**FEASIBILITY STUDY REPORT**

**For**

**[MUNICIPALITY NAME HERE]**

**Prepared by:**

**[MUNICIPALITY NAME HERE]**

**July 2013**

**Version 4**

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1. **INTRODUCTION**

The Pennsylvania Clean Streams Law of 1937 and the Federal Clean Water Act (CWA) establishes criterion governing communities’ sewage conveyance and treatment systems. Specifically, the Pennsylvania Clean Streams Law prohibits overflows from separate sanitary sewers and the Federal CWA through the Combined Sewer Policy, and requires certain controls be applied to reduce pollutants from combined sewer systems. For the 83 communities tributary to the Allegheny County Sanitary Authority (ALCOSAN) Conveyance and Collection System, ongoing non-compliance with these two laws resulted in the issuance of Administrative Consent Orders (ACOs) and Consent Order and Agreements (COAs) in early 2004 by the Allegheny County Health Department (ACHD) and Pennsylvania Department of Environmental Protection (PADEP), respectively. Subsequent to that, in January 2008, ALCOSAN, ACHD, and the Pennsylvania Department of Environmental Protection (PADEP) entered into a Consent Decree (CD) with the Federal Department of Justice (DOJ) and the United States Environmental Protection Agency (USEPA) to prepare and submit an approvable Wet Weather Plan (WWP) by January 2013.

These ACOs, COAs (collectively known as the Orders) and the ALCOSAN CD require the respective entities to gather data and information, characterize their respective systems, analyze and perform alternative analyses, and submit feasibility studies addressing work required to bring the systems into compliance with the Pennsylvania Clean Streams Law and the CWA, eliminate sanitary sewer overflows (SSOs), and fulfill the Pennsylvania and USEPA combined sewer overflow (CSO) Policy obligations. ALCOSAN’s CD not only requires them to submit a plan to the regulators by January 2013 that outlines a program to comply with these laws but also requires the facilities, including the municipal facilities, to be constructed by 2026. The tributary municipalities are required to submit their feasibility studies to the regulators on or before July 2013 (within six months of ALCOSAN submitting its plan). These plans, which should be developed in coordination with ALCOSAN and all the municipalities that contribute flow to the ALCOSAN point of connection (POC), and should retain, store, convey and/or treat sewage overflows that either ALCOSAN cannot accommodate or that ALCOSAN can address but that the municipalities decide to address. It is understood that the Feasibility Studies will serve as the basis for the next round of Orders that will mandate implementation of selected/approved alternatives. This report addresses the internal municipal alternatives that were evaluated as part of the feasibility study. Any alternatives developed as part of an ALCOSAN POC (also known as “complex”) sewershed feasibility studies are included in the appendices of this report.

* 1. **Feasibility Study Objectives**

The Feasibility Study objectives for the [ENTER MUNICIPALITY NAME HERE] system were generated from a combination of objectives outlined in the Feasibility Study Working Group (FSWG) Document 027 and the PADEP’s Draft Feasibility Study Outline. The objectives of this feasibility study include:

* Participate and cooperate with ALCOSAN in the development of a WWP.
* July 2013 submit a municipal flow management compliance plan (Feasibility Study), which evaluates a range of practicable alternatives to:
  + Meet CWA and Clean Stream Law requirements
  + Eliminate SSOs
  + Fulfill Pennsylvania and USEPA CSO Policy obligations
  + Develop a Feasibility Study with other municipalities within the same ALCOSAN POC sewershed
  + Develop short-term and long-term flow management proposals that will meet the Municipality’s flow management objectives through September 30, 2046

In response to SSOs within a given system, ACOs were negotiated between the municipalities tributary to the ALCOSAN service area and the ACHD. The ACO required certain tasks including Assessment (Phase I) and Flow Monitoring Plan (Phase II) on each of the municipal systems. Semi-Annual Progress Reporting was a mandated requirement of the ACO.

As part of a collaborative, multi-municipal effort, 3 Rivers Wet Weather (3RWW) developed a Flow Monitoring Working Group (FMWG) consisting of approximately 30 to 40 representatives made up of municipal managers, representatives from municipal engineering firms, regulatory agencies, 3RWW, and ALCOSAN. The FMWG ultimately developed the municipal Flow Monitoring Plan that was submitted to the regulatory agencies and implemented in 2008 and 2009.

After submittal of the Flow Monitoring Plan, the 3RWW FMWG evolved into the FSWG. The FSWG developed an engineering approach to the Feasibility Study that included a ten-task synopsis of the ACO requirements as follows:

* System Inventory/System Investigation;
* Flow Monitoring Program;
* System Characterization;
* System Capacity Analysis;
* System Infiltration/Inflow Investigation (separate sanitary sewer systems);
  + Initial Infiltration/Inflow Screening;
  + Detailed Infiltration/Inflow Investigation;
* Alternative Evaluation (1) – Internal Municipal Alternatives;
* Alternative Evaluation (2) – Multi-Municipal Alternatives (integrate regional alternatives);
* Compare/Review Internal/Multi-Municipal Alternatives with Regional/ALCOSAN System Alternatives;
* Financial and Institutional Analysis;
  + Financial Analysis;
  + Institutional Analysis; and
* Feasibility Study Report(s).

These tasks are defined in greater detail in the FSWG Document 002 dated June 9, 2009. As noted above, the final task is a Feasibility Study Report.

* 1. **Report Contents**

This report is intended to present a description of the work tasks performed, as well as the results of the tasks that culminate in recommended wet weather control alternatives. This report presents the [MUNICIPALITY-SPECIFIC] information regarding the development, evaluation, and selection of recommended alternative for wet weather control. This Feasibility Study Report was prepared according to guidelines provided in the 3RWW FSWG Documents, that were developed for such purpose, in cooperation with the participating municipalities.

This report is divided into eleven sections. Details on the information contained in each section are described below:

* Section 1.0 presents the objectives of this Feasibility Study.
* Section 2.0 provides a discussion of the regulatory background and requirements under which this Feasibility Study was prepared, the role that the 3RWW FSWG played in the development of this study, and an overview of municipal coordination.
* Section 3.0 provides a description of the ALCOSAN planning basins, the existing municipal systems that are the subject of this study, and the existing overflows that occur in those systems.
* Section 4.0 describes the 2008 Flow Monitoring Data that was collected for the system, provides a summary of sewer system investigations that were conducted, and discusses any defects that were identified and how they were addressed.
* Section 5.0 explains the development of the hydraulic analysis tools that were used and the model conditions that were developed and evaluated as a basis for alternative development.
* Section 6.0 presents the water quality issues that are the reason behind the need for controlling sewer overflows. Design storm development and the levels of control that will be evaluated are discussed.
* Section 7.0 goes through the alternative development process for alternatives that would be implemented entirely within the municipality including the technology screening and site screening processes, alternative formation, alternative evaluation criteria, cost estimating, green infrastructure, and alternative selection.
* Section 8.0 is similar to Section 8.0 except that it describes alternatives that were developed that would have to be implemented in and by more than one municipality in order to be effective for the control of overflows at the downstream ALCOSAN connection point.
* Section 9.0 provides a discussion of how costs will be allocated for the implementation of the recommended alternative including details on financial responsibility agreements, affordability analyses, and funding alternatives.
* Section 10.0 explains how the recommended alternative meshes with the internal municipal projects that are implemented separately from the recommended alternative, and how it will mesh with the overall regional ALCOSAN Recommended Alternative.
* Section 11.0 includes details about how the recommended alternative will be implemented including schedule, cost sharing agreements, and O&M agreements.

**DEP TEMPLATE REQUIREMENTS**

***Feasibility Study Objectives***

*Develop and present a Feasibility Study with an alternatives analysis evaluating Municipal options to construct sewage facilities necessary to retain, store, convey and treat sewage flows that either:*

* 1. *ALCOSAN cannot accommodate; or*
  2. *That ALCOSAN could accommodate but which the municipality(ies) decides to address in a separate manner.* ***SECTION 1.0***

*As an ALCOSAN Customer Municipality (Municipality) participate and cooperate with ALCOSAN and other Customer Municipalities (municipality) in the development of a Municipal Feasibility Study and ALCOSAN Wet Weather Plan (WWP).*

*Cooperate and develop a Feasibility Study in coordination with other municipalities within each ALCOSAN Point of Connection (POC) tributary sewershed (POC-shed) to which the Municipality contributes flow.* ***SECTION 1.0***

*On or before July 22, 2013, describe and provide details on a flow management proposal contained within the Municipality’s Feasibility Study which evaluates a range of practicable alternatives to:*

1. *Meet Clean Water Act and Clean Streams Law requirements.*
2. *Eliminate SSOs.*
3. *Fulfill PA and EPA CSO Policy obligations.* ***SECTION 1.1***

*Outline both short-term and long-term flow management proposals that will meet the Municipality’s flow management objectives through September 30, 2046.*

*As appropriate, incorporate applicable 537 Facilities Planning criteria into the Feasibility Study.* ***SECTION 1.0***

1. **BACKGROUND**

As discussed in Section 1, this Feasibility Study is the culmination of numerous studies and activities and will fulfill the requirements of the [MUNICIPALITY NAME HERE] [CHOOSE ACO OR COA AS APPLICABLE]. Details of the regulatory requirements and activities performed leading to this Feasibility Study are presented in the following sections.

* 1. **Regulatory Requirements**

The regulatory requirements to be met are outlined in the municipal ACO/COA as well as in ALCOSAN’s CD. The applicable sections of these documents are presented below.

* + 1. **ACO/COA Requirements for Municipalities**

The ACO and COA include a section entitled “Feasibility Study in Conjunction with an ALCOSAN Enforcement Order”, which has the following requirement:

COA /ACO Definition (Section 15 of ACO)

1. *Establishing with ALCOSAN the quantity and rate of sewage flow from the municipality that ALCOSAN will be able to retain, store, convey and treat upon implementation of a Wet Weather Plan and/or LTCP* [Long-Term Control Plan]*; and*
2. *Developing a feasibility study with an alternatives analysis evaluating the Municipality’s options to construct sewage facilities necessary to retain, store, convey and treat sewage flows from the Municipality including, but not limited to, any sewage flows that: (A) ALCOSAN cannot accommodate or (B) ALCOSAN could accommodate, but which the Municipality decides to address in a separate manner (“Feasibility Study”).*
3. *The Municipality shall submit to ACHD the Feasibility Study within six (6) months after ALCOSAN submits a Wet Weather Plan and/or LTCP to EPA and/or DEP as required by the Enforcement Order. The Feasibility Study shall evaluate a range of alternatives, including but not limited to, alternatives to eliminate SSOs, and shall estimate the cost and time necessary to implement or construct each alternative.*

The section in the ACO on operations and maintenance also includes language that requires separate sewer systems to plan for adequate system capacities in order to eliminate SSOs. This requirement is reiterated below.

Operation and Maintenance Program (Section 17 of ACO)

*(iii) Take all feasible steps to provide required capacity(ies) to eliminate SSOs in its Sanitary Sewer System and to plan for additional capacity, or other means to eliminate such SSOs.*

* + 1. **Consent Decree Requirements as it Relates to Design Flows for Municipalities**

ALCOSAN’s Consent Decree requires the following:

1. ***Compliance Requirements:***
2. *Within the time frames established as part of the Wet Weather Plan process described in this Consent Decree, ALCOSAN shall:…*
3. *construct and operate conveyance, storage, and treatment facilities for flows from the Regional Collection System in accordance with Section VI, Subsections B (Planning, Design, and Construction Requirements) and C (Operational Requirements).*
4. ***Planning, Design, and Construction Requirements***
5. *Sanitary Sewer System Flow Within the time frames established as part of the Wet Weather Plan process described below, but in no event later than September 30, 2026, ALCOSAN shall design and construct facilities for the Conveyance and Treatment System sufficient to:…….*
6. *eliminate all Sanitary Sewer Overflows from the Conveyance and Treatment System; and*
7. *capture and provide Treatment, for at least twenty years after completion of construction of the remedial controls, and implementation of the remedial activities, required under the Wet Weather Plan approved by the Plaintiffs, for a flow volume equivalent to all of the Sanitary Sewer System flow that is generated in the Regional Collection System. Notwithstanding the foregoing, ALCOSAN need not design and construct facilities to capture and provide Treatment for a given amount of Sanitary Sewer System flow from a Customer Municipality within the Regional Collection System if:* 
   1. *the Customer Municipality has constructed or is legally committed under an Enforceable Document to construct facilities to capture and provide Treatment for that amount of Sanitary Sewer System flow; or*
   2. *insufficient capacity exists to convey a given amount of flow from the Customer Municipality to the Conveyance and Treatment System, the Customer Municipality certifies that it does not intend to create and/or cannot create capacity sufficient to convey that given amount of flow to the Conveyance and Treatment System, and PADEP and EPA have determined that the Customer Municipality can comply with the Clean Water Act through means other than conveying this amount of flow to the Conveyance and Treatment System; and*
   3. *ALCOSAN submits a proposal to the Plaintiffs to exclude such municipal flow on the grounds set forth above in Subparagraphs 17(b)(i) or 17(b)(ii), with sufficient detail for review and approval by EPA and PADEP, and for review and comment by ACHD, in accordance with Section VIII (Review and Approval of Submittals); and*
   4. *EPA and PADEP approve of ALCOSAN’s proposal to exclude the municipal flow from its planning, design, and construction of such facilities.*
8. *Combined Sewer System Flow Within the time frames established as part of the Wet Weather Plan process described below, but in no event later than September 30, 2026, ALCOSAN shall design and construct facilities for the Conveyance and Treatment System sufficient to capture and treat flows from the Combined Sewer System for at least twenty years after completion of construction of the remedial controls, and implementation of the remedial activities, required under the Wet Weather Plan approved by the Plaintiffs, as follows:*

*a. Demonstration Approach – If ALCOSAN submits the Wet Weather Plan utilizing the Demonstration Approach pursuant to Section VI, Subsections H (Wet Weather Plan – General Requirements) and J (Wet Weather Plan – Demonstration Approach), and EPA’s Combined Sewer Overflow Policy, then: ALCOSAN shall design and construct facilities for the Conveyance and Treatment System sufficient to capture and provide Treatment to the volumetric equivalent of all Peak Dry Weather Flow generated in the Regional Collection System; and, for the volumetric equivalent of all Wet Weather Flow generated in the Combined Sewer System portion of the Regional Collection System, ALCOSAN shall design and construct facilities that will meet the requirements of the Clean Water Act, consistent with EPA’s Combined Sewer Overflow Policy. Notwithstanding the foregoing, ALCOSAN need not design and construct facilities to capture and provide such treatment to a given amount of Combined Sewer System flow from a Customer Municipality within the Regional Collection System if:*

1. *the Customer Municipality has constructed or is legally committed under an Enforceable Document to construct facilities to achieve such capture and treatment; or*
2. *insufficient capacity exists to convey a given amount of flow from the Customer Municipality to the Conveyance and Treatment System, the Customer Municipality certifies that it does not intend to create and/or cannot create capacity sufficient to convey that given amount of flow to the Conveyance and Treatment System, and PADEP and EPA have determined that the Customer Municipality can comply with the Clean Water Act through means other than conveying this amount of flow to the Conveyance and Treatment System; and*
3. *ALCOSAN submits a proposal to the Plaintiffs to exclude such municipal flow on the grounds set forth above in Subparagraphs 18(a)(i) or 18(a)(ii), with sufficient detail for review and approval by EPA and PADEP, and for review and comment by ACHD, in accordance with Section VIII (Review and Approval of Submittals); and*
4. *EPA and PADEP approve of ALCOSAN’s proposal to exclude the municipal flow from its planning, design, and construction of such facilities.*
   * 1. ***Planning, Design, and Construction Requirements***

*75. Customer Municipality Input on Managing Sewer System Flow. As part of the evaluation of remedial controls and remedial activities that ALCOSAN shall undertake in developing the Wet Weather Plan in accordance with Appendix S (Wet Weather Plan Requirements for Demonstration Approach) or Appendix V (Wet Weather Plan Requirements for Demonstration Approach), ALCOSAN shall solicit input from each Customer Municipality on the following:*

*a. the forecasts of total flow (in gallons per day and, if available, in gallons-per-day-per-inch-mile of sewer line), that each Point of Connection will contribute to the Conveyance and Treatment System upon implementation of the Wet Weather Plan, and the total service population or each Point of Connection;*

*b. a characterization of the flows from both the contributing Combined Sewer System and/or the Sanitary Sewer System at each Point of Connection, a description of how each such characterization was prepared, and a description of how such flows will be managed and/or maintained at each Point of Connection; and*

*c. a program for managing contributions from the customer Municipality so that such contributions to the Conveyance and Treatment System do not result in exceedances of system capacity or do not preclude compliance with the requirements of the clean Water Act, consistent with EPA’s Combined Sewer Overflow Policy.*

* 1. **Role of the FSWG**

The role of the FSWG was to facilitate coordination between the municipalities and the regulatory agencies and to provide guidance to the municipalities through the course of achieving compliance with regulatory requirements. The FSWG coordinated at FSWG meetings with PADEP specifically regarding the Feasibility Studies. The PADEP provided input on what they want to be addressed by each municipality in the feasibility studies. These points are as follows:

* Describe the combined sewer system (CSS) hydraulic characterization efforts, hydraulic characterization parameters, tools and other evaluation and estimation tools used by the Municipality to develop its Feasibility Study.
* Identify and summarize all additional flow monitoring efforts conducted (and other related flow information utilized by a Municipality) which is in addition to the ALCOSAN sponsored flow monitoring program.
* For each ALCOSAN POC-shed describe and comment on the inter-municipal and ALCOSAN cooperation and coordination efforts for which the Municipality has actively participated to develop its Feasibility Study.
* For each POC-shed briefly outline the flow management proposals developed with all municipalities and ALCOSAN. Should another municipality fail to propose Feasibility Study improvements the Municipality deems necessary to fulfill the Feasibility Study objectives, then the Municipality should outline those for ACHD and/or Department consideration.

The following sections describe the FSWG activities in more detail.

* + 1. **Objectives of the FSWG**

The 3RWW FSWG evolved from the 3RWW FMWG to continue facilitation and coordination efforts with the 83 municipalities to develop this feasibility study. The group’s objectives were as follows:

* To facilitate the municipal obligations to achieve compliance with the ACO/COA request for municipal Feasibility Studies.
* To establish a coordinated schedule.
* To facilitate identification of cost-effective and sustainable solutions.
* To facilitate technical, financial and institutional solutions.
* To develop standardized processes and reporting.
* To develop objectives and identify deliverables and due dates for Feasibility Study elements.
* To establish a reasonable schedule for the municipal Feasibility Studies in conjunction with ALCOSAN and the Basin Planners.
* To serve as a venue/forum for municipal engineers, ALCOSAN, Basin Planners, Agencies, 3RWW, 3RWW/Program Management (3RWW/PM) Team, for discussion of items related to Feasibility Studies.
* To foster intra- and inter-basin collaboration.
* To address issues from the Basin Planners.
* To facilitate utilization of the ALCOSAN-provided tools such as the hydraulic models and costing tool by the municipal engineer.
* To develop information to engage municipal/authority boards recording the Feasibility Study process.
* To develop ways to look at Feasibility Studies on a sewershed basis.
* To involve municipal managers in the Feasibility Study process.
* To provide a forum for sharing tools and techniques necessary to complete the Feasibility Studies.
* To achieve compliance with the ACO/COA.
  + 1. **Task List Developed by the FSWG**

The 3RWW FSWG developed a detailed outline of tasks that will need to be completed by the municipalities in order to meet regulatory requirements. They are listed below:

**Task 1 – System Inventory/System Investigation**

Most of this work should already be completed by the municipality. Any data gaps identified in the later phases due to incomplete inventory and/or investigation will necessitate additional work by the municipality. (The ACO/COA require completion: physical survey by 5/31/07, closed-circuit television (CCTV) by 5/31/10, defect repairs by 11/30/10)

Outcomes/Deliverables:

* + Geographic information systems (GIS) Map of Sewer System.
  + Identify defects related to pipe structure, capacity restriction, and inflow.

**Task 2 – Flow Monitoring Program**

Subtasks:

* Regional Collection System Flow Monitoring Program administered by ALCOSAN and coordinated with Municipalities and Authorities (municipalities) by the Flow Monitoring Implementation Team and Flow Monitoring Working Group.
* QA/QC review by ALCOSAN and 3RWW program teams.
* Initial data review for data quality and consistency by the municipal engineers, begin investigation/resolution of any observed discrepancies or unexpected results.
* Acceptance of flow monitoring data by municipalities.

Outcomes/Deliverables:

* + QA/QC’d flow monitoring data (glass box data set).
  + Flow monitoring data summary and report submittal to ACHD and PADEP.

**Task 3 – System Characterization**

Required Inputs:

* Deconstructed hydrographs from 3RWW and ALCOSAN
* ALCOSAN Basin Planner model of portion of sewershed (if desired)

Subtasks:

* Confirm delineation of POC and flow-monitor sewersheds.
* Deconstruct or obtain deconstructed storm hydrographs.
* Evaluate flow data consistency to identify abnormalities. Identify any additional field work needed to ensure understanding of system connectivity.
* Identify any stream inflows.
* Develop hydrologic and hydraulic (H&H) Tools or H&H Model – municipality to choose best methodology from the following four basic approaches –
  + develop a regression analysis tool,
  + develop a unit hydrograph from flow data,
  + develop a synthetic unit hydrograph (RTK or other) using available SHAPE Program from ALCOSAN/CDM, and/or
  + develop full hydraulic model or extend the ALCOSAN model to include upstream areas not covered by the Basin Planner’s model.
* Calibrate/Verify H&H tools or models using info from the flow monitoring program for dry and wet weather flows.
* Dry weather evaluation.
* Wet weather evaluation.
* For areas with insufficient flow monitoring data either collect additional data or use data from similar monitored areas to estimate flows.
* Identify and develop methodology for estimating dry and wet weather flows for unmonitored areas.
* Coordinate the chosen approach with ALCOSAN’s Basin Planner.

Outcomes/Deliverables:

* + Calibrated Analysis Tool or H&H Model.
  + Capture values for each flow monitor.
  + Wet weather/runoff derived inflow and infiltration (RDII) volumes and peak rates for monitored storms.
  + Volume, frequency and duration for each overflow during monitored events.
  + Dry weather flows (24-hour volume and peak flow).
  + Estimate dry and wet weather flows for unmonitored areas using similitude.

**Task 4 – System Capacity Analysis**

Required Inputs:

* Regulatory design criteria and compliance requirements for both separate sanitary systems (SSS) and CSS from PADEP and ACHD
* Identify existing inter-municipal and ALCOSAN sewer agreements for upstream and downstream sewage conveyance and sewer ownership.
* Preliminary flows (FSWG definition) from upstream and downstream municipalities (iterative process as Task 4 is refined by all municipalities)

Subtasks:

* Establish baseline conditions that include near-term improvements and application of nine-minimum controls (CSS) and Operation and Maintenance (O&M) plan (for SSS).
* Identify population growth and commercial development and corresponding future flows for the chosen design year (2046) and coordinate with Basin Planner.
* Wet weather evaluation for selected rainfall events using regulatory criteria. Perform evaluation of the sewer system to determine existing capacity and compare with future conditions. For combined sewer systems show levels of surcharge for each design storm. Also, for combined sewer systems develop a typical year’s overflow statistics for each outfall.
* Share preliminary flows (FSWG definition) with upstream and downstream municipalities.
* Identify capacity deficiencies.
* Consider capacity (deficiencies) in regard to existing inter-municipal sewer agreements.
* Identify the need for inter-municipal sewer agreements with upstream and downstream municipalities and refer to the municipal manager and board for the commencement of discussions.
* Identify required capacities. For combined sewer systems, municipalities can determine “level of service” to provide to its customers.
* Estimate overflow volumes and peak rates for various flow conditions (typical year/design storms as discussed in FSWG Document 003).
* Plot wet weather control alternatives for each design storm or level of service versus present worth costs to develop a cost benefit analysis in order to identify the cost effective “knee of the curve” for the minimum design storm.”
* Coordinate design storm selection (SSS) (knee-of-the-curve results) with other municipalities and ALCOSAN.
* Coordinate with ALCOSAN and submit consolidated design storm for review, comment and approval.

Outcomes/Deliverables:

* + Map of sewer surcharge levels (for CSS).
  + Map of areas of deficient sewer capacity (for SSS).
  + Annual overflow statistics for combined sewer overflow (CSO) outfalls.
  + Quantification of peak rates and volumes lost from the system (for SSS).
  + Identification and understanding of current inter-municipal ownership of sewers and service agreements.
  + Information for completing alternative development and evaluation.
  + Preliminary flows (current and future) if all flow is conveyed to ALCOSAN without regard to actual intra or inter-municipal pipe conveyance capacity or deficiencies for the 1, 2, 5 & 10 year design storm (SSS) and the typical year (for CSS) – FSWG Definition (provide to ALCOSAN and upstream/downstream municipalities).
  + Submission of Design Storm recommendations to Agencies (PADEP and ACHD) for review and acceptance of design storm control level.

**Task 5 – System Infiltration/Inflow Investigation (separate sanitary sewer systems)**

This Task to proceed in parallel with Tasks 3 and 4.

**Task 5A – Initial Infiltration/Inflow Screening**

Required Inputs:

* Flow monitoring data.
* System characteristics (area, footage by diameter, population).

Subtasks:

* Define criteria for screening process.
  + Peaking factor, gpdim, gpad, gpcd, “C”.
  + SSOs and/or basement flooding issues.
  + Capacity deficiencies.
  + Capacity allocation issues.
* Apply screening criteria to metershed flow data.
* Determine need for flow isolation studies.
* Prepare approach and methodology.
* Outline schedule to perform the study.

Outcomes/Deliverables:

* + Quantification and distribution of Infiltration/Inflow on a metershed basis.
  + Decision whether to perform a flow isolation study.
  + Plan for I/I flow isolation study (if needed).

**Task 5B – Detailed Infiltration/Inflow Investigation**

Required Inputs:

* Results from Task 5A screening.

Subtasks:

* Perform nighttime flow isolation field study.
* Analysis of flow isolation field study results.

Outcomes/Deliverables:

* + Quantification and distribution of Infiltration/Inflow on a sub-unit basis.

**Task 6 – Alternative Evaluation (1) – Internal Municipal Alternatives**

The identification and development of control alternatives for Municipal separate and combined systems, including internal municipal CSOs and SSOs, was coordinated with ALCOSAN, other municipalities in the sewershed, and the FSWG. At this point each municipality could look at what is required to resolve the deficiencies internal to the municipality first (Task 6) and then look regionally (Task 7).

Required Inputs:

* + Alternative technology list with preliminary design and performance criteria.
  + ALCOSAN’s cost tool (Part of ALCOSAN Technical Memo 6 [TM-6]).
  + Task 4 Outcomes and Deliverables.
  + Quantification and distribution of Infiltration/Inflow on a sub-unit basis.
  + Preliminary flows (current and future) if all flow is conveyed to ALCOSAN without regard to actual intra or inter-municipal pipe conveyance capacity or deficiencies (FSWG Definition).
  + ALCOSAN Transport and Treat cost.
  + ALCOSAN’s proposed billing basis (surcharge vs. water consumption).
  + Water quality objectives (internal municipal CSOs).
  + Agency (PADEP and ACHD) comments/approval of design storm control levels

Subtasks:

* FSWG review of all technologies
  + Listing of pros and cons.
  + Develop short list of technologies for the municipalities to consider.
* Municipal screening of technology(ies)
  + Use surviving technologies for further alternative formation.
* Develop evaluation criteria – Cost & Non-cost Factors.
  + Define all the non-cost factors (including siting/zoning, expandability of sites, operability, work force training, community acceptability, etc.).
  + Include municipality assigned weight for each factor.
  + Obtain buy-in from stakeholders and municipality.
* Use surviving technologies (including green solutions) to formulate feasible alternatives for municipal systems for each of the design storms and CSS surcharge levels or SSS deficient sewers.
  + Transport (parallel relief or other).
  + Storage (basin or tunnel).
  + Flow reduction (I/I) removal.
  + Satellite treatment (combined systems).
* Develop Present Worth Costs
  + Capital costs and O&M costs.
  + Compute present worth value (use common interest rates and term). (FSWG discussion issue: Consider design life/ salvage value?).
  + The FSWG will review ALCOSAN’s cost tool (Part of TM-6) to ensure the tool is applicable to municipalities. Supplement with additional cost tools required to develop internal municipal alternatives.
* Apply evaluation criteria to alternatives and rank all alternatives.
* Select “highest ranked” wet weather control alternative(s) for the internal municipal alternative.
* Present selected alternatives to local governing body at a public meeting for review, comment and consensus.

Outcomes/Deliverables:

* Internal municipal sewershed based evaluation (size, layout and cost) and ranking of alternative solutions including:
  + Convey all flow to ALCOSAN.
  + Store and convey all flow to ALCOSAN.
  + Flow Reduction.
  + Satellite Treatment (Combined systems only).
* Identification of highest ranked alternative(s) for municipality’s internal option.
* If the municipality is the only contributor to a point-of-connection, this analysis results in interim design flows from the municipality to ALCOSAN with control alternatives for the ALCOSAN Basin Planner’s use.

**Task 7 – Alternative Evaluation (2) – Multi-Municipal Alternatives (integrate regional alternatives)**

After completing, or concurrent with Task 6, the municipality was in a position to work with other neighboring municipalities to identify and analyze cooperative ways to combine their respective wet weather solutions. This resulted in a series of multi-municipal alternatives. The identification and development of these alternatives was facilitated by the FSWG and the Basin Planner in order to ensure that the procedure for alternative development was consistent with both local and regional approaches. Required Inputs:

* Tasks 4 and 5 Outcomes and Deliverables.
* Alternative technology list with preliminary design and performance criteria.
* ALCOSAN’s cost tool (Part of Technical Memorandum TM-6).
* Quantification and distribution of Infiltration/Inflow on a sub-unit basis.
* Preliminary flows (current and future) if all flow is conveyed to ALCOSAN without regard to actual intra or inter-municipal pipe conveyance capacity or deficiencies (FSWG Definition).
* ALCOSAN Transport and Treat cost.
* ALCOSAN’s proposed billing basis (surcharge vs. water consumption).
* Water quality objectives (internal municipal CSOs).
* Highest ranked alternative(s) for municipality’s internal option, when available.

Subtasks:

* Develop process and schedule for multi-municipal evaluations.
* FSWG review of all technologies.
  + Listing of pros and cons.
  + Develop short list of technologies for each group of municipalities to consider.
* Screen technology(ies).
  + Use surviving technologies for further alternative formation.
* Continue discussions on and development of multi-municipal sewer agreements with municipal manager and board.
* Develop evaluation criteria – Cost & Non-cost factors.
  + Define all the non-cost factors (including siting/zoning, operability, work force training, community acceptability, etc.).
  + Include municipality assigned weight for each factor.
  + Obtain buy-in from stakeholders and municipalities.
* Use surviving technologies (including green solutions) to formulate feasible alternatives for multi-municipal systems.
  + Transport (parallel relief or other).
  + Storage (basin or tunnel).
  + Flow reduction (I/I) removal.
  + Satellite treatment (combined systems).
* Develop Present Worth Costs –
* Capital costs and O&M costs.
  + Compute present worth value (use common interest rates and term). (FSWG discussion issue: Consider design life/ salvage value?).
  + The FSWG will review ALCOSAN’s cost tool (Part of ALCOSAN TM-6) to ensure the tool is applicable to multi-municipal alternatives. Supplement with additional cost tools required to develop multi-municipal alternatives.
* Apply evaluation criteria to alternatives and rank all alternatives.
* Select “highest ranked” wet weather control alternative(s) for the multi-municipal alternative.
* Work with municipal managers to refine selected alternative scope and required multi-municipal sewer agreement outlining cost sharing, ownership, O&M, future capacity requirements for proposed solutions.
* Present alternatives to local governing body at a public meeting for review, comment and consensus.

Outcomes/Deliverables:

* Identification and understanding of required multi-municipal sewer agreements and ownership of sewers.
* Multi-municipal sewershed based evaluation (size, layout and cost )and ranking of alternative solutions including:
  + Convey all flow to ALCOSAN.
  + Store and convey all flow to ALCOSAN.
  + Flow Reduction.
  + Satellite Treatment (Combined systems only).
* Identify highest ranked alternative for the multi-municipal approach. Will likely include the internal municipal alternatives as a subset.
* Size, layout and cost of highest ranked alternative for municipality’s multi-municipal (regional) option. It is possible to have 2 best alternatives.
* Interim design flows (for municipalities choosing a multi-municipal approach) to ALCOSAN Basin Planners.
* Draft multi-municipal sewer agreement outlining cost sharing, ownership, O&M, future capacity requirements for proposed solutions.

**Task 8 – Compare/Review Internal/Multi-municipal Alternatives with Regional /ALCOSAN System Alternatives**

Following the identification of the highest ranked internal municipal alternatives as well as the highest ranked multi-municipal alternatives (Tasks 6 and 7), ALCOSAN’s Basin Planner identified a highest ranked “Planning Basin-wide or ALCOSAN System-wide” alternative to implement at/near the Point-of-Connection. Under Task 8, the respective engineering teams further refined and developed alternative approaches including achieving consensus of effectiveness of each alternative in wet weather flow reduction, identifying and quantifying cost elements that affect selection, and preparing a life cycle based present worth cost analysis of surviving alternatives. Alternatives were then be ranked.

Required Inputs:

* ALCOSAN’s viable regional alternatives identified by the Basin Planners including preliminary site plans, and design basis/limitations.
* Outcomes/deliverables from Tasks 6 & 7.
* ALCOSAN’s updated Transport and Treatment costs and billing basis for each remaining viable alternative under consideration.
* Local governing body acceptance of internal and multi-municipal approaches**.**

Subtasks:

* Review updates to ALCOSAN’s transport and treatment costs and billing basis for impact on highest ranked alternatives. Update internal and multi municipal alternatives as needed.
* Meet with Basin Planner and understand Planning Basin and System alternatives for the municipal sewershed.
* Discuss with the Basin Planner how the internal and multi-municipal alternatives affect the Planning Basin and System alternatives.
* Identify economies that can be achieved through modification of the internal and multi-municipal alternatives or the Planning Basin and System alternatives.
* Identify economies that can be achieved through combining of the internal and multi-municipal alternatives and the Planning Basin and System alternatives into joint facilities.
* Present alternatives to local governing body at a public meeting for review, comment and consensus.

Outcomes/Deliverables:

* + Coordinated evaluation of alternatives with ALCOSAN.
  + Improved cost effectiveness of internal and multi-municipal alternatives and Planning Basin and System alternatives.
  + Identify final highest ranked alternative for the municipality (internal/multi-municipal/regional).
  + Size, layout and cost of the highest ranked alternative for the municipality(ies).
  + Final design flows to ALCOSAN based on the final highest ranked alternative from the municipal feasibility study.

**Task 9 – Financial and Institutional Analysis**

**Task 9A – Financial Analysis**

The engineer kept the municipal manager informed as the ongoing analyses and present worth costs were developed for the highest ranked alternatives in Tasks 6, 7 and 8. On an ongoing basis, each municipality evaluated their ability to pay for or finance their portion of the required system improvements, if any. If the costs were beyond the municipality’s financial abilities, then alternative approaches, such as an institutional change, could be considered.

Required Inputs:

* Project/financing life-cycle term
* Capital Cost
* O & M Cost
* Wet Weather flow surcharge rate structure
* Consecutive Service costs (conveyance, transport and treatment)

Subtasks:

* Determine ability of Municipality to incur additional debt (LGUDA)
* Complete Financial Capacity and affordability analysis
* Identify Revenue Sources and borrowing base
* Identify funding Alternatives
* Calculate User Fees under identified funding alternatives.

Outcomes/Deliverables:

* + Clear understanding of implementation costs and how costs will be addressed.
  + Understanding of financial requirements.
  + User Fee Schedule

**Task 9B – Institutional Analysis**

Each municipality considered the benefits and reasonableness of their current institutional framework to implement the required obligations of the ACO/COA and the municipal feasibility study. Municipalities could then decide if they can operate, maintain, and provide service for the best interests of their residents and the region.

Required Inputs:

* Existing Administration and management structure
* Existing Ordinances and regulations
* O&M Plan
* Existing Inter-Municipal/Agency Agreements
* Institutional Alternatives

Subtasks:

* Perform asset inventory and valuation
* Identify new or alternative institutional framework necessary to implement the Plan. Alternatives may include:
  + No Change
  + Contracted O & M
  + Form an Authority – There are financial and political advantages to formation of an authority where the sewer system is presently owned and operated by the municipality.
  + Form a Joint Authority – There may be additional efficiencies to be gained by formation of a joint authority where the sewer system is presently owned and operated by a municipality or a small authority.
  + Convey ownership of the system to an Authority – Not every municipality needs to be in the sewer business. The professional operation of the sewer system can provide efficiency and improved operations.
* Identify and prepare, as necessary, new or updated Administrative and O&M Plans.
* Prepare new or updated inter-municipal sewer agreements, as necessary.
* Prepare new or updated municipal ordinances, as necessary.
* Select preferred institutional framework.

Outcomes/Deliverables:

* + Municipal selection of the final alternatives, schedules, and costs.
  + Municipal consideration of sewer consolidation.
  + Understanding of institutional options, advantages and disadvantages.
  + Defined best institutional framework for the future.
  + Draft Ordinances and Agreements

**Task 10 – Feasibility Study Report(s)**

Required Inputs:

* Outcomes and deliverables from all prior tasks.

Subtasks:

This Feasibility Study Report is the final product of Task 10. Each municipality with an ACO or COA must submit this study to the governing agency. In addition, if the municipality is part of an ALCOSAN-defined “complex” sewershed, ALCOSAN has requested that the municipality also contribute information to the POC Feasibility Study Report(s) to which it is tributary. The FSWG has developed a uniform format for both types of feasibility studies that the municipality may use as a template.

Outcomes/Deliverables:

* + Draft Feasibility Study Report
  + Final Feasibility Study Report
  1. **Municipal Coordination Overview**

An overall plan for municipal coordination is presented in 3RWW FSWG Document 002A.

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

* **FOR EACH ALCOSAN POC-SHED DESCRIBE AND COMMENT ON THE INTER-MUNICIPAL AND ALCOSAN COOPERATION AND COORDINATION EFFORTS FOR WHICH THE MUNICIPALITY HAS ACTIVIELY PARTICIPATED TO DEVELOP ITS FEASIBILITY STUDY.**
* MUNICIPALITY TO DISCUSS/SUMMARIZE MEETINGS ATTENDED WITH ALCOSAN (E.G., FSWG MEETINGS)
* MUNICIPALITY TO DISCUSS/SUMMARIZE COORDINATION MEETINGS HELD WITH OTHER MUNICIPALITIES AND ANY OTHER COORDINATION ACTIVITIES
  1. **EXISTING SYSTEM DESCRIPTION**
  2. **Municipal Systems**

A description of the existing municipal system is provided below.

* + 1. **Existing Sewershed Description for [MUNICIPALITY NAME]**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE THE FOLLOWING MUNICIPALITY-SPECIFIC INFORMATION ON A POC-BY-POC BASIS WITH NARRATIVE INTRODUCING AND CITING EACH MAP AND TABLE:

* **INSERT MAP(S) DELINEATING THE TRIBUTARY SEWERS SHOWING AT A MINIMUM THE FOLLOWING INFORMATION:** 
  + **MUNICIPAL BOUNDARIES**
  + **TRIBUTARY SEWERS (AS EITHER COMBINED OR SEPARATE)**
  + **STORMWATER-ONLY COLLECTION AND CONVEYANCE SYSTEMS**
  + **LOCATION OF ALCOSAN POCs**
* **POPULATE TABLE 3-X IN THE FOLLOWING TEMPLATE WITH MUNICIPALITY-SPECIFIC DATA**

**TABLE 3-X: SEWERSHED CHARACTERISTICS FOR MUNICIPALITY BY POC**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **POC** | **Tributary Area (Acres)** | **Population** | **Equivalent**  **Dwelling Units** | **Combined** | | | **Separate** | | | **Storm** | | |
| **Inch-Miles** | **Linear**  **Feet** | **Inch-Miles**  **per Acre** | **Inch-Miles** | **Linear**  **Feet** | **Inch-Miles**  **per Acre** | **Inch-Miles** | **Linear**  **Feet** | **Inch-Miles**  **per Acre** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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* + 1. **Multi-Municipal System(s) and Complex Sewersheds**

There are some ALCOSAN POCs that receive flow from more than one municipality. These are considered to be “multi-municipal” systems because more than one municipality contributes flow, and a solution for managing flow would have to consider each of the contributing municipalities. There are over 100 such multi-municipal sewersheds contributing to ALCOSAN POCs. Some of these multi-municipal systems are more complex than others and, as such, were defined by ALCOSAN as “complex sewersheds”. There are 48 complex sewersheds in the ALCOSAN system. ALCOSAN sent letters to each municipality in the complex sewersheds, dated November 7, 2011, requesting that one comprehensive feasibility study, designated by POC, be submitted for each complex sewershed. ALCOSAN also requested that each complex sewershed feasibility study be submitted with a “Resolution” from the governing bodies of the participating municipalities. The Resolution should acknowledge the joint effort of the participating municipalities and authorize the release of the feasibility study to ALCOSAN for planning and review purposes. [STATE WHETHER THE MUNICIPALITY IS PART OF A COMPLEX SEWERSHED AND/OR A MULTI-MUNICIPAL SYSTEM AND, IF SO, INTRODUCE FIGURE 3-X] A map of the [COMPLEX AND/OR MULTI-MUNICIAL] sewersheds that [MUNICIPALITY] is part of is presented in Figure 3-X. Information regarding the development and evaluation of the recommended alternative for the municipal area that is tributary to the complex/multi-municipal sewershed(s) can be found in the [POC FEASIBILITY STUDY REPORT TITLE] that is attached to this document in Appendix X.

* + 1. **Current Flow Management Agreements**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE THE FOLLOWING INFORMATION:

* **DISCUSS THE CURRENT FLOW MANAGEMENT AND TREATMENT AGREEMENT THAT THE MUNICIPALITY HAS WITH ALCOSAN.**

[INSERT FIGURE 3-X FOR MUNICIPALITY-SPECIFIC COMPLEX SHEDS HERE]

* 1. **Existing Overflows**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE THE FOLLOWING INFORMATION WITH NARRATIVE INTRODUCING AND CITING EACH MAP AND TABLE:

* **INSERT MAP(S) SHOWING AT A MINIMUM THE FOLLOWING INFORMATION:** 
  + **MUNICIPAL BOUNDARIES**
  + **LOCATIONS OF ALL KNOWN CONSTRUCTED MUNICIPAL DISCHARGE LOCATIONS IN THE MUNICIPALITY**
  + **LOCATION OF ALCOSAN POC**
* IF READILY AVAILABLE, INSERT/INCLUDE STRUCTURE SKETCHES OF ALL KNOWN MUNICIPAL CONSTRUCTED DISCHARGE STRUCTURES IN THE MUNICIPALITY AS FIGURES OR AS AN APPENDIX [DEPENDING ON QUANTITY OF FIGURES AND DISCRETION OF THE AUTHOR]
* **POPULATE TABLE 3-1 IN THE FOLLOWING TEMPLATE WITH MUNICIPAL STRUCTURE DATA**
  1. **Direct Stream Inflows**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE A LIST AND/OR MAP OF STREAMS THAT FLOW DIRECTLY INTO MUNICIPAL SEWER SYSTEMS

**TABLE 3-1: KNOWN CONSTRUCTED DISCHARGE LOCATIONS IN THE MUNICIPALITY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Municipal Regulatory ID** | **Location** | **Receiving Waters** | **Owner(s)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**DEP TEMPLATE REQUIREMENTS**

*Specific to each POC-shed, describe the CCS’s tributary area. Include:*

* + 1. *Map(s) delineating the tributary sewers.* ***SECTION 3.1.1***
    2. *Identify the tributary sewers (as either combined or separate).* ***SECTION 3.1.1***
    3. *Population, equivalent dwelling units, inch-miles of sewer pipe, total lineal footage tributary to each POC and inch-miles of sewer pipe/acre.* ***SECTION 3.1.1***
    4. *Identify and locate on a map the existence of stormwater-only collection and conveyance systems.* ***SECTION 3.1.1***
    5. *Identify all known constructed discharge locations within the Municipality’s CCS and those within the CCS of other municipalities tributary to each POC-shed.* ***SECTION 3.2***

1. **SEWER SYSTEM CHARACTERIZATION**

This portion of the report presents the approach utilized to determine existing flows in the sewer system through regional flow monitoring, and outlines the location of the flow monitors. Also discussed is identification of system defects and repairs.

* 1. **2008 Flow Monitoring Data Evaluation**

The 3RWW/PM Team, along with the municipalities, developed guidelines for implementing a system-wide flow monitoring program. The program that was implemented is described below.

**4.1.1 Flow Monitoring Program Background**

On June 1, 2006, a Regional Flow Monitoring Plan (RFMP) was submitted to the PADEP and the ACHD for review and approval. The purpose of the plan was to comply with the Orders, and to document the efforts expended in developing the plan. The RFMP was assembled by 3RWW and the 3RWW/PM Team with direct input from ALCOSAN and the FMWG. The FMWG was composed of municipal engineers, some municipal managers and other interested parties. Concurrently, ALCOSAN was developing a flow monitoring plan to meet the requirements of the draft CD issued to ALCOSAN. In response to Agencies’ comments and provisions of the CD, ALCOSAN developed and delivered a Regional Collection System Flow Monitoring Plan (RCSFMP) that incorporated most of the provisions of the RFMP and provided comprehensive flow monitoring of both the ALCOSAN system and the municipal collection systems. Implementation of the RCSFMP by ALCOSAN fulfilled the flow monitoring required by the municipal Orders.

More details on the Flow Monitoring Program are included in *Summary Report of the Flow Monitoring Conducted Pursuant to the Municipal Administrative Consent Orders and Consent Order Agreements* (3RWW/PM Team, June 30, 2009).

**4.1.2 Additional Flow Monitoring**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE THE FOLLOWING MUNICIPALITY-SPECIFIC INFORMATION ON A POC-BY-POC BASIS [AS NECESSARY IF INFORMATION DIFFERS BETWEEN MUNICIPALITIES]:

* + **IDENTIFY AND SUMMARIZE ALL ADDITIONAL FLOW MONITORING EFFORTS CONDUCTED (AND OTHER RELATED FLOW INFORMATION UTILIZED BY THE MUNICIPALITY) WHICH IS IN ADDITION TO THE ALCOSAN SPONSORED FLOW MONITORING PROGRAM.**

**4.1.3 Flow Monitoring Results**

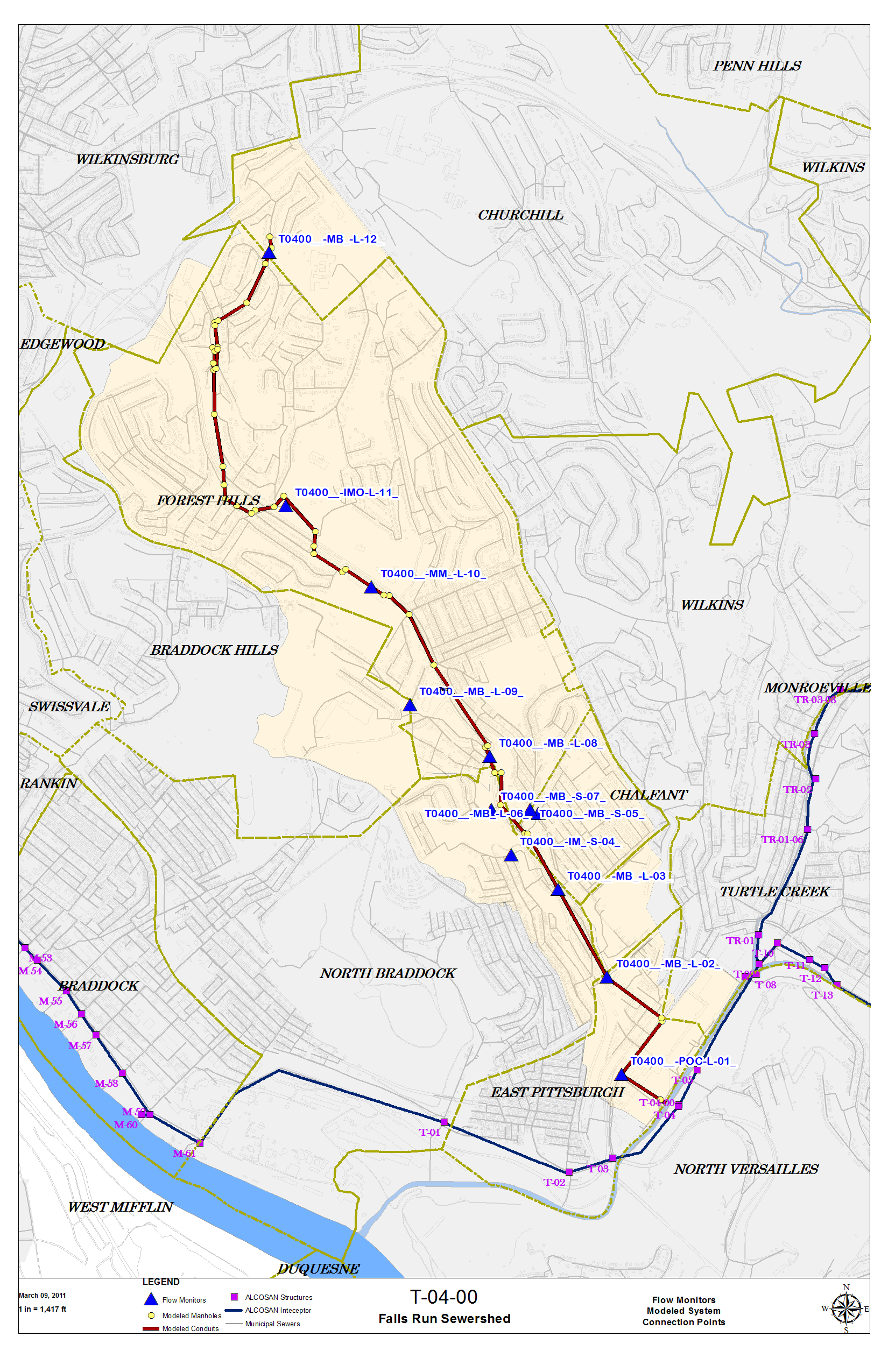
The information for monitors that were located in the municipality and collecting data is summarized in Table 4-1 below. The extent of the model and the flow monitors that were monitored in [MUNICIPALITY NAME] are shown on Figure 4-1. The results of the system-wide flow monitoring program are presented in detail in the *Summary Report of the Flow Monitoring Conducted Pursuant to the Municipal Administrative Consent Orders and Consent Order Agreements* (3RWW/PM Team, June 30, 2009).

[MUNICIPALITY TO PROVIDE FIGURE 4-1 HERE]

[MUNICIPALITIES TO PROVIDE FIGURE 4-1 FOR THE MUNICIPALITY,

LOCATION OF FLOW MONITORS IN THE MUNICIPALITY]

EXAMPLE FIGURE



**Figure 4-1: Model Extent and Flow Monitor Locations**

**TABLE 4-1: SUMMARY OF FLOW METER(S) IN THE MUNICIPALITY BY POC**

**[MUNICIPALITIES TO COMPLETE THIS TABLE]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **POC** | **Meter Name** | **Monitor**  **Type** | **Monitor Duration** | **Comments** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

* 1. **Description of Flow Isolation Studies and Sewer System Evaluation Surveys**

The 3RWW FSWG Document 009 (entitled *Infiltration/Inflow Screening Guideline/Flow Isolation Study Decision Criteria Guidelines*) provided the decision making guidance as to whether a municipality/authority should consider a sanitary sewer system flow isolation study to locate areas of excessive infiltration. If the municipality conducted a flow isolation study, general concepts and techniques typically employed in performing such studies along with guidance in securing professional services towards implementation of a flow isolation study were considered by the Municipality. In addition, the USEPA Construction Grants Program originated and developed the concept of “excessive inflow and infiltration (I/I)”. This program mandated I/I studies and Sewer System Evaluation Surveys (SSES) to evaluate removal of extraneous flow quite literally at the source (i.e. the joint, roof leader, etc.). Over the years, based partially on lack of effectiveness of this approach, (i.e. search/fix to remove I/I), the objective has evolved to “flow reduction” in the form of store/contain. However, the long term cost of simple contain/store/treat can be prohibitive. Additionally, diversion of stream recharge flow to downstream remote sewage treatment facilities is not consistent with the intent of maintaining local stream quantity.

**4.2.1 Flow Isolation Study/SSES Procedures**

The procedures that [MUNICIPALITY NAME] followed in conducting flow isolation studies/SSES are described in the following sections.

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

* MUNICIPALITY TO PROVIDE NARRATIVE DESCRIBING STUDIES AS APPLICABLE.
  1. **Recommendations Resulting from [Municipality Name] Flow Isolation Studies/SSES**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* MAP(S) SHOWING AREAS STUDIED
* RESULTS OF STUDIES (IDENTIFY LOCATION/NATURE OF PROBLEMS FOUND)
* IDENTIFY THE ACLOSAN POC DOWNSTREAM OF THE PROBLEMS
* LIST OF PROPOSED PROJECTS TO ADDRESS PROBLEMS.

**4.4 Summary of Defect Repairs**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* MAP(S) SHOWING LOCATION OF DEFECT REPAIRS COMPLETED
* IDENTIFY THE ACLOSAN POC DOWNSTREAM OF THE PROBLEMS
* **LIST OF DEFECT REPAIRS COMPLETED**

**DEP TEMPLATE REQUIREMENTS**

***Sewer System Characterization***

* 1. *In a narrative description, surcharge level map and tabular format identify CCS surcharging segments under dry and wet weather evaluation conditions. Describe the hydraulic conditions and tools utilized in the evaluation.* ***SECTION 5.4***
  2. *A commentary on the utility and accuracy of the ALCOSAN Existing Conditions Report for each municipal POC-shed.*
  3. *Provide a description and list CCS defects for which repairs are to be completed.*

***SECTION 4.4***

* 1. *The current flow management and treatment agreement the municipality has with ALCOSAN.* ***SECTION 3.1.3***
* *For the Municipality’s combined sewer system evaluate the CCS’s dry and wet weather response using a Typical Year storm event. As of the date the ALCOSAN Wet Weather Plan is developed quantify base sanitary flow, infiltration and inflow effects, peak dry weather flow and peak wet weather flow responses. Estimate the annual volume and maximum rate of flow that can be generated from the municipal CCS during a Typical Year storm event.* 
  1. *Provide estimates of diurnal flow patterns, hydrographs, or other analysis parameters that quantify the I/I, wet and dry weather response of the CCS.* ***SECTION 5.5***
* *For the Municipality’s sanitary-only system evaluate the CCS’s dry and wet weather flow response, As of the date the ALCOSAN Wet Weather Plan is developed quantify base sanitary flow, infiltration effects, peak dry weather flow and peak wet weather flow responses. Estimate the annual volume and maximum rate of flow that can be generated from the municipal CCS during a 2, 5, and 10 year 24 hour return storm events.*
  1. *Provide estimates of diurnal flow patterns, hydrographs, RTK values or other analysis parameters that the Municipality used to quantify the I/I, wet and dry weather response of the CCS.* ***SECTION 5.5***
* *For the entire Municipal CCS and specifically for each ALCOSAN POC, evaluate and present a review of the present Level of Service (LOS) CSS response under both dry and wet weather conditions. As appropriate for the CCS type, utilize either: a Typical Year and/or the 2, 5, and 10 year 24 hour return period design storm events to evaluate the wet weather CCS flow response.* ***SECTION 5.4***
* *Provide a description of adverse flow impacts on the CCS from the wet weather evaluation. Identify and provide specifics on the CCS portions where flow restrictions limit available conveyance capacity. Present this information on a surcharge level map and in a tabular presentation.* ***SECTION 5.4.2***
* *Compare and contrast the Municipal CCS’s flow response and characterization with ALCOSAN’s flow response and characterization. As applicable provide explanations for why the CSS’s flow response characterization differs from that provided by ALCOSAN.* ***SECTION 5.3***
* *Develop and provide CCS flow response characterizations for all sewer shed areas which ALCOSAN did not characterize. On a map and in a table Identify all CSS segments/areas with:*

*Basement flooding, pipe crown surcharging and manhole lid lifting and/or unauthorized discharge locations.* ***SECTION 5.4.1***

1. **SEWER SYSTEM CAPACITY ANALYSIS**

This section of the report discusses the use of the data to determine preliminary flow estimates, and review and accept the calibration of the ALCOSAN H&H model developed by the Basin Planners.

* 1. **Development and Calibration/Verification of H&H Tools**

The approach used by the municipality was developed by the 3RWW PPM Team and vetted by the FSWG. This approach was to use the RTK values developed from the municipal flow data to develop design flows for appropriate design storms such as 1-yr, 2-yr, 5-yr and 10-yr storms. These values were compared to the values derived from the H&H Model. As long the comparisons were within 25%, the municipality would accept the models without further investigations. However, in instances were these values varied by more than 25%, the municipalities would review the Model results with the Basin Planner to try and resolve the discrepancy. The main intent of this approach was to offer a way for the municipalities to actively review and accept the ALCOSAN Model for their sewer system evaluations.

* 1. **Baseline Conditions**

The municipalities are required by The Orders and the ALCOSAN CD to coordinate with ALCOSAN in providing municipal planning information for the development of control alternatives. Information on which the baseline conditions H&H model could be based was developed by municipalities for incorporation into the municipal and ALCOSAN models. The planning horizon date for the models is September 2046.

This section describes the development of a Baseline Condition H&H model for predicting 2046 wastewater flow without implementing the recommended alternative. There are a number of factors that need to be accounted for in the development of a future conditions model. The impacts on expected dry weather and wet weather flow from population shifts, future development, and planned collection system modifications need to be estimated.

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE THE FOLLOWING INFORMATION WITH NARRATIVE INTRODUCING AND CITING TABLE:

* POPULATE TABLE 5-X IN THE FOLLOWING TEMPLATE WITH NEAR-TERM PROJECTS THAT ARE INCLUDED IN THE BASELINE MODEL TO PROVIDE INFORMATION ON DESIGN AND CONSTRUCTION SCHEDULE AND FUNDING STATUS
* POPULATE TABLE 5-X IN THE FOLLOWING TEMPLATE TO PROVIDE EXISTING AND FUTURE POPULATIONS AND SEWERED AREAS BY POC
* **IN THE FOLLOWING SECTIONS, SUMMARIZE AND IDENTIFY ESTIMATION VALUES DERIVED AND USED SUCH AS RTK, GWI, ETC.**

**TABLE 5-X: SUMMARY OF PLANNED PROJECTS INCORPORATED INTO FUTURE MODEL FOR [MUNICIPALITY]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **POC** | **Planned Project** | **Project Status** | **Funding Source** | **Project Completion Date** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**TABLE 5-X: EXISTING AND FUTURE POPULATION AND SEWERED AREAS FOR [MUNICIPALITY] BY POC**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **POC** | **Sewered Area (acres)** | | | **Population** | | |
| **Existing** | **Future** | **Percent Difference** | **Existing** | **Future** | **Percent Difference** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

* + 1. **Dry Weather Flows (Existing and Future)**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO PROVIDE THE FOLLOWING INFORMATION AND NUMBER TABLES AS NEEDED:

* PROVIDE A NARRATIVE INTRODUCING EXISTING AND FUTURE DRY WEATHER FLOW SOURCE OF INFORMATION OR CHARACTERIZATION METHODOLOGY USED IN ESTIMATING VALUES PRESENTED
* POPULATE TABLE 5-X [NUMBER AS NEEDED] IN THE FOLLOWING TEMPLATE WITH TYPICAL YEAR DRY WEATHER FLOWS

**TABLE 5-X: SUMMARY OF DRY WEATHER FLOWS FOR [MUNICIPALITY] BY POC**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **POC** | **Tributary Area**  **(acres)** | **Total Average Dry Weather Flow** | | |
| **Existing Conditions**  **(mgd)** | **Future 2046 Conditions**  **(mgd)** | **Percent Difference** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**5.2.2 Groundwater Infiltration (Existing and Future)**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO PROVIDE THE FOLLOWING INFORMATION:

* PROVIDE A NARRATIVE DESCRIBING HOW GWI WAS ESTIMATED
* FOR SEPARATE SYSTEMS SPECIFY WHICH DESIGN MONTH WAS USED
* POPULATE TABLE 5-X THE EXISTING AND FUTURE RDII AND GWI BY POC

**5.2.3 Estimation Process for Unmonitored Areas**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO PROVIDE THE FOLLOWING INFORMATION:

* PROVIDE A NARRATIVE DESCRIBING HOW FLOWS FROM UNMONITORED AREAS WERE ESTIMATED FOR DRY WEATHER AND GWI

**TABLE 5-X: EXISTING AND FUTURE RDII AND GWI FOR [MUNICIPALITY] BY POC**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **POC** | **Sewered Area**  **(acres)** | **RDII** | | | **GWI** | | |
| **Existing Conditions**  **(mgd)** | **Future 2046 Conditions**  **(mgd)** | **Percent Difference** | **Existing Conditions**  **(mgd)** | **Future 2046 Conditions**  **(mgd)** | **Percent Difference** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**5.3 Preliminary Flow Estimates**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

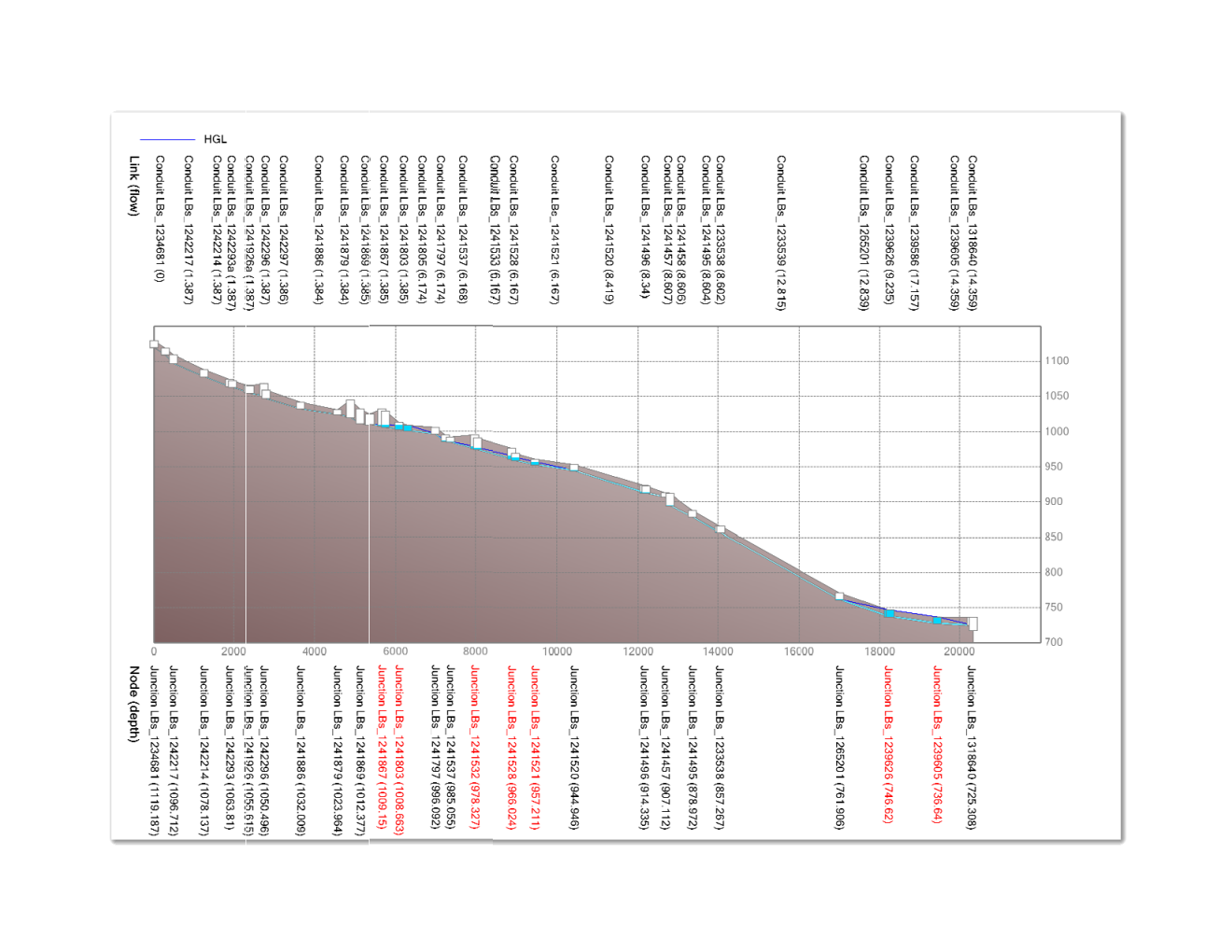
* **PROVIDE A DETAILED BASIS OF DESIGN NARRATIVE FOR THE CCS THROUGH TO THE ALCOSAN POC. DISCUSS AND JUSTIFY THE FLOW ESTIMATION TOOLS AND HYDRAULIC PARAMETERS USED IN THE DESIGN INCLUDING BUT NOT LIMITED TO:**
  + **DESIGN TOOLS USED, DESIGN FLOW ESTIMATION METHOD, DESIGN STORM USED, DESIGN STORM SEASON, DESIGN STORM DISTRIBUTION, GROUND WATER CONDITION, TYPICAL YEAR CONDITIONS.**
* DESCRIBE THE METHODOLOGY USED TO DEVELOP PRELIMINARY FLOW ESTIMATES.
* ALSO NOTE IF MUNICIPALITIES:
  + USED ALCOSAN H&H MODEL AND CALIBRATION METHODS
  + USED ALCOSAN H&H MODEL AND CALIBRATION METHOD WITH ADDITIONS/MODIFICATIONS. IF YES, EXPLAIN ADDITIONS/MODIFICATIONS AND WHY THEY WERE NEEDED.
  + DEVELOPED A DIFFERENT MODEL AND CALIBRATION METHOD. IF YES, DESCRIBE MODEL AND CALIBRATION METHOD AND WHY A DIFFERENT METHODOLOGY WAS USED/NEEDED.
* DESCRIBE METHODOLOGY USED TO VERIFY THE ALCOSAN H&H MODEL
* DID THE MUNICIPALITY CONCUR WITH THE ALCOSAN H&H MODEL?
  + IF NO, DESCRIBE THE CHANGES MADE TO THE MODEL BY THE BASIN PLANNER OR THE MUNICIPALITY
* BELOW OR IN AN APPENDIX, PRESENT THE RESULTS OF THE PFE MODEL RUNS AS FIGURES, TABLES, HYDROGRAPHS OR OTHER AS PROVIDED TO ALCOSAN [SEE EXAMPLE MAPS BELOW]
* SUMMARIZE IN A TABLE ALL PFEs FOR EACH POC PREVIOUSLY PROVIDED TO ALCOSAN [ALCOSAN REQUEST]
* **PROVIDE A NARRATIVE TO SUMMARIZE AND QUANTIFY FLOW MANAGEMENT PROPOSALS, AND AS APPLICABLE, ALL TREATMENT PROPOSALS SELECTED.**
* **INCLUDE AN APPENDIX THAT PROVIDES FLOW ESTIMATES, SPECIFIC TO EACH INTER-MUNICIPAL CONNECTION AND AT THE ALCOSAN POC FOR THOSE FLOWS PROPOSED TO EITHER BE CONVEYED TO ALCOSAN (OR TO ANOTHER MUNICIPALITY) OR MANAGED BY THE MUNICIPALITY ITSELF UNDER THE FLOW MANAGEMENT PROPOSALS OUTLINED IN THE FEASIBILITY STUDY.**
  1. **Capacity Deficient Sewers**

Accepted engineering practice for the design of sanitary sewers provides for foreseeable future flows and results in sewer capacity where the current and future flows are transported within the pipe system without surcharging, basement backups, manhole pops, or overflows; and includes a factor of safety. In the current analyses required for the Feasibility Study under the municipal orders, the possibility exists for a portion of the sanitary sewer system to be slightly under capacity. Under these conditions, where the remedy could be extremely costly on a per foot basis, the engineer may want to consider the extent of surcharging and evaluate whether limited surcharge is appropriate for submission to the regulatory agencies for their review. Operating sewers in consistent surcharge (especially where the original design did not intend such operation) can result in continued deterioration of the sewer system as well as potential exfiltration and eventual undermining of the sewer line potentially resulting in surface or sewer collapse/breaks, etc. Older systems, particularly those with less resilient joints or structurally weakened by cracks can sustain physical damage when operated under surcharge. Accelerated pipe failure associated with cyclical surcharge/non-surcharge operation is a risk to be considered. However, the municipal engineer who is knowledgeable about the local municipal system may determine it is appropriate to consider surcharge in their deficiency analyses.

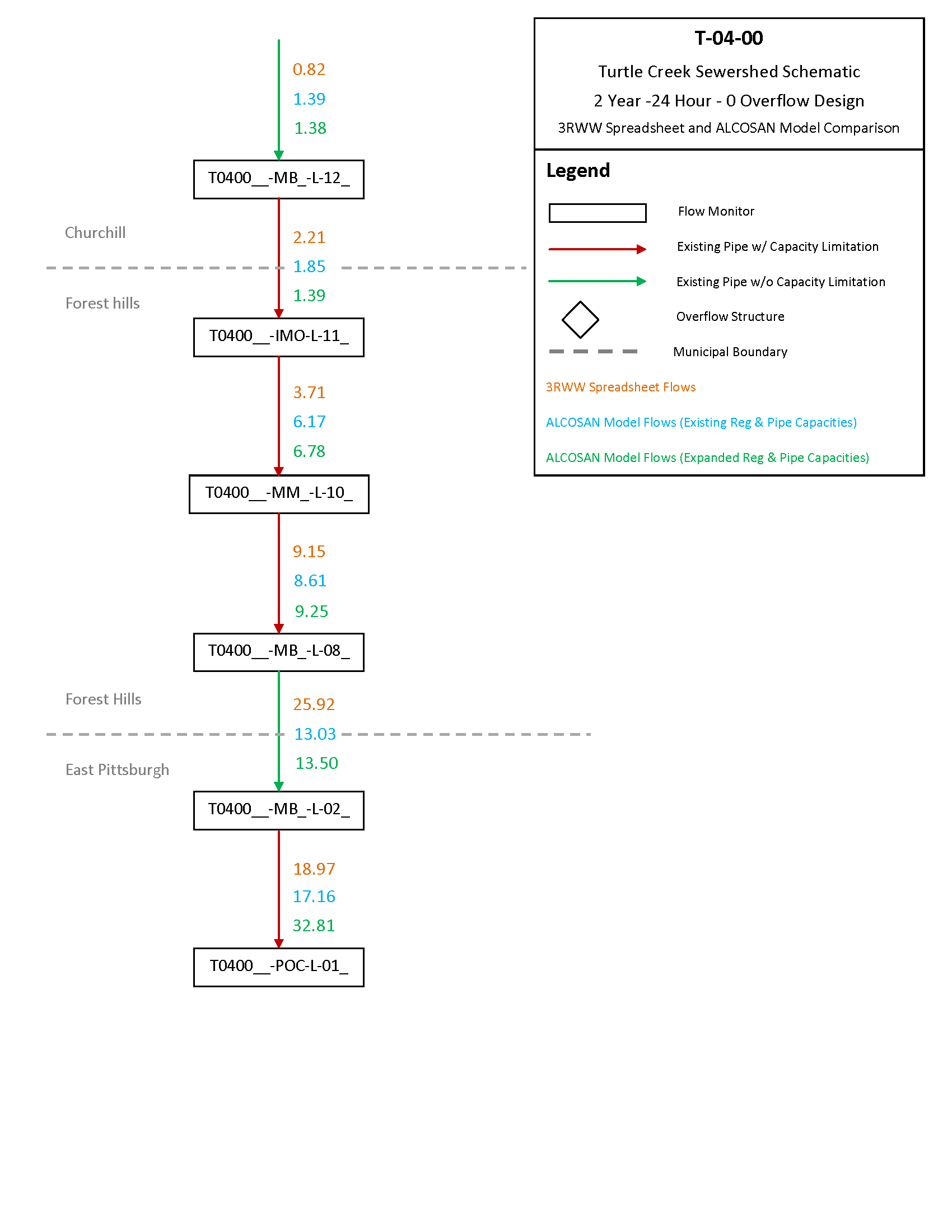
[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

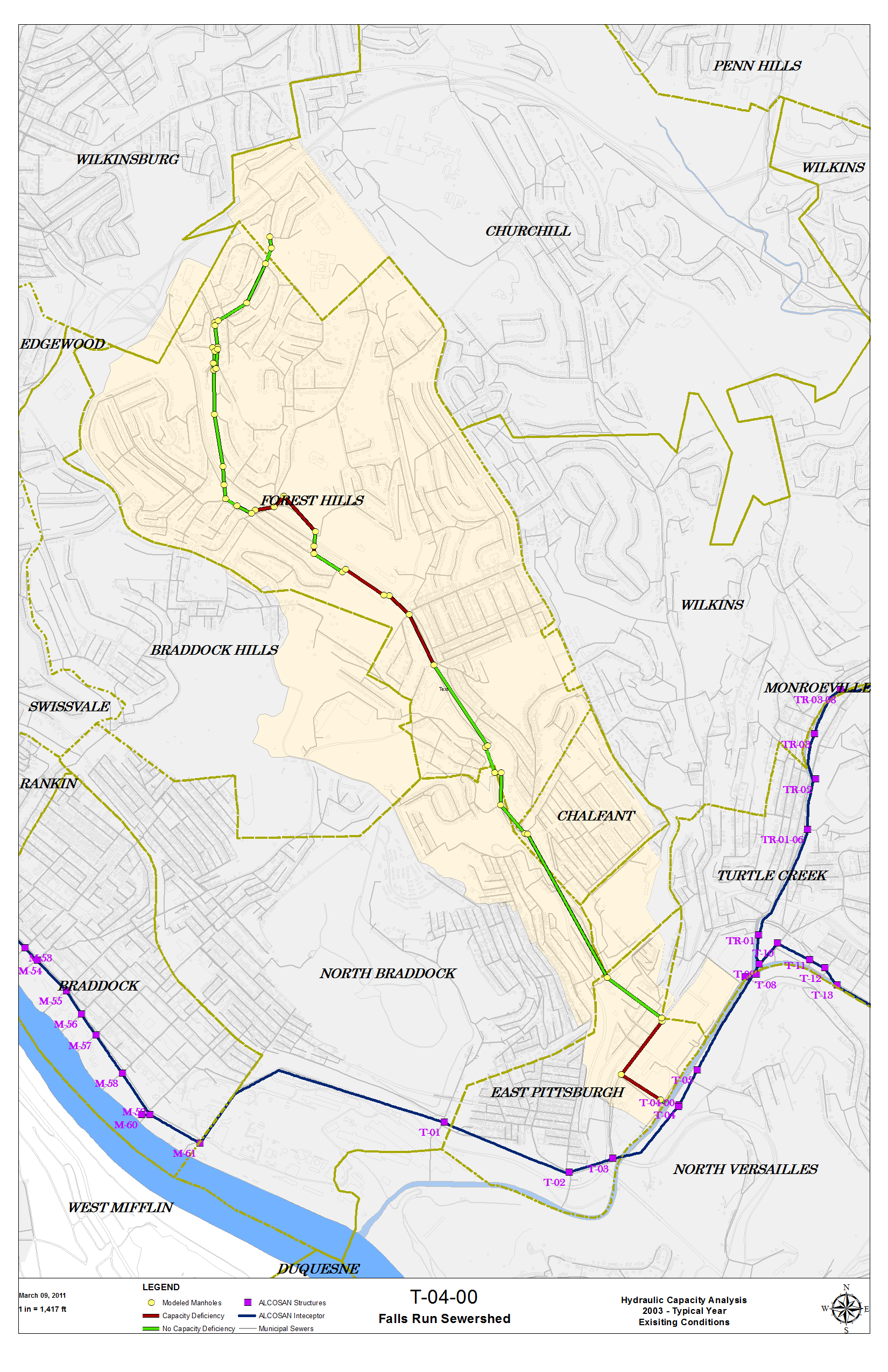
* **SEGREGATE CAPACITY ANALYSES BASED UPON THE CCS TYPE AND AS APPLICABLE FOR THE TYPICAL YEAR, 2, 5 AND 10 YEAR 24 HOUR RETURN PERIOD DESIGN STORM EVENTS, PRESENT AND DISCUSS THE HYDRAULIC PROFILE**
* **IN A NARRATIVE DESCRIPTION, SURCHARGE LEVEL MAP, SEWER PROFILES FROM SWMM, FLOW DIAGRAMS AND/OR TABULAR FORMAT IDENTIFY CCS SURCHARGING SEGMENTS AND ASSOCIATED SURCHARGE LEVELS PROJECTED TO REMAIN FOLLOWING F.S IMPLEMENTATION FOR THE TYPICAL YEAR 1-, 2-, 5- AND 10- YEAR 24 HOUR RETURN PERIOD DESIGN STORMS**
  + EXAMPLES OF PRESENTATION FOR SURCHARGING FOLLOW:



**EXAMPLE FIGURE**



**EXAMPLE FIGURE**



**EXAMPLE FIGURE**

**Table 1: A74A00\_\_-POC-L-01 node surcharges and flooding for 1, 2,5,10 yrs storm events.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sewershed** | **Storm events** | **Total Nodes** | **Nodes Surcharged** | **Nodes Flooding** |
| A74A00\_\_-POC-L-01 | 10yr winter 0 overflows | 15 | 6 | 3 |
| A74A00\_\_-POC-L-01 | 5yr winter 0 overflows | 15 | 6 | 3 |
| A74A00\_\_-POC-L-01 | 2yr winter 0 overflows | 15 | 6 | 3 |
| A74A00\_\_-POC-L-01 | 1yr winter 0 overflows | 15 | 6 | 3 |

**EXAMPLE TABLE**

**5.4.1 Existing Basement Flooding Areas–History and Locations**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **NARRATIVE AND MAPS DESCRIBING HISTORICAL LOCATIONS OF BASEMENT FLOODING AREAS**

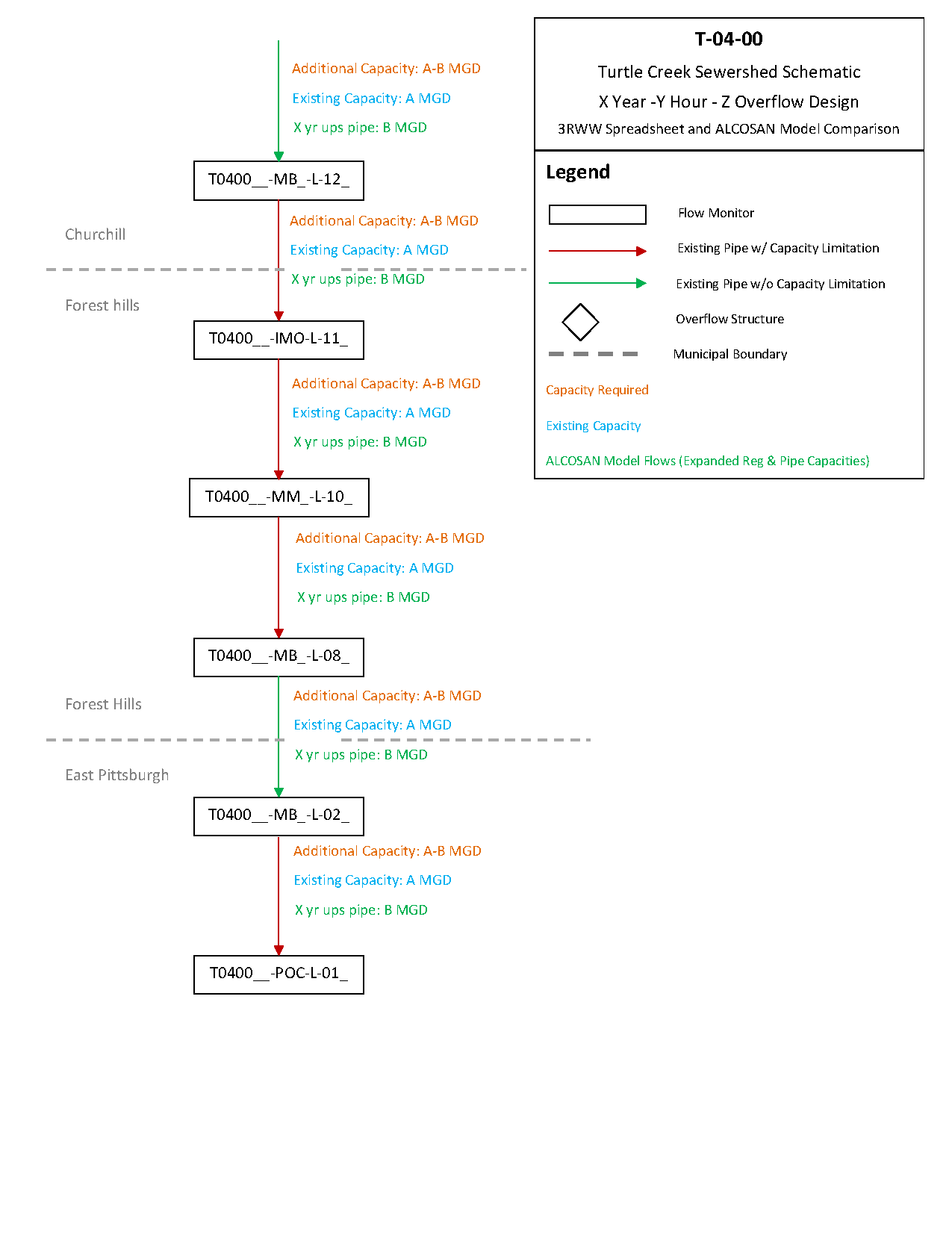
**5.4.2 Capacity Requirements for Various Design Storms and Levels of Protection**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING A NARRATIVE, TABLES, AND FIGURES (AS NECESSARY) TO DESCRIBE THE FOLLOWING:

* **IDENTIFY ANTICIPATED FLOW RESTRICTIONS THAT MAY LIMIT AVAILABLE CONVEYANCE CAPACITY UNDER THE F.S’S PROPOSED CONTROLS AND THE LEVEL OF SERVICE FLOW MANAGEMENT PROPOSALS OUTLINED IN THE FEASIBILITY STUDY**
* **IDENTIFY AND DISCUSS ANY ANTICIPATED ADVERSE IMPACTS (PARTICULARLY ON THE MUNICIPAL CSS) THAT MAY OCCUR AS A RESULT OF THE MUNICIPAL AND MULTI-MUNICIPAL SHARED SEWERAGE FACILITY PROPOSALS OUTLINED IN THE FEASIBILITY STUDY**
* **IDENTIFY AND DISCUSS ANY ANTICIPATED ADVERSE IMPACTS (ON THE MUNICIPAL CSS) THAT MAY OCCUR AS A RESULT OF THE MUNICIPAL AND MULTI-MUNICIPAL SHARED SEWERAGE FACILITY PROPOSALS OUTLINED IN A FEASIBILITY STUDY PROPOSED BY A MUNICIPALITY TRIBUTARY TO THE MUNICIPALITY’S CCS**
* **DISCUSS AND IDENTIFY ANY ANTICIPATED ADVERSE IMPACTS ON THE MUNICIPAL CSS THAT MAY RESULT FROM ALCOSAN’S WWP PROPOSALS**
* IDENTIFY THE CAPACITY THAT NEEDS TO BE ADDED TO PROVIDE SUFFICIENT CAPACITY IN THE MUNICIPAL SYSTEM
  + AN EXAMPLE FORMAT FOR PRESENTING CAPACITY NEEDS FOLLOWS:
* IF THE CAPACITY NEEDS PROVIDED HERE ARE DIFFERENT THAN THE PREVIOUSLY PROVIDED PFE, EXPLAIN WHY DIFFERENT

EXAMPLE PRESENTATION FOR CAPACITY NEEDS



• **SHOULD THE FEASIBILITY STUDY DETERMINE FLOW MANAGEMENT REVISIONS OR CAPITAL IMPROVEMENTS ARE UNNECESSARY TO MEET THE FLOW MANAGEMENT OBJECTIVES, THE MUNICIPALITY SHOULD PROVIDE EVIDENCE TO SUPPORT THIS PROPOSAL**. [IF THIS IS THE CASE, THEN SECTIONS 6, 7, 8, 10, AND 11 OF THIS FS ARE NOT REQUIRED SECTION 9 SHOULD BE PROVIDED TO SUPPLY LIMITED INFORMATION THAT ALCOSAN WILL NEED ABOUT THE COSTS ASSOCIATED WITH THE EXISTING SYSTEM .]

* 1. **Overflow Frequency and Volume**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO PROVIDE THE FOLLOWING INFORMATION AND NUMBER TABLES AND FIGURES AS NEEDED:

* POPULATE TABLES 5-X AND 5-X [NUMBER AS NEEDED] IN THE FOLLOWING TEMPLATE WITH BASELINE CONDITION CSO/SSO STATISTICS (VOLUME, PEAK RATE AND FREQUENCY)

**TABLE 5-X: BASELINE CONDITION, TYPICAL YEAR ANNUAL CSO DISCHARGE SUMMARY FOR [MUNICIPALITY]**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Peak Rate (mgd)** | | |
| **CSO Outfall** | **Owner** | **Number of Overflows in the Typical Year** | **Annual Overflow Volume (MG)** | **0 Overflows per Year** | **4 Overflows per Year** | **10 Overflows per Year** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**TABLE 5-X: BASELINE CONDITION, TYPICAL YEAR ANNUAL SSO DISCHARGE SUMMARY FOR [MUNICIPALITY]**

|  |  |  |  |
| --- | --- | --- | --- |
| **SSO Outfall** | **Owner** | **Peak Rate 2-yr Design Storm** | **Peak Rate 10-yr Design Storm** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**DEP TEMPLATE REQUIREMENTS**

***Feasibility Study Development and Municipal Coordination Efforts***

1. *Describe the CSS hydraulic characterization efforts, hydraulic characterization parameters, tools and other evaluation and estimation tools used by the Municipality to develop its Feasibility Study.* ***ALL OF SECTIONS 4 AND 5***
2. *Identify and summarize all additional flow monitoring efforts conducted (and other related flow information utilized by a Municipality) which is in addition to the ALCOSAN sponsored flow monitoring program.* ***SECTION 4.1.2***
3. *For each ALCOSAN POC-shed describe and comment on the inter-municipal and ALCOSAN cooperation and coordination efforts for which the Municipality has actively participated to develop its Feasibility Study.* ***SECTIONS 2.2 AND 2.3***
4. *For each POC-shed briefly outline the flow management proposals developed with all municipalities and ALCOSAN.* ***SECTION 7.0 AND SECTION 4.1.4 OF THE APPLICABLE POC FS(s)*** *Should another municipality fail to propose Feasibility Study improvements the Municipality deems necessary to fulfill the Feasibility Study objectives, then the Municipality should outline those for ACHD and/or Department consideration.* ***SECTION 9.1***

**PADEP TEMPLATE QUESTIONS**

***Proposed Facility(ies) Hydraulic Design Capacity Presentation***

1. *For each POC-shed provide a detailed Basis of Design narrative for the CCS through to the ALCOSAN POC. Discuss and justify the flow estimation tools and hydraulic parameters used in the design including but not limited to:*
   1. *Design tools used, design flow estimation method, design storm used, design storm season, design storm distribution, ground water condition, typical year conditions.*
   2. *Identify unmonitored flow areas, areas where additional flow monitoring data was collected and used.*
   3. *Summarize and identify estimation values derived and used such as RTK, GWI, etc.*

***SECTION 5.1***

1. *For each POC-shed summarize and quantify flow management proposals, and as applicable, all treatment proposals selected. Provide flow estimates, specific to each inter-municipal connection and at the ALCOSAN POC for those flows proposed to either be conveyed to ALCOSAN (or to another municipality) or managed by the Municipality itself under the flow management proposals outlined in the Feasibility Study.* ***SECTION 5.3***
2. *Segregate capacity analyses based upon the CCS type and as applicable for the Typical Year, 2, 5 and 10 year 24 hour return period design storm events, present and discuss the hydraulic profile and the estimated hydraulic impact of the Feasibility Study’s proposed flow management plan and LOS proposed for all CSS sewerage facilities proposed within the Municipality and/or facilities proposed in coordination with other municipalities which are tributary to the ALCOSAN POC.* ***SECTION 5.4***
3. *In a narrative description, surcharge level map and tabular format identify CCS surcharging segments and associated surcharge levels projected to remain following F.S implementation for the Typical Year, 2, 5 and 10 year 24 hour return period design storms. Identify anticipated flow restrictions that may limit available conveyance capacity under the F.S’s proposed controls and the LOS flow management proposals outlined in the Feasibility Study.* ***SECTION 5.4***
4. *Identify and discuss any anticipated adverse impacts (particularly on the Municipal CSS) that may occur as a result of the Municipal and multi-municipal shared sewerage facility proposals outlined in the Feasibility Study.* ***SECTION 5.4.2***
5. *Identify and discuss any anticipated adverse impacts (on the Municipal CSS) that may occur as a result of the municipal and multi-municipal shared sewerage facility proposals outlined in a Feasibility Study proposed by a municipality tributary to the Municipality’s CCS.* ***SECTION 5.4.2***
6. *Discuss and identify any anticipated adverse impacts on the Municipal CSS that may result from ALCOSAN’s WWP proposals.* ***SECTION 5.4.2***
7. *For the combined sewer system discharges estimate the Water Quality impacts that the Municipality anticipates may remain following implementation of the Feasibility Study’s proposed flow management controls.* ***SECTION 7.5***
8. **CSO/SSO CONTROL GOALS**

Water quality issues are the driving force behind the ALCOSAN CD and municipal COA and ACO requirements. These requirements stem from the existing water quality criteria in the local streams that are not being met, some as a result of combined and separate overflows. CSO and SSO control goals were developed by ALCOSAN and each municipality so that water quality criteria will be met after implementation of the regional wet weather plan that includes municipal alternatives.

The detailed methodology that was used to develop the CSO and SSO control goals is described in the FSWG Document 031 “Water Quality based Approach to Feasibility Study Development”. The CSO and SSO control goals that were selected are provided in the following section.

* 1. **Background for Selection of Control Level**
     1. **CSO Control Level**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION, BY PROVIDING THE FOLLOWING INFORMATION:

* POPULATE TABLE 6-1 BELOW, TMDL INFORMATION PERTINENT TO THE RECEIVING STREAM(S) IN THE POC-SHED
* PROVIDE A LIST AND/OR MAP OF DOWNSTREAM SENSITIVE AREAS
* NARRATIVE DESCRIBING IF THE APPROACH FOR SELECTING A LEVEL OF CONTROL (PRESUMPTIVE OR DEMONSTRATION)

**TABLE 6-1: APPLICABLE WATER QUALITY STANDARDS FOR [MUNICIPALITY]**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Receiving Stream** | **Stream Designation** | **TMDL (Y/N)**  **(If No, is a TMDL proposed)** | **TMDL Parameter** | **Is TMDL CSO Related (Y/N)** | **In Attainment with TMDL (Y/N)** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

* + 1. **SSO Control Level**

Separate sanitary sewers are typically designed to accept only sanitary sewage from residential, commercial and industrial areas of any given municipality. As a result of aging or improperly constructed and maintained infrastructure, these sewers are subjected to high flows during wet weather events. These flows result in SSOs, and/or basement flooding. By definition, SSOs are illegal and need to be controlled.

During the preliminary discussions in the FSWG meeting on March 26, 2009, the PADEP introduced a concept to be used for establishing separate sanitary transport and SSO control criteria.

*SSO Control and Separate Sanitary Sewer Transport Capacity Criteria*

* Develop a “knee-of-the-curve” analysis utilizing the 1-yr, 2-yr, 5-yr and 10-yr, 24-hour storms at a minimum to determine the break-even- point for SSO control. The design rainfall depths for the design storms should match rainfall depths used or proposed by ALCOSAN. This evaluation will be performed under the auspices of the FSWG and the approach and results will be summarized in a different (later) document.
* The design storm approach acknowledges that a 2-year summer rainfall that occurs when there is snow on the ground would result in runoff that exceeds the intended 2-year summer storm design. Given this possibility, the FSWG developed a methodology that includes the selection of a design month. This design month, in addition to the selected design storm return frequency would represent the overall intended design conditions.
* Additional discussion was developed around the idea of matching/using the selected design storm used by ALCOSAN for its separate sanitary sewer interceptors.

For SSO storage design a good starting point included the 2-yr storm as one of the points evaluated.

* 1. **Recommendations for Control Levels**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION, BY PROVIDING THE FOLLOWING INFORMATION:

* PROVIDE A NARRATIVE DISCUSSING THE LEVELS OF CSO/SSO CONTROL THAT WERE SELECTED FOR THIS MUNICIPALITY

1. **ALTERNATIVE EVALUATION (INTERNAL MUNICIPAL)**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* PROVIDE A NARRATIVE DESCRIBING THE METHODOLOGY THAT WAS USED TO SELECT SITES AND TECHNOLOGIES ON WHICH ALTERNATIVES WOULD BE BASED ON.

Once suitable technologies and best possible sites to house them are identified, a list of alternatives to be evaluated was developed. This list provides a unique identification to all alternatives and will include their respective technologies involved, sites identified and any other variations compared to similar alternatives (for example a parallel pipe could be routed in several ways). A list of the alternatives that were developed for evaluation for this municipality is provided below:

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* LIST ALL OF THE ALTERNATIVES, WITH UNIQUE IDENTIFIERS, BRIEF DESCRIPTION, AND CONTROL LEVEL OR DESIGN STORM, THAT WERE DEVELOPED FOR EVALUATION.
* **POPULATE TABLE 7-1 TEMPLATE TO PROVIDE A LIST OF THE ALTERNATIVES THAT WERE DEVELOPED FOR THE MUNICIPLAITY FOR THE CONTROL OF BOTH CSOs AND SSOs FOR THE ALTERNATIVES BEING EVALUATED**

**TABLE 7-1: LISTING OF ALTERNATIVES EVALUATED FOR [MUNICIPALITY]**

|  |  |  |  |
| --- | --- | --- | --- |
| **Alternative Name** | **System Type** | **Control Level** | **Description** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

* 1. **Evaluation Criteria Development**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* DESCRIBE THE EVALUATION CRITERIA PROCESS USED BY THE MUNICIPALITY TO SELECT AN ALTERNATIVE.
  1. **Cost Estimates**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **PROVIDE A NARRATIVE ON HOW THE MUNICIPALITY DERIVED COST ESTIMATES FOR THE PROPOSED ALTERNATIVES (ALCOSAN ACT OR OTHER METHOD).**
* **PROVIDE A NARRATIVE WITH DETAILS ON THE PARAMETERS, ASSUMPTIONS AND METHODS USED TO DEVELOP ALL COST ESTIMATES FOR THE SEWERAGE FACILITIES OUTLINED AND PROPOSED.**
* **IN AN APPENDIX, PROVIDE ANY SUPPORTING DOCUMENTATION USED TO DEVELOP THE COST ESTIMATES PROVIDED IN THE FEASIBILITY STUDY.**

**TABLE 7-2: LISTING OF ALTERNATIVES EVALUATED FOR [MUNICIPALITY]**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Alternative Name** | **System Type** | **Control Level** | **Description** | **Total Present Worth Cost** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

* 1. **Alternative Selection Process**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION WITH THE FOLLOWING INFORMATION:

* DESCRIBE IN A DETAILED NARRATIVE THE FACTORS THAT WERE USED IN EVALUATING ALTERNATIVES THAT WERE BEING COMPARED
* DESCRIBE HOW EACH CRITERIA WAS APPLIED TO THE ALTERNATIVE EVALUATION (E.G., CRITERIA WEIGHTING)
  1. **Alternative Evaluation Results**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION WITH THE FOLLOWING INFORMATION:

* PROVIDE A SUMMARY OF THE CALCULATIONS OF THE SUBJECTIVE SCORING AND WEIGHTING CRITERIA TO ARRIVE AT THE “HIGHEST RANKED ALTERNATIVE”
* PROVIDED A SUMMARY TABLE OF THE SCORING RESULTS FOR THE EVALUATED ALTERNATIVES [EXAMPLE TABLE BELOW]
* LIST OF FINAL ALTERNATIVES EVALUATED IN ORDER OF THEIR RANK
* PROVIDE MAPS DEPICTING FINAL ALTERNATIVES CONSIDERED FOR THE SEWERSHED
* IF AVAILABLE, PROVIDE BAR GRAPHS DEPICTING THE FINAL SCORES FOR THE ALTERNATIVES (BASED ON 2-YR, 0 OVERFLOW AND 2-YR, 4 OVERFLOW SCENARIOS [EXAMPLE FORMAT BELOW]

**EXAMPLE ALTERNATIVE RANKING RESULTS BAR CHART**

**EXAMPLE TABLE: ALTERNATIVE RANKING SUMMARY OF ALTERNATIVES EVALUATED FOR [MUNICIPALITY NAME]**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Criteria Category 1 (e.g. cost)** | | **Criteria Category 2 (e.g. water quality)** | | **criteria Category 2 (e.g. operation) etc.** | |
| **Alternative Name** | **Total Score** | **Criteria 1** | **Criteria 2, etc.** | **Criteria 1** | **Criteria 2, etc.** | **Criteria 1** | **Criteria 2, etc.** |
| **[total possible score]** | **[total possible score]** | **[total possible score]** | **[total possible score]** | **[total possible score]** | **[total possible score]** | **[total possible score]** |
| name | Calculated total score | Criteria score | Criteria score | Criteria score | Criteria score | Criteria score | Criteria score |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

* 1. **Recommended Alternative Description**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* + PROVIDE A NARRATIVE [WITH TABLES, GRAPHS, AND MAPS AS NECESSARY] WITH THE NAME AND DETAILED DESCRIPTION OF OVERALL ALTERNATIVE FOR THE MUNICIPALITY INCLUDING THE FOLLOWING:
  + **SUMMARIZE THE MUNICIPAL OR MULTI-MUNICIPAL FLOW MANAGEMENT DESIGN RATIONALE FOR THE FLOW MANAGEMENT PROPOSAL PROVIDED IN THE FEASIBILITY STUDY**
  + **FOR EACH POC-SHED ESTIMATE THE MAXIMUM VOLUME AND MAXIMUM RATE OF SEWAGE FLOW THAT IS GENERATED BY EACH MUNICIPALITY AND MAY POSSIBLY BE DELIVERED TO ALCOSAN FOR TREATMENT. ESTIMATE THE ANNUAL VOLUME AND MAXIMUM RATE OF SEWAGE THAT SHALL BE, GENERATED IN EACH MUNICIPALITY. UTILIZE A TYPICAL YEAR ANALYSIS FOR THE COMBINED SEWER SYSTEM FLOW ESTIMATES. UTILIZE A 2, 5, AND 10 YEAR 24 HOUR RETURN STORM EVENT FOR SANITARY SEWER SYSTEM ANALYSES.**
  + **SUMMARIZE FLOW MANAGEMENT PROPOSALS THE MUNICIPALITIES HAVE PREVIOUSLY PROVIDED TO ALCOSAN AND OTHER MUNICIPALITIES. IDENTIFY AND EVALUATE CHANGES IN THE FEASIBILITY STUDY’S FLOW MANAGEMENT PROPOSALS COMPARED TO EARLIER PROPOSALS OUTLINED IN CORRESPONDENCES TO ALCOSAN OR OTHER ASSOCIATED POC-SHED MUNICIPALITIES.**
* PROVIDE NARRATIVE AND TABLES, GRAPHS AND MAPS AS NEEDED TO PRESENT THE HYDRAULIC CAPACITY ASSESSMENT OF THE RECOMMENDED ALTERNATIVE
  + PROVIDE HYDRAULIC GRADE LINE DRAWINGS UNDER PEAK FLOW CONDITIONS FOR RECOMMENDED ALTERNATIVE FOR 2-YR/0 OVERFLOW AND 2-YR/4 OVERFLOW CONTROL LEVELS [SEE EXAMPLE HGL PROFILE ATTACHED]
  + PROVIDE LEVEL OF SERVICE MAPS FOR BEFORE AND AFTER IMPLEMENTATION OF RECOMMENDED ALTERNATIVE
  + PROVIDE TABLES AND GRAPHS OF COMPUTED 2046 PEAK FLOWS AND VOLUMES DELIVERED TO THE ALCOSAN POC UNDER DESIGN STORM CONDITIONS [USE TABLE FORMATS FROM PREVIOUS SECTIONS AS APPROPRIATE
  + **FOR EACH POC-SHED ESTABLISH WITH ALCOSAN THE RATE OF FLOW THAT ALCOSAN WILL BE ABLE TO RETAIN, STORE, CONVEY AND TREAT FROM THE POC UPON IMPLEMENTATION OF THE ALCOSAN WWP.**
    - **QUANTIFY THE INFLOW AND INFILTRATION (I/I) COMPONENT OF THE PROPOSED FLOW MANAGEMENT STRATEGY AND HOW THAT COMPONENT WILL BE PROPERLY MANAGED.**
    - **WHERE APPLICABLE, IDENTIFY AND COMMENT ON ANY ALCOSAN CHARACTERIZATIONS OF THE MUNICIPAL CCS AND SPECIFICALLY IDENTIFY AREAS OF DIFFERENCE/DISCREPANCY. COMMENT ON THE LIKELY CAUSE AND POTENTIAL IMPACT OF THE DISCREPANCY(IES). IDENTIFY HOW ALL DISCREPANCIES WERE RESOLVED.**
  + **QUANTIFY THE PORTION OF THE FLOW VOLUME THAT WILL BE CAPTURED AND TREATED, OR CONVEYED FOR TREATMENT BY THE MUNICIPALITY(IES), FOLLOWING IMPLEMENTATION OF THE FEASIBILITY STUDY AND FOLLOWING ELIMINATION OF ALL SSOs LOCATED WITHIN THE MUNICIPAL CCS(S).**
  + **DISCUSS HOW THE MUNICIPALITY INTENDS TO LIMIT AND MAINTAIN ITS CCS FLOW RESPONSE IN ACCORDANCE WITH THE PROPOSED FLOW MANAGEMENT STRATEGY. DESCRIBE THE MUNICIPALITY’S STRATEGY TO ENSURE ITS PEAK FLOW CONTRIBUTION TO THE POC DOES NOT RESULT IN EXCEEDANCES OF THE POC-SHED’S CAPACITY THROUGH SEPTEMBER 30, 2046. STRATEGY COMPONENTS AND PLAN PROPOSALS MAY INCLUDE BUT NOT BE LIMITED TO:** 
    - **MUNICIPAL OPERATIONS AND MAINTENANCE PLANS (WITH SUPPORTING BUDGETS);**
    - **GREEN INFRASTRUCTURE PROPOSALS; AND**
    - **SOURCE REDUCTION EFFORTS TO PROTECT AGAINST EXCEEDING PROJECTED FLOW ESTIMATES.**
  + **WHERE FLOW RETENTION AND STORAGE IS PROPOSED, ESTIMATE THE FLOW VOLUME AND DISCHARGE RELEASE RATE, DEVELOPED WITH ALCOSAN AND OTHER MUNICIPALITIES AS PART OF THE MUNICIPALITY’S PLANS TO RETAIN AND LATER RELEASE FOR CONVEYANCE TO ALCOSAN FOR TREATMENT AT THE POC.**
  + **PROVIDE ALL FLOW MANAGEMENT, CONTROL AND TREATMENT ANALYSES NECESSARY TO SUPPORT THE FLOW MANAGEMENT PROPOSALS OUTLINED IN THE FEASIBILITY STUDY.**
  + **PROVIDE PLAN AND PROFILE SKETCHES OF CSS CHANGES PROPOSED IN THE FEASIBILITY STUDY WITH SUFFICIENT DETAIL FOR ALCOSAN TO MODIFY ITS CSS MODEL AND CONDUCT ITS HYDRAULIC EVALUATION OF THE PROPOSED CHANGES** ]
* WATER QUALITY
  + **FOR COMBINED SEWER SYSTEM DISCHARGES, ESTIMATE THE WATER QUALITY IMPACTS THAT THE MUNICIPALITY ANTICIPATES MAY REMAIN FOLLOWING IMPLMENTATION OF THE FEASIBILITY STUDY’S PROPOSED FLOW MANAGEMENT CONTROLS.**
* **POPULATE TABLE 7-X BELOW [NUMBER AS NEEDED] TO PROVIDE COST AND SIZING INFORMATION FOR THE RECOMMENDED ALTERNATIVE**
* **POPULATE TABLE 7-X BELOW [NUMBER AS NEEDED] TO PROVIDE DETAILED COST ESTIMATE FOR THE RECOMMENDED ALTERNATIVE.**
* **INCLUDE DETAILED COST ESTIMATE INFORMATION IN AN APPENDIX (E.G., ACT SPREADSHEETS)**

**TABLE 7-X: SUMMARY OF CAPITAL IMPROVEMENTS FOR RECOMMENDED ALTERNATIVE FOR [MUNICIPALITY]**

|  |  |  |
| --- | --- | --- |
| **Capital Improvements** | **Size/Capacity** | **Estimated Capital Cost ($ million)** |
|  |  |  |
|  |  |  |
|  |  |  |
|  | **TOTAL** |  |

**TABLE 7-X: COST BREAKDOWN OF RECOMMENDED ALTERNATIVE FOR [MUNICIPALITY]**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Component** | **CSO Control** | | | **SSO Control** | | | **Combined TPW Cost ($ million)** |
| **Capital Cost 1**  **($ million)** | **Annual O&M Cost**  **($ million)** | **TPW Cost CSO Control**  **($ million)** | **Capital Cost 1**  **($ million)** | **Annual O&M Cost**  **($ million)** | **TPW Cost SSO Control**  **($ million)** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **TOTAL** |  |  |  |  |  |  |  |

1) Total Project Costs (Construction + Contingency + Soft Costs)

* 1. **Recommended Alternative Operation and Maintenance**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION, IF APPLICABLE, BY PROVIDING THE FOLLOWING INFORMATION:

* **PROVIDE AN O&M PLAN FOR THOSE FACILITIES PROPOSED IN THE MUNICIPALITY’S FEASIBILITY STUDY**
* **PROVIDE AN O&M PLAN FOR THOSE SHARED FACILITIES PROPOSED IN COORDINATION WITH OTHER MUNICIPALITY(IES) AND OUTLINE A PLAN TO FUND THESE O&M OBLIGATIONS.**
* **FLOW REDUCTION:**
  + **IDENTIFY A GREY FACILITY ALTERNATIVE FOR FOLLOW-UP IMPLEMENTATION SHOULD THE REDUCTION OBJECTIVES NOT BE MET. EVALUATE AND INCLUDE DETAILS ON THE INSTITUTIONAL ARRANGEMENTS APPROPRIATE TO OPERATE AND MAINTAIN THE FACILITY.**
  + **PROPOSE DATES, EVALUATION METHODS AND THRESHOLD VALUES AS METRICS SUFFICIENT TO EVALUATE WHETHER FLOW REDUCTION EFFORTS WERE SUCCESSFUL.**
  + **INCLUDE A SUPPLEMENTAL IMPLEMENTATION SCHEDULE, AND COMPLETION DEADLINE TO CONSTRUCT AND OPERATE A GREY FACILITY ALTERNATIVE SHOULD THE IMPLEMENTED FLOW REDUCTION PROPOSAL FAIL TO MEET ITS DESIGN OBJECTIVES.**
  1. **Stream Removals**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION, IF APPLICABLE, BY PROVIDING THE FOLLOWING INFORMATION:

* **FOR MUNICIPAL CSS’S WITH DIRECT STREAM INFLOW SOURCES, SUMMARIZE THE MUNICIPAL EVALUATION OF ITS STREAM REMOVAL OR FLOW MANAGEMENT OPTIONS AND PROVIDE SUPPORTING DOCUMENTATION NECESSARY TO JUSTIFY THE SELECTED OPTION(S).**
* **FOR MUNICIPAL CSS’S WITH STREAM INFLOW SOURCES TRIBUTARY TO ANOTHER MUNICIPALITY, SUMMARIZE THE MUNICIPAL COOPERATION EFFORTS AND STREAM FLOW MANAGEMENT OPTIONS AND PROPOSALS DEVELOPED WITH THE OTHER MUNICIPALITY(IES).**
* **AS APPROPRIATE FOR THE STREAM REMOVAL OR FLOW MANAGEMENT OPTION SELECTED, PROVIDE AN IMPLEMENTATION SCHEDULE TO EFFECT THE PROPOSED OPTION(S).**
* **DISCUSS AND PLAN WITH ALCOSAN THE IMPLEMENTATION OF THE STREAM REMOVAL OR STREAM FLOW MANAGEMENT PROPOSAL AND IMPLEMENTATION SCHEDULE. PROVIDE A SUMMARY OF ALCOSAN’S ANALYSIS OF THE DIRECT STREAM REMOVAL OR FLOW MANAGEMENT PROPOSAL SELECTED.**
* **IF DIRECT STREAM REMOVAL IS NOT SELECTED AS THE PREFERRED OPTION, PROVIDE AN EVALUATION OF GRIT CONTROL FACILITIES SUFFICIENT TO PROPERLY MANAGE GRIT ENTRY INTO THE MUNICIPALITY’S SEWERAGE FACILITIES.** 
  + **PROVIDE A CONSTRUCTION, FACILITY O&M MANAGEMENT AND IMPLEMENTATION FUNDING PLAN FOR ANY PROPOSED GRIT CONTROL OR OTHER STREAM FLOW MANAGEMENT FACILITIES**
* **PROVIDE AN INSTITUTIONAL EVALUATION AND OUTLINE THE INTER-MUNICIPAL COORDINATION OBJECTIVES, MILESTONES AND AGREEMENTS ALREADY INSTITUTED OR STILL NECESSARY TO EITHER; EFFECT THE REMOVAL OF A DIRECT STREAM INFLOW SOURCE, ADEQUATELY MANAGE STREAM FLOWS, AND/OR CONSTRUCT APPROPRIATE GRIT CONTROL FACILITIES. PROVIDE A PLAN AND SCHEDULE SUFFICIENT TO REALIZE THESE INSTITUTIONAL OBJECTIVES.**

**DEP TEMPLATE REQUIREMENTS**

***Feasibility Study Alternatives Evaluation and Presentation***

1. *Summarize the Feasibility Study alternatives development process, alternatives selection process and the final recommended flow management proposals.* ***ALL OF SECTION 7***
2. *Summarize the Municipal and/or multi-municipal or POC-shed based flow management design rationale for the flow management proposal provided in the Feasibility Study* ***SECTION 7.5***
3. *For each POC-shed estimate the maximum volume and maximum rate of sewage flow that is generated and may possibly be delivered to ALCOSAN for treatment from the Municipality’s CCS. Estimate the annual volume and maximum rate of sewage that shall be, generated in the Municipal CCS. Utilize a Typical Year analysis for the combined sewer system flow estimates. Utilize a 2, 5, and 10 year 24 hour return storm event for sanitary sewer system analyses.* ***SECTION 7.5***
4. *For each POC-shed establish with ALCOSAN the rate of flow that ALCOSAN will be able to retain, store, convey and treat upon implementation of the WWP.*
   1. *Quantify the inflow and infiltration (I/I) component of the proposed flow management strategy and how that component will be properly managed.*

***SECTION 7.5***

* 1. *Where applicable, identify and comment on any ALCOSAN characterizations of the municipal CCS and specifically identify areas of difference/discrepancy. Comment on the likely cause and potential impact of the discrepancy(ies). Identify how all discrepancies were resolved.* ***SECTION 7.5***

1. *Quantify the portion of the flow volume that will be captured and treated, or conveyed for treatment by the Municipality(ies), following implementation of the Feasibility Study and following elimination of all SSOs located within the Municipal CCS(s) and POC-shed.* ***SECTION 7.5***
2. *Summarize flow management proposals the Municipality has previously provided to ALCOSAN and other municipalities. Identify and evaluate changes in the Feasibility Study’s flow management proposals compared to earlier proposals outlined in correspondences to ALCOSAN or other associated POC-shed municipalities.* ***SECTION 7.5***
3. *Discuss how the Municipality intends to limit and maintain its CCS flow response in accordance with the proposed flow management strategy. Describe the Municipality’s strategy to ensure its peak flow contribution to the POC does not result in exceedances of the POC-shed’s capacity through September 30, 2046. Strategy components and plan proposals may include but not be limited to:* 
   1. *Municipal Operations and Maintenance plans (with supporting budgets);*
   2. *Green Infrastructure proposals; and*
   3. *Source Reduction efforts to protect against exceeding projected flow estimates.* ***SECTION 7.5***
4. *For each POC-shed where flow retention and storage is proposed, estimate the flow volume and discharge release rate, developed with ALCOSAN and other municipalities as part of the Municipality’s plans to retain and later release for conveyance to ALCOSAN for treatment at the POC.* ***SECTION 7.5***
5. *Provide all flow management, control and treatment analyses necessary to support the flow management proposals outlined in the Feasibility Study.* ***SECTION 7.5***
6. *Provide plan and profile sketches of CSS changes proposed in the Feasibility Study with sufficient detail for ALCOSAN to modify its CSS model and conduct its hydraulic evaluation of the proposed changes.* ***SECTION 7.5***
7. *Flow Reduction:*
   1. *Identify a grey facility alternative for follow-up implementation should the reduction objectives not be met. Evaluate and include details on the institutional arrangements appropriate to operate and maintain the facility.*
   2. *Propose dates, evaluation methods and threshold values as metrics sufficient to evaluate whether flow reduction efforts were successful.*
   3. *Include a supplemental implementation schedule, and completion deadline to construct and operate a grey facility alternative should the implemented flow reduction proposal fail to meet its design objectives.* ***SECTION 7.6***
8. *Provide an Operation and Maintenance (O&M) plan for those facilities proposed in the Municipality’s FEASIBILITY STUDY* ***SECTION 7.6***
9. *Provide an O&M plan for those shared facilities proposed in coordination with other Municipality(ies) and outline a plan to fund these O&M obligations.* ***SECTION 7.6***
10. *Should the Feasibility Study determine flow management revisions or capital improvements are unnecessary to meet the flow management objectives, the Municipality should provide evidence to support this proposal.* ***SECTION 5.4.2***

***Direct Stream Influence and Direct Stream Inflow***

1. *Should the Feasibility Study determine flow management revisions or capital improvements are unnecessary to meet the flow management objectives, the Municipality should provide evidence to support this proposal. For Municipal CSS’s with direct stream inflow sources, summarize the Municipal evaluation of its stream removal or flow management options and provide supporting documentation necessary to justify the selected option(s).* ***SECTION 7.7***
2. *For Municipal CSS’s with stream inflow sources tributary to another municipality, summarize the Municipal cooperation efforts and stream flow management options and proposals developed with the other municipality(ies).* ***SECTION 7.7***
3. *As appropriate for the stream removal or flow management option selected, provide an implementation schedule to effect the proposed option(s).* ***SECTION 7.7***
4. *Discuss and plan with ALCOSAN the implementation of the stream removal or stream flow management proposal and implementation schedule. Provide a summary of ALCOSAN’s analysis of the direct stream removal or flow management proposal selected.* ***SECTION 7.7***
5. *If direct stream removal is not selected as the preferred option, provide an evaluation of grit control facilities sufficient to properly manage grit entry into the Municipality’s sewerage facilities.* 
   1. *Provide a construction, facility O&M management and implementation funding plan for any proposed grit control or other stream flow management facilities.*

***SECTION 7.7***

1. *Provide an institutional evaluation and outline the inter-municipal coordination objectives, milestones and agreements already instituted or still necessary to either; effect the removal of a direct stream inflow source, adequately manage stream flows, and/or construct appropriate grit control facilities. Provide a plan and schedule sufficient to realize these institutional objectives.* ***SECTION 7.7***
2. **MULTI-MUNICIPAL SEWERSHED RECOMMENDED ALTERNATIVES**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO PROVIDE:

* A NARRATIVE REITERATING WHAT POCs THE MUNICIPALITY IS PART OF AND MAKE REFERENCE TO THE POC FEASIBILITY STUDY REPORTS THAT ARE ATTACHED TO THIS REPORT
* MAKE REFERENCE TO AND POPULATE TABLE 8-1

**TABLE 8-1: SUMMARY OF POC RECOMMENDED ALTERNATIVES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **POC** | **Description of Alternative** | **Total Capital Cost**  **($ million)** | **Total Annual O&M Cost ($ million)** | **Present Worth Cost**  **($ million)** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

* 1. **Financial and Institutional Considerations**
  2. **MOU and Inter-Municipal Agreements**

Any existing agreements between the multi-municipalities tributary to a common system will need to be made available to the concerned municipalities.

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **COORDINATE COST AND FINANCING OPTIONS WITH ASSOCIATED MUNICPALITIES WITHN THE POC-SHED AND WITH ALCOSAN:**
  + SUMMARIZE ANY MOU AND/OR INTER-MUNICIPAL AGREEMENTS THAT HAVE BEEN SIGNED BY THE PARTICIPATING MUNICIPALITIES
  + PROVIDE THE MOU AND/OR AGREEMENTS IN APPENDIX X OF THIS REPORT.
* **SHOULD ANOTHER MUNICIPALITY FAIL TO PROPOSE FEASIBILITY STUDY IMPROVEMENTS THE MUNICIPALITY DEEMS NECESSARY TO FULFILL THE FEASIBILITY STUDY OBJECTIVES, THEN THE MUNICIPALITY SHOULD OUTLINE THOSE FOR ACHD AND/OR DEPARTMENT CONSIDERATION.**
  1. **Funding Alternatives**

Multi-municipal sharing of resources is often a cost-effective method for managing the continued operation and maintenance of wet weather control facilities. Material, equipment, and labor can be shared between communities. For example, a sewer vacuum truck owned by one community can be borrowed or rented by another community for cleaning of an SSO storage facility or pipeline. Municipal Councils of Governments (COGs) often function in this manner through cooperative action (e.g. South Hills COG, Turtle Creek COG).

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **PROVIDE A PROPOSED FLOW MANAGEMENT FACILITY FUNDING PLAN SUFFIFIENT TO MEET THE ESTIMATED COST AND PROPOSED IMPLEMENTATION SCHEDULE FOR THE FLOW MANAGEMENT FACILITIES PROPOSED.**
  + IF AVAILABLE INCLUDE THE FOLLOWING IN THE FUNDING PLAN:
    - ESTIMATED CAPITAL COSTS (CONSTRUCTION AND NON-CONSTRUCTION IN CURRENT DOLLARS (2010 DOLLARS TO BE CONSISTENT WITH THE ALCOSAN WWP)
    - ESTIMATED CAPITAL COSTS AT MID-POINT OF CONSTRUCTION OR OTHER APPROPRIATE INFLATED FUTURE COST ESTIMATE BASED UPON THE ANTICIPATED IMPLEMENTATION SCHEDULE(S)
    - ANTICIPATED FUNDING SOURCES, E.G. PennVEST, OTHER DEPT FINANCING, GRANTS, PAY-AS-YOU-GO, ETC.
    - ESTIMATED INCREMENTAL ANNUAL DEBT SERVICE PAYMENTS (INCLUDE ESTIMATED INTEREST RATES, BOND TERM, ETC. USED IN THE CALCULATION OF THE ESTIMATED ANNUAL DEBT)
* THIS BULLET POINT IS APPLICABLE TO MUNICIPALITIES THAT DO NOT HAVE A NEED FOR ANY CAPITAL PROJECTS BASED ON CAPACITY REQUIREMENT EVAULATIONS IN ADDITION TO THOSE MUNICIPALITIES THAT WILL BE DOING CAPITAL PROJECTS. SINCE THE LONG TERM AFFORDABILITY FOR THE MUNICPALITY IS OF KEY IMPORTANCE TO BOTH THE MUNICIPALITY AND TO ALCOSAN, THE FOLLOWING SHOULD BE PROVIDED IF AVAILABLE:
  + LONG TERM CAPITAL IMPROVEMENTS TO THE MUNICPAL COLLECTION SYSTEMS THAT ARE NOT DIRECTLY ATTRIBUTABLE OR NECESSITATED BY THE FLOW CONTROL FACILITIES, E.G. PUMP STATION RECONSTRUCTION, ETC.
  + IF KNOWN OR PROJECTED, MS4 STORMWATER PERMIT COMPLIANCE CAPITAL COSTS
* **PROVIDE A PROPOSED FLOW MANAGEMENT FACILITY FUNDING PLAN SUFFICIENT TO MEET THE ESTIMATED COST PROPOSED IMPLEMENTATION SCHEDULE FOR THE FLOW MANAGEMENT FACILITIES PLANNED IN COORDINATION WITH OTHER MUNICIPALITIES.** INCLUDE ESTIMATED CAPITAL COSTS (CONSTRUCTION AND NON-CONSTRUCTION COSTS) IN 2010 DOLLARS (TO BE CONSISTENT WITH THE ALCOSAN WWP).
* **PROVIDE A PROPOSAL TO FUND AND IMPLEMENT ALL O&M OBLIGATIONS FOR ALL EXISTING AND PROPOSED FLOW MANAGEMENT FACILITIES OUTLINED IN THE MUNICIPALITY’S FEASBILITY STUDY.**
* **PROVIDE AN O&M PLAN FOR THOSE SHARED FACILITIES PROPOSED IN COORDINATION WITH OTHER MUNICIPALITY(IES) AND ESTABLISH A PLAN FOR THE MUNICIPALITY TO FUND THESE O&M OBLIGATIONS. .** BASED UPON THE SELECTED O&M COST ALLOCATION APPROACH, PROJECT O&M COSTS ONE YEAR PAST THE ANTICIPALITED FULL IMPLMENTATION OF THE INTER-MUNICIPAL FLOW MANAGEMENT FACILITIES (2027). USE ALCOSAN’S PROJECTED 4% RATE OF INFLATION AS A DEFAULT OR A MUNICIPAL SPECIFIC INFLATION RATE BASED UPON PROJECTED MUNICIPAL COST TRENDS. THIS PROJECTION IS NECESSARY TO FULLY ASSESS THE AFFORDABILITY IMPACTS OF THE MUNICIPAL, INTER-MUNICIPAL AND ALCOSAN IMPROVEMENTS ONCE IMPLEMENTED.
  1. **User Cost Analysis**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* ON A MUNICIPALITY BASIS, PROVIDE A TABLE BREAKING DOWN THE ESTIMATED COST PER HOUSEHOLD TO IMPLEMENT THE RECOMMENDED ALTERNATIVE. POPULATE TABLE 9-X BELOW:
  1. **Affordability**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **ON A POC-BY-POC BASIS PROVIDE AN AFFORDABILITY ANALYSIS FOR THE FLOW MANAGEMENT STRATEGY AND SPECIFIC FLOW MANAGEMENT PROPOSALS OUTLINED IN FOR THE COMBINED PORTIONS OF CSS.**

**TABLE 9-X: ESTIMATED ANNUAL COST PER HOUSEHOLD AFTER IMPLEMENTATION OF RECOMMENDED ALTERNATIVE**

|  |  |  |  |
| --- | --- | --- | --- |
| **POC** | **Current Annual Cost Per Household** | **Cost Per Household After Recommended Alternative Implementation** | **Notes/Comments** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**PADEP TEMPLATE REQUIREMENTS**

***Cost and Affordability Analysis:***

1. *Identify and detail the anticipated cost the Municipality estimates it will incur to meet the Feasibility Study compliance objectives and proposals.* ***SECTION 7.5*** *Coordinate cost and financing options with associated municipalities within the POC-shed and with ALCOSAN:* ***SECTION 9.1***
   1. *On a POC-by-POC basis provide an affordability analysis for the flow management strategy and specific flow management proposals outlined in for the combined portions of CSS.* ***SECTION 9.4***
   2. *Provide details on the parameters, assumptions and methods used to develop all cost estimates for the sewerage facilities outlined and proposed.* ***SECTION 7.2***
   3. *Provide supporting documentation used to develop the all cost estimates provided in the Feasibility Study.* ***SECTION 7.2***
   4. *Provide plan and profile sketches with detail sufficient to support the Feasibility Study proposal evaluation and cost assumptions outlined.* ***SECTION 7.5***
2. *Provide a proposed flow management facility funding plan sufficient to meet the estimated cost and proposed implementation schedule for the flow management facilities proposed.* ***SECTION 9.2***
3. *Provide a proposed flow management facility funding plan sufficient to meet the estimated cost proposed implementation schedule for the flow management facilities planned in coordination with other municipalities.* ***SECTION 9.2***
4. *Submit a proposal to fund and implement all O&M obligations for all existing and proposed flow management facilities outlined in the Municipality’s Feasibility Study.*
5. *Provide an O&M plan for those shared facilities proposed in coordination with other Municipality(ies) and establish a plan for the Municipality to fund these O&M obligations.* ***SECTION 9.2***
6. **Integration of Selected Alternatives**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITY TO COMPLETE THIS SECTION, IF APPLICABLE, BY PROVIDING THE FOLLOWING INFORMATION:

* PROVIDE A DESCRIPTION OF THE ALCOSAN WWP ALTERNATIVE COMPONENTS AND THE POC RECOMMENDED ALTERNATIVE COMPONENTS THAT ADDRESS FLOWS FROM THE MUNICIPALITY
* GIVE A DETAILED DESCRIPTION OF HOW THE MUNICIPALITY RECOMMENDED ALTERNATIVE WILL TIE INTO THE ALCOSAN REGIONAL WWP ALTERNATIVE AND THE POC RECOMMENDED ALTERNATIVE.

1. **Implementation** 
   1. **Implementation Schedule**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **PROVIDE FOR THE CONSTRUCTION AND IMPLEMENTATION OF ALL FEASIBILITY STUDY PROPOSED SEWERAGE FACILITIES BY THE EARLIEST PRACTICABLE DATE, HOWEVER FACILITY PLANNING SCHEDULES SHOULD NOT EXTEND LATER THAN THE ALCOSAN COMPLIANCE DEADLINE OF 9/30/2026.**
* **PROVIDE MEASURABLE IMPLEMENTATION MILESTONES FOR THE FLOW MANAGEMENT AND FEASIBILITY STUDY IMPLEMENTATION TASKS AND PROPOSALS.**
* **ON A POC-SHED BASIS, PROVIDE A MUNICIPALITY-SPECIFIC IMPLEMENTATION SCHEDULE WITH A TASK INTEGRATION, IMPLEMENTATION AND COMPLETION DEADLINE DEVELOPED IN COORDINATION WITH RELATED ALCOSAN BASIN PLANNING EFFORTS.**
* **ON A POC-SHED BASIS, FOR SHARED FLOW MANAGEMENT FACILITIES, PROVIDE A MULTI-MUNICIPAL SPECIFIC IMPLEMENTATION SCHEDULE WITH A TASK INTEGRATION, IMPLEMENTATION AND COMPLETION DEADLINE DEVELOPED IN COORDINATION WITH RELATED ALCOSAN BASIN PLANNING EFFORTS.**
* **PROVIDE A MUNICIPAL FEASIBILITY STUDY IMPLEMENTATION SCHEDULE DEVELOPED IN COORDINATION WITH, (AND AT A MINIMUM) CONSISTENT WITH, THE RELATED ALCOSAN’S POC-SHED SPECIFIC SCHEDULE PROVIDED IN ITS WWP.**
* **IDENTIFY 537 PROGRAM PLANNING RELATED OBLIGATIONS AND INCLUDE A TENTATIVE SCHEDULE FOR SUBMISSION OF THESE ITEMS TO THE APPROPRIATE AGENCY(IES). REVIEW THE ELEVEN (11) “CONSISTENCY” ITEM LISTED IN THE ACT 537 FACILITIES PLANNING ATTACHMENT.**
* **FOR EACH POC-SHED PROVIDE A POST-CONSTRUCTION COMPLIANCE MONITORING PLAN (PCCMP) AND PCCMP TASK IMPLEMENTATION SCHEDULE**
  1. **Joint Municipal Planning and Implementation**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **FOR EACH INTER-MUNICIPAL SEWAGE CONNECTION BRIEFLY DISCUSS THE FLOW MANAGEMENT PARAMETERS AND STRATEGY(IES) DEVELOPED IN COORDINATION WITH OTHER POC-SHED MUNICIPALITIES.**
* **DEVELOP AND PRESENT THE MUNICIPALITY’S FEASIBILITY STUDY PROPOSALS TO IMPLEMENT A POC-SHED-WIDE FLOW MANAGEMENT PLAN DEVELOPED IN COORDINATION WITH ALL MUNICIPALITIES THAT INTEND TO SHARE PROPOSED FACILITIES.**
* **IDENTIFY ALL MUNICIPAL SPECIFIC TASKS AND EFFORTS NECESSARY TO EFFECT THE FEASIBILITY STUDY’S IMPLEMENTATION. AS APPLICABLE INCLUDE CORRESPONDENCE FROM ALL ASSOCIATED MUNICIPALITIES WITHIN THE POC-SHED ACKNOWLEDGING THEY AGREE WITH THE COST ESTIMATES AND SHALL PARTICIPATE IN EFFECTING THE PROPOSED IMPLEMENTATION SCHEDULE FOR THE POC-SHED.**
* **FOR EACH MUNICIPAL CONNECTION TO ANOTHER MUNICIPALITY’S SEWER SYSTEM OR FOR THE POC-SHED DISCUSS FLOW MANAGEMENT STRATEGY CONFLICTS AND CONCERNS THAT SURFACED DURING THE COORDINATED MUNICIPAL FACILITIES PLANNING PROCESS. IDENTIFY THOSE ISSUES WHICH THE MUNICIPALITY PERCEIVES MAY DETER IMPLEMENTATION OF A POC-SHED BASED FLOW MANAGEMENT PROPOSAL.**
* **IDENTIFY ANY ANTICIPATED INSTITUTIONAL AND ADMINISTRATIVE OBSTACLES THAT MAY IMPEDE IMPLEMENTATION OF THE FEASIBILITY STUDY.**
* **PROVIDE A PLAN AND SCHEDULE TO OVERCOME ALL ANTICIPATED INSTITUTIONAL AND ADMINISTRATIVE OBSTACLES TO COMPLETE IMPLEMENTATION OF THE FEASIBILITY STUDY.**
  1. **Regulatory Compliance Reporting**

[INSERT MUNICIPALITY-SPECIFIC INFORMATION HERE]

MUNICIPALITIES TO COMPLETE THIS SECTION BY PROVIDING THE FOLLOWING INFORMATION:

* **DISCUSS HOW MUNICIPAL FLOW DATA AND PROPOSED FACILITY OPERATIONAL DATA WILL BE DEVELOPED AND UTILIZED BY THE MUNICIPALITY FOR COMPLIANCE REPORTING PURPOSES.**
* **PROPOSE A PLAN TO DEVELOP AND USE FLOW AND FACILITY OPERATIONAL DATA FOR COMPLIANCE REPORTING PURPOSES.**
* **PROVIDE A PCCMP DESIGNED TO DETERMINE IF THE FEASIBILITY STUDY MET ITS FLOW MANAGEMENT OBJECTIVES AND ITS IMPLEMENTATION SPECIFICS IN ADDITION TO EVALUATING THE MUNICIPALITY’S SUCCESS IN MEETING THE FEASIBILITY STUDY OBJECTIVES.**

**PADEP TEMPLATE REQUIREMENTS**

***Implementation Specifics:***

1. *Schedule:* 
   1. *Provide for the construction and implementation of all Feasibility Study proposed sewerage facilities by the earliest practicable date, however facility planning schedules should not extend later than the ALCOSAN compliance deadline of 9/30/2026.* ***SECTION 11.1***
   2. *Provide measurable implementation milestones for the flow management and Feasibility Study implementation tasks and proposals.*
   3. *On a POC-shed basis, provide a Municipality-specific implementation schedule with a task integration, implementation and completion deadline developed in coordination with related ALCOSAN basin planning efforts.* ***SECTION 11.1***
   4. *On a POC-shed basis, for shared flow management facilities, provide a multi-municipal specific implementation schedule with a task integration, implementation and completion deadline developed in coordination with related ALCOSAN basin planning efforts.* ***SECTION 11.1***
   5. *Provide a Municipal Feasibility Study implementation schedule developed in coordination with, (and at a minimum) consistent with, the related ALCOSAN’s POC-shed specific schedule provided in its WWP.* ***SECTION 11.1***
   6. *Identify 537 Program planning related obligations and include a tentative schedule for submission of these items to the appropriate Agency(ies). Review the eleven (11) “consistency” item listed in the Act 537 Facilities Planning Attachment.*
   7. *For each POC-shed provide a post-construction compliance monitoring plan (PCCMP) and PCCMP task implementation schedule.* ***SECTION 11.1***
2. *Joint Municipal Feasibility Study Planning and Implementation:*
   1. *For each inter-municipal sewage connection briefly discuss the flow management parameters and strategy(ies) developed in coordination with other POC-shed municipalities.* ***SECTION 11.2***
   2. *Develop and present the Municipality’s Feasibility Study proposals to implement a POC-shed-wide flow management plan developed in coordination with all municipalities that intend to share proposed facilities.* ***SECTION 11.2***
   3. *Identify all Municipal specific tasks and efforts necessary to effect the Feasibility Study’s implementation. As applicable include correspondence from all associated municipalities within the POC-shed acknowledging they agree with the cost estimates and shall participate in effecting the proposed implementation schedule for the POC-shed.* ***SECTION 11.2***
   4. *For each Municipal connection to another municipality’s sewer system or for the POC-shed discuss flow management strategy conflicts and concerns that surfaced during the coordinated municipal facilities planning process. Identify those issues which the Municipality perceives may deter implementation of a POC-shed based flow management proposal.* ***SECTION 11.2***
   5. *Identify any anticipated institutional and administrative obstacles that may impede implementation of the Feasibility Study.* ***SECTION 11.2***
   6. *Provide a plan and schedule to overcome all anticipated institutional and administrative obstacles to complete implementation of the Feasibility Study.* ***SECTION 11.2***
3. *Regulatory Compliance Reporting:*
   1. *Discuss how municipal flow data and proposed facility operational data will be developed and utilized by the Municipality for compliance reporting purposes.* ***SECTION 11.3***
   2. *Propose a plan to develop and use flow and facility operational data for compliance reporting purposes.* ***SECTION 11.3***
   3. *Provide a PCCMP designed to determine if the Feasibility Study met its flow management objectives and its implementation specifics in addition to evaluating the Municipality’s success in meeting the Feasibility Study objectives.* ***SECTION 11.3***