

Township of Upper St. Clair

THERE WILL BE AN INFORMATIONAL AND GENERAL AFFAIRS MEETING OF THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF UPPER ST. CLAIR AT 7:30 P.M. ON MONDAY SEPTEMBER 27, 2021 AT THE MUNICIPAL BUILDING, TOWNSHIP OF UPPER ST. CLAIR, 1820 MCLAUGHLIN RUN ROAD, UPPER ST. CLAIR, PA 15241.

AGENDA

1. Call to Order.
2. Roll Call.
3. Citizens' Comments.

INFORMATIONAL ITEMS

4. Community Development

- A. October 4, 2021 Regular Meeting Agenda Items. (Memorandum enclosed)
 1. Old Business:
 - (a.) None.
 2. New Business:
 - (b.) Recommendation Re. PLC21-0013 – Palmer Bros. Subdivision – Preliminary and Final Subdivision Approval.
- B. Other.
 - (a.) None.

5. Other Agenda and Discussion Items

- A. Discussion Re. Recognitions. (Memorandum enclosed)
 - Fire Prevention Week in Upper St. Clair, October 3-9, 2021
 - Presentation of Volunteer Fire Department Certificates of Service.

- B. Discussion Re. Updated Resolution for a Grant Contract with the Redevelopment Authority of Allegheny County Gaming Economic Development Fund for the Morton Complex/Community Gardens Connection – Phase IIB Perimeter Trail Project in Boyce Mayview Park. (Memorandum enclosed)
- C. Discussion Re. Phase II Consent Order and Agreement (COA), prepared as a cooperative effort between the Pennsylvania Department of Environmental Protection (PA DEP) and the Allegheny County Health Department (ACHD). (Memorandum and COA enclosed)

GENERAL AFFAIRS

- 1. Review of the Informational and General Affairs Meeting Minutes of August 30, 2021. (Minutes enclosed)
- 2. Consideration of the September 2021 Bill Sheet. (Bill Sheet sent electronically 9/24/21)
- 3. Acknowledge Receipt of Financial Statements for Eight-Month Period ending August 31, 2021. (Financial Statements sent electronically 9/24/21)
- 4. Adjournment.

MEMORANDUM

To: **Matthew R. Serakowski, Township Manager**

From: **Adam A. Benigni, AICP, Director of Planning and Community Development**

Date: **September 24, 2021**

Subject: **COMMUNITY DEVELOPMENT DEPARTMENT INFORMATIONAL ITEMS FOR
THE INFORMATIONAL AND GENERAL AFFAIRS MEETING OF SEPTEMBER 27, 2021**

A. OCTOBER 4, 2021 - REGULAR MEETING AGENDA ITEMS

Old Business

None.

New Business

**1. RECOMMENDATION RE. PLC21-0013 – PALMER BROS. SUBDIVISION –
PRELIMINARY AND FINAL SUBDIVISION APPROVAL**

Palmer Bros. Properties, LLC has filed an application for Preliminary and Final Subdivision Approval to subdivide the property located at 121 Amesbury Drive into two (2) lots. The Planning Commission reviewed the application on September 16, 2021 and recommended it for approval. A Bill will be prepared for consideration by the Board on October 4, 2021.

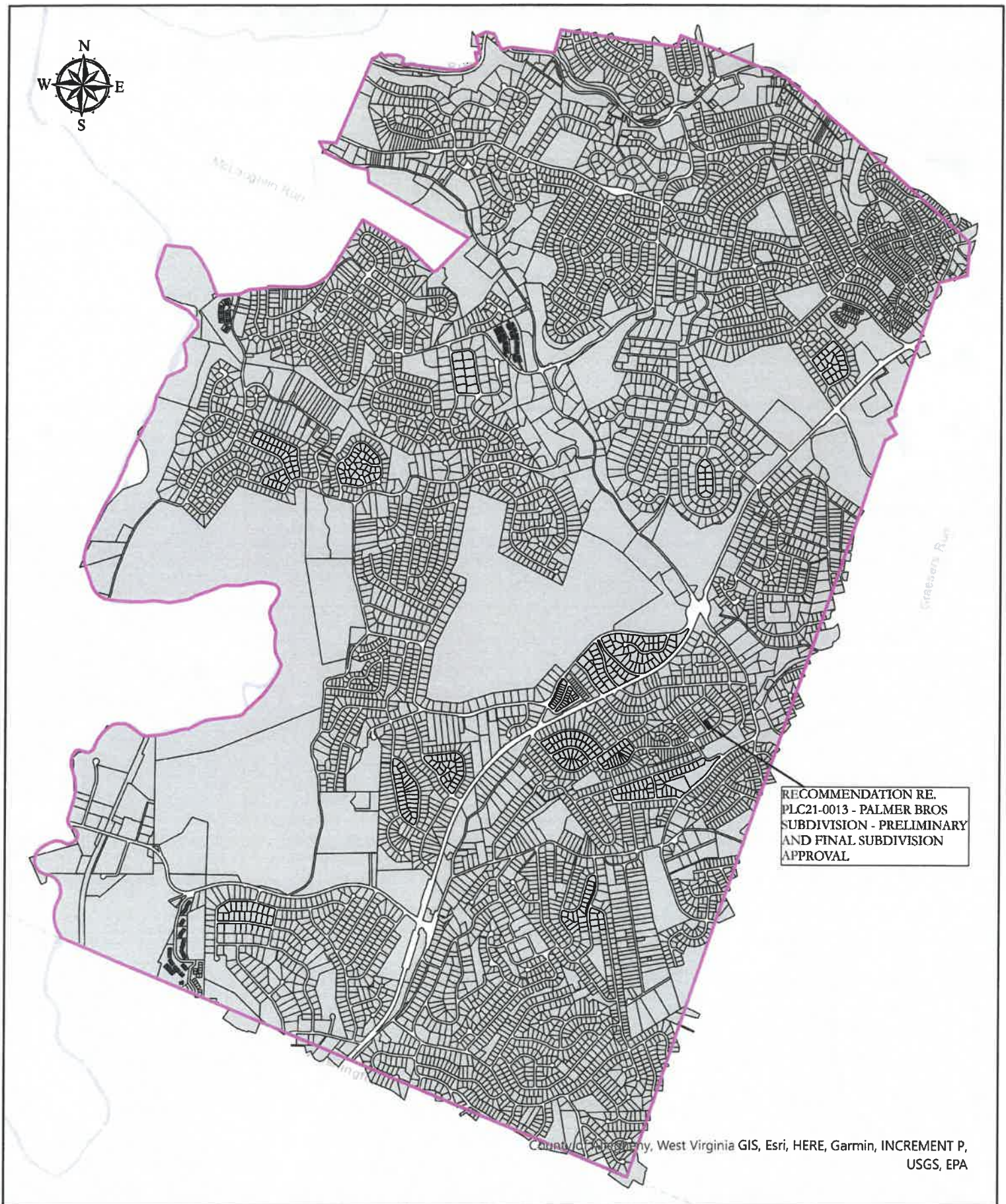
B. OTHER

None.

Attachments

1. Map of locations of Community Development Department agenda items for the meeting of October 4, 2021.

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Township of Upper St. Clair
Department of Planning and
Community Development

Community Development Department
Agenda Items for the
Informational and General Affairs
Meeting of September 27, 2021

MEMORANDUM

To: Board of Commissioners

From: Matthew R. Serakowski, Township Manager

Date: September 24, 2021

Subject: **DISCUSSION RE. FIRE PREVENTION WEEK IN UPPER ST. CLAIR (OCTOBER 3-9, 2021) AND PRESENTATION OF VOLUNTEER FIRE DEPARTMENT CERTIFICATES OF SERVICE**

In recognition of Fire Prevention Week, Staff will prepare a Proclamation for adoption at the October 4, 2021 Board of Commissioners' Regular meeting. This year's theme is, ***"Learn the Sounds of Fire Safety™"***. A Certificate of Appreciation for years of service will also be presented to the Volunteer Fire Department members listed below:

Ray Tomnay – 50 years
Russell Rauch – 45 years
Gregory Gerlach – 30 years
David Kish – 25 years
Joseph Pascarella – 20 years
Marc Chlebowski – 10 years
Alan Epler – 10 years
Lillian Caudill – 5 years

Staff will prepare the appropriate Proclamation and Certificates of Appreciation for adoption at the October 4, 2021 Regular Board meeting.

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MEMORANDUM

To: Board of Commissioners

From: Matthew R. Serakowski, Township Manager

Date: September 24, 2021

Subject: **DISCUSSION RE. UPDATED RESOLUTION FOR A GRANT CONTRACT WITH THE REDEVELOPMENT AUTHORITY OF ALLEGHENY COUNTY GAMING ECONOMIC DEVELOPMENT FUND FOR THE MORTON COMPLEX/COMMUNITY GARDENS CONNECTION – PHASE IIB PERIMETER TRAIL PROJECT IN BOYCE MAYVIEW PARK**

The Township applied for a grant through the Redevelopment Authority of Allegheny County (RAAC) Gaming Economic Development Fund (GEDF) in April 2019. The Township was awarded \$150,000 for the Morton Complex/Community Gardens Connection – Phase IIB Perimeter Trail project in Boyce Mayview Park.

Staff prepared Resolution No. 1670 in April 2019 and it was signed, at the time, by Commissioner Seitanakis. The Township has received the contract for this grant and it requires a signature by the Commissioner that originally signed the Resolution. Since Mr. Nick Seitanakis is no longer a Board Commissioner for the Township, RAAC is requiring an updated Resolution.

Staff will prepare the appropriate Resolution for the October 4, 2021 Regular Meeting of the Board.

Staff will recommend that the Resolution be adopted at the October 4, 2021 Regular Meeting of the Board.



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MEMORANDUM

To: Board of Commissioners

From: Matthew R. Serakowski, Township Manager

Date: September 24, 2021

Subject: **DISCUSSION RE. PHASE II CONSENT ORDER AND AGREEMENT (COA), PREPARED AS A COOPERATIVE EFFORT BETWEEN THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (PA DEP) AND THE ALLEGHENY COUNTY HEALTH DEPARTMENT (ACHD)**

As discussed during the presentation at the Regular Meeting of the Board of Commissioners held on Monday, August 2, 2021, as a service area community of the Allegheny County Sanitary Authority (ALCOSAN), the Township of Upper St. Clair signed the initial municipal consent order related to the assessment and long-term planning of our region's sewage infrastructure in January, 2004. Under this order, the Environmental Protection Agency (EPA) assigned enforcement responsibilities to the Pennsylvania Department of Environmental Protection (PA DEP) and Allegheny County Health Department (ACHD).

Over the last two (2) years, the PA DEP and ACHD have worked in concert with regional leaders to prepare the Phase II Consent Order and Agreement (COA) to guide ALCOSAN communities with current municipal obligations. It is required that the Township pass a Resolution authorizing its signatories to enter into the COA no later than October 31, 2021.

Enclosed is the Phase II Consent Order and Agreement for review.

This matter will be discussed further with the Board over the next two (2) Board meetings and action may be taken by Resolution on Monday, October 25, 2021 at the Informational and General Affairs Meeting of the Board.

Attachment

1. Phase II Consent Order and Agreement



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COUNTY OF



RICH FITZGERALD
COUNTY EXECUTIVE

ALLEGHENY



September 1, 2021

Matthew R. Serakowski, Manager
Mark D. Christie, President of Council
Upper St. Clair Township
1820 McLaughlin Run Road
Upper St. Clair, PA 15241

Dear Officials:

Please find enclosed the Phase II Consent Order and Agreement (COA), prepared as a cooperative effort between the Pennsylvania Department of Environmental Protection (PA DEP) and the Allegheny County Health Department (ACHD), for your authority and/or municipality.

Please review the COA and, if it is acceptable, sign and return it in accordance with the attached instructions **no later than October 31, 2021**. The COA includes a provision allowing you to self-regulate additional sewer taps under certain conditions.

Any questions or concerns regarding the terms of the COA should be coordinated through the Solicitor's Sub-Committee or Technical Sub-Committee of 3 Rivers Wet Weather, Inc. David Montz, Executive Director of the organization, can be reached at 412-578-7962. If you have a question or issue that you believe is unique to your municipality or authority, please feel free to call Michael Moskorisin at 412-578-8382 or e-mail at mike.moskorisin@alleghenycounty.us.

Sincerely,

Michael J. Moskorisin, Program Manager
Water Pollution Control & Solid Waste Management

CC: Irv / GK / AB / Jenn S / MSM



DEBRA BOGEN, MD, DIRECTOR
ALLEGHENY COUNTY HEALTH DEPARTMENT

WATER POLLUTION CONTROL & SOLID WASTE MANAGEMENT
3901 PENN AVENUE • BUILDING 5 • PITTSBURGH, PA 15224-1318
PHONE: 412.578.8040 • FAX: 412.578.8053
WWW.ALLEGHENYCOUNTY.US/HEALTHDEPARTMENT



Instructions for Submitting a Consent Order and Agreement **(COA)**

1. Enclosed for your review and action is a set of two (2) original Consent Order and Agreements.
2. If you find the COA to be acceptable for execution, please complete the following for the enclosed two copies.
 - (A) Insert information for Paragraph 23 of the COA relative to correspondence with Upper St. Clair Township.
 - (B) As required by Paragraph 32 of the COA, Upper St. Clair Township must pass a resolution authorizing its signatories to enter into the COA. Please attach a copy to both originals.
 - (C) Upper St. Clair Township's authorized representative and solicitor must sign and date both originals of the COA.
 - (D) Return both originals, along with copies of the resolutions, to the address in Paragraph 22, "Correspondence with the ACHD".
 - (E) Upon receipt of both signed original COAs and required resolutions, the ACHD will sign the COAs and return a fully executed original to Upper St. Clair Township.

ALLEGHENY COUNTY HEALTH DEPARTMENT

In the Matter of:

Upper St. Clair Township	:	Sewage Management
Allegheny County	:	Article XIV

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement ("COA") is entered into this _____ day of _____, 2021, by and between the Allegheny County Health Department ("ACHD") and Upper St. Clair Township ("Municipality").

WHEREAS, the ACHD has found and determined the following:

A. The ACHD is a health department organized under the Local Health Administration Law, Act 315 of August 24, 1951, P.L. 1304. *as amended*, 16 P.S. § 12001 *et seq.*, and executes the powers and duties vested in it by, *inter alia*, the laws of the Commonwealth of Pennsylvania, the rules and regulations of the Pennsylvania Department of Health, the ACHD's Rules and Regulations, and relevant ordinances of Allegheny County.

B. Upper St. Clair Township is a local government entity organized and existing under the laws of the Commonwealth of Pennsylvania with its principal mailing address at 1820 McLaughlin Run Road, Upper St. Clair, PA 15241.

C. The Allegheny County Sanitary Authority ("ALCOSAN") is a municipal authority formed pursuant to the Municipal Authorities Act, June 19, 2001, P.L. 287, No. 22, *as amended*, 53 Pa.C.S.A. §§ 5601 *et seq.*, and is a municipality as defined by Article XIV. ALCOSAN's mailing address is 3300 Preble Avenue, Pittsburgh, PA 15233-1092.

D. ALCOSAN owns and operates the Woods Run Sewage Treatment Plant ("Plant") which is located on the north bank of the Ohio River, in the City of Pittsburgh, Allegheny County. The Plant discharges to the Ohio River, a water of the Commonwealth, and a navigable water of the United States. The Plant treats sewage from 83 customer municipalities, including Municipality.

E. ALCOSAN owns and operates the ALCOSAN Interceptor System which collects and conveys sewage to the Plant from 83 customer municipalities, including Municipality.

F. A separate sanitary sewer system ("SSS") is a sewer system, or a part thereof, that is designed, permitted, built and operated to convey sanitary sewage and industrial waste.

G. A Sanitary Sewer Overflow ("SSO") is an unauthorized discharge of untreated sewage from an SSS. As used in this COA, the term, "SSO," may also be used to refer to a point

within the SSS or a down gradient SSS, at a location before the headworks of the Plant at which a discharge occurs from an SSS. SSOs are not authorized by any permit or regulation of the ACHD.

H. Municipality owns and operates an SSS that conveys sanitary sewage and industrial waste from within Municipality's sewer system service area directly or indirectly to the ALCOSAN Interceptor System for treatment at the Plant.

I. A combined sewer system ("CSS") is a sewer system, or a part thereof, that is designed, permitted, built and operated to convey sanitary sewage, industrial waste and storm water.

J. A Combined Sewer Overflow ("CSO") is a wet weather discharge from a CSS occurring before the headworks of the Plant. As used in this COA, the term, "CSO," may also be used to refer to a point within the CSS, at a location before the headworks of the Plant, at which a discharge occurs from the CSS. All municipalities that have CSSs with CSOs are required to obtain an NPDES Permit for these discharges.

Sewage Overflows

K. Municipality periodically contributes to the discharge of untreated sewage from one or more CSOs in CSSs downstream from Municipality's SSS and/or at the ALCOSAN Interceptor System.

L. Municipality periodically:

- i. discharges untreated sewage from one or more SSOs in its SSS;
- ii. contributes to the discharge of untreated sewage from one or more SSOs in SSSs downstream from Municipality's SSS; and/or,
- iii. contributes to the discharge of untreated sewage from one or more SSOs at the point of connection to the ALCOSAN Interceptor System.

M. Excessive flows from Municipality's SSS, as well as excessive flows from other customer municipalities, contribute to the hydraulic overloading of the ALCOSAN Interceptor System and the Plant and result in SSOs and CSOs discharging to waters of the Commonwealth.

N. Each SSO is a violation of Article XIV, Sections 1404.1 and 1404.2.

O. In 2004, Municipality entered into an Administrative Consent Order ("ACO") with the ACHD. The ACO required Municipality, *inter alia*, to conduct a Phase I Sewer System Assessment, to conduct flow monitoring, to prepare and implement an Operations and Maintenance Program Plan, to prepare and implement an SSO Response Plan and to submit to the ACHD a Feasibility Study with an alternative analysis evaluating Municipality's options to construct sewage facilities necessary to retain, store, convey and treat sewage flows from

Municipality to the ALCOSAN sewer system so as to eliminate all SSOs within Municipality's SSS.

P. The obligations of the ACO, *as amended*, terminated on March 30, 2015.

Q. On January 23, 2008, the United States District Court of the Western District of Pennsylvania entered a Consent Decree between ALCOSAN and the United States Environmental Protection Agency, the Pennsylvania Department of Environmental Protection ("PADEP") and the ACHD (collectively "Regulatory Agencies") in a case docketed at Civil Action 07-037 ("2008 Consent Decree"). The 2008 Consent Decree required, *inter alia*, ALCOSAN to submit a plan that provided for compliance with the CSO Control Policy and the elimination of SSOs within its sewer system ("Wet Weather Plan").

R. As part of its obligations under the 2008 Consent Decree, ALCOSAN conducted a synoptic flow monitoring program (the "Regional Collection System Flow Monitoring Program" or "2008 RCS-FMP") to measure flows in its sewer system and all municipal trunk sewers leading to points of connections to the ALCOSAN sewer system. The 2008 RCS-FMP included short-term and long-term flow monitoring for over 500-meter locations in the ALCOSAN service area. ALCOSAN used the information obtained from the 2008 RCS-FMP to develop a hydrologic and hydraulic (H&H) model of the municipal trunk sewers and ALCOSAN sewer system. Using the model results, ALCOSAN submitted a draft Wet Weather Plan to the Regulatory Agencies in 2013.

S. In its Wet Weather Plan, ALCOSAN reported that it could not affordably convey, store and treat all flows from its customer municipalities. The SSOs and CSOs downstream from Municipality's SSS, will continue until Municipality, as well as other customer municipalities that contribute sewage to the ALCOSAN Interceptor System, reduce flows to within an allowable hydraulic capacity.

T. In consideration of the reported financial constraints, the Regulatory Agencies and ALCOSAN negotiated a modification to the 2008 Consent Decree. On May 14, 2020, the United States District Court of the Western District of Pennsylvania entered an Amended Consent Decree in the case docket identified in Paragraph Q, above. The Amended Consent Decree allows ALCOSAN, among other things, to submit a revised Wet Weather Plan and to develop flow targets for its contributing municipalities. These measures will allow ALCOSAN to comply with the CSO Control Policy and to eliminate all SSOs under a longer schedule.

U. To achieve compliance under the CSO Control Policy and eliminate SSOs in Municipality or tributary to Municipality, Municipality must reduce wet weather flows within its SSS.

V. In 2016, Municipality entered into a COA with ACHD requiring Municipality to, *inter alia*, conduct a Source Reduction Study to identify the types of projects, or a combination of projects, that would most effectively reduce flows within areas of Municipality's SSS with high flows, to eliminate Municipality's SSOs and to reduce flows downstream from Municipality's SSS and/or at its connection with the ALCOSAN Interceptor System ("Phase I COA"). The obligations of the Phase I COA terminated on June 1, 2018.

W. For the purpose of developing metrics associated with source flow reduction, flow data from the 2008 RCS-FMP was utilized to develop a 12-month average (or otherwise reasonable period allowing for seasonal variability definition and similitude adjustment to base 2008 RCS-FMP datum) cumulative annual GWI/RDII inclusive volumetric flow rate unitized based on inch miles of mainline sewer (the “Interim Investigative Flow Target Metric Threshold” or “Threshold”). See Exhibit A.

X. As used in this COA, a municipal boundary point of connection (“POC”) is a flow monitoring location listed in the 2008 RCS-FMP Program, or an alternative metering location associated with the 2008 RCS-FMP. For purposes of this COA, a complete list of these POCs is attached and incorporated as Exhibit B.

Y. Exhibit B identifies whether Municipality’s sewer system exceeds the Threshold, and also indicates whether Municipality contributes to an active municipal SSO prior or tributary to a POC.

Z. Section 207 of the Pennsylvania Clean Streams Law, 35 P.S. § 691.207, requires any person, including Municipality, to obtain from PADEP a Water Quality Management (“WQM”) Permit prior to constructing a wastewater treatment facility or unit including, but not limited to, new sewer lines, pump stations, manholes and equalization basins.

NOW, THEREFORE, after full and complete negotiation of all matters set forth in this COA and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the ACHD and AGREED to by Municipality as follows:

1. **Authority.** This COA is authorized and issued pursuant to the Local Health Administration Law, Act 315 of August 24, 1951, P.L. 1304, *as amended*, 16 P.S. § 12001, *et seq.*; and Articles XIV and XVI, of the ACHD’s Rules and Regulations. The failure of Municipality to comply with any term or condition of this COA shall subject Municipality to any penalty or remedy allowed by law.

2. **Findings.**

a. Municipality agrees that the findings in Paragraphs A through J and N through Z are true and correct and, in any matter or proceeding involving Municipality and the ACHD, Municipality shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this COA in any other matter or proceeding.

3. a. Municipality agrees to the findings in Exhibit B or, alternatively, demonstrates to the satisfaction of ACHD within six (6) months of execution of this COA that the information in Exhibit B is inaccurate (e.g. the POC listed does not apply to Municipality or there is an error in a calculation or an active SSO indicated on Exhibit B does not exist).

b. In addition, Municipality may demonstrate that the information in Exhibit B should be updated to reflect a different flow status of a POC in relation to the Threshold due to the performance of past flow control projects and based on more recent flow-monitoring data, provided said data meets the quality assurance and quality control protocols adopted for the 2008 RCS-FMP and also that a mutually-agreed upon method to normalize the data to 2008 conditions is followed. Any such claim must be submitted to the ACHD within six (6) months of execution of this COA and approved by the ACHD.

Corrective Actions

4. a. If Municipality has one or more POCs determined to be above the adopted Threshold as set forth in Exhibit B, Municipality shall comply with the requirements of Paragraphs 5 and 6, below.

b. If Municipality has one or more POCs determined to be above the adopted Threshold as set forth in Exhibit B and has flows tributary to an SSO as set forth in Exhibit B, Municipality shall comply with the requirements of Paragraphs 5, 6 and 7, below.

c. If Municipality has no POCs determined to be above the Threshold as set forth in Exhibit B, but has flows tributary to an SSO as set forth in Exhibit B, Municipality shall comply with the requirements set forth in Paragraph 7, below.

d. If Municipality has no POCs determined to be above the Threshold as set forth in Exhibit B, and has no flows tributary to an SSO as set forth in Exhibit B, Municipality shall comply with the requirements set forth in Paragraph 8, below.

e. All Source Flow Reduction Projects (defined in Paragraphs 5 and 6, below) required under those Paragraphs must be designed to achieve a minimum source flow reduction of ten (10) percent.

5. If Municipality has one or more POCs determined to be above the adopted Threshold as set forth in Exhibit B, subject to the exceptions in Paragraph 3, above, Municipality shall implement a Source Reduction project designed to reduce inflow and infiltration below the Threshold ("Source Flow Reduction Project") within the time frames set forth in Paragraph 6, below. The Source Flow Reduction Project shall include a Design Engineers Report specifying the engineers predicted source flow reduction to be achieved by the project. In preparing this Report, the engineer can use Exhibit C, which is attached and incorporated by reference, as a guideline. Alternatively, other estimates of source reduction based on sound engineering principles and the engineer's experience with past projects may be utilized for project designs.

6. For the Municipality's SSS tributary to POCs determined by Exhibits A and B to be above the Threshold, Municipality shall complete the tasks set forth in Paragraphs 6.a through 6.f, below.

a. By May 31, 2023, pursuant to the Feasibility Study Working Group Guidelines for the Performance of Flow Isolation Studies, attached hereto as Exhibit D, Municipality shall identify and locate excess flows by conducting POC flow monitoring and

tributary system sub-unit level Flow Isolation Studies. Prior completed flow monitoring data that meets the quality assurance and quality control protocols adopted for the 2008 RCS-FMP may be used to supplement new monitoring data.

b. Municipality shall be excused from performing the obligations of Paragraph 6.a of this COA if it demonstrates to ACHD by April 30, 2022, that it will conduct viable alternate methods to identify and locate inflow and infiltration volume above the Threshold by May 30, 2023.

c. By September 30, 2024, Municipality shall, if applicable, complete a design for facilities for its Source Flow Reduction Project and submit a complete and accurate WQM Permit application to PADEP to authorize the construction of these facilities.

d. By December 31, 2025, Municipality shall, as applicable, complete implementation and construction of the Source Flow Reduction Project.

e. By June 30, 2026, Municipality shall complete post-construction flow monitoring of its Source Flow Reduction Project to determine the new unitized annual volumetric inflow and infiltration rate contributing to the POCs and the effectiveness of the Source Flow Reduction Project.

f. By December 31, 2026, Municipality shall submit to ACHD, with a copy to PADEP and ALCOSAN, a study ("Phase II Source Reduction Study") reporting on the results of its Source Flow Reduction Project and any other flow reduction efforts taken by Municipality.

7. If Municipality has flows tributary to an active SSO owned or operated by Municipality or another municipality, that are above a POC as determined by its presence on Exhibit B, Municipality shall, complete the following tasks listed in 7.a-7.g, below.

a. By May 31, 2023, Municipality shall conduct flow monitoring and field surveys sufficient to update a comprehensive hydrologic and hydraulic model of the Municipal SSS in areas tributary to an SSO.

b. By December 31, 2023, Municipality shall develop a continuous simulation calibrated hydrologic and hydraulic model using the latest version of US EPA's Storm Water Management Model ("SWMM"), or equivalent model approved by ACHD to identify causation of SSOs and complete an analysis with a chosen alternative with dates each SSO will be eliminated ("Alternative Analysis").

c. By December 31, 2023, Municipality shall submit to ACHD, with a copy to PADEP and ALCOSAN, the Alternative Analysis completed under Paragraph 7.b, above.

d. By December 31, 2026, Municipality shall eliminate its SSOs or implement a Source Flow Reduction Project in accordance with the time schedule set forth in Paragraph 7.e of this COA designed to reduce its flows in its SSS tributary to SSOs by at least ten percent ("Ten Percent Project"). Compliance with the Ten Percent Project implemented by Municipality will be

measured by determining the reduction of the inflow and infiltration rate in Municipality's SSS by at least ten percent as measured by the unitized annual volumetric inflow and infiltration gpm/d rate.

e. Municipality shall eliminate its SSOs or implement the Ten Percent Project set forth in Paragraphs, 7.e.i through 7.e.vi, below.

i. By May 31, 2023, pursuant to the Feasibility Study Working Group Guidelines for the Performance of Flow Isolation Studies, attached hereto as Exhibit D; Municipality shall identify and locate excess flows by conducting POC flow monitoring and tributary system sub-unit level Flow Isolation Studies, or other viable method to identify and locate inflow and infiltration acceptable to ACHD. Prior completed flow monitoring data that meets the quality assurance and quality control protocols adopted for the 2008 RCS-FMP may be used to supplement new monitoring data.

ii. By September 30, 2024, Municipality shall complete a design for facilities for its Ten Percent Project and, if applicable, submit a complete and accurate WQM Permit application to PADEP to authorize the construction of these facilities;

iii. By December 31, 2025, Municipality shall, as applicable, complete implementation and construction of the Ten Percent Project;

iv. By June 30, 2026, Municipality shall complete post-construction flow monitoring of its Ten Percent Project to determine the new unitized annual volumetric inflow and infiltration rate contributing to the POCs and the effectiveness of the Ten Percent Project; and

v. By December 31, 2026, Municipality shall submit to ACHD, with a copy to PADEP and ALCOSAN, a study ("Ten Percent Study") reporting on the results of its Ten Percent Project and any other flow reduction efforts taken by Municipality.

f. In complying with this Paragraph 7, where there is more than one municipality tributary to the SSO all tributary municipalities may cooperate in the effort to identify and eliminate the SSO or implement a Ten Percent Project and may actively participate in the implementation of the solutions identified pursuant to sub-paragraphs 7.d and 7.e, above.

g. In determining compliance with the requirement to implement a Ten Percent Project for an area tributary to an SSO covered by this COA, if applicable, Municipality can take credit for work completed as part of a Source Reduction Project completed in the same section of the sewer system tributary to an SSO.

8. If, as indicated in Exhibit B, Municipality has not exceeded the Threshold for its POCs and has no flows tributary to an active SSO owned or operated by Municipality and/or other municipalities, that are above existing ALCOSAN POC's (as defined in the 2008 RCS-FMP), Municipality shall do at least one of the following:

a. In accordance with the time schedule set forth in Paragraph 7.e of this COA, reduce the amount of inflow and infiltration into its SSS with a Ten Percent Project; namely, (i) identify and locate excess sewer system flows by May 31, 2023, (ii), design facilities for its Ten Percent Project and, if applicable, submit a complete and accurate WQM permit application to PADEP by September 30, 2024, (iii) as applicable, complete implementation and construction of the Ten Percent Project by December 31, 2025, (iv) complete post-construction flow monitoring to determine the new inflow and infiltration rate contributing to the POCs and the effectiveness of the Ten Percent Project by June 30, 2026, and (v) submit to ACHD, with a copy to PADEP and ALCOSAN, a Ten Percent Study reporting on the results of its Ten Percent Project and any other flow reduction efforts taken by Municipality by December 31, 2026;

b. By September 30, 2023, provide a payment(s) to another ALCOSAN Customer Municipality to assist the Customer Municipality to implement an inflow and infiltration reduction project equivalent to the amount it would cost Municipality to implement a Ten Percent Project; or

c. By April 30, 2022, enact and diligently enforce appropriate ordinances and/or rules and regulations requiring testing of private sewer laterals to Municipality's Sewer System, and the repair or replacement of said private sewer laterals that fail testing, upon the sale or transfer of any real property. The required testing of private laterals shall only include dye testing and one of the following: CCTV testing, flood testing, pressure testing, or other method of testing approved by ACHD.

d. Notwithstanding any term of Paragraph 8 to the contrary, for purposes of complying with Paragraph 8.a, above, Municipality may obtain credit for a five percent (5%) reduction of flows if Municipality can demonstrate through an engineer's report, to the satisfaction of ACHD, that Municipality has, within 48 months prior to execution of this COA, achieved a reduction of the inflow and infiltration rate in Municipality's SSS by at least five percent as measured by the unitized annual volumetric inflow and infiltration gpm/d rate. Said report must be submitted to the ACHD for review by the ACHD within 24 months of execution of this COA. Municipality will only receive the credit set forth in this sub-paragraph, 8.d, upon approval of the engineer's report by ACHD.

9. **Operation and Maintenance Plan.** Municipality shall continue implementation of the Operations and Maintenance Program Plan ACHD approved under the ACO. Also, for any Green Infrastructure Project Municipality installs as part of its Source Flow Reduction Flow Project, Municipality shall submit to ACHD for review and comment a supplemental Green Infrastructure Operations and Maintenance Plan (GI O&M Plan). Upon written notice from ACHD, Municipality shall implement the GI O&M Plan.

10. **SSO Response Plan.** Municipality shall continue implementation of the SSO Response Plan ACHD approved under the ACO.

11. **Tap Control Plans.** For new connections to its Sewer System, Municipality shall:

a. Self-regulate connections to portions of its SSS tributary to the ALCOSAN Interceptor System (i) so as not to exacerbate any existing hydraulic overload in the SSS of Municipality and/or in any sewer system into which Municipality's SSS discharges and (ii) so as not to cause any public health nuisance. Self-regulation can continue as long as Municipality is in compliance with this COA. Municipality's compliance with this COA shall constitute compliance with any current Corrective Action Plan developed under Chapter 94 of the PADEP's Rules and Regulation, 25 Pa. Code §§94.1 *et. seq.*; for the portion of its SSS tributary to ALCOSAN, and ACHD will not impose any future restrictions on tap-ins for the portion of its SSS tributary to ALCOSAN so long as Municipality is in compliance with this COA during the term the COA is in effect.

b. In areas with known basement backups of sewage within Municipality's SSS, either deny all new taps upstream of a basement backup or provide for interim protection against basement backups. Methods of protection shall include, but not be limited to, the installation of backwater valves, pressurized laterals or other methods approved by ACHD and PADEP to prevent basement backups.

c. Notwithstanding any provision or term in this COA, submit to PADEP and ACHD all necessary planning modules and revisions for any new connections pursuant to Chapter 71 of the PADEP's Rules and Regulations, 25 Pa. Code §§ 71.1 *et. seq.*

12. **Municipal Cooperation.**

a. Municipality shall reasonably cooperate with ALCOSAN to facilitate the transfer of trunk sewers currently owned by Municipality to ALCOSAN.

b. Upon the request of ALCOSAN, which shall be reasonable as to scope and time, Municipality shall supply ALCOSAN with information, to the extent that it can reasonably be obtained, concerning Municipality's SSS that ALCOSAN might need to calculate flow targets for Municipality, to design infrastructure to eliminate SSOs, and to comply with the CSO Control Policy.

c. Municipality shall reasonably cooperate with ALCOSAN and all other customer municipalities of ALCOSAN to compile data and reduce the Threshold, and, as necessary, (i) to allow ALCOSAN to calculate flow targets for Municipality, (ii) to design infrastructure to eliminate SSOs, (iii) to comply with the CSO Control Policy, and (iv) to implement ALCOSAN's Wet Weather Plan.

d. Municipality shall reasonably cooperate to reduce SSS flows with other municipalities and sewer operating authorities located or operating within any sewershed within which Municipality's SSS is located.

e. Nothing in this COA shall preclude Municipality from fulfilling some or all of its obligations with the submission of joint studies or submissions, or the implementation of joint projects with one or more other municipalities or municipal authorities within a common

sewershed, including ALCOSAN, for the purpose of pursuing a regional project or regional project management.

13. **Additional Information.** If ACHD or PADEP requires additional information to review and/or approve any submission or obligation required by this COA, Municipality shall submit the requested information within the time frame set forth by ACHD or PADEP, which shall be reasonable.

14. **Annual Progress Report.** By June 30, 2022, and annually thereafter, Municipality shall submit an annual progress report to the ACHD, with a copy to PADEP and ALCOSAN, documenting its efforts to comply with its obligations under this COA in the prior calendar year ("Annual Progress Report"). The Annual Progress Report shall be sent in hard copy or in digital form on flash drive or via email if the file size permits to the address in Paragraph 22, below, and include, but not be limited to:

- a. A description of the actions that have been taken toward achieving compliance with this COA;
- b. A description of all activities scheduled for the remainder of the COA;
- c. A description of any problems or delays encountered or anticipated regarding the performance of the activities required by this COA; and
- d. The date, time, location, and estimated flow of each SSO, including basement backups, occurring during the calendar year.

15. **Final Report.**

a. By December 31, 2027, Municipality shall submit to ACHD, with a copy to PADEP and ALCOSAN, a Final Report documenting its compliance with its obligations under this COA and a summary of the results of all tests and projects completed under this COA.

b. By December 31, 2027, Municipality shall participate in the development of a regionally prepared report reducing the Threshold based on the average inflow and infiltration rate among all customer municipalities of ALCOSAN with SSSs.

16. **Reports Under this COA.** Any tables or data contained in the reports due under this COA must be submitted in spreadsheet format or in another format as approved by ACHD, and any other text-based document must be submitted in electronic format with embedded searchable text. All reports shall be sent in hard copy or in digital form or on flash drive if the file size permits to the address in Paragraph 22, below.

17. **Stipulated Penalties.**

a. In the event Municipality fails to comply in a timely manner with any term or provision of this COA, Municipality shall be in violation of this COA and, in addition to other applicable remedies, shall pay a civil penalty of one hundred dollars (\$100) per day per violation.

b. Stipulated civil penalties shall be payable on or before the fifteenth day of the succeeding month. The payment shall be made by municipal check or the like, made payable to the "Allegheny County Environmental Health Fund" and shall be sent to the address in Paragraph 22, below.

c. Any payment under this paragraph shall neither waive Municipality's duty to meet its obligations under this COA nor preclude the ACHD from commencing an action to compel Municipality's compliance with the terms and conditions of this COA. The payment only resolves Municipality's liability for civil penalties arising from the violation of this COA for which payment is made.

d. Stipulated civil penalties shall be due automatically and without notice.

18. **Additional Remedies.**

a. In the event Municipality fails to comply with any provision of this COA, the ACHD may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the ACHD, including an action to enforce this COA.

b. The remedies provided by this paragraph and Paragraph 17 (Stipulated Penalties) are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the ACHD to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated penalty is paid.

19. **Reservation of Rights.** The ACHD reserves the right to require additional measures to achieve compliance with applicable law. Municipality reserves the right to challenge any action which the ACHD may take to require those measures.

20. **Liability of Operator.** Municipality shall be liable for any violations of the COA, including those caused by, contributed to, or allowed by its officers, agents, employees, or contractors. Municipality also shall be liable for any violation of this COA caused by, contributed to, or allowed by its successors and assigns, unless the ACHD terminates Municipality's duties and obligations under this COA pursuant to Paragraph 21.c. below.

21. **Transfer.**

a. The duties and obligations under this COA shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in Municipality's SSS or any part thereof unless agreed to by the ACHD as set forth in Paragraph 21.c, below.

b. If Municipality intends to transfer any legal or equitable interest in Municipality's SSS affected by this COA, Municipality shall serve a copy of this COA upon the prospective transferee of the legal or equitable interest at least thirty (30) days prior to the contemplated transfer and shall simultaneously inform the ACHD of such intent.

c. The ACHD, in its sole discretion, may agree to modify or terminate Municipality's duties and obligations under this COA upon transfer of Municipality's SSS. Municipality waives its rights that it may have to challenge the ACHD's decision in this regard.

22. **Correspondence with the ACHD.** All correspondence with the ACHD concerning this COA shall be addressed as follows:

Gina Caliguri, Environmental Health Compliance Officer
Water Pollution Control and Solid Waste Management Program
Consent Order Section
Allegheny County Health Department
3901 Penn Avenue, Building #5
Pittsburgh, PA 15224-1318
Email: Gina.Caliguri@AlleghenyCounty.us
Phone: 412-578-8388
Fax: 412-578-8053

23. **Correspondence with Municipality.** All correspondence with Municipality concerning this COA shall be addressed to:

Name:
Title:
Address:
Email:
Phone:

Municipality shall notify the ACHD whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this COA, including its enforcement, may be made by mailing a copy by first-class mail to the above address.

24. **Force Majeure.**

a. In the event that Municipality is prevented from complying in a timely manner with anytime limit imposed in this COA solely because of a strike, fire, flood, act of God, or other circumstances beyond Municipality's control and which Municipality, by the exercise of all reasonable diligence, is unable to prevent, then Municipality may petition the ACHD for an extension of time. An increase in the cost of performing the obligations set forth in this COA shall not constitute circumstances beyond Municipality's control. Municipality's economic inability to comply with any of the obligations of this COA shall not be grounds for any extension of time.

b. Municipality shall only be entitled to the benefits of this paragraph if it notifies ACHD within five (5) working days by telephone and within ten (10) working days in writing of the date it becomes aware or reasonably should have become aware of the event impeding performance. The written submission shall include all necessary documentation, as well as a notarized affidavit from an authorized individual specifying the reasons for the delay, the expected duration of the delay, and the efforts which have been made and are being made by Municipality to mitigate the effects of the event and to minimize the length of the delay. The initial written submission may be supplemented within ten (10) working days of its submission. Municipality's failure to comply with the requirements of this paragraph specifically and in a timely fashion shall render this paragraph null and of no effect as to the particular incident involved.

c. ACHD will decide whether to grant all or part of the extension requested on the basis of all documentation submitted by Municipality and other information available to ACHD. In any subsequent litigation, Municipality shall have the burden of proving that the ACHD's refusal to grant the requested extension was an abuse of discretion based upon the information then available to it.

25. **Severability.** The paragraphs of this COA shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

26. **Entire Agreement.** This COA shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

27. **Attorney Fees.** The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this COA.

28. **Modifications.** No changes, additions, modifications, or amendments of this COA shall be effective unless they are set out in writing and signed by the parties hereto.

29. **Titles.** A title used at the beginning of any paragraph of this COA may be used to aid in the construction of that paragraph but shall not be treated as controlling.

30. **Decisions under COA.** Any decision which the ACHD makes under the provisions of this COA, including a notice that civil penalties or stipulated penalties are due under the COA, is not intended to trigger the appeal hearing provisions of Article XI of the ACHD Rules and Regulations. Any objection which Municipality may have to the decision will be preserved until such time that ACHD enforces this COA.

31. **Termination of Obligations.** This COA, including all duties and obligations hereunder, shall terminate on December 31, 2029.

32. **Resolution.** Attached hereto as Exhibit E is a resolution of Municipality authorizing its signatories below to enter into this COA on its behalf.

IN WITNESS WHEREOF, the parties hereto have caused this COA to be executed by their duly authorized representatives. The undersigned representatives of Municipality certify under penalty of law, as provided by 18 Pa. C.S. § 4904, that they are authorized to execute this COA on behalf of Municipality; that Municipality consents to the entry of this COA as a final ORDER of ACHD; and that Municipality hereby knowingly waives its rights to appeal this COA and to challenge its content or validity, which rights may be available under ACHD's Article XIV, Section 1415; or any other provision of law. Signature by Municipality's attorney certifies only that the agreement has been signed after consulting with counsel. A copy of the resolution adopted by the governing body of Municipality authorizing the signatories below to enter into this COA on their behalf must be attached to this document by Municipality.

FOR THE ALLEGHENY COUNTY HEALTH DEPARTMENT

(Signature)

Michael Moskorisin
Program Manager
Water Pollution Control and Solid Waste Management

Date:

(Signature)

Vijyalakshmi Patel
Assistant Solicitor
Allegheny County Health Department

Date:

FOR MUNICIPALITY

(Signature)

Name:

Title:

Date:

(Signature)

Name:

Title:

Date:

(Signature)

Name:

Solicitor Title:

Date:

EXHIBIT A

Figure 2

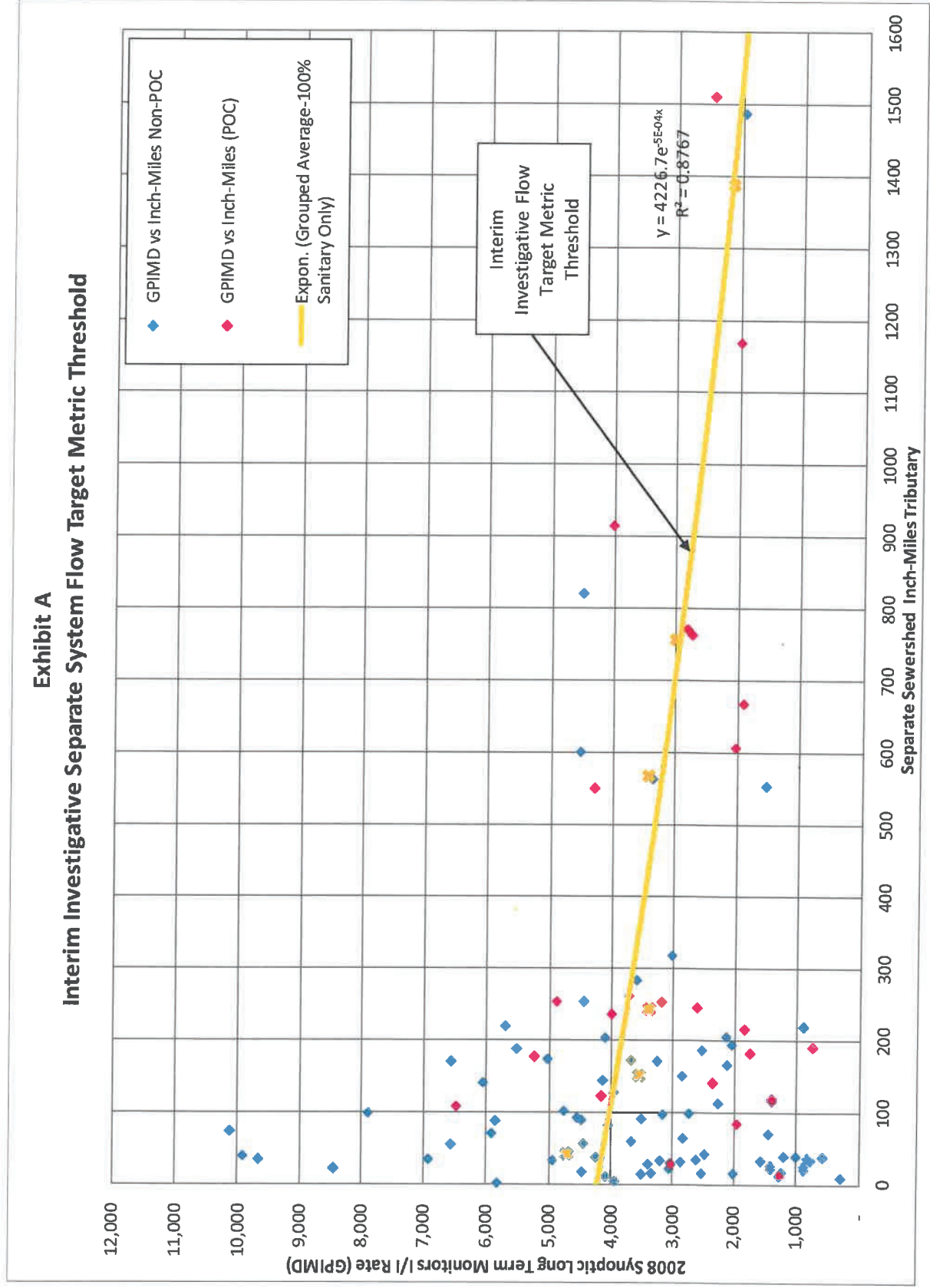


EXHIBIT B

Exhibit B represents the "existing conditions" base line analysis of 2008 flow data using the methodology contained in the Source Flow Reduction and Flow Target (SFR/FT) Subcommittee Interim Report dated February 16, 2017. The information presented in this exhibit can be re-evaluated based on the language under Item 2 "Findings of the Phase 2 COA".

2008 RCS-FMP Meters Proposed for Exhibit B Upper St. Clair Township						
RCS-FMP METER_NAME	Municipality	Trace: Classification	Net Inch-Miles Tributary	Interim Investigative Flow Target Metric Threshold (IIFTMT) (GPIMD)	Actual Net I&I Annual GPIMD	Tributary to Municipal SSO
C5300-IM-S-09	UPPER ST CLAIR	Majority	64.02	4,094	3,878	No
C5300-MB-L-05	UPPER ST CLAIR	Contributing	536.37	3,232	4,362	No
	BETHEL PARK	Contributing				
C5300-POC-L-01	MT LEBANON	Majority	196.02	3,832	2,562	No
	UPPER ST CLAIR	Contributing				
C5310-MB-L-10	SCOTT	Majority	310.42	3,619	3,049	Yes
	UPPER ST CLAIR	Contributing				
C5310-MM-L-09	BETHEL PARK	Majority	57.90	4,106	2,601	Yes
	UPPER ST CLAIR	Contributing				
C5310-OSS-L-02	BETHEL PARK	Majority	564.81	3,187	274	Yes
	UPPER ST CLAIR	Contributing				
C5310-POC-L-01	BRIDGEVILLE	Contributing	49.69	4,123	4,133	Yes
	UPPER ST CLAIR	Majority				
C5502-MB-S-08	UPPER ST CLAIR	Contributing	16.64	4,192	2,247	Yes
	PETERS	Majority				
C5502-OSS-L-04	UPPER ST CLAIR	Majority	294.23	3,648	1,356	Yes
	BETHEL PARK	Contributing				
C5502-POC-L-01	UPPER ST CLAIR	Majority	352.49	3,544	2,322	Yes

Definition of Terms and Reference:

Contributing = Greater than ~25 possible laterals contributing to system.

Full = The entire system is within single municipality.

Majority = The primary Municipality being monitored with minor other contributions.

Color key for the GPIMD shows where the value is in relation to the Gold Line Standard (GLS):

	above the line by more than 15%
	above the line but within 15%
	below the line but within 10%
	below the line by more than 10%

EXHIBIT C

Exhibit C
To
2021 COA

For purposes of projecting potential flow reductions, the table presented below, from ALCOSAN's Final January 2017 308 response, cites the findings of a 2013 WEFTEC publication¹ that identifies a range of estimated reductions associated with programs reported in literature addressing comprehensive system wide programs.

Summary of 2013 WEFTEC Publication Results

Sewer Components Included in Rehabilitation	Number of Selected Case Studies	I/I Reduction Range
Manholes-only	3	no measurable reduction - 23%
Sewer Mains-only	5	16-42%
Service Laterals-only	8	5-76% (30-75% if at least 40% of laterals were addressed)
Manholes and Mains	10	0-69% (20-69% if at least 30% of manholes and mains were addressed)
Mains and Laterals	8	17-88%
Manholes, Mains and Lower Laterals	7	0-65% (25-65% if at least 25% of system was addressed)
Manholes, Mains, Lower and Upper Laterals ("Comprehensive")	5	42-87%

¹ Oriol, Heidi G. et al., *Realistic I/I Reduction: What Can We Really Remove?*

**Feasibility Study Working Group
Document 012 (Completed)
Guidelines for the Performance of
Flow Isolation Studies
January 14, 2010**

1. Objective

The primary objective of this document is to provide those municipalities or authorities and their consulting engineers that plan to conduct flow isolation studies with guidance toward the field aspects of that activity. This guidance document is intended to be used in conjunction with the previously completed FSWG Document 009 entitled "I/I Screening Guideline/Flow Isolation Study Decision Criteria Guidelines".

2. Introduction

Document 009 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. Should flow isolation studies be deemed appropriate, this document is meant to provide background as to the general concepts and techniques typically employed in performing such studies along with guidance in securing professional services towards implementation of a flow isolation study

3. Background

Flow isolation studies on sanitary sewer systems are typically performed between the hours of 12:00 a.m. and 5:00 a.m., during which time it is presumed that the domestic sewage component of the wastewater is minimal, and therefore the measured flow essentially represents system infiltration. Obviously, if the portion of the system under consideration is in an area with 24-hour commercial/industrial customers, such an assumption may not prove valid. Those sources/areas should be identified in advance of any proposed field work. Flow isolation studies involve dividing a sanitary sewer collection system into various subunits with mainline sewer lengths approximating 1,000 to 3,000 l.f. and performing the minimum nighttime flow measurements to "isolate" the extraneous flow. Key manholes are identified within the subsystem where flow measurements are obtained during the prescribed nighttime hours. The minimum nighttime flow measurements are commonly obtained using V-notch or compound portable weirs inserted in each pipe tributary to a selected manhole. (See Appendix A for detailed information and capacities of "Thel-Mar" compound weirs). Subunit contributory flow gpd values are computed via mass balance arithmetic and converted to GPIMD (Gallons per inch-mile per day) values based on the amount of public sewer tributary to that point (in inch-miles). Those GPIMD values are then used to perform the engineering analysis evaluate excessive infiltration and subsequently rank those portions of the system that might be given highest priority for potential flow reduction projects.

4. When to perform flow isolation measurements?

Flow isolation studies need to be performed during period of high groundwater when sustained infiltration rates are elevated ideally at their highest. Typically, for the Pittsburgh area, the predominant months for these elevated groundwater conditions are January through April. Also, the measurements should not be done during or immediately after precipitation events so as not to include any potential direct inflow sources.

Document 009 Infiltration / Inflow Screening Guidelines/Flow Isolation Study Decision Criteria/Guidelines identified the maximum 30 day sustained minimum nighttime flow as a screening tool for use in determining whether flow isolation studies should be performed. Experience has shown that performing Flow Isolation studies at or near the Maximum 7 day sustained minimum nighttime flow regime yields the most comprehensive and reliable findings. For those areas where monitoring was performed as part of the recent Regional Collection System Flow monitoring Program (RCSFMP), both the maximum 7 day and maximum 30 day minimum nighttime flow values were provided as part of the summary report for each monitor. Note that the monthly time series plots provided with the RCSFMP QA/QC data plots show the 7 and 30 day sustained flow values for THAT month. It is therefore necessary to scan all monthly time series to identify the "Maximum" period of record 7 day value. Figure 1 shows the location of the 7 day value on the summary report.

Ideally, when a flow isolation program is implemented, a flow meter would be re-installed for a short term basis in at least one of the most downstream locations monitored under the RCSFMP. This is required for the purpose of determining when conditions are adequate to perform the flow isolation measurements and for providing information as to the base flow rate on the actual nights that field work is being performed to allow for the possibility of adjusting data to correlate to a uniform threshold.

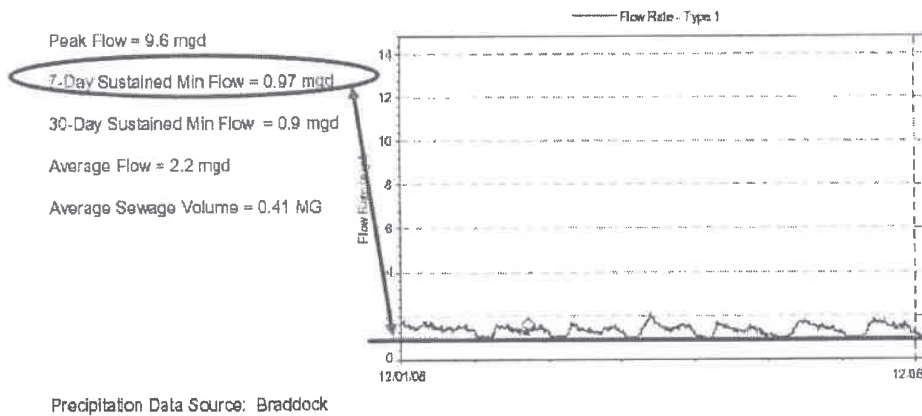


Figure 1 -- 7-Day Sustained Value

5. Who performs flow isolation measurements and where?

While it is presumed that RFP's from interested Service Providers would be issued by municipalities/authorities for the actual performance of the night time flow isolation measurements, the local engineer should perform the initial layout of the proposed work for each community and specifically be involved in making the initial selection of manholes to be accessed for night time flow measurements. Typically, the engineer needs to divide the subsystem into subunits with pipe lengths typically ranging from 1,000 to 3,000 feet of mainline sewer. (See Appendix B for example subunit drawing). Easily accessible junction manholes where multiple measurements can be made are preferred. Also, as a rule of thumb, it is presumed that a field crew can access no more than 20 manholes per night under ideal conditions. A more realistic number of manholes to be accessed is 15 per night.

It is anticipated that the selected Service Provider would be responsible to review the preliminary work plan, visit the site of the work and make recommendations as to any modifications. It is essential that the base sewer system map to be utilized for the flow isolation work clearly identify manhole numbers and pipe sizes. It is also important that the Service Provider be made aware of any pump stations located in the study area so that their potential impact can be pre-determined. The local engineer must also determine whether the Service Provider will be responsible for installing and calibrating any short term flow monitors as described above.

6. Flow Isolation Procedures

- a. Preliminary Work/Planning
 - i. A suitable base map should be prepared for each area to which flow isolation work is to be performed. The base map can be prepared from existing digital files, but must be available and legible in a hard copy format for field crews.
 - ii. The base map should include a unique identifier for each manhole to be accessed for flow measurements along with pipe diameters.
 - iii. Each sewer system should be divided into components generally as follows:
 - System (By municipality or major trunk sewer)
 - a. Subsystem (Ideally by location of previous flow monitors)
 - i. Subunit (Typically 1,000 to 3,000 foot contiguous line segments)

Key locations ideally will be at junction manholes that allow for multiple measurements. A preliminary table can be created at this time that depicts the length of sewer for each subunit along with the inch-miles of sewer for each subunit.

- iv. Install short-term flow meters at downstream-most locations recently monitored as part of the regional flow monitoring program.
 - v. Develop Request for Proposals (RFP's) for work to be performed. It is presumed that this work is considered a professional service. (See Appendix C for a proposed outline for an RFP for these services.)
 - vi. Evaluate proposals and make recommendation for contract award to a Service Provider.
 - vii. Either provide or review field forms to be utilized by Service Provider and format of summary report tables to be provided by the Service Provider. (See examples of these attached as Appendix D)
- b. Preliminary Field Work
- i. Short-term monitors re-installed as part of program should be installed and calibrated at least 2 weeks prior to the anticipated night time flow isolation work. If a permanent meter exists, the selected Service Provider will need ready access to the collected data if they are involved in the Go/No Go determination as to when the flow isolation work is to be performed.
 - ii. Service Provider should review the preliminary work plan as prepared by the local engineer and make recommendations for a modified work plan. The modified work plan should estimate the number of crew nights required for the proposed work along with any preliminary recommendations for modification of any of the manholes to be accessed. This plan should identify if the Service Provider intends to utilize multiple crews to complete all work in a given subsystem on a single night.
 - iii. Prior to performing the night time measurements, it is essential that the key manholes be accessed during daylight hours (preferably within a few days of the actual night work) by the same personnel that will be performing the night work. It is strongly recommended that either a local municipal employee familiar with the sanitary sewer system or the local engineer accompany the Service Provider for this preliminary inspection. It is also strongly recommended that the Service Provider and engineer met with the municipal police force to coordinate all nighttime activities. This work is essential for the following reasons:
 - Key manholes that were thought to be readily accessible might be difficult to access for various reasons (i.e. being buried, lacking ladder bars, being within an enclosed or other inaccessible area, etc) and alternate adjacent manholes might need to be chosen.

- Any obvious inconsistencies in the sewer system mapping can be determined and rectified.
- Locating manholes at night is very problematic unless the crew is aware of their exact location. Many key manholes will not be at easy to find locations such as street intersections.
- The preliminary site visits allows for the Service Provider to determine the exact method of flow measurement to be employed at that location, or if obtaining accurate measurements is impractical at that location.
- The preliminary visits allows for determining whether multiple crews are required or the number of nights that will be required to do the work in a given subsystem.
- Allows for notification to property owners where manholes might be located in areas where the Service Provider will need to cross private property to gain access or where a property owner would otherwise become unnecessarily alarmed. Notification procedures need to be agreed upon between the local engineer and the Service Provider.

c. Flow Isolation Measurements

The local engineer and the Service Provider must agree upon the Go/No Go conditions as to when the night time flow isolation work can be performed. A determination also needs to be made as to whether a municipal representative or a representative from the local engineer will accompany the Service Provider's field crews during the night-time work. Should this be done, it is presumed that the representative would not replace any of the Service Provider's personnel, but would be present primarily for assistance to manhole access and general observation. Once the determination is made to proceed, the following applies to the actual nighttime work to be performed.

Local police should be notified of the proposed work areas on the night of the proposed work. A contact number and exact procedures in this regard should be customized for each community. All personnel should be prepared to present identification, should wear reflective safety vests and should work out of clearly marked vehicles.

The exact time that flow isolation measurements can commence might be altered by field personnel dependent on the specific area and their observations as to level of water use activity in any given neighborhood. Since measurements are initiated at the manholes in the upper reaches of a sewer shed and progress downstream, it is generally easy to determine if there is any significant amount of domestic wastewater at the respective measuring point. If multiple crews are working in a given subsystem, they should also work upstream to downstream in different sub-areas so that their measurements do not impact each other.

FLOW MEASUREMENT;

Actual flow measurements are typically performed by one of the following techniques (ranked in order of relative accuracy):

- Bucket Measurements
- V-Notch weirs
- Area Velocity measurements
- Fluorometric measurement (aka. dye dilution)

- Bucket Measurements

This refers to those measurements that can be obtained by use of a calibrated container and a stop watch. This technique requires a drop connection into a manhole that would allow the container to be placed in such a fashion as to capture all of the flow coming out of the pipe over a given time period. This technique, when possible, is preferred to other techniques provided that:

- a. The container is adequately calibrated utilizing such items as a graduated cylinder or other previously calibrated device. Use of partial fill measurement based on factory graduation markers on the inside of buckets is not very reliable. Also, establishing partial fill calibration lines for various containers is discouraged since the technician will typically be working in low light conditions and other factors that would make use of a partially filled container less desirable. **Timed fill to overflow for a known volume bucket is the most reliable field technique.**
- b. The container fits under the drop pipe in a fashion that it can be held level and be filled to overflow while capturing all flow coming out of the pipe. The container should not be flexible or bent to force under the pipe as it could affect the calibrated volume of the container.
- c. The time to fill the container should be long enough to get a precise and repeatable reading from a stop watch. (A watch with only a second hand is not recommended). Ideally, the time to fill the container would be at least 5 seconds. Obviously, a longer repeatable fill time translates to a higher level of accuracy, and therefore, the technician should have access to multiple calibrated containers (i.e. buckets of different sizes ranging from 1 gallon through 5 gallon, low profile pans, etc.). At least 2 measurements should be obtained on each pipe to insure repeatability. 3 or more measurements should be obtained if the fill time is less than 15 seconds.

- d. Due to the need for the technician in the manhole to properly hold the bucket level, that person should call out the beginning and ending times to the person outside the manhole who should be responsible for the controlling the stop watch and logging the associated information.

The data collected and recorded on the approved field form should denote the calibrated bucket volume used for each pipe along with the individual times to fill the container to overflow. The math required to convert the raw data into a gpd flow rate should be performed in a controlled environment and independently verified as part of a quality control process.

This technique, if employed properly, yields the most reliable estimates of the actual flow rate. As such, manholes with known splash type drop connections should be considered for selection in lieu of or supplemental to manholes where other techniques are employed

- V-notch or Compound Weir –
Portable flow graduated weirs are available for taking instantaneous flow rate readings in circular sewers. This method is best utilized for low to moderate flow within a specific system. The weirs are inserted into the influent pipe and leveled by observing the integrated bubble level. After allowing an adequate period of time for the flow rate over the weir plate to stabilize, the rate of flow is determined by reading the observed water level on the weir face plate, which has lines and graduations for various flow rates. A standard V-notch weir for an 8" diameter pipe typically can measure a flow rate up to approximately 17,000 gpd prior to exceeding its capacity. While the graduations on a standard V-notch weir allow for a more accurate reading for low flow, the more commonly used weir for flow isolation is the compound weir, that incorporates a small V-notch coupled with a rectangular portion (see Appendix A for detailed information on the Thel-Mar compound weir) which typically has a capacity of 124,000 gpd for 8" diameter pipes. Regardless of the weir type utilized, it is critical to insure that there is no leakage along the perimeter of the contact area.

Common problems associated with use of weirs are situations where steep pipe slopes create sufficiently high velocity head that the flow hits the weir plate and "jumps" over the weir or causes erratic fluctuations so that a uniform flow rate is difficult to

determine. Also, using a weir in the bottom of a drop connection is not advised. Low flow conditions or low slope sewers can also make utilizing a weir difficult due to the amount of time that might be required for the flow to back-up upstream of the weir and subsequently stabilize so that the proper flow rate can be determined. Finally, since the flow graduations on the weir plate are in close proximity to each other, it is important that the technician observing the flow rate has a parallel line of sight to the weir face plate in order to read the weir accurately.

The flow rate values obtained by use of a weir should be coded as such on the approved field form and any notes should be provided by the technician as to any unusual conditions, especially those cases when some of the undesirable conditions described above exist and there is no other more accurate technique available to obtain a flow rate.

When proper techniques are employed, the resulting flow rates obtained from utilizing portable weirs can generally be considered to be within 10% of the actual flow rate.

- **Area-Velocity Measurements**

This technique is best suited for trunk or interceptor sewers where the flow rates, pipe diameters, or other conditions are not suited to utilize either weirs or bucket measurements. Generally, for AV measurements the depth of flow in the pipe being measured must be at least 1". This technique requires the technician to measure and record both the depth of flow and the average flow velocity. Those values are recorded on the approved field log for subsequent calculation of the flow rate by use of the continuity equation ($Q=AV$). The following issues are to be considered in employing this technique:

- a. Depth of flow needs to be measured as precisely as possible as even a small error (1/4 inch) can result in a significant deviation in calculated flow. Compounding the dilemma of obtaining an accurate flow depth are such issues as low lighting, difficult line of sight, and difficulties in reading depths under high flow velocity conditions.
- b. Velocity measurements utilizing a portable velocity meter must be taken at the same location as the depth locations and must represent the average velocity of the wastewater being measured. When using velocity profiling techniques it is important that the velocity "puck" not impact the cross

sectional flow area such that velocity and depth are appreciably changed. When employing this technique, the technician in the manhole should concentrate on the proper placement of the velocity probe while the top person should record the data, preferably on a separate velocity profile log sheet if several velocity readings are required. An example velocity profile log sheet is included as part of Appendix D.

Converting the velocity profile information into an average velocity and the subsequent calculation of the flow rate utilizing the continuity equation should be performed in controlled conditions and independently verified as part of a quality control process.

If attempting to use this technique to isolate various portions of a trunk sewer, it should be recognized that the results at best are typically only within 10% of the actual flow rate, with the potential for significantly greater errors if flow conditions are not ideal and if proper field techniques are not employed.

Generally, this technique will be utilized at the base subsystem where previous continuous flow monitoring data is available for use to compare base flow conditions on the night of the flow isolation work with historic infiltration rates for the subsystem. Even if the recommended installation of a short-term flow meter is employed, it is good practice to obtain a separate area-velocity reading at the meter location at the conclusion of each night's work.

- **Fluorometric Dye Dilution Technique**

This technique is independent of sanitary sewer pipe diameters, flow velocity, or depth of flow and is generally employed on large diameters sewers or very large subsystems. This technique requires that a known concentration of special dye (typically rhodamine or lithium) is continuously injected at a constant rate at a manhole in the upper reaches of a sewer system. The dye then is presumed to mix uniformly with the waste stream at the various points of collection and is diluted by water entering the system. Samples are taken at various locations and analyzed in a

fluorometer against a set of standards. The concentration of the dye is proportional to the actual flow rate using the formula $Q_2 = (Q_1 \times C_1)/C_2$ where:

Q_2 = Flow rate

Q_1 = Dye injection rate in the same units as Q_2

C_1 = The concentration of the injected dye

C_2 = The concentration of dye at the point of measurement

Due to the specialized equipment and associated training required, the precision necessary for each of the steps, and the assumption that most of the proposed flow isolation studies will not necessarily be concentrating on trunk or interceptor sewers where this technique might be more accurate than the $Q=VA$ technique, it is presumed that this technique will not be widely utilized for flow isolation work.

Plug & Measure Technique

This technique involves stopping upstream flow into a segment to more directly isolate and measure the flow entering the segment. It utilizes the bucket or weiring method described above and is generally performed on trunk sewers where an upstream manhole can safely be plugged for a sufficient period to time to allow the flow rate in the downstream segment to stabilize yet not result in any sewer overflows or back-up into basements. This technique is rarely employed as part of a night time flow isolation study, but could be considered on certain sewer segments as part of a day time follow-up verification to further isolate and quantify flow rates on various trunk sewer segments.

d. Data Compilation and Reporting

The selected Service Provider performing the flow isolation studies should perform an internal review of the field data collected and provide copies of all field forms to the local engineer. This check should evaluate continuity and mass balance considerations. In addition, the Service Provider generally is given the responsibility of providing a report and a table summarizing the actual infiltration rates observed for each sub-unit. Their work may also include a calculation of the unit infiltration rates (GPIMD) for each sub-unit. The Service Provider also needs to report the base flow rate for each subsystem for each night that flow isolation work was performed at the designated previous flow monitor location or a similar confirmation of the flow rate at an existing flow monitor. It is recommended that the data provided by the Service Provider be an extension of the preliminary table compiled by the local engineer listing the length of sewer, pipe diameter, and inch-miles attributable to each sub-area. Naturally, that table needs to be modified for any field changes in the flow isolation program.

The report and associated subsystem map will depict the distribution of infiltration for the subsystem to the sub-unit level. Thereafter, the sub-units can be evaluated and ranked with respect to priority for flow reduction projects, with the potential for a more complex ranking system when taking into account other parameters such as known structural/O&M defects that might have been identified from previous televising within the subsystem.

It is the intent to provide future Guidance Document 013 that is meant to be a cost-effectiveness analysis document that can be used in conjunction with the Flow Isolation Study report information.

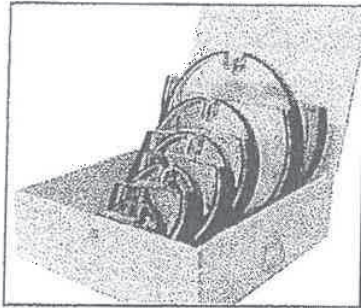
7. Requests for Proposals

Appendix C has been prepared as an outline for a potential RFP to Service Providers interested in performing various activities associated with flow isolation studies. It is presumed that the work to be performed by a third party Service Provider would be considered to be professional services. Generally speaking, most proposals for this type of work are either lump sum or based on a per-diem rate for each crew with an allowance for planning and reporting activities by the Service Provider. It is not as common for quotes to be based upon the number of manholes accessed or measurements taken.

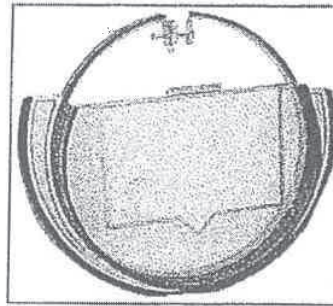
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VOLUMETRIC WEIRS

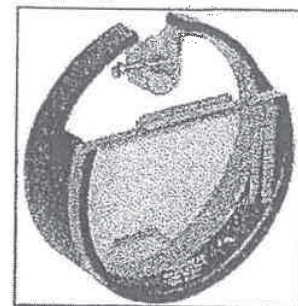
For measuring flows in Manholes and Open End Pipes



WEIR SET
(refer to back page for details)



15" WEIR WITH 18" ADAPTER



WEIR WITH BUBBLER TUBE

**The most practical, economical instrument for testing new sewer lines -
night flow studies of existing lines - free flow from open end pipe.**

A **VOLUMETRIC** calibrated weir is a portable flow measuring device that is used to determine infiltration flow in newly installed sewer lines, or measure substantial flows in existing lines.

THE THEL-MAR VOLUMETRIC weir is basically a compound weir that incorporates the advantage of a 90° V-notch for measuring small infiltration flow where accuracy is of prime importance. The V-notch section measures from 57 gallons to 3700 gallons per 24 hours, which is the range of normal Acceptance Test Requirements. The rectangular section of the weir is capable of measuring in gallons per day up to 35% of pipe capacity.

A **BUBBLE LEVEL** is mounted at the top of the weir's face plate for easy visibility. Thel-Mar weirs are calibrated in U.S. GALLONS PER 24 HOURS (METRIC WEIRS CUBIC METERS PER HOUR) in large, easy to read type. Calibration lines are in 2 millimeter increments.

DISCHARGE CALIBRATIONS for the Volumetric Weir were accurately determined in a hydraulic laboratory where manhole conditions were duplicated. Therefore, there are no induced errors by insufficient drop of the nappe or by contractions, velocity of approach, submergency, or drawdown.

RUGGED CONSTRUCTION and noncorroding materials make the Thel-Mar weir extremely reliable. There are no loose parts that require assembly. Installation is quick and positive and the weir requires a minimum of care.

A **COMPOUND WEIR** offers minimum restriction to flow and is relatively free from becoming clogged by debris from sewage. Thel-Mar weirs can be installed for extended periods of time without accumulation of sediment.

ERRORS IN EXCESS OF 100% exist in other calibrated V-notch weirs. Unlike the Thel-Mar weir these were calibrated by the cone formula.

EASY TO READ FLOW RATE Simply check water level at the face plate. The figure above the line matching the water level gives you the rate of flow in GALLONS PER 24 HOURS (METRIC WEIRS-CUBIC METERS PER HOUR).

BUBBLER FLOW METERS

Especially designed for use with Bubbler Flow Meters, all Volumetric Weirs are now available with an attached "Bubbler Tube". These weirs are manufactured with a 1/8 inch O.D. stainless steel tube attached to the right side of the adjustable ring. The bubbler tube protrudes forward approximately two inches from near the top of the ring for easy connection to a line. It runs from there down the inside of the ring to approximately 1 3/8-inch behind and below the V-notch. This bubbler tube does not in any way affect the function of the Volumetric Weir.

INSTALLATION INSTRUCTIONS

Prior to installation, the interior edge of the incoming pipe should be cleared of sediment and foreign matter to assure seal of the gasket.

Turn thumb-wheel to extreme right. Place hand through weir opening, with thumb and index finger compress spring. Insert weir into incoming pipe about 1", and release tension from spring. Secure by turning thumb-wheel to left and finger tighten.

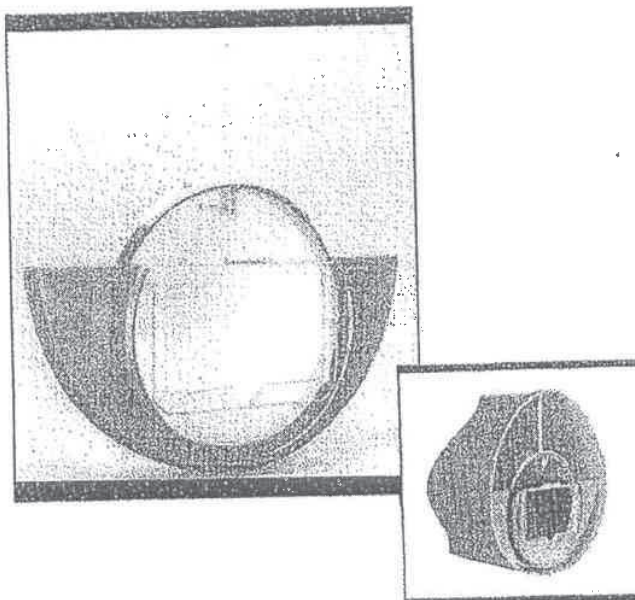
Allow sufficient time for water to back up and behind the weir and establish a uniform flow; five to ten minutes for existing flow to an hour for accurate infiltration readings.

15" WEIR WITH ADAPTOR INSTALLED IN 24" PIPE

Individual Volumetric Weirs are available for 6", 8", 10", 12", 14", 15" and 16" pipe. The 14" weir uses a 12" face plate. Adaptors for 18", 21", 24", 27", 30", 36", 42" and 48" pipe are used in conjunction with the 15" weir.

Volumetric Weirs are also available in a set. Set A consists of 6", 8", 10", 12" and 15" weirs with an 18" adaptor and carrying case with handle and hasp. It measures 19 1/2"W x 19 1/2"D x 7 1/2"H. Set B is similar and designed to be used with Bubbler Flow Meters.

Adaptors are available individually or in a set. Set C consists of 21" through 48" adaptors. No carrying case included.



WEIR CAPACITIES AND HEAD

CAPACITIES*			HEAD**
6"	57 to 3700 GPD within V-notch,	rectangular to 46,000 GPD	2.8437
8"	57 to 3700 GPD within V-notch,	rectangular to 124,000 GPD	4.0000
10"	57 to 3700 GPD within V-notch,	rectangular to 234,000 GPD	5.1250
12"	57 to 3700 GPD within V-notch,	rectangular to 361,000 GPD	5.8125
14"	57 to 3700 GPD within V-notch,	rectangular to 361,000 GPD	5.8125
15"	57 to 3700 GPD within V-notch,	rectangular to 610,000 GPD	7.3125
16"	57 to 3700 GPD within V-notch,	rectangular to 610,000 GPD	7.3125
Bulkhead Weir	57 to 3700 GPD within V-notch,	rectangular to 610,000 GPD	7.3125

* Calibration lines are in 2 millimeter increments.

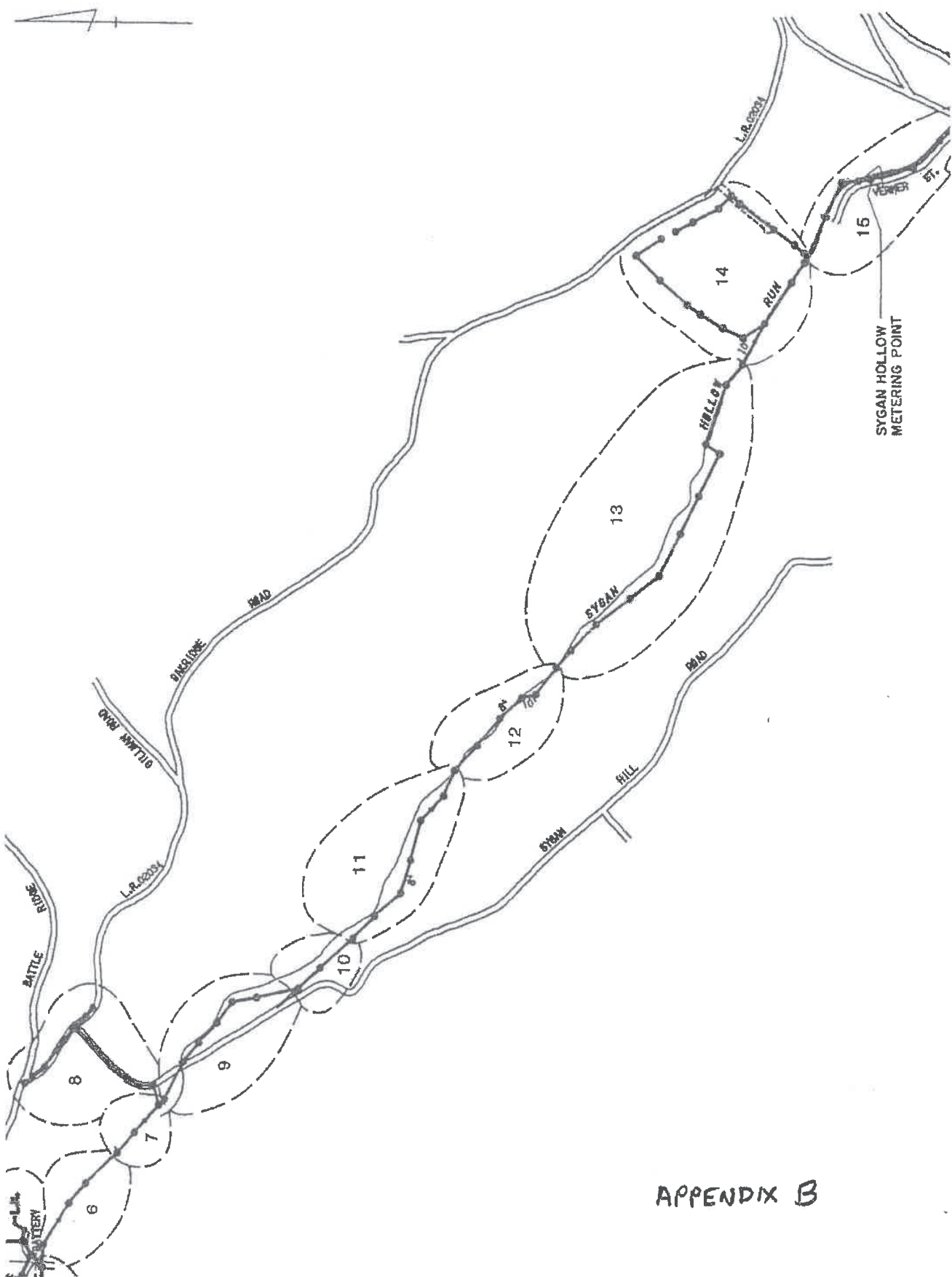
** In inches from top of rectangular opening to bottom of V-notch.

TABLE III-8

SUBSYSTEM NO. 7 - SYGAN HOLLOW AREA

Subarea	Pipe Size	Approx. Length (Feet)	Inch Miles	Infiltration (GPD)	GPIMD
1	8"	1,750	2.65	2,630	992
2	8"	1,510	2.29	920	402
3	8"	1,090	1.65	2,420	1,468
4	8"	640	0.97	10,160	10,473
5	8"	780	1.18	1,720	1,459
6	8"	1,170	1.77	1,720	973
7	8"	510	0.77	41,570	53,987
8	8"	1,910	2.89	2,740	948
9	8"	1,600	2.42	160	66
10	8"	620	0.94	3,030	3,223
11	8"	1,690	2.56	300	117
12	10"	400	0.76		
	8"	840	1.27	2,360	1,163
13	10"	3,200	6.06	760	125
14	10"	1,040	1.97		
	8"	2,990	4.53	380	58
15	10"	1,910	3.62	2,130	588
		23,650	38.30	73,000	1,906

APPENDIX B



APPENDIX B

**FSWG Document 012 – Appendix C
RFP Sample Cover Letter**

S a m p l e

Insert Date, 20__

Contact Information/Address

**Subject: Insert Municipality/Authority
Flow Isolation Measurements
Request for Proposals**

Dear _____:

The INSERT MUNICIPALITY/AUTHORITY, Allegheny County, Pennsylvania, will receive proposals for Flow Isolation Measurement Field Work.

Proposals will be received at INSERT PLACE until INSERT TIME/DATE.

The INSERT MUNICIPALITY/AUTHORITY is soliciting proposals for Flow Isolation Measurement Field Work services to be conducted in the spring wet weather season in accordance with the attached Technical Specifications (Attachment A). An executed Attachment B (Fee Proposal and Agreement) must be provided with the proposal submission.

Should you have any questions, please call.

Sincerely,

INSERT Contact Information

REQUEST FOR PROPOSAL AND SPECIFICATIONS
Flow Isolation Measurement Field Work
FOR
INSERT MUNICIPALITY

1. **GENERAL:** INSERT MUNICIPALITY is requesting proposals from qualified firms to provide Flow Isolation Measurement Field Work. The purpose of this work is to isolate areas within INSERT MUNICIPALITY that have excessive base infiltration flows within the system. The FSWG Working Document 012 is provided herein as a reference.
2. **MAPPING:** Attached is mapping of the INSERT MUNICIPALITY showing the scope of the flow isolation measurement work. The manholes identifiers shown on the map should be strictly adhered to when performing the flow isolation measurements.
3. **SCOPE OF SERVICES:**
 - a. Install flow monitor at INSERT FLOW MONITOR DESIGNATION and maintain in accordance with standards identified in the RCS-FMP.
 - b. Perform field and office review of preliminary scope of work attached to this RFP and identify in writing of any suggested or required modifications.
 - c. Meet with the local engineer and establish with the municipality the "Go/No Go conditions" as to when the night time flow isolation work can be performed.
 - d. Meet and establish with the municipality to determine whether a municipal representative or a representative from the local engineer will accompany field crews during the night-time work.
 - e. Meet and establish with the municipality the local police contact information as well as municipal specific notification procedures.
 - f. Perform night-time flow isolation measurements (two rounds) in accordance with the techniques identified in FSWG Document 012 (attached).
 - g. Perform flow balance review in accordance with FSWG Document 012 (attached).
 - h. Provide deliverables "PROJECT DELIVERABLES" section of this RFP.
4. **EQUIPMENT AND CONFINED SPACES:** Provide standard confined space access safety equipment and standard traffic control devices. All field crew staff shall be Confined Space Entry trained and adhere to all federal, state and local rules, regulations, and requirements regarding confined space entry. Provide all necessary flow measuring devices, tools, vehicles etc. as required to complete the flow isolation scope of work.

5. PERFORMANCE OF THE WORK: Mobilize field crews experienced in flow obtaining flow isolation measurements.
6. INSURANCE: INSERT ANY MUNICIPAL SPECIFIC INSURANCE REQUIREMENTS
7. FORM OF PROPOSAL: Each proposal must include a completed Fee Proposal and Agreement Form in the format provided in Attachment B.
8. PROJECT DELIVERABLES:
 - Provide copies of all field forms to the local engineer
 - Provide a report and a table summarizing the actual infiltration rates observed for each sub-unit along with a calculation of the calculated GPIMD rates for each sub-unit. Report the base flow rate for each subsystem for each night that flow isolation work was performed at the designated previous flow monitor location or a similar confirmation of the flow rate at an existing flow monitor.
9. SCHEDULE: INSERT ANY MUNICIPAL SPECIFIC SCHEDULE REQUIREMENTS

ATTACHMENT B

**FEE PROPOSAL AND AGREEMENT
CONTRACT NO. _____
FLOW ISOLATION MEASUREMENTS**

DATE: _____

FEE PROPOSAL

Company Name: _____

Address: _____

Telephone: _____ FAX: _____

ITEM	Initial Round of Flow Isolation Measurements Including Preparatory Work	Second Round of Flow Isolation Measurements
	LUMP SUM	LUMP SUM
TOTAL LUMP SUM FEE	\$ _____	\$ _____

AGREEMENT

I, _____, a duly authorized representative of
_____ do hereby agree to provide INSERT
NAME OF MUNICIPALITY all required services in accordance with the prescribed schedule
and for the amount shown above.

Signature _____ Date _____

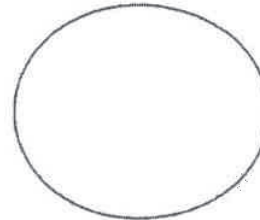
Title _____

**CIRCULAR SEWER FLOW ISOLATION DATA
PORTABLE V-NOTCH WEIR METHOD**

Date: _____
Client: _____
System: _____
Subsystem: _____
Calculated By: _____ Checked By: _____

Manhole Designation: _____
Time of Measurement: _____ From MH _____ To MH _____
Descriptive Location: _____

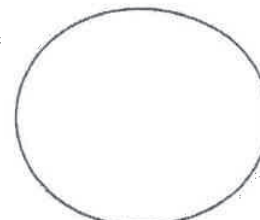
Comments: _____



Manhole Plan View
(Sketch Additional Geometry and Measurements)

Manhole Designation: _____
Time of Measurement: _____ From MH _____ To MH _____
Descriptive Location: _____

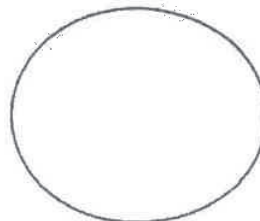
Comments: _____



Manhole Plan View
(Sketch Additional Geometry and Measurements)

Manhole Designation: _____
Time of Measurement: _____ From MH _____ To MH _____
Descriptive Location: _____

Comments: _____



Manhole Plan View
(Sketch Additional Geometry and Measurements)

Circular Sewer Flow Isolation Data 0.9 Vmax Method

Date: _____
 Client: _____
 System: _____
 Subsystem: _____
 Calculated: _____ Checked: _____

Where: c = Ratio of Area @ d to A-full
A = Full Flow Area (sf)
V = Measured Velocity (fps)
Conversion Factor for cfs to mgd = (cfs)*(0.646317)

Pipe Cross Sectional Area	
Pipe Diameter	Full Flow Area
D (in)	A full (sf)
6	0.196
8	0.349
10	0.545
12	0.785
14	1.088
15	1.232
16	1.396
18	1.766
20	2.181
21	2.404
24	3.140

Ratio $\frac{d}{D}$	Ratio $\frac{A @ d}{A \text{ full}}$	Ratio $\frac{d}{D}$	Ratio $\frac{A @ d}{A \text{ full}}$
0.10	0.05	0.60	0.63
0.15	0.10	0.65	0.70
0.20	0.13	0.70	0.76
0.25	0.19	0.75	0.82
0.30	0.24	0.80	0.87
0.35	0.32	0.85	0.92
0.40	0.37	0.90	0.95
0.45	0.45	0.95	0.98
0.50	0.50	1.00	1.00
0.55	0.55		

Measurement at MH	From MH	Pipe Diameter D (in)	Flow Depth d (in)	Ratio $\frac{d}{D}$	Measured Velocity (fps)	Ratio @ $\frac{A @ d}{A \text{ full}}$	Flow Rate $Q = c \cdot A \text{ full} \cdot V \text{ avg}$	
							(Q cfs)	(Q mgd)
				V avg (fps)				
				V avg (fps)				
				V avg (fps)				

EXHIBIT E

**EXHIBIT E
RESOLUTION**

Upper St. Clair Township
Allegheny County, Pennsylvania

RESOLUTION NUMBER ()

The undersigned and authorized representatives of Upper St. Clair Township hereby certify that at a meeting held on the ____ day of _____, 2021, after due notice, at which a quorum was present, Upper St. Clair Township adopted the following Resolution:

NOW, THEREFORE, BE AND IT HEREBY IS RESOLVED, as follows:

_____, _____ and
(name) (title)

_____, _____ of
(name) (title)

Upper St. Clair Township are hereby authorized to execute the signing of the Consent Order and Agreement from the Allegheny County Health Department and to forward the signed Consent Order and Agreement to the Allegheny County Health Department in a timely manner.

It is certified that the above Resolution is in full force in effect as of this _____ day of _____, 2021.

NAME

(SEAL)

(Signature)

(Title)

(Signature)

(Title)

**BOARD OF COMMISSIONERS INFORMATIONAL
AND GENERAL AFFAIRS MEETING MINUTES**

August 30, 2021

The Informational and General Affairs Meeting of the Board of Commissioners of the Township of Upper St. Clair, duly advertised and posted in accordance with law, was called to order at approximately 7:30 PM, Monday, August 30, 2021, in the Board of Commissioners' Meeting Room, Township Municipal Building, 1820 McLaughlin Run Road, Upper St. Clair, PA 15241.

PRESENT:	Commissioner Paoly	Vice President
	Commissioner Burlingame	
	Commissioner Enck	
	Commissioner Orchowski	
	Commissioner Plutko	
	Matthew R. Serakowski	Township Manager
	Mark S. Mansfield	Assistant Township Manager
	Mark P. Romito	Director of Finance
	Adam A. Benigni	Director of Planning & Community Development
	Irving S. Firman	Township Attorney
	Jennifer Slagle, P.E.	Township Engineer
	Laura Long	Recording Secretary
EXCUSED	Commissioner Christie	President
	Commissioner Pardini	

PUBLIC: Approximately (one) 1 person was in attendance.

CITIZENS' COMMENTS

None.

INFORMATIONAL ITEMS

COMMUNITY DEVELOPMENT – OLD BUSINESS

None.

COMMUNITY DEVELOPMENT – NEW BUSINESS

Recommendation Re. PLC15-0008 – Acceptance of Public Improvements in the Bedner Estates PRD.

Mr. Benigni stated that Bedner Farms Estates, L.P. has requested acceptance of the public improvements in the Bedner Estates Planned Residential Development. All requirements have been met, the improvements have been inspected and found to be acceptable. A Bill will be prepared for consideration by the Board on September 7, 2021.

In response to Commissioner Plutko's inquiry regarding a streetlight, Mr. Benigni stated that this would be discussed more next week.

Commissioner Paoly asked if there were any additional comments from the Board and there were none.

OTHER AGENDA AND DISCUSSION ITEMS

Discussion Re. Recognition of Eagle Scout

Commissioner Paoly stated that Commissioner Christie reached out to him prior to the meeting and requested to present the recognition to John Scherer at the Regular Meeting of the Board on September 7, 2021 since he was also an Eagle Scout.

Discussion Re. Appointment of a Representative and Alternate to the Governing Board of the Chartiers Valley District Flood Control Authority

Mr. Serakowski stated that the Township has been a member of the Chartiers Valley District Flood Control Authority (CVDFCA) since its inception in 1967. As a matter of housekeeping, each participating community has been tasked with appointing a primary and alternate representative to the Governing Board of the Chartiers Valley District Flood Control Authority.

Mr. Serakowski shared that he currently represents the Township and sits on the Executive Board of the CVDFCA. Staff will be prepared to make a recommendation for approval next Tuesday evening.

A Resolution has been prepared reappointing Matthew R. Serakowski, Township Manager, as the primary representative. The Township Manager's designee shall serve as the alternate representative as needed, in accordance with the Home Rule Charter and Township Code.

Commissioner Paoly asked if there were any additional comments from the Board and there were none.

Discussion Re. Approval of Contract for Janitorial and Cleaning Services for Township Buildings.

Mr. Mansfield stated that the Board of Commissioners unanimously voted to reject the only bid for Janitorial and Cleaning Services for Township Buildings at its August 2, 2021 Regular Meeting.

This project was duly advertised again to accept bids on Tuesday, August 24, 2021. Only one (1) of the four (4) pre-qualified vendors, Patton Building Services, Morgantown, WV, submitted a bid for Janitorial and Cleaning Services for Township Buildings in the amount of \$601,264.03 for a four (4) year contract (three years plus one option year). This is the same company who originally submitted a bid for this service in July and was awarded the C&RC contract.

Patton's rebid amount came in 17% lower than their original bid in which the bidder, as part of their base bid, had mistakenly included cleaning services for the former School District wing of the Township building that is currently vacant. Although still higher than the prior three-year contract, increase wages and supply costs are contributing factors.

Funding for these services is allocated under contractual services in the General Fund Budget. Staff will therefore recommend that the proper Township Officials be authorized to enter into a four-year Janitorial and Cleaning Services contract for Township Buildings with Patton Building Services in the amount of \$601,264.03 at the September 7, 2021 Regular Meeting of the Board.

In response to Commissioner Plutko's inquiry, Mr. Mansfield and Mr. Firman confirmed that when the wing of the municipal building renovation project has been finished it would not fall under this contract. There would need to be a new contract at that time.

Conversation ensued between Commissioner Enck and Mr. Mansfield regarding the increased cost of the Cleaning Services contract in comparison to the previous vendor. Mr. Mansfield stated that the Township has looked into varied options and scenarios. In response to Commissioner Enck's inquiry, Mr. Mansfield stated that taking on some cleaning services in-house was considered; however, overnight cleaning by a contractor is preferred as it does not conflict with daily work schedules.

Commissioner Paoly asked if there were any additional comments from the Board and there were none.

Discussion Re. Approval of Contract for Manhole to Manhole Lining Project.

Mr. Mansfield stated at its August 2, 2021 Regular Meeting, the Board of Commissioners unanimously voted to reject all the bids for the Township's Manhole to Manhole Lining contract that were opened on July 13, 2021.

This project was duly advertised again to accept bids and on Tuesday, August 24, 2021, four (4) pre-qualified vendors submitted bids for the Township's Manhole to Manhole Lining contract. Standard Pipe Services, Newark, DE was the best responsible bidder in the amount of \$151,200.00

The funding source for the Manhole to Manhole Lining contract is allocated in the Sanitary Sewer Fund for Corrective Sewer Line Rehabilitation.

Staff will recommend that the proper Township Officials be authorized to enter into a contract with Standard Pipe Services in the amount of \$151,200.00 at the September 7, 2021 Regular Meeting of the Board.

In response to Commissioner Orchowski's inquiry regarding the amount of the previously rejected bid, Mr. Mansfield stated that it was not a legitimate bid due to not having a bid bond. Mr. Mansfield shared that Standard Pipe Services lowered their bid from the first bidding.

Commissioner Paoly asked if there were any additional comments from the Board and there were none.

Discussion Re. Approval of Contracts for PH-5 Next Generation Facility Improvements.

Mr. Mansfield stated on Tuesday, August 24, 2021, pre-qualified vendors submitted bids for separate Prime Contracts for the PH-5 Next Generation Facility Improvements to the space in the Township Building formerly occupied by the Upper St. Clair School District, and to the Library and Police Departments.

The following vendors were the best responsible bidders for each of the following contracts:

Contract-1 General Construction Work	TBI Contracting McKeesport, PA	\$4,342,500.00
Contract-2 Plumbing & Fire Protection Work	Shipley Plumbing Cranberry Township, PA	\$ 932,000.00
Contract-3 HVAC Work	East West Manufacturing & Supply, Co. Pittsburgh, PA	\$1,090,000.00
Contract-4 Electrical Work	Allegheny City Electric, Inc. Pittsburgh, PA	<u>\$ 887,000.00</u>

Total for all four (4) contracts \$7,251,500.00

This project will be funded by the 2021 Bond Issue and be reflected in the Capital Budget.

Staff will recommend that the proper Township officials be authorized to enter into the above contracts at the Regular Board Meeting on September 7, 2021.

Commissioner Orchowski inquired about the qualification process and mentioned that he was surprised that some of the better-known vendors did not make the list of successful bidders. Mr. Mansfield shared that Mr. Romito and Mr. Edelmann conducted a thorough vetting process.

Commissioner Orchowski inquired if any provisions have been made regarding the potential of supply chain issues and inclement weather delays in regards to the project timeline. In response, Mr. Mansfield stated that the initial work scheduled is indoors and should not be affected by poor weather. He shared that Mr. Edelmann has spoken with the project contractors regarding this issue. He shared that there is always a chance of delays; however, given the contractor conversations, they feel confident with the timeframe.

Commissioner Orchowski clarified that he is more concerned with the potential of additional charges than the project completion date. Mr. Mansfield stated that Staff will relay these concerns with Mr. Edelmann and review the contracts to see that they are written in a way to best address these issues.

Mr. Serakowski shared that supply chain needs along with the ability to get materials to keep the project on budget and on time has been the top priority. He stated that Staff will stay ahead of these concerns and will continue to monitor them.

Commissioner Paoly asked if there were any additional comments from the Board and there were none.

GENERAL AFFAIRS

Review of the Informational and General Affairs Meeting Minutes of July 26, 2021.

Conversation between Commissioner Orchowski and Mr. Firman ensued regarding the section of the minutes that related to the Manhole to Manhole lining project. Mr. Firman stated that no additional explanation was provided in the minutes since there had been no discussion as to why the bid was rejected.

Commissioner Burlingame moved to approve the Informational and General Affairs Meeting Minutes of July 26, 2021. This was seconded by Commissioner Enck and carried with a 5-0 voice vote.

Consideration of the August 2021 Bill Sheet.

Commissioner Enck stated that the Bill Sheet was reviewed and moved for approval of the August 2021 Bill Sheet, which was seconded by Commissioner Burlingame and approved with a 5-0 voice vote.

Acknowledge Receipt of Financial Statements for the Seven-Month Period ending July 31, 2021.

Commissioner Enck stated that she reviewed the financial statements and found them in order and asked Mr. Romito to share additional comments. Mr. Romito stated that he had no additional comments.

In response to Commissioner Orchowski's inquiry regarding the surplus for the C&RC, Mr. Romito stated that the figure cited in the transmittal memo reflects year-to-date performance for 2021 and that the overall C&RC Fund reserve remains solid.

Commissioner Paoly acknowledged receipt of the Financial Statements.

ADJOURNMENT

Commissioner Paoly stated that the Board will be meeting later this evening in Executive Session to discuss legal and personnel matters.

Commissioner Burlingame moved to adjourn the Informational & General Affairs Meeting, which was seconded by Commissioner Plutko. This was approved by a 5-0 voice vote and the meeting was adjourned at approximately 7:47PM.

Laura Long
Recording Secretary
August 30, 2021

LITIGATION REPORT - SUMMARY
TOWNSHIP OF UPPER ST. CLAIR
August 27, 2021

I. CASES WHERE TOWNSHIP IS PLAINTIFF

- A. Township of Upper St. Clair v. Barbara Jean Depp Family Trust (No. CV-192-2020) (Magistrate Arnoni).
- B. Township of Upper St. Clair v. Path Generations, LLC (No. CV-222-2020) (Magistrate Arnoni).
- C. Township of Upper St. Clair vs. Omnium Real Estate, LLC (No Docket Number Assigned)(Magistrate Arnoni).
- D. Township of Upper St. Clair vs. Julie DeBisschop et al. (No Docket Number Assigned)(Magistrate Arnoni):

II. CASES WHERE TOWNSHIP IS DEFENDANT NOT DEFENDED BY INSURANCE CARRIER

NONE.

III. CASES WHERE UPPER ST. CLAIR IS DEFENDANT AND INSURANCE COMPANY IS DEFENDING

- A. Estate of Wendy Abbott vs. Bloomin' Brands Inc. et al., GD 20-6398 (Allegheny County).
- B. Jeffrey S. Valperga ey ux. vs. The Municipal Authority of the Township of Upper St. Clair, Township of Upper St. Clair, and Municipality of Bethel Park, GD 20-9879 (Allegheny County).
- C. HUD Fair Housing Complaint (Jason Depp)

IV. OTHER LITIGATION INCLUDING BANKRUPTCY MATTERS

V. LAND USE

M & D Properties - Land Use Appeal, SA 20-469 (Allegheny County) (Commonwealth Court of Pennsylvania).

VI. OTHER LEGAL MATTERS

- A. Redinger v. Allegheny County Health Department
- B. United States Environmental Protection Agency Action Pursuant To 33 U.S.C. §138
- C. Township of Upper St. Clair V. Sujilida, S.A. No. 19-000168
- D. M & D Properties Board of Viewers, No. GD20-10982