10 Section Ten – Recommended Plan

10.1 Introduction and Recommended Plan History

A previous CSO Long Term Control planning effort from 1999 to 2002 resulted in a Recommended Plan that generally involved utilizing a combination of in-line storage and consolidating CSO's, thereby re-directing or eliminating 5 of the *10* existing CSO outfalls, including all four existing outfalls in the priority area of Fairbanks Park. However, this recommended plan would only result in a capture of approximately 83% of typical yearly total CSO volume and would leave the *five* remaining CSO's (*002*, 003, 004, 009 and 010) with almost no reduction in the number of CSO events in the design year. The estimated cost of the recommended plan in that version of the Terre Haute CSOLTCP was approximately $48 million as developed utilizing the "Knee of the Curve" methodology utilized and accepted by USEPA and IDEM at that time.

Since that plan submittal, the USEPA and IDEM changed the methodology and approach to determine how much CSO capture would be considered responsible, affordable and reasonable that significantly increased the requirement for a much greater level of CSO capture than previously considered. While other sections of this long term control plan describe the new regulatory approaches in great detail – the end result was that the updated long term control plan had to include a solution that removed a much more significant amount of CSO volumes than what was previously considered, at a much greater cost and local financial impact. A new planning effort to address the Terre Haute CSO's was initiated in 2008 and completed in 2011.

The 2011 LTCP called for a number of new CSO control projects to be implemented in four phases. These projects and implementation phases are more fully described in Section 10.3.2. Engineering design work on the first phase of projects was initiated in early 2012.

There have been unknown/unforeseen conditions in three of the five CSO control projects scheduled for the first phase that have resulted in reconsidering major aspects of those projects. The three projects are floatable controls at CSO 004/011 (Hulman/Idaho Street), the route of the consolidation of CSO 009 (Spruce Street) into CSO 010 (Chestnut) and the proposed CSO capture and storage facility near the existing main lift station on the former International Paper site. These

three conditions have resulted in significant changes or delays to those three projects that are more fully described in the revised Section 10.2.

10.2 Recommended Plan Description

The fully implemented recommended plan will reduce the total number of active CSO's from *10* to 2, which would include the complete elimination of CSO's *002*, 003, 005, 006, 007 and 008, the consolidation of CSO's 004/011 and CSO's 009/010. New floatable controls will be installed at the two consolidated CSO's to remain active (004/011 and 009/010).

The recommended plan will also include a new large diameter gravity interceptor running parallel along the river to the existing CSO relief sewer that will connect *the* Fairbanks Park (priority) area CSO's (005, 006, 007 and 008) to the consolidated 004/011, then from there to a new main pumping station to be built near the existing station. A new main pumping station is needed for the following reasons: The existing station does not have the peak pumping capacity to handle the maximum expected CSO volumes, it is not deep enough to completely eliminate CSO 003 and it is 45 years old and has reached the end of it useful life.

The CSO LTCP recommended that a portion of the paper mill wastewater treatment ponds on the former International Paper site be converted into CSO storage facilities. This would have provided storage of up to 32 MG of captured CSO volume at the existing main lift station that would then allow for the stored water to be bled back to the City WWTF as treatment capacity allowed. This planning concept was based upon limited information provided by IP concerning the condition of their treatment pond berms and facilities.

After the ponds were emptied of the existing sludge and when the preliminary "Basis of Design" analysis started on these ponds in 2012, a geotechnical firm was retained to evaluate the stability of the pond berms and basin bottom under varying conditions. A new site survey was completed on the tops of the berms at the same time. This preliminary design work resulted in the following conclusions:

1. That the top of the berms were generally high enough to withstand a 25 year flood event in the Wabash River (not a 100 year event as the City had anticipated). As a part of the

planned CSO storage process, the top of the berms would need to exceed the 100 year event with three feet of freeboard added.

2. That a potential scenario of the river at its 100 year flood level and the storage pond being empty would result in failure of the pond bottom. The hydraulic pressure under that scenario would overcome any stability of the pond base soils and the pond would fill up several feet and remain at that level while the river stays up. Therefore, the new liner would need to be made of concrete in lieu of geomembrane/clay and extend above the hydraulic gradient of this scenario. A copy of the appropriate sections of this geotech report is included at the end of this chapter.

3. Based upon the design consultants opinion, the quality of the berms original construction is suspect. This was actually verified when the western most section of the existing berms were washed out by recent river flooding. Much of the berm construction (at least in that area) included buried fill (construction debris) and organic material. This led to a conclusion that the existing treatment pond berm construction quality (and structural integrity) over-all was poor and would need to be significantly upgraded if the ponds were to be utilized as CSO storage facilities.

As a result of this new information the design consultant prepared new options to be considered that would result in the same volume of CSO (32 MG in one day) being either stored in a better consieved storage facility and then transported and treated at the City WWTF or installation of a new high rate treatment process to be located near the IP ponds with a new treated effluent outfall to the Wabash River in that area.

The results of that study are in the appendix of this updated chapter. The study concluded that construction of a high rate treatment facility with an ultimate capacity of 32.5 MGD would be the most cost effective solution. In order to fit within the Terre Haute Sanitary District CSO Phase I Budget, this modular type facility would be constructed in two phases, a 16.25 MGD unit in Phase One of the LTCP and a second unit of identical capacity to be built adjacent to the first in Phase Two of the LTCP. Figure 10.2-1 depicts the location of these proposed units. A modification to

the existing City NPDES permit to add this proposed facility would be requested once the construction permit for the first phase of the treatment unit is approved.

A final consideration for the change from an open air CSO storage facility to a high-rate treatment system was the acceptance of the option by the City leadership and local Riverscape group, and efforts will be made to landscape the new facilities in a "park type" setting in this area as part of the over-all River Front Development project and as local funding allows.

During Phase One, a second forcemain from the existing main lift station will be installed to connect that pump station to the new CSO high rate treatment facilities to be utilized on an interim basis until the new main lift station is constructed and put into service. Additionally, the new station will eliminate CSO 002 which is currently an emergency overflow.

In their review of the recommended plan, officials at IDEM requested that information be included in the final CSOLTCP regarding what changes could be incrementally made in future years to increase the level of CSO volume capture and treatment to 6 overflows per year in lieu of the 7overflows per year level outlined in the recommended plan for Alternative 11.

As stated earlier, implementation of Alternative 11 would result in the 10 existing CSO overflow points reduced to 2 remaining CSO outfalls. The overflow points at 004 and 011 would be combined into one outfall, as well as those at 009 and 010. Regarding the combined 004/011 outfall, a review of the model results and the proposed gravity interceptor capacity calculations found that a level of control that can actually be achieved by implementing the controls noted in the selected plan is 6 overflows per year and not 7. The diameter of the proposed gravity interceptor between and connecting CSO 008 and the new main lift station downstream would have been 8 feet (CSO008 to 004) and 10 feet (CSO 004 to the new main lift station) at the 9 overflow per year level of control. The pipe diameter would have increased to just over 11 feet in diameter at 7 overflows per year and 12 feet in diameter at 6 overflows per year. Since gravity sewer pipe that size comes in one foot diameter increments, it was decided to utilize 12' diameter pipe for the selected plan and then make the new main lift station pumps just incrementally larger and there was already additional CSO storage capacity available at the former International Paper Storage Pond site. The estimated costs for the recommended plan assumed utilization of the larger

facilities. Therefore, all controls south of CSO's 009 and 010 were sized to achieve a level of 6 overflows per year at the estimated project costs for the recommended plan.

Another element of the recommended plan is to facilitate CSO capture at CSO's 009/010 by constructing new storage facilities. These two CSO's have relatively large drainage basins and are located the furthest away from the Main Lift Station of all the CSO's. Connecting these CSO's to the others via a new gravity interceptor is not economically feasible, short of constructing a tunnel interceptor system connecting all the CSO's (which was evaluated). Therefore, additional CSO capture for these basins must be done by storage. Two storage options generally exist in the area where CSO's 009/010 are consolidated including a storage tank near the old outfall, and storage measures on private and public right of way primarily cateragorized as "Green Infrastructure" or a combination of both. These two options are described in the following paragraphs. The first storage option considered in the final plan would be to construct a large underground tank on city owned property between CSO 009 and CSO 010. There are items to be mitigated with this conventional ("Gray") storage option. Immediately to the north of that site is the Indiana-American Water Company wellfield and water treatment plant, so care must be taken to minimize any potential impacts on the area groundwater with any CSO storage facilities there. Secondly, Indiana State University has plans to completely redevelop the riverfront between these CSO's and Highway *41*, and their plans could include a new football stadium on the riverfront and immediately downstream of the consolidated CSO's, very near the proposed storage site.

The initial routing of the consolidation sewer of CSO 009 into CSO 010 was originally intended to be along First Street from Chestnut Street north to Spruce Street. The 2012 Indiana State University updated Riverfront Development plans precluded that particular 009 into 010 route from being feasible. As a result, a more detailed investigation of the existing combined sewer system in that area revealed a second potential route upstream of First Street just to the east of Third Street where the two basins are in close proximity. The new connection route has been surveyed and studied in the XP-SWMM CSO model and will result in a shorter and less costly consolidation. Essentially a new sewer will ne constructed from a new diversion structure which will divert flow from the Chestnut Street system to the Spruce Street system. Sections of the Chestnut Street system downstream of the new diversion structure will be converted to sanitary

flow only with outlet to the new main interceptor. The existing CSO 009 diversion structure will be demolished and the existing outfall will be utilized for storm water flows only.

Recently, officials at Indiana State University have agreed that the new route is acceptable with respect to their future redevelopment and expansion plans and can be constructed within the City right-of-way and easements granted by the University.

Figure 10.2-1 depicts the present CSO 009 into CSO 010 consolidation sewer locations.

To achieve a level of control of 7 overflows per year, the storage facility near the present outfall 010 would need to have a storage capacity of 2.0 million gallons (MG). To achieve a level of control of 6 overflows per year, the storage volume requirements at this site would increase to 4.9MG. The additional capital costs required to build the larger storage facilities needed to meet the 6 overflow level was estimated to be approximately fifteen million dollars. Note, however, that the size of the proposed CSO interceptor connecting CSO 009 to 010 would not have to be increased in diameter to go thru 7 to 6 overflows/year. This is due to the fact that basin 009 is quite a bit smaller than basin 010 and that there is an interconnection point in the existing combined sewer system that allows for high level flows to pass from basin 009 to 010 anyway.

The other option explored for CSO storage at 009/010 is to construct storage facilities on public and private property upstream within the basins that would reduce or slow down stormwater flow into the combined system. These "Green" infrastructure technologies have great potential in the CSO 009 and CSO 010 basins, as two entities dominate the property ownership there - Indiana State University (basin 009) and the Union Hospital *Campus* (basin 010). A study was completed outlining the potential for green infrastructure utilization at the Indiana State Campus area with very encouraging results. A copy of this study is included in Appendix 6-4 of this long-term control plan.

Whether the storage facilities be green or gray, the recommended plan includes enough storage to be constructed at 009/010 to be able to reduce the number of CSO events there to approximately 7 per year. Given that the concept of utilizing green technologies on public and private properties for CSO reduction is relatively new and lacks a long history of capture results and maintenance

needs, the recommended plan will include a series of pilot green storage project implemented early enough in the implementation schedule to monitor the results and refine future design, with the very last aspect of the plan to be implemented being the installation of new gray storage facilities at the outfall location. If green technologies can effectively allow the City to reach its target CSO capture without gray construction at a reasonable capital and annual operating cost, then no storage construction will be needed along the river where the previously noted concerns would require mitigation. Alternativly, partial success or Green Infrastructure could reduce the size of the storage tank necessary to achieve a level of CSO control of at least 7 and potentially 6 overflows per year.

The projects constructed on the front end of implementation, focused in the areas south of 009/010, are already sized for 6 overflows per year. Therefore, money saved due to success of the green projects, through reduction of the size of the north-end storage tank, would not make any difference in the City meeting that goal. Moreover, once those projects are built, it would not be possible to change the sizes of those pieces of equipment. The City would expect to utilize any savings to explore other options for reducing wet-weather flows, but cannot predict at this point what those options might be, or what costs would result.

As the City proceeds with its green planning efforts, it plans to provide to IDEM any information that the agency reasonably requests concerning those projects. We will use the items that have been provided by EPA (listed below) as a guide to the additional information that will need to be generated and submitted – subject, of course, to any changes in regulations or policies concerning green infrastructure that occur while those projects are being planned.

- Modeling. A Hydrology and Hydraulic Model can be used to simulate the effects of the green infrastructure measures (working in combination with the existing and any future gray infrastructure elements) and provide information on the number of activations and the volume of overflows in a typical year. The effects of the green infrastructure can be incorporated into the Hydrology inputs for each catchment. The goal would be that the green infrastructure measures, in combination with the gray infrastructure components, would provide an equivalent level of CSO control as what would be expected for a more conventional gray infrastructure set of controls.

- Descriptions and Technical Details for Green Infrastructure Sites/Projects. Under the LTCP the City would need to develop a detailed description of the green infrastructure site(s)/project(s) to be implemented, including locations, technologies to be employed (wetlands, infiltration practices, etc.), capacity, costs, and schedule. Note not all site/project details would necessarily need to be decided upon at the onset of the program.
- Pilot Testing. A series of pilot tests on constructed green infrastructure controls of all types of capacities, on both public and private properties should be planned, designed and constructed in phases two and three of the Implementation Plan. It is hopeful that the financing of these pilot tests could be shared between public, private and institutional sources.
- Monitoring and Performance Verification. The City would need to include plans/provisions to monitor the green infrastructure practices (or a sampleset of the practices) and the sewersheds where the green infrastructure is implemented to evaluate if the green practices are successfully storing (and for certain practices infiltrating) runoff and if CSO control goals for the sewershed are being achieved. Performance can be tuned up using adaptive management or corrective action steps if CSO control goals are not being met.
- Preservation of Green Infrastructure Sites/Projects. The City will need to provide some form of assurances that the green infrastructure control measures will be held/preserved for the long term, with no substantive changes that could reduce performance. It must also be clear that there will be sufficient access and control so that maintenance activities can be carried out. If the site/practice will not be owned by the City, an easement or some other type of agreement may be needed.
- Maintenance. For green infrastructure practices the City would need to determine and document what maintenance is needed and on what schedule, and roles for performing the maintenance would need to be clearly defined. For example, if a practice is on the Indiana State campus, would the City perform maintenance or would the University. If it would be the University IDEM would be looking for some sort of maintenance agreement.
- Stakeholder Outreach and Public Participation. For green infrastructure sites and practices, particularly outside the campus or area where "Green" infrastructure has been

implemented, it is usually important to perform some education and outreach so neighbors understand and buy into what will be implemented.

- Tracking and Reporting. As LTCP implementation proceeds the City would need to track its implementation, operation, and maintenance of the green infrastructure measures, and report on activities and accomplishments as part of regular reporting.

Given the previously mentioned IDEM review request that potential additional controls be considered for implementation of an ultimate level of control of 6 overflows per year be analyzed in the future, it is recommended that the City of Terre Haute authorize a detailed study of the implementation of a fairly significant amount of green infrastructure CSO reduction control strategies in basins 009 and 010 starting in the second phase of the recommended implementation plan.

The recommended plan also includes some components of the previously submitted CSOLTCP - that being utilization of in-line storage in the 004 (Hulman) and 008 (Walnut) large diameter combined sewers by construction of weirs/dams and reinforcing these older sewers with trenchless sewer rehabilitation.

The initial implementation schedule for the City's LTCP is 20 years. During that time period, the City will continue its efforts to reduce wet-weather flow through green infrastructure projects. If those projects will result in attainment of the target level of control within the 20-year time period, then no further time will be needed or requested. If, though, it appears that the target level of control cannot be achieved without additional or larger "gray" infrastructure, particularly storage tanks near 009/010, then the City may request additional time beyond the 20-year timeframe. If so, IDEM will seriously consider that request, and if IDEM determines that the additional time is needed, then the parties would amend the State Judicial Agreement, the LTCP and the permit to specify additional time.

The total cost of the updated recommended plan is estimated to be $124 million. The plan can be implemented over several phases as described in *the following* section 10.3.

10.3 Phases of the Selected Plan

10.3.1 General Phasing Considerations

There are several items to be considered when developing a recommended phasing plan and implementation plan as part of this CSOLTCP for Terre Haute. The length of the implementation period is a major consideration that must take into account other, on-going wet-weather related water pollution control projects the city is implementing. The financial impacts and particularly the level of burden that is placed on the residential customers there during the implementation period is a strong consideration in determining the length of the financial implementation time frame. The phasing plan should also take NPDES permit compliance, priority areas and construction component sequencing (downstream to upstream). Finally, there must be sufficient time between the initiation of each phase to adequately monitor and evaluate the previous phase's impact on local water quality of the Wabash River.

For example, a key recommendation of the selected plan is to provide CSO storage at the combined 009 and 010 outfalls – which are the furthest CSO's from the main lift station/WWTP and have relatively large drainage basins. These basins include: two property owners, The Indiana State University and the Union Regional Hospital Center, that control large amounts of property ownership and use. These areas offer significant opportunities for use of green storage technologies out in the collection system in lieu of the end-of-pipe storage tank options also considered for these particular CSO's. However, as of this writing, there simply is not enough real data available as to the effectiveness of CSO capture, or initial capital cost, or annual operating costs of green vs. gray storage facilities. The recommended plan includes initiating design and implementation of green technologies on the early phases (phases two and three) so that adequate flow and qualitative data can be captured after their construction, which should be well before the final capture and storage solution (phase 5) can be planned, designed and built at 009/010.

The City of Terre Haute has recently implemented a series of upgrades at their WWTP that will have a significant impact of that facilities ability to treat captured and stored combined sewer overflow volumes on a sustained basis. This plant will allow for the constant treatment of up

to 42 MGD of combined sewage transport from the mail lift station over a period of days, whereas the current facility can only treat this level of flow over a series of hours. This $130 million dollar project will be implemented over two phases. Construction work on the first phase of this project was completed in May 2012 and the second and final phase is scheduled for completion in 2015. This large project implementation must be factored into the CSOLTCP implementation schedule for both technical and financial reasons.

The Terre Haute Sanitary District utilizes a portion of the property tax revenue locally to fund other sewer system improvement projects, such as upgrades/maintenance to existing collection system facilities and pumping stations as well as constructing new sewer interceptors to facilitate regionalization of growth. There are two such maintenance related projects included in the CSOLTCP recommendations – rehabilitation of portions of the very old and large diameter Hulman Street and Walnut Street interceptors. The THSD will see a large amount of existing property related debt go away in 2015 and can better afford to finance these rehabilitation projects at that time. This must also be taken into account when developing the phasing and implementation schedule.

The final consideration to be taken into account when developing the recommended plan's implementation schedule is the burden to local residents, businesses, institutions and industry. As seen in section eight "Affordability and Financial Capability Assessment", Terre Haute falls within the "high burden" impact, which should allow for a longer implementation period to be allowed.

When all of these factors were taken into account, the City elected to develop a *20* year implementation period which included the WWTP improvements project, as well as adequate time for future between phase monitoring and re-assessment. Based upon the previously discussed considerations, the recommended implementation plan will be broken into a total of five phases. The following tables and graphics (Tables 10.3-1 and 10.3-2 and Figure 10.3-1) illustrate this implementation schedule, and the elements of each phase are described in greater detail in this chapter.

10.3.2 Description of Phases

The following two tables and graphic describe and depict the recommended implementation schedule phasing of both the proposed Terre Haute wastewater treatment facility improvements as well as the CSO capture and transport facilities recommended in this long term control plan.

Table 10.3-1
Implementation Schedule
Description of Phases

Item	Description	Project Start Construction Date
WWTF Improvements - Phase One	Construction of new Headworks	11/2010
WWTF Improvements - Phase II/III	Increase sustained flow capacity through entire plant from approximately less than 40MGD to 48MGD, add nutrient removal capability to plant, improve other aspects of plant facilities Upgrade disinfection facilities and biosolids processing and storage facilities	11/2012
CSO LTCP Phase 1	Project 1-1: 009/010 Floatables Control Project 1-2: 004/011 Floatables Control Project 1-3: Phase I of High Rate Treatment (HRT) Facility (16.5 MGD) at the Main Lift Station and IP Lagoon rehabilitation, add 2nd FM at existing main lift station to HRT Project 1-4: Consolidate 009/010 Project 1-5: Sewer Rehabilitation	08/2013 TBD[1] 11/2014 05/2014 11/2014
CSO LTCP Phase 2	Construct new main lift station and Phase II of HRT (16.5 MGD), initial phase of green infrastructure implementation in Basins 009/010	02/2017
CSO LTCP Phase 3	Construct CSO Interceptor from 004 to new min lift station, final phase of green infrastructure implementation in Basins 009/010	07/2020
CSO LTCP Phase 4	Construct CSO Interceptor from 008 to 004 Monitor success of Green Infrastructure in Basins 009/010	02/2025
CSO LTCP Phase 5	Construct Storage Facility at 010*	06/2028

**If the green infrastructure projects implemented in Phase 2 and 3 and monitored in Phase 4 result in the attainment of the target level of control at the combined 009/010 outfall, then Phase 5 will not be needed.*

If, though, it appears that the target level of control cannot be achieved without additional green or new "gray" infrastructure, (storage tanks near 009/010), then the City will request additional time beyond the 20-year timeframe in order to plan, design and construct the additional facilities. We understand that IDEM would seriously consider that request, and if IDEM determines that the additional time is needed, then the parties would amend the State Judicial Agreement to specify additional time. Language to this effect has been added to Sections 8 and 10 of the LTCP, and we understand that it will also be added to the City's NPDES permit when the LTCP is approved and incorporated into the permit by IDEM.

Note that this condition also applies to the proposed implementation schedule shown on Table. 10.3-2

[1] Actual schedule for bidding and construction of Project 1-2 is indeterminate due to current EPA managed cleanup of site due to contaminated soil from illegal dumping. Schedule will be updated once site is cleared for construction activities to occur.

[2] Revised from previously updated schedule included in letter to IDEM dated August, 26 2013.

Table 10.3-2
Implementation Schedule
(20 Years)

Item	Milestone Date
• Complete & Submit CSOLTCP	04/2011
• WWTF Improvements – Complete Phase I Construction	04/2012
• WWTF Improvements – Complete Phase II Design Finalize Financing, Procure Bids	09/2012
• ~~CSOLTCP – Complete Phase I P.E.R. Initiate Design of Phase I~~	~~10/2012~~
• ~~CSOLTCP – Complete Phase I Design Finalize Financing, Procure Bids~~	~~06/2013~~
• CSOLTCP – Initiate Basis of Design Reports Projects 1-1, 1-2 and 1-3	10/2012
• CSOLTCP – Complete Phase I Design – Project 1-1 (Spruce/Chestnut Floatables Control Structure	06/2013
• CSOLTCP Receive Bids for Project 1-1	07/2013
• CSOLTCP Begin Design Phase I Common Elements (Projects 1-4 and 1-5)	08/2013
• CSOLTCP Begin Construction Project 1-1	08/2013
• CSOLTCP Permit Application Submission Projects 1-2 and 1-3	12/2013
• CSOLTCP Complete Design Phase I Common Elements (Projects 1-4)	03/2014
• CSO LTCP Complete Design Phase I Common Elements (Project 1-5)	08/2014
• CSOLTCP Complete Design Project 1-3 (Main Lift Station Site High Rate Treatment)	03/2014
• CSOLTCP Receive Bids Phase I Common Elements Project 1-4	05/2014

Project 1-5	09/2014
• CSOLTCP Receive Bids Project 1-3	10/2014
• CSO LTCP Receive Bids Project 1-2	TBD[1]
• CSO LTCP Begin Construction Phase I Common Elements	
Project 1-4	05/2014
Project 1-5	11/2014
• CSO LTCP Begin Construction Project 1-3	11/2014
• CSO LTCP Begin Construction Project 1-2	TBD[1]
• WWTF Improvements – Complete Construction of Phase II	10/2015
• CSO LTCP Complete Construction Project 1-2	TBD[1]
• ~~CSOLTCP – Complete Construction of Phase I~~	~~03/2015~~
• CSO LTCP – Complete Construction Project 1-1 and 1-4	09/2014
• CSO LTCP – Complete Construction Project 1-5	07/2015
• CSO LTCP – Complete Construction of Phase I – Project 1-3	03/2016
• CSOLTCP – Initiate Monitoring of Phase I and P.E.R. of Phase II	11/2015
• Review and Re-evaluate CSOLTCP	09/2016
• CSOLTCP – Complete Phase I Monitoring and Phase II P.E.R	09/2016
Initiate Phase II Design	
• CSOLTCP – Complete Phase II Design Finalize Financing, Procure Bids	12/2016
• CSOLTCP – Complete Construction of Phase II	08/2018
• CSOLTCP – Initiate Monitoring of Phase II and P.E.R. of Phase III	09/2018
• CSOLTCP – Complete Phase II Monitoring and Phase III P.E.R. Initiate Phase III Design	06/2019
• Review and Re-evaluate CSOLTCP	06/2019
• CSOLTCP – Complete Phase III Design Finalize Financing, Procure Bids	06/2020
• CSOLTCP – Compete Phase III Construction	06/2022
• CSOLTCP – Initiate Monitoring of Phase III and P.E.R. of Phase IV	07/2022
• CSOLTCP – Complete Phase III Monitoring and Phase IV P.E.R. Initiate Design of Phase IV	06/2023
• Review and Re-evaluate CSOLTCP	12/2023
• CSOLTCP – Complete Phase IV Design Finalize Financing, Procure Bids	12/2024
• CSOLTCP – Complete Phase IV Construction	12/2026
• CSOLTCP – Initiate Monitoring of Phase IV and Phase V P.E.R.	01/2026
• CSOLTCP – Complete Phase IV Monitoring and Phase V P.E.R Initiate Design of Phase V	01/2027
• Review and Re-evaluate CSOLTCP	06/2027
• CSOLTCP – Complete Phase V Design Finalize Financing, Procure Bids	04/2028

- CSOLTCP – Complete Phase V Construction 04/2030
- CSOLTCP – Initiate Monitoring of Phase V 05/2030
- CSOLTCP – Complete Monitoring of Phase V 05/2031
- Review and Re-evaluate CSOLTCP 12/2031

[1]Actual schedule for bidding and construction of Project 1-2 is indeterminate due to current EPA managed cleanup of site due to contaminated soil from illegal dumping. Schedule will be updated once site is cleared for construction activities to occur and IDEM will be notified of the anticipated construction start date.

10.4 Post Construction Monitoring Program

As noted in the detailed list of activities in the implementation schedule shown in Table 10.3-2, there will be periods of post-construction monitoring between each phase of the implementation schedule. A post-construction monitoring program will be submitted to IDEM prior to implementation of the LTCP. The program will include the following elements:

- A method for reporting on the volume, duration and frequency of any remaining overflows on an annual basis. This could be accomplished through continuous flow monitoring of outfalls, updating and application of the collection system model, or a combination of both. Rainfall data will be gathered from the City's network of rain gauges.
- A system to measure the degree to which any CSO storage facilities are filled.
- A receiving water program to evaluate E. coli conditions in the river. The program could be structured similarly to that employed to obtain information for the LTCP and may include additional instream sampling, application of the receiving water model or a combination of both.

This information will be used to evaluate the performance of CSO controls. The evaluations will help determine the need for future modifications to the LTCP or improvements to the controls.

In accordance with SEA 431, the City will conduct a periodic review not less than every 5 years after the approval of the LTCP as shown on the implementation schedule. The City will:

- Submit a document to IDEM demonstrating that the LTCP has been reviewed.
- Update the LTCP as necessary to document the results of post-construction monitoring of installed CSO abatement projects
- Submit any amendments to the LTCP to IDEM for review
- Implement control alternatives determined to be cost-effective

Any recommended future changes regarding the post-construction monitoring program that was previously developed for an earlier phase could be later modified as part of the 5 year CSO LTCP review and re-evaluation process.