North side of Forest Ave and Lincoln Parkway, East of Elmwood and Forest intersection

Physical Size: 4768 CF of rain garden, 39,600 SF of permeable pavement, 6,125 LF of 12-30 inch sewer, weirs were raised in SPPs 230, 231, 232, 233, 234, 235, 236, 237, 238, 239,240 and 241

Capacity: 0.154 MG storage volume

Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
Together with other projects, reduced discharges to Scajaquada Creek through CSO 060 to negligible activations and flow	$3,461,404.25	$4,474,433.46	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.45. 2001 - 2016 Commercial and Industrial Demolitions

i. Project Description Specified

Location: City-wide
Physical Size: 78 acres
Capacity: Designed to control stormwater flow from 78 total acres of impervious area
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the City. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$10,915,043.90	$14,109,486.83	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: City-wide
Physical Size: 78 acres
Capacity: Together with 2001-2016 Residential Demos this project managed 577 impervious acres
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the city. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$23,369,388.87[4]	$30,208,773.08	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.46. 2001-2016 Residential (traditional) Demolitions

i. Project Description Specified

Location: City-wide
Physical Size: 256 acres
Capacity: Designed to remove 256 total acres of impervious area and manage stormwater on site
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the City. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$35,823,733.84	$46,308,059.33	3/1/2014	3/18/2016	3/18/2018

ii. Project Description As-Built

Location: City-wide
Physical Size: 256 acres
Capacity: Together with 2001-2016 Commercial Demos this project managed 577 impervious acres
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the City. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$23,369,388.87[4.]	$30,208,773.08	Prior to 1/1/2014	Prior to 1/1/2014	Prior to 1/1/2014

5.47. 2017 - 2024 Demolitions

i. Project Description Specified

Location: City-wide
Physical Size: Total acreage TBD on a rolling basis depending upon demolitions completed
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
At the direction of the regulators, these are no longer being counted	N/A	N/A	3/18/2019	3/18/2023	3/18/2024

ii. Project Description As-Built

Location: City-wide
Physical Size: 100.66 impervious acres managed
Capacity: N/A
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the City. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$32,697,518.35	$42,266,912.40	Prior to 1/1/2014	5/22/2019	9/21/2022

5.48. Green Demolition Pilot Project

i. Project Description Specified

Location: City-wide
Physical Size: 23 acres
Capacity: Approximately 0.25 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the City. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$1,941,270.75	$2,509,411.26	3/18/2019	3/18/2023	3/18/2024

ii. Project Description As-Built

Location: City-wide
Physical Size: 23 acres
Capacity: Manage stormwater for 20.4 acres
0.25 MG Storage Capacity
Impact:

Activation Reductions	Cost 2012 Dollars	Cost 2022 Dollars	Engineering Start Date	NTP Date	Substantial Completion
These demolitions were distributed across the City. Therefore, we are unable to assign activation reductions to a single CSO for this project.	$1,379,943.51	$1,783,803.61	Prior to 1/1/2014	7/1/2015	7/31/2017