1.0 Introduction

The ALCOSAN Consent Decree (CD) [ES-1] entered on January 23, 2008 called for the submittal of ALCOSAN's Wet Weather Plan (WWP) to the United States Environmental Protection Agency (USEPA), the Pennsylvania Department of Environmental Protection (PaDEP), and the Allegheny County Health Department (ACHD) by January 30, 2013. The purpose of the WWP is to identify wastewater collection and treatment system improvements needed to meet CD requirements and to recommend an implementation plan. The CD requirements are predicated by the objectives of the Clean Water Act (CWA) and associated Combined Sewer Overflow Control Policy (CSO Policy).[ES-2] These collective regulations, by which ALCOSAN must comply; describe fundamental water quality improvement goals and requirements for developing a WWP. In an effort to emphasize the beneficial regional outcomes of the plan, ALCOSAN is now referring to the WWP as the Clean Water Plan (CWP).

Two primary objectives of the CWP include:

- Elimination of Sanitary Sewer Overflows (SSOs) and
- Control of Combined Sewer Overflows (CSOs).



In accomplishing these key objectives, the CWP is intended to:

- Identify wastewater infrastructure needs through 2046;
- As required by the 2008 CD, complete construction and begin operating all necessary improvements by September 30, 2026;
- Improve water quality in the rivers and streams; and
- Help protect designated waterway uses such as recreation, aquatic life, and drinking water supplies.

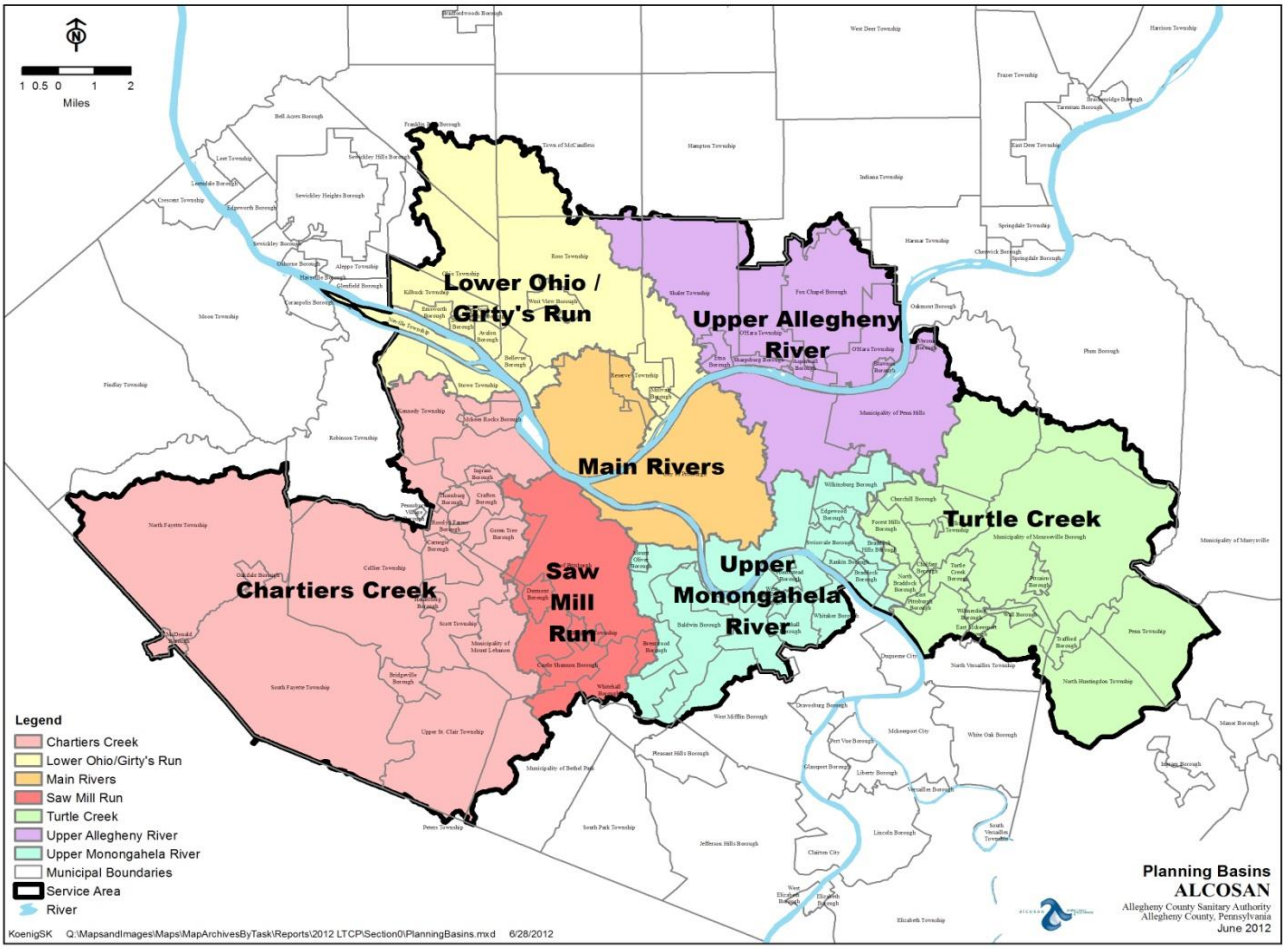
[ES-1] United States v. Allegheny County Sanitary Authority, Civil Action 7-0737.

[ES-2] EPA (U.S. Environmental Protection Agency). 1994 Combined Sewer Overflow (CSO) Control Policy. FRL-4732-7. Federal Register 59(75).

The CWP also aims to:

- Employ an inclusive and collaborative stakeholder involvement process;
- Recommend cost effective, affordable, and equitable solutions;
- Achieve broad-based public and municipal support;
- Achieve regulatory compliance and support for the compliance strategy; and
- Support the subsequent development of a regional Pennsylvania Sewage Facilities Act (Act 537) Plan.

A comprehensive wet weather planning approach was established to develop the CWP that integrated municipal and regional control activities into a long-term solution for the ALCOSAN service area. ALCOSAN's approach in developing this CWP included dividing the service area into seven planning basins to help assure the appropriate level of municipal coordination, and attention to local conditions and priorities. Planning basin teams, comprised of national and local engineering firms, were procured to develop wet weather control alternatives and facilities plans for each of the planning basins in coordination with the respective municipalities.



ALCOSAN Service Area and Planning Basins

In addition, ALCOSAN procured the services of a Program Manager that directed the planning process, evaluated system-wide alternatives, conducted a water quality benefits analysis, and prepared the CWP. The Program Manager team also provided technical guidance, standards, and coordination throughout the planning process. ALCOSAN also obtained the services of a consulting engineering firm to provide inter-basin coordination. The Basin Coordinator provided the technical oversight and coordination of the Basin Planners for conformance with standards and protocols across the seven planning basins. The Basin Coordinator also assisted ALCOSAN in coordinating the timely delivery and consistency of Basin Planner work products, the facilitation of regional stakeholder coordination workgroups, and the coordination with customer municipalities.

There have been a number of changes made to this document since its release for public and municipal review and comment, and submission to the regulatory agencies. ALCOSAN's Draft CWP was released for public and municipal comment on July 31, 2012. Overall, the most prominent comments received related to the potential for utilizing green stormwater infrastructure (GSI) and other flow reduction measures as an alternative to the grey infrastructure (pipes, tanks and tunnels) proposed in the Draft CWP. A new Section 10, *Starting at the Source: How Our Region Can Work Together for Clean Water,* has been added in response to many public comments on the subject.

Following submission of the Draft CWP to the regulatory agencies in January 2013, ALCOSAN and the agencies began negotiating an amended CD that fully embraces the use of GSI and inflow/infiltration (I/I) reduction and recognizes the financial infeasibility of completing all CD requirements by 2026, as required by the 2008 CD. Through these discussions, the regulatory agencies required a compliance strategy to proceed with the design and construction of an Interim Measures Wet Weather Plan (IWWP). A new Section 11, *Interim Measures Wet Weather Plan*, has been added describing the interim measures projects and implementation plan.

Section 1 of the CWP provides further details on the CWP goals, development process, and planning team. In addition, the section provides the CWP context, regulatory framework, CWP document organization, and an overview of CWP revisions and updates.

2.0 Municipal Coordination and Public Participation

Maintaining meaningful stakeholder participation was a critical goal in the development of the CWP. Rate payers, through their sewer bills, will pay for the associated infrastructure improvements required by the CWA. In return, they will benefit from the water quality improvements realized through implementation of the CWP. Effective coordination and communication amongst the various stakeholders provides for important guidance to the decision-making process and leads to more cost effective and universally supported wastewater improvement programs.

The ALCOSAN service area is comprised of 83 customer municipalities who own and operate their own collection sewers, while ALCOSAN owns and operates the major sewer interceptor and wastewater treatment system. This hydraulically and institutionally complex wastewater collection, conveyance, and treatment system called for intensive coordination amongst the various stakeholders, including ALCOSAN's customer municipalities, regional interest groups,

and the general public. Therefore, ALCOSAN sponsored numerous public outreach and stakeholder coordination opportunities; including seven Basin Planning Committees, a Customer Municipality Advisory Committee, a Regional Stakeholder Workgroup, and a myriad of annual public outreach forums fostering awareness and encouraging public involvement in the development of the CWP. ALCOSAN also participated in various 3 Rivers Wet Weather working group forums. Section 2 of the CWP provides further details on ALCOSAN's approach to municipal, stakeholder, and public participation in the development of its CWP.

The CD required ALCOSAN to solicit comments on the Draft CWP no later than six months prior to the January 30, 2013 due date. On June 15, 2012, ALCOSAN issued a formal public notice that the Draft CWP was available for review through legal advertisement, through e-mail and surface mail distribution lists, and through its website. ALCOSAN's Draft CWP was released for public comment on July 31st, 2012. The public comment period began with the Plan's release and ended 80 days later on October 19, 2012.

ALCOSAN conducted an extensive effort to educate and engage the public about the Draft CWP and to solicit feedback. The formal public comment process and public outreach activities are described in Section 2.5 and the supporting documentation is provided in Appendix A-8. Section 2.6 provides a summary of the public and municipal comments received on the Draft CWP and ALCOSAN responses. Supporting public and municipal comment documentation can be found in Appendix A-9.

In response to the public and municipal comments received by ALCOSAN, there have been a number of changes made to the Draft CWP since its release for public and municipal review on July 31st, 2012 and submission to the regulatory agencies during January 2013. These changes are catalogued and summarized in the new Section 2.7, *WWP Revisions and Updates*.

3.0 Existing Conditions

An accurate understanding of the existing wastewater conveyance and treatment system is an important starting point for the development of a CWP. Establishing a thorough inventory of existing infrastructure and developing an understanding as to how it is currently performing is the first step toward identifying overflow control solutions. ALCOSAN has a service area of 309 square miles and provides regional wastewater conveyance and treatment for the City of Pittsburgh and all or portions of 82 other municipalities. Roughly 17 percent of the area is served by combined sewer systems (where wastewater and storm water runoff are conveyed through a single sewer pipe system), 52 percent of the ALCOSAN service area is served by separate sanitary sewer systems (where wastewater and storm water are conveyed through two distinct piping systems), and 31 percent are non-contributing areas that are either undeveloped or served by individual on-lot systems. According to the 2010 census, there are 836,600 people who live within the ALCOSAN service area, including 13,000 who live within non-contributing areas. Roughly 41.6 percent of the service population is served by combined sewer systems, 56.9 percent of the population is served by separate sewers, and 1.5 percent live within the non-contributing areas.

ALCOSAN owns, operates, and maintains over 88.5 miles of interceptor sewers, force main sewers, and other sewer pipe categories that convey wastewater from the customer

municipalities to ALCOSAN's 250 million gallon per day wastewater treatment plant that is located on the North Side of the City of Pittsburgh. There are over 300 regulator structures along the ALCOSAN interceptor system that are owned and/or operated by ALCOSAN. These regulator structures direct all the dry weather flow to the ALCOSAN system and control the quantity of flow diverted to the ALCOSAN treatment plant during wet weather conditions. The ALCOSAN system also includes six pumping stations and two ejector stations.

There are over 4,000 miles of wastewater collection sewers that are owned, operated, and maintained by the customer municipalities, or their designated municipal authorities. There are nearly 200 municipal regulator structures located along municipal trunk sewers.

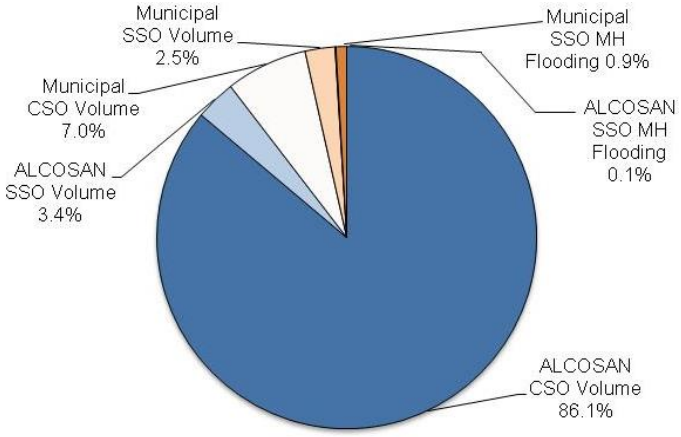
Aerial view of the ALCOSAN wastewater treatment plant

Section 3 of the CWP summarizes and documents existing conditions within the ALCOSAN interceptor system along with detailed maps of the collection system. It also documents the current understanding of the tributary sewer collection systems of the municipalities that comprise the ALCOSAN service area.

4.0 Hydrologic and Hydraulic Characterization

ALCOSAN developed and implemented a comprehensive hydrologic and hydraulic modeling program as a predictive tool for characterizing the collection system under existing conditions, future baseline conditions, and various overflow control scenarios evaluated during the development of the CWP. Predicted system performance is ultimately paired with cost estimates for alternative overflow control strategies so that cost benefit analysis can be performed and support the decision making process.

To validate the hydrologic and hydraulic model and ensure it accurately represented wastewater flow through the collection system and sewer overflow activity, system-wide precipitation and flow monitoring was conducted. The flow monitoring data were compared to the simulated model responses and the model input parameters were adjusted to facilitate a closer correlation between the observed data and the simulated response. Rainfall patterns corresponding to average or typical year precipitation



Typical Year Annual CSO and SSO Discharge Summary

values were applied to the validated hydrologic and hydraulic models to quantify and characterize the frequency, duration, and volume of CSO and SSO discharges from ALCOSAN and municipal outfalls.

The model simulations indicate that under existing conditions with typical rainfall over a 12-month period, the ALCOSAN system captures and treats approximately 77 billion gallons of wastewater flow. Approximately 9 billion gallons are discharged from the roughly 345 ALCOSAN and municipal CSO outfalls scattered throughout the service area and approximately 0.7 billion gallons of wastewater is discharged from 97 SSO outfalls.

Section 4 of the CWP summarizes the ALCOSAN monitoring and modeling programs, and documents existing condition CSO and SSO discharges.

5.0 Receiving Waters Characterization

A primary objective of the CWP is to improve water quality in rivers and streams impacted by CSO and SSO discharges. Understanding how discharges influence water quality conditions is therefore a fundamental element of the wet weather planning process. To this end, a series of monitoring programs were implemented to assess the quality of receiving waters and the impact of wet weather discharges. These programs included the monitoring of receiving waters, sanitary sewage, CSOs and industrial discharges. Monitoring data were collected and analyzed to:

- Characterize water quality conditions during wet and dry weather and for sensitive areas;
- Evaluate whether and to what extent receiving waters are in attainment with applicable water quality standards;
- Identify constituents of concern;
- Establish existing water quality conditions to serve as a baseline for evaluating the effectiveness of future control measures; and
- Support the development and validation of receiving water quality models.

The receiving water quality monitoring program included sampling at 51 locations on the three main rivers (Allegheny River, Monongahela River, and Ohio River) and select tributaries in and around the service area. Water quality conditions entering the service area were also monitored as part of characterizing the impact from CSO and SSO discharges. Each location was sampled for three wet and three dry weather events. The monitoring assessment results show that under existing conditions water quality standards established to protect water contact recreation are not being met. Results indicate that fecal coliform is the primary pollutant of concern for all ALCOSAN receiving waters.

The receiving water characterization effort included the development of water quality models used to simulate fecal coliform loadings to receiving waters from wet weather discharges and to predict receiving water quality under existing conditions, and ultimately to predict the water quality benefit of alternative overflow control strategies. The pollutant loading estimates were produced using the simulation models along with data available from existing national

stormwater quality databases, locally-collected sanitary sewage data, locally-collected industrial discharge data, and locally-collected CSO/stormwater discharge samples. The receiving water quality monitoring results were used to validate the predictive models.

Section 5 of the CWP provides further details on the characterization of receiving waters, including physical characteristics, waterway use practices, applicable water quality standards, and water quality monitoring and modeling methodology and results.

6.0 Current Conditions Financial & Institutional Assessment

The CSO Policy requires a Financial Capability Assessment to be included in the CSO Long Term Control Plan (LTCP) in order to establish the burden of compliance on both ratepayers and the permittee. The complex financial and institutional relationships between ALCOSAN as a regional conveyance and treatment authority and its 83 diverse customer municipalities provides the context for the CWP's affordability and the Pittsburgh region's ability to finance it.

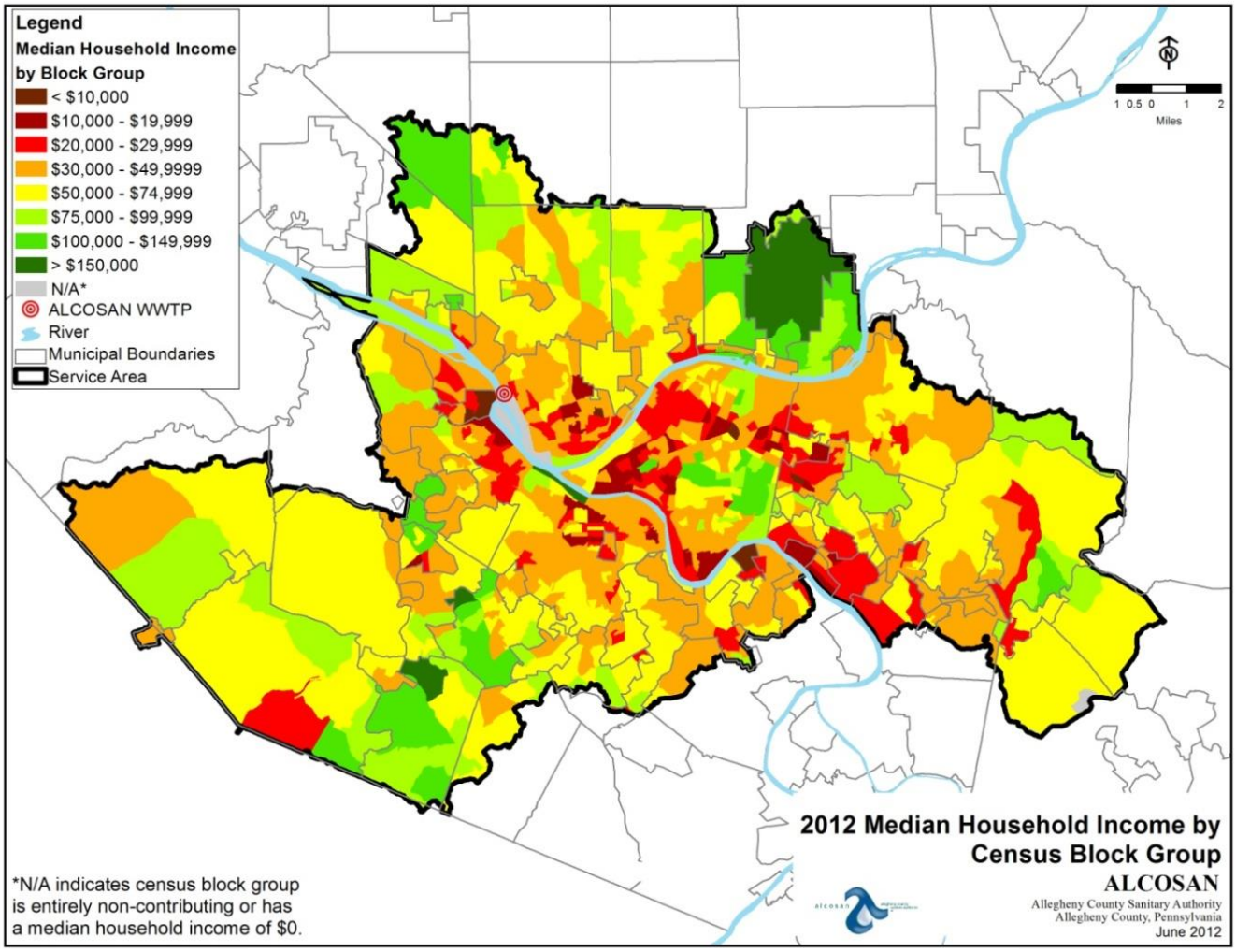
ALCOSAN's complex mix of large and small customer municipalities have ALCOSAN service populations ranging from less than 100 residents to more than 300,000. Median household incomes (2012 estimates) range from less than $18,000 to more than $220,000. The estimated 2012 ALCOSAN service area regional median household income is $46,400. All of the municipalities face local wet weather compliance costs in addition to ALCOSAN's CWP, totaling hundreds of millions of dollars. Given this diversity, and the high compliance costs, it was necessary to evaluate the "affordability" and the "financial capability" (ability to finance) of the CWP and its associated municipal investments both at the regional (ALCOSAN service area wide) and municipal levels.

Current (2012) wastewater costs including ALCOSAN and the municipal collection systems for typical households vary by municipality from less than $300 to more than $650 per year. Regionally, the current typical household costs are approximately $445 annually based upon the population weighted municipal costs. Based upon the regional annual cost estimate and the regional median household income, the typical household is currently spending about 1% of its income on wastewater services. This "Residential Indicator" constitutes a current low to medium burden under USEPA guidelines [ES-3].These guidelines suggest that a residential indicator of 2% or higher constitute a high burden on the typical household. However, the regional, ALCOSAN service area-wide number does not tell the whole story. At the municipal level, the existing indicators range from 0.2% to 2.4%. Within the lowest income areas of the municipalities, the current residential indicator can exceed 4% of Census block group median household income, indicating a very high economic burden. An analysis of economic and demographic trends over the past three United States Census cycles do not lead to expectations that household income and the ability to pay for the implementation of the CWP will improve in the future, barring new and positive economic developments in the Pittsburgh region.

Section 6 of the CWP presents a detailed assessment of the current financial and institutional environment in which ALCOSAN developed the CWP. This assessment does not include costs

[ES-3] Combined Sewer Overflows: Guidance for Financial Capability Assessment and Schedule Development, EPA 832-B-97-004 page 19.

for the implementation of ALCOSAN's CWP or for affiliated municipal compliance, renewal, or replacement costs. The financial and institutional impacts of implementing the CWP are addressed in Section 11.



2012 Median Household Income by Census Block Group

7.0 Future Conditions

To develop the CWP, ALCOSAN estimated future population and sewershed area expansion within its service area and their associated impacts to future wastewater flow. The ALCOSAN CD requires the use of a planning horizon date of 2046 for the development of the CWP, which is 20 years after the CD milestone date for the completion of the facilities, programs, and other activities specified in the CWP. The CD also requires ALCOSAN to request specific municipal planning information from its customer municipalities and integrate pertinent information into the development and assessment of alternative control measures.

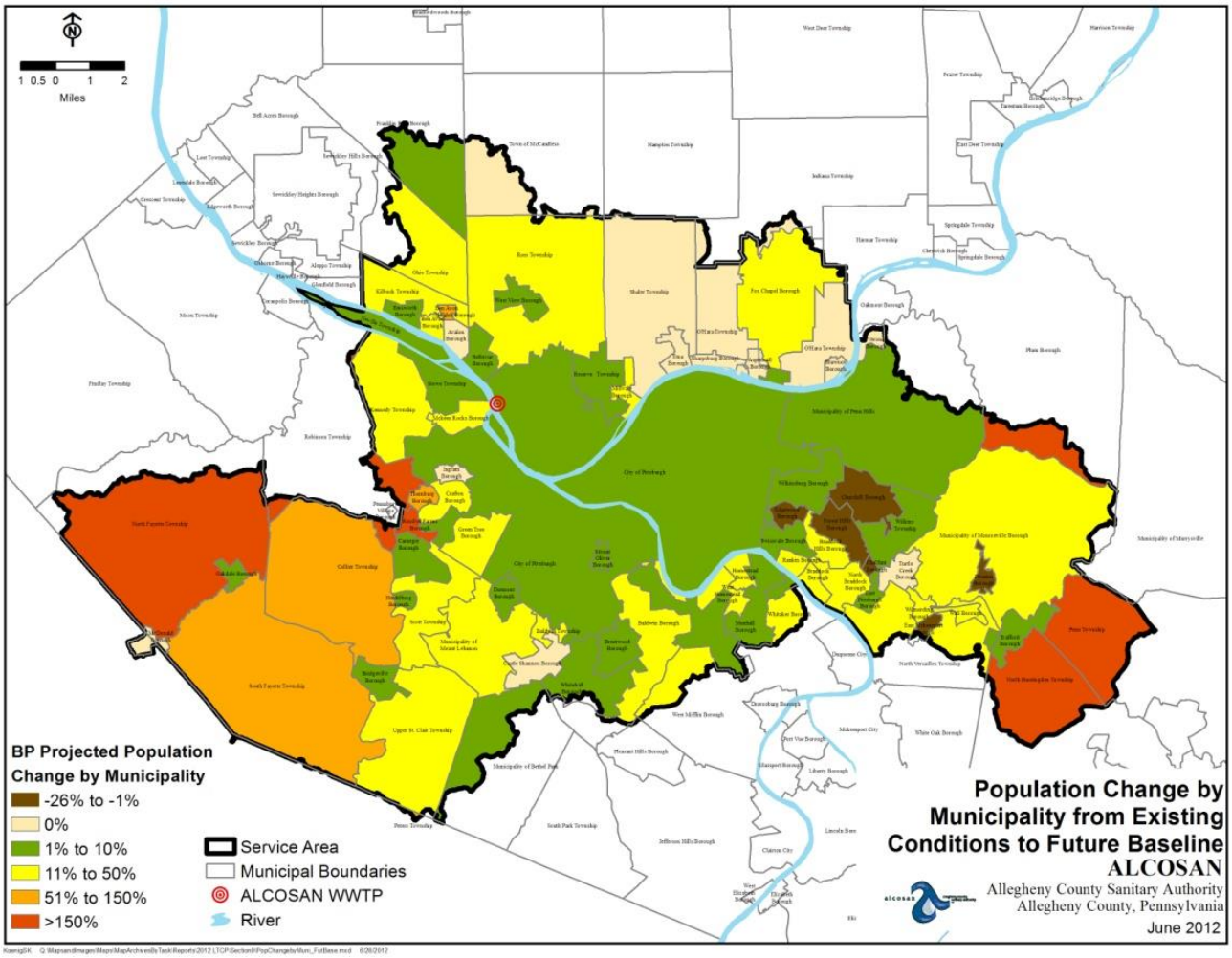
Future population projections for the ALCOSAN service area were obtained from the Southwestern Pennsylvania Commission (SPC), the regional planning agency serving the 10-county area surrounding Pittsburgh. The SPC projected the population increase within the

ALCOSAN service area for the planning period would be approximately 16 percent. Projected growth within individual customer municipalities varied greatly, and population decreases were projected in some areas. The SPC projections were discussed directly with the customer municipalities. The municipal responses were used to adjust and refine the SPC projections, identify potential sewershed growth areas, and quantify the amount of growth. The system-wide population increase projected by the customer municipalities over the ALCOSAN service area was approximately 13 percent.

Municipalities also provided projections of their anticipated sewershed growth. Some of the population growth would require extensions to existing municipal sewer systems. The system-wide sewershed area increase projected by the customer municipalities over the ALCOSAN service area was approximately 9 percent. Many of the municipalities reported they are fully built out and would not anticipate any significant expansion of their existing wastewater collection systems. Projected population growth within these municipalities would occur within sewershed areas currently served by municipal sewers via fill-in construction on empty lots, increased population within existing dwelling units, or redevelopment resulting in higher population density.

The municipal planning information was used to quantify future condition wastewater flow for the 2046 planning year. These analyses indicated that the combined effect of projected population increases, sewershed growth, and planned projects would increase the average annual dry weather flow from the customer municipalities to the ALCOSAN system by approximately 5 percent from 197 million gallons per day to 207 million gallons per day. The analyses indicated that under future conditions, projected increases to dry and wet weather flow from the customer municipalities would increase the total annual volume of CSO and SSO discharges by approximately 8 percent to 10.5 billion gallons.

Section 7 summarizes the activities ALCOSAN implemented to obtain and coordinate the needed municipal planning information for purposes of estimating future condition wastewater flow for 2046, without implementation of any remedial controls. This section also summarizes the means used to estimate population and sewershed area growth projected through 2046, the analyses that were conducted to estimate future wastewater flow under dry and wet weather conditions, and the planned projects that will impact future wastewater flow.



Population Change by Municipality from Existing Conditions to Future Baseline (2046) Conditions

8.0 Overview of Control Technology and Site Screening

A multi-phased alternatives screening and analysis process was used in the development of the CWP with regards to the evaluation and eventual selection of control technologies, alternatives, and facilities to control ALCOSAN and municipal CSOs and SSOs. The initial phase involved the screening of feasible control technologies and site locations.

A comprehensive list of technologies and practices that can be utilized to control CSO and SSO discharges was developed. These technologies were screened to arrive at a remaining (feasible) subset of technologies to be used in further site and basin alternative development. The screening process included the development of screening criteria, evaluation of each technology for each of the criteria, and determination of the feasibility of each technology.

In addition to the types of wet weather control technologies, the availability, location, and size of potential sites and routes for the construction of wet weather control facilities were identified, evaluated, and screened. Input from the municipalities was sought on the control technologies, site selection and screening process.

The feasible CSO and SSO technologies were evaluated at each site to determine the applicability of each feasible technology on a site specific basis. The preferred site alternatives were then grouped in different combinations to form potential basin alternatives. The basin alternatives were then configured, sized, cost estimated, and screened to identify preferred alternatives for each of the ALCOSAN planning basins.

Section 8 of the CWP describes the overall process used to identify, develop, and evaluate control technologies, sites, and site alternatives, and defines the standard terminology, definitions, and nomenclature specific to this process. The basin-specific results for each of the planning basins, including which site alternatives were carried forward into the subsequent basin and system-wide alternative development and evaluation process, are contained in Section 8 as well.

9.0 Alternatives Analysis

The Basin Planners developed and evaluated control technologies and site locations which formed the basis for the development of site alternatives. From there, the Basin Planners developed and sized viable site alternatives to formulate basin alternatives. The Program Manager integrated the alternatives from all seven planning basins with complementary regional alternatives to form various system-wide alternatives. Each system-wide alternative represented a complete plan to control ALCOSAN and municipal CSOs and SSOs, to a selected level of control. As prescribed by the CSO Policy, a range of CSO levels of control were evaluated, including alternatives targeting the Presumption and Demonstration Approach criteria. The "presumption approach" presumes that achievement of certain performance criteria (i.e., 4-6 untreated overflow events per year or 85 percent capture of the combined sewage generated during rainfall events) would provide an adequate level of control to not preclude attainment with water quality standards. Whereas, a "demonstration approach" entails developing and implementing a control plan that demonstrates it will not preclude attainment with water quality standards.

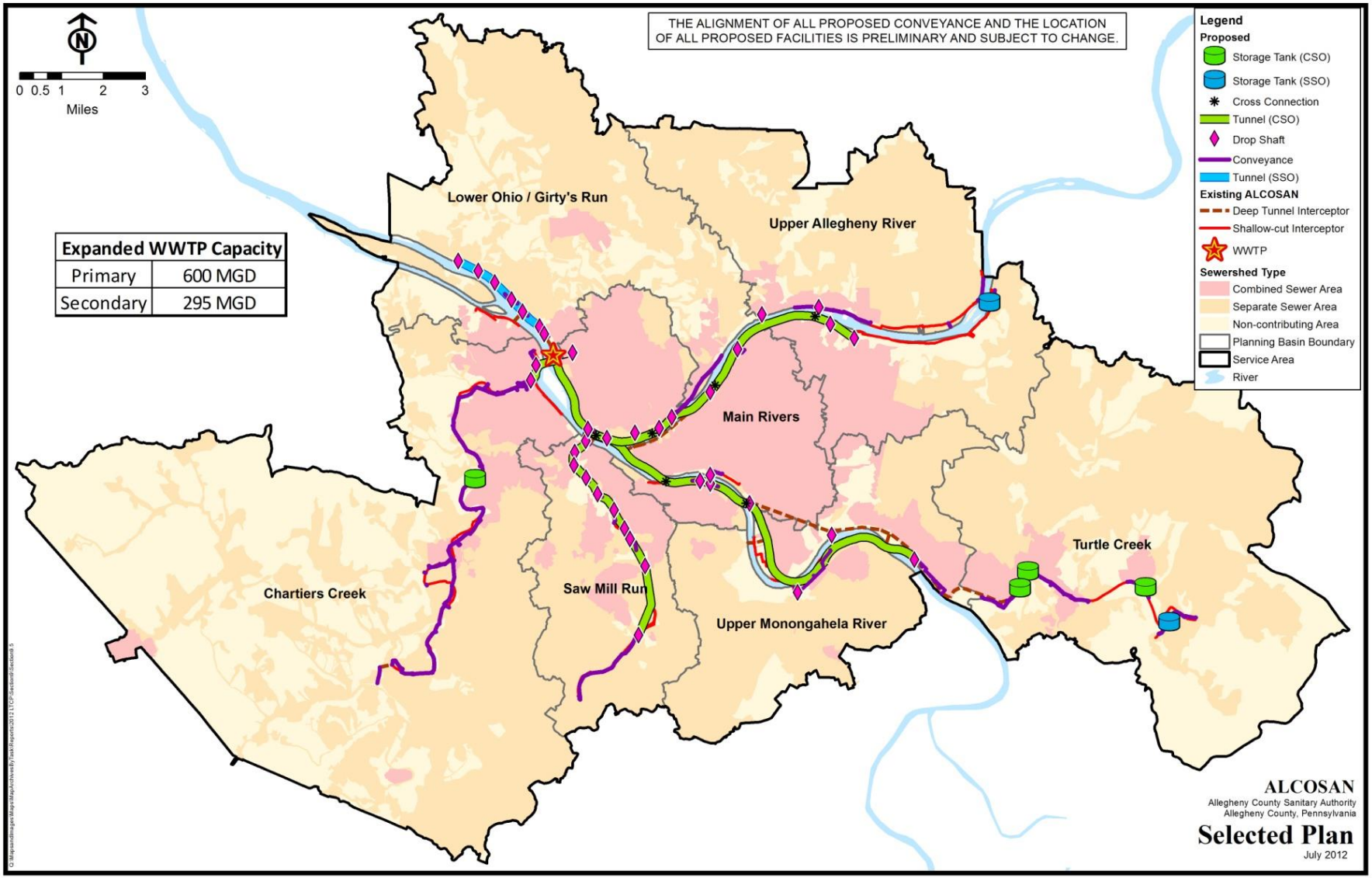
A range of SSO control levels were also considered, including the 2-year and 10-year level of control as indicated in ALCOSAN's CD. A series of system-wide alternatives analyses were conducted that supported the decision making as to how ALCOSAN proposes to eliminate SSOs from the ALCOSAN system and to control CSOs in compliance with the CWA, consistent with the CSO Policy.

ALCOSAN determined that the most cost-effective means of complying with the CD and CSO Policy requirements is via the Demonstration Approach and selected a control strategy (System-Wide Alternative 3f modified-10pct) to cost-effectively achieve CWP goals to eliminate SSOs and control CSOs such that attainment with water quality standards is not precluded by remaining discharges. This alternative is based on expanded treatment capacity at the Wood's Run wastewater treatment plant, new regional conveyance, and several remote storage facilities. An implementation analysis considered the financial impact on the rate payer and ALCOSAN as well as the feasibility of completing the Selected Plan by the 2026 CD implementation deadline. The affordability assessment concluded that implementing the Selected Plan, with an estimated planning level capital cost of approximately $3.6 billion in 2010 dollars, is cost prohibitive under a 2026 timeframe. In addition to being unaffordable through

2026, implementation of the Selected Plan would raise serious questions as to ALCOSAN's ability to obtain sufficient financing and would likely overburden the contractor, labor and material resources available to do the work cost effectively.

The CSO Policy includes provisions for the phased implementation of a LTCP based upon the relative importance of adverse impacts upon water quality standards and on financial capability. Given that implementing a $3.6 billion program through 2026 would be unaffordable, raise serious financing questions, and risk cost inefficiencies and quality control concerns, ALCOSAN considered priority improvements and control strategies that could be realistically implemented by the CD established 2026 timeframe. Affordable 2026 alternatives were therefore developed as sub-sets of the Selected Plan, such that they could serve as an initial phase of improvements towards the longer term plan. Three priority control strategies were evaluated: an alternative that focused primarily on SSO control, an alternative that prioritized water quality benefits by maximizing pollutant loading reductions, and a third alternative that provided a balance of these two priorities. Analyses of these Affordable 2026 alternatives led to ALCOSAN recommending the Balanced Priority Alternative.

Section 9 of the CWP provides a detailed summary of the alternatives analysis process. Topics discussed include the regional integration process, Woods Run wastewater treatment plant expansion scenarios, basin alternatives analysis, municipal planning coordination, system-wide alternatives analysis, a description of the Selected Plan (including a schedule and affordability analysis of this alternative), and an analysis of three Affordable 2026 Alternatives.



Selected CSO and SSO Control Strategy

10.0 Starting at the Source: How Our Region Can Work Together for Clean Water

The most prominent public comment received on the Draft CWP was for ALCOSAN to incorporate more green stormwater infrastructure (GSI) into the plan. During January 2013, ALCOSAN submitted the Draft CWP to the regulatory agencies, along with all the comments received, and requested additional time to more thoroughly address the use of flow reduction (GSI and I/I reduction) in coordination with its customer municipalities. In response to these comments, ALCOSAN initiated a regional study that identified numerous opportunities to include flow reduction measures in the CWP. The methods and results of the study were culminated in a technical report, *Starting at the Source: How Our Region Can Work Together for Clean Water*, which was submitted to each of ALCOSAN's 83 customer municipalities for review and comment. This technical report is included as a new Section 10 to this CWP with the municipal review comments received on the study included as a new Appendix D.

The study's methods and results documented in Section 10 include:

- A review of national and regional GSI and other flow reduction practices to provide perspectives as to what others are doing, what's working well, and where challenges exist;
- A regional flow reduction analysis to determine how much overflow reduction benefit could be achieved with wide-spread application of GSI and other flow reduction measures;
- A GSI feasibility screening which identified areas where GSI could be most practically considered;
- A cost-performance alternatives analysis that identified areas where GSI and other flow reduction technologies might reduce or eliminate the need for grey infrastructure improvements identified in the ALCOSAN Draft CWP and Municipal Feasibility Studies (MFSs);
- A GSI outreach program aimed at nurturing municipal interest and providing resources;

ALCOSAN'S GREEN INITIATIVES

1. **Green Revitalization of Our Waterways (GROW) Program**
   - **Commitment of financial assistance to municipal flow reduction partnership projects**
   - **Flow reduction project development support**
   - **Expand search for funding for municipalities and encourage partnerships**
2. **Collaborative development of municipal flow reduction plans**
3. **Flow reduction ordinance support**
4. **Long term flow monitoring program**
5. **Regionalization of inter-municipal trunk sewers**
6. **Green enhancements for ALCOSAN-owned wet weather facilities**

- An assessment of flow reduction incentives, including what others are doing and how various incentive approaches might work for the ALCOSAN service area; and
- The development of a regional flow reduction program that advocates for GSI and I/I reduction, including a Green Revitalization of Our Waterways (GROW) program that provides financial assistance to municipal green partnership projects..

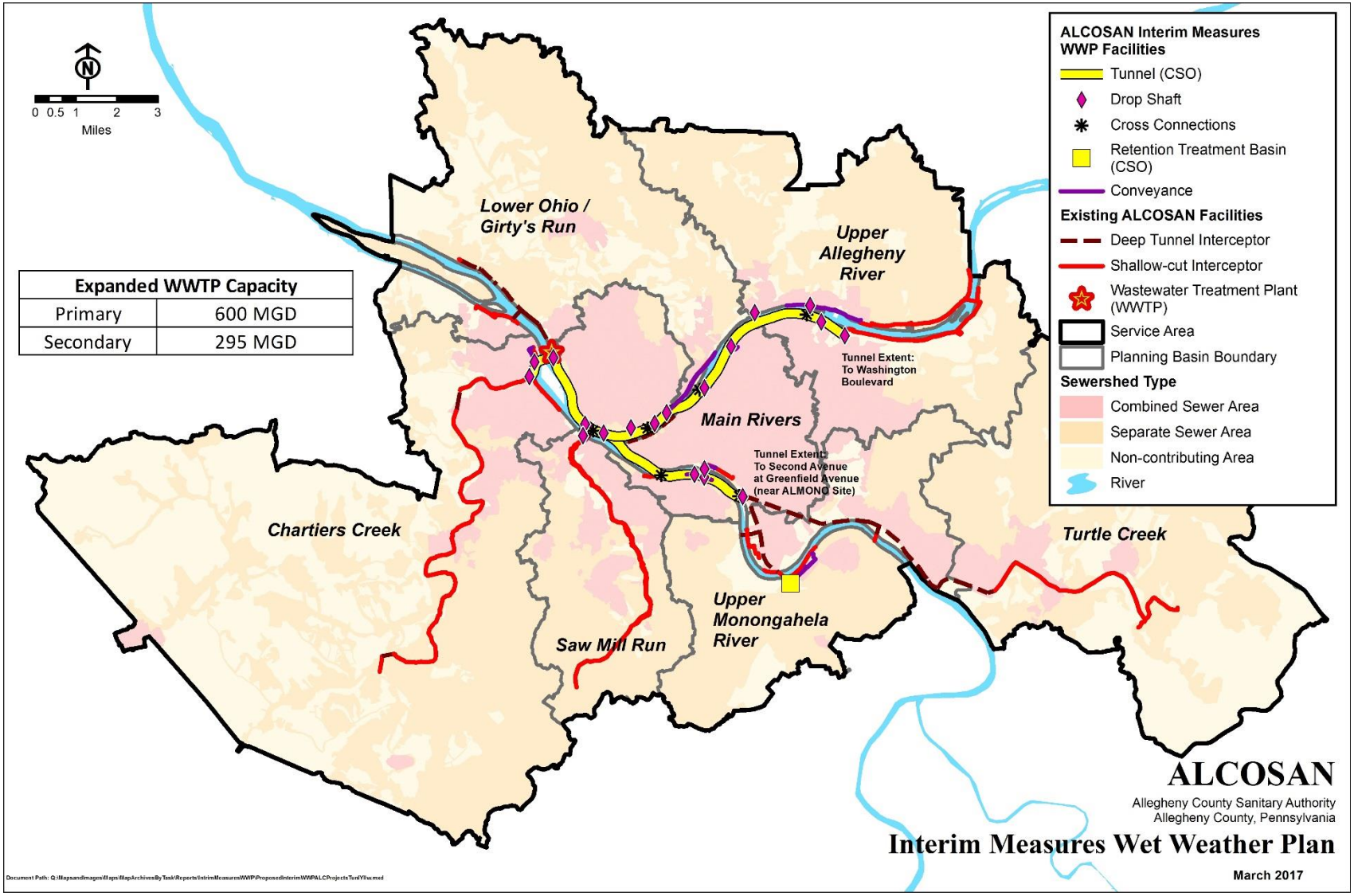
11.0 Interim Measures Wet Weather Plan

Following submission of the Draft CWP, ALCOSAN and the regulatory agencies began negotiating an amended CD that fully embraces the use of GSI and I/I reduction and recognizes the financial infeasibility of implementing all CD requirements by 2026. Through these discussions, the regulatory agencies' required a compliance strategy to proceed with the design and construction of an Interim Measures Wet Weather Plan (IWWP) that provides opportunities to integrate GSI and other flow reduction practices, while prioritizing the regionalization of inter-municipal trunk sewers and key grey infrastructure projects, where cost effective.

Since the identification of specific flow reduction project commitments requires on-going coordination with customer municipalities, the amended CD is premised on a phased and adaptive implementation framework that supports early implementation of green projects, demonstration of effectiveness, and the substitution or reduction of grey infrastructure where GSI and I/I reduction can be shown to cost effectively provide equivalent performance. Accordingly, the amended CD includes several adaptive management milestones where new information can be used to propose modifications to IWWP projects and implementation schedules. Furthermore, the IWWP was divided into three phases. Phase 1 elements focus on flow reduction, flow optimization, regionalization, existing infrastructure inspection and rehabilitation, wastewater treatment plant expansion, and preliminary planning. Phase 2 elements include projects that might be influenced by Phase 1 projects and are dependent on the completion of preliminary planning to proceed, including expanding total wet weather treatment capacity to 600 mgd and construction of the Ohio River tunnel segment. Phase 3 projects represent adaptive projects that may be influenced and modified based on the outcome of Phase 1 and Phase 2 evaluations and demonstration projects.

The IWWP currently includes $1.6 billion (in 2010 dollars) in identified ALCOSAN projects, plus an additional commitment to invest $200 million in a Regional Flow Optimization Strategy. Through the adaptive management framework, the IWWP will be revised to include additional projects up to a $2 billion affordability threshold. It is expected that municipal flow reduction projects will be identified once Municipal Source Reduction Studies are complete and priority projects to control overflows along transferred sewers will be identified once regionalization is complete.

Section 11.2 describes the IWWP elements, including ALCOSAN's Green Revitalization of Our Waterways (GROW) Program and regionalization initiatives. Section 11.3 provides an implementation plan; including a schedule, financial impact analysis, and adaptive management framework. Upon completion of the IWWP, post construction monitoring and modeling will be conducted to assess the need for additional controls (Final Measures) to meet the full requirements of the CD.



Interim Measures Wet Weather Plan Grey Infrastructure Projects