APPENDIX H

Fact Sheets

CLEAN WATERWAYS
Healthy Neighborhoods

WHAT IS GREEN INFRASTRUCTURE?

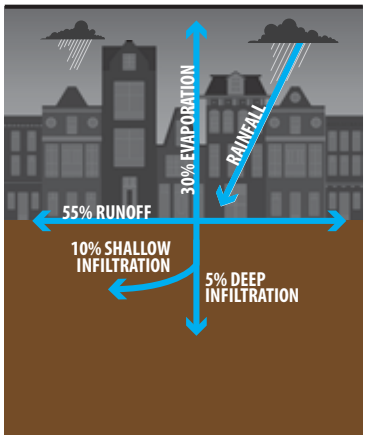
GREEN INFRASTRUCTURE (GI) practices manage stormwater by taking advantage of the Earth's natural processes. These include allowing water to infiltrate into the soil, evaporate into the air, or for plants to use the water and transpire it as vapor. These practices can slow down, clean, and in some cases reduce stormwater runoff prior to it entering the combined sewer system.

In a combined sewer system, a single pipe carries both sanitary wastewater and stormwater runoff. During dry weather, sewage from homes and businesses is conveyed to a wastewater treatment plant, where the wastewater is treated to remove pollutants. During certain rainfall conditions, the capacity of a combined sewer may be exceeded. When this occurs, the excess flow, a diluted mixture of wastewater and stormwater runoff, is discharged into our waterways through a combined sewer overflow (CSO). CSOs can adversely affect the quality of waterways by contributing to high bacterial levels and low dissolved oxygen levels, which are harmful to fish and other aquatic life.

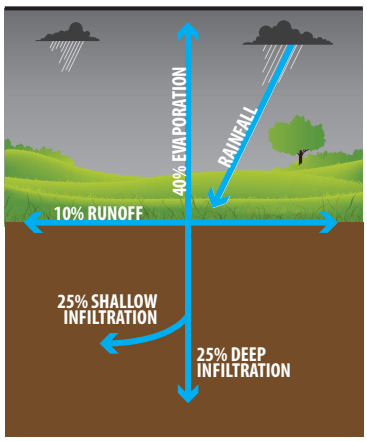
GI technologies treat stormwater as a resource, not something to eliminate. Also known as low-impact development or adaptive management, these techniques capture, infiltrate, treat and reuse polluted runoff before it enters the sewer system.

GI offers environmental, social, and economic benefits. GI can increase property values, beautify neighborhoods, cool extreme summer temperatures, support natural habitat, create local green jobs, and enhance public space.

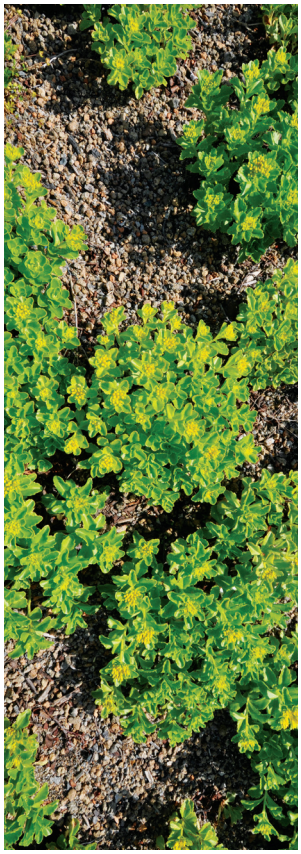
URBAN ENVIRONMENT
(75% - 100% impervious cover)



NATURAL ENVIRONMENT
(natural ground cover)



Green Infrastructure practices include:
rain gardens • porous pavement/asphalt • green roofs • infiltration planters • trees and tree boxes • rain barrels • rainwater harvesting for non-potable uses such as toilet flushing and landscape irrigation.



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CLEAN WATERWAYS
Healthy Neighborhoods

¿CUÁL ES LA INFRAESTRUCTURA VERDE?

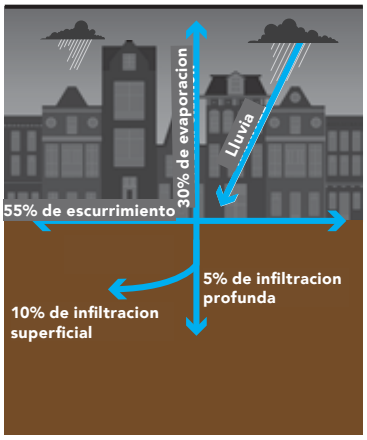
Las prácticas de INFRAESTRUCTURA VERDE (GI) gestionan las aguas pluviales aprovechando los procesos naturales de la tierra. Esto incluye permitir que el agua se infiltre en el suelo, se evapore en el aire, o que las plantas utilicen el agua y las transpire como vapor. Estas prácticas pueden reducir la velocidad, limpiar y, en algunos casos, reducir el escurrimiento de aguas pluviales, antes de entrar en el sistema de alcantarillas combinado.

En un sistema de alcantrillas combinado, una sola tubería que transporta las aguas residuales sanitarias y agua de lluvia. Durante la temporada seca, las aguas residuales de los hogares y las empresas son transportadas a una planta de tratamiento de aguas residuales donde las aguas residuales son tratadas para eliminar contaminantes. Durante determinadas condiciones de lluvia, la capacidad de las alcantarillas combinadas puede ser excedidas. Cuando esto ocurre, el exceso de flujo, una mezcla de aguas residuales y agua pluviales, se vierten en nuestros canales a traves de descarga combinada del alcantarillado (CSO). Las alcantarillas combinadas de desbordamiento pueden afectar negativamente a la calidad de las vías navegables, contribuyendo en altos niveles de bacterias y bajos niveles de oxígeno disuelto, que puede perjudicar a los peces y otra vida acuática.

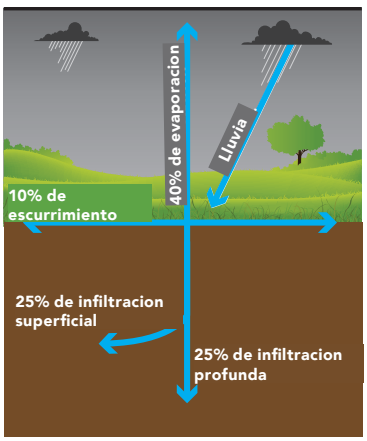
Tecnología de GI trata las aguas pluviales como un recurso, no algo para eliminar. También conocido como desarrollo de bajo impacto o la gestión adaptativa, estas técnicas capturan, infiltran, tratan y reutilizan las escorrentías contaminadas antes de entrar en el sistema de alcantarillado.

GI ofrece beneficios ambiental, social y económicos. Infraestructura Verde puede aumentar los valores de propiedad, embellecer barrios, proveer fresco durante el verano y temperaturas extremas, apoyar el hábitat natural, crear empleos locales verdes y mejorar el espacio público.

Ambiente urbano
(cobertura impermeable de 75% a 100%)



Ambiente natural
(cobertura natural)



Las prácticas de la Infraestructura verdes incluyen:
jardines de lluvia • pavimento poroso/asfalto • techos verdes • plantadores de infiltración • cajas de árboles y arboles • barriles de lluvia • recolección de agua de lluvia para usos no potables como lavado de inodoros y riego por paisaje.

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CLEAN WATERWAYS
Healthy Neighborhoods

O QUE É INFRAESTRUTURA VERDE?

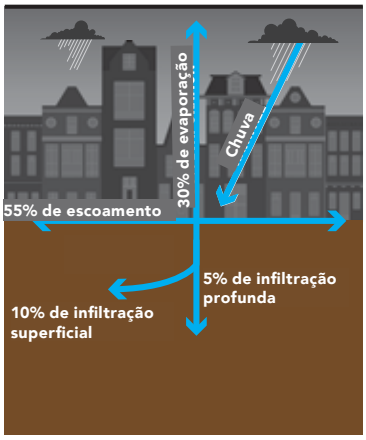
As práticas de INFRAESTRUTURA VERDE (GI) servem para gerenciar as águas pluviais aproveitando os processos naturais da terra. Algumas das práticas permitem que a água infiltre o solo, evapore no ar, ou seja usada por plantas e transpirada como vapor. Essas práticas podem desacelerar, limpar e, em alguns casos, reduzir o escoamento das águas pluviais antes que elas entrem no sistema de transbordamento de esgoto combinado (CSO).

Em um sistema combinado de esgoto, é uma tubulação única que transporta águas residuais sanitárias e escoamento de águas pluviais. Durante a estiagem, o esgoto das casas e das empresas é transportado para uma estação de tratamento de águas residuais, onde são tratadas para remover poluentes. Durante determinadas precipitações pluviais, a capacidade de um esgoto combinado pode ser excedida. Quando isso ocorre, o excesso de efluentes, uma mistura diluída de águas residuais e escoamento de águas pluviais, é descarregado em nossos cursos de água através de um transbordamento de esgoto combinado (CSO).
Os sistemas CSOs podem afetar negativamente a qualidade dos cursos de água, contribuindo para altos níveis de bactérias e baixos níveis de oxigênio dissolvido, que são prejudiciais aos peixes e outros organismos aquáticos.

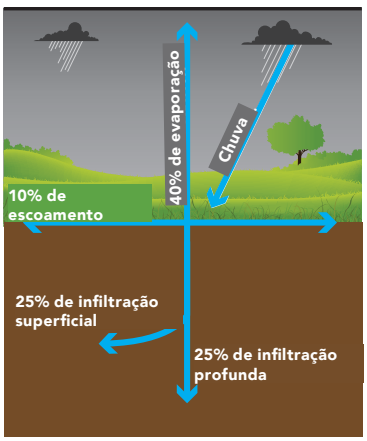
As tecnologias de GI tratam as águas pluviais como um recurso, e não como algo a ser descartado. Também conhecido como desenvolvimento de baixo impacto ou gerenciamento adaptativo, essas técnicas capturam, infiltram, tratam e reutilizam o escoamento poluído antes de ele entrar no sistema de esgoto.

A GI apresenta benefícios ambientais, sociais e econômicos. A GI pode valorizar propriedades, embelezar bairros, baixar temperaturas extremas no verão, sustentar o habitat natural, criar empregos verdes locais e melhorar o espaço público.

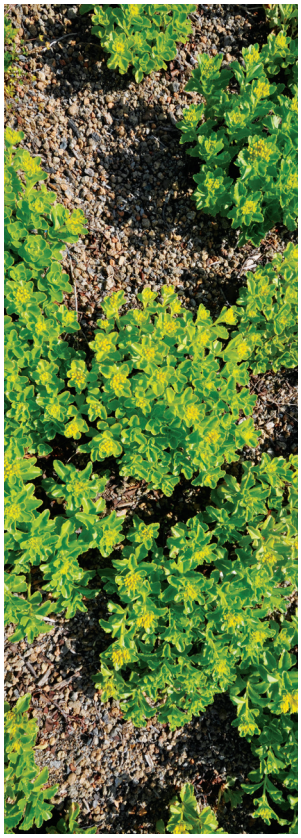
Ambiente urbano
(cobertura impermeável de 75% a 100%)



Ambiente natural
(cobertura natural do solo)



Algumas das práticas da Infraestrutura Verde são:
jardins de chuva • asfalto/pavimento poroso • telhados verdes • canteiros pluviais • árvores e canteiros de árvores • cisternas pluviais • coleta de águas pluviais para usos não potáveis, como água para descarga de vaso sanitário e irrigação de jardins.

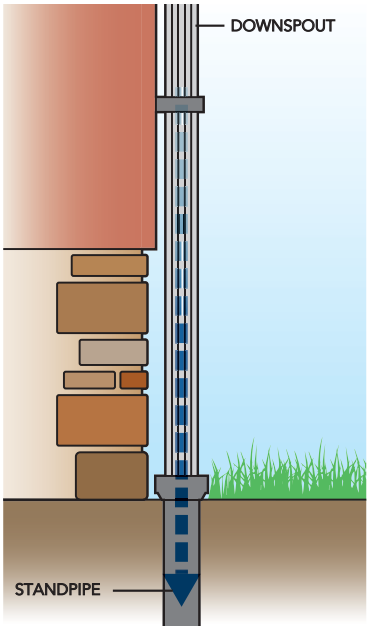


CLEAN WATERWAYS
Healthy Neighborhoods

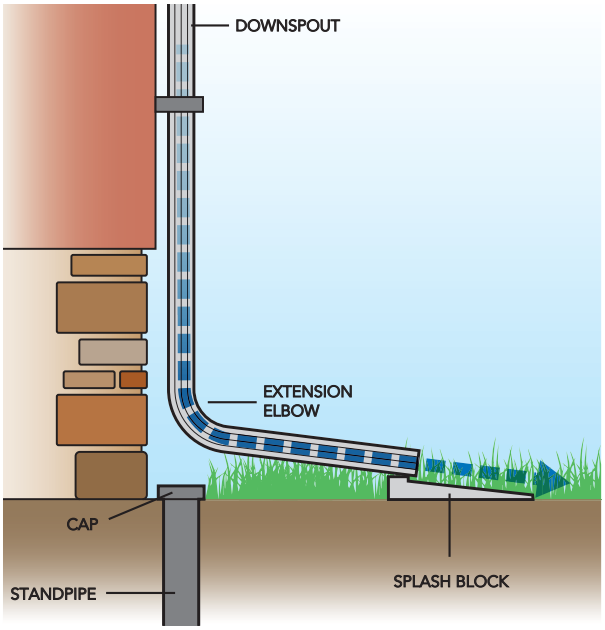
Downspout Disconnection

You can reduce combined sewer overflow (CSO) and help clean the waterways by disconnecting your downspout!

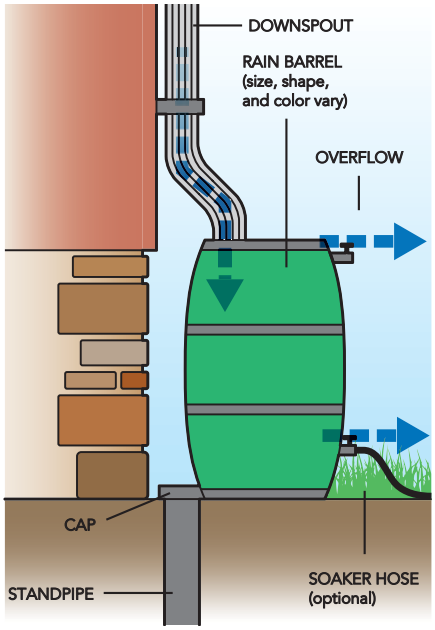
In many older cities, portions of the sewer system carry both sewage and stormwater in a combined sewer system. During storms, a combined sewer system can be overwhelmed, and sewage and stormwater can overflow into our local waterways. This overflow is called combined sewer overflow (CSO). CSOs release pollutants and can be harmful to the environment. **Downspouts connected to the combined sewer system add to the CSO problem.**



Downspout Connected to the Sewer System – Downspouts connected directly to the combined sewer system contribute to CSOs.



Downspout Disconnected from the Sewer System – Downspout disconnection reduces CSOs. The process involves cutting the downspout, attaching an elbow and extension to direct the water to an adjacent pervious area, and capping the standpipe.



Downspout Connected to the Rain Barrel – Downspouts can be connected to a rain barrel so that stormwater is collected and stored for non-potable uses (i.e., exterior washing, gardening).

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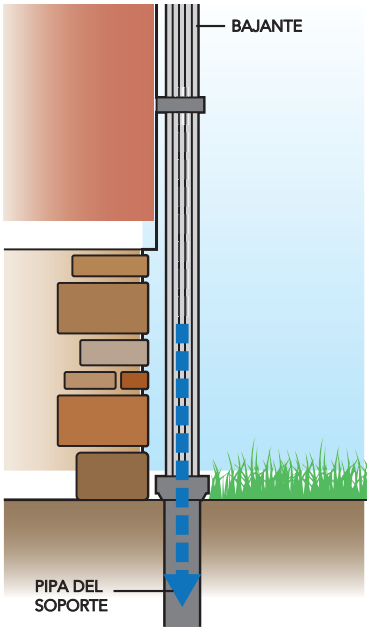
CLEAN WATERWAYS
Healthy Neighborhoods

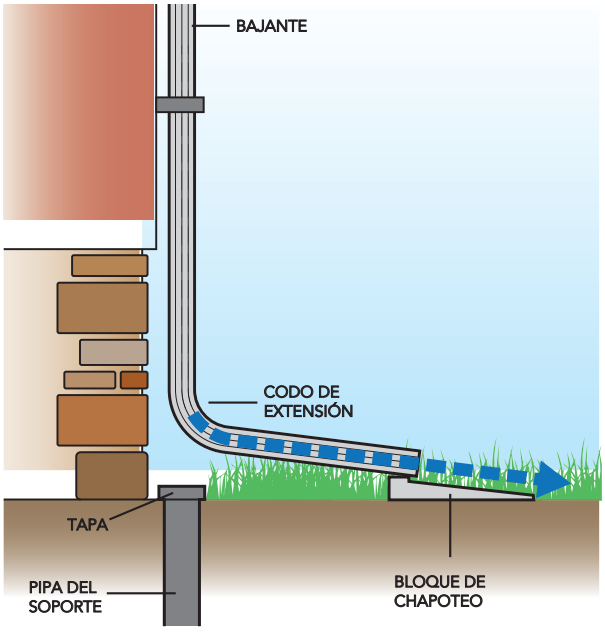
Desconexión del tubo de bajante

Puede reducir la descarga combinada de alcantarillado (CSO) y ayudar a limpiar las vías fluviales desconectando el tubo de bajante!

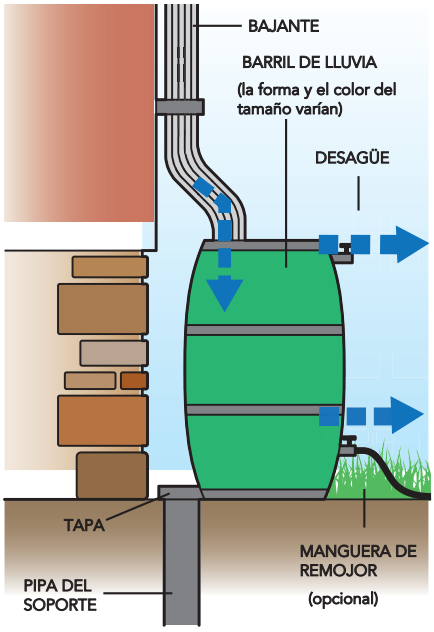
En muchas ciudades antiguas, porciones del sistema de alcantarillado conllevan aguas pluviales y aguas residuales en un sistema de alcantarillas combinado. Durante las tormentas, el sistema de alcantarillado combinada puede verse desbordada, y aguas pluviales y aguas residuales pueden desbordarse en nuestras vías fluviales locales. Este desbordamiento se llama la descarga combinada de alcantarillado (CSO). Las CSO liberan contaminantes y pueden ser perjudiciales para el medio ambiente. **Bajantes conectados al sistema de alcantarillado combinado contribuyen al problema de CSO.**



Tubo de bajantes conectados al sistema de alcantarillado combinado – bajantes conectados al sistema de alcantarillado combinado contribuyen al problema de CSO.



Tubo de bajante desconectado del sistema de alcantarillado – desconexión del tubo de bajante reduce las CSO. El proceso consiste de cortar el tubo de bajante, adjuntando un codo y una extensión para dirigir el agua a un área adyacente, y tapar el tubo vertical.



Tubo de bajante conectada a un barril de lluvia – bajantes pueden ser conectados a un barril de lluvia, de manera que las aguas pluviales se recopilan y se guarden para usos non-potables (es decir, lavado de exterior, jardinería).

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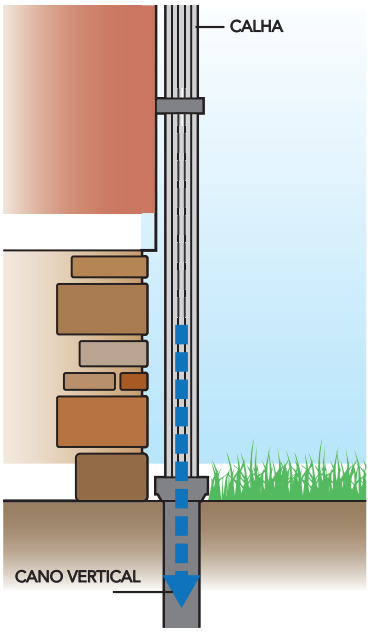
CLEAN WATERWAYS
Healthy Neighborhoods

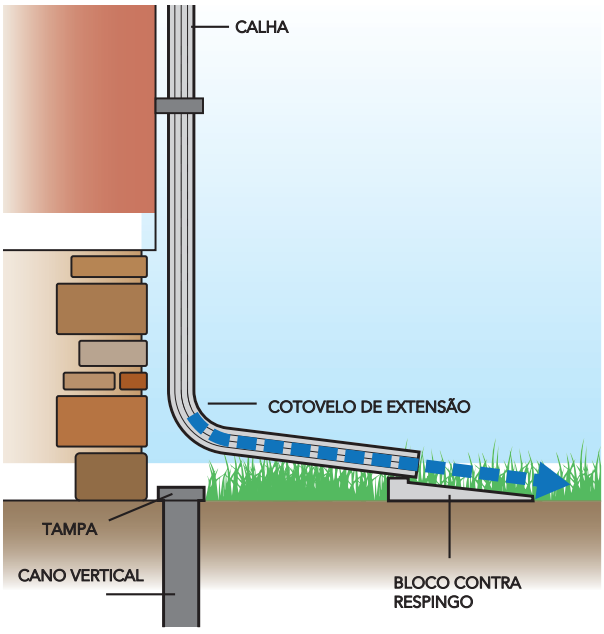
Redirecionamento de Calhas

É possível reduzir o transbordamento do esgoto combinado (CSO) e ajudar a manter os cursos de água limpos redirecionando as calhas!

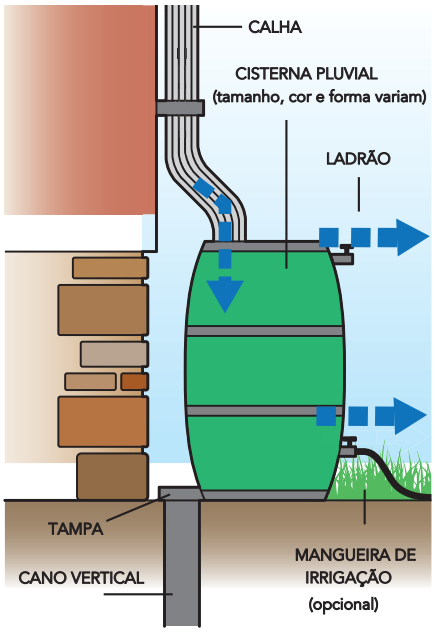
Em muitas cidades mais antigas, porções do sistema de esgoto transportam esgoto e águas pluviais em um sistema de transbordamento de esgoto combinado (CSO). Durante tempestades, o sistema combinado pode ser sobrecarregado, e o esgoto e as águas pluviais podem transbordar e ir para os nossos cursos de água. Esse transbordamento é chamado de transbordamento de esgoto combinado (CSO). O CSO libera poluentes que podem ser nocivos ao meio ambiente. **Calhas ligadas so sistema de esgoto combinado podem agravar o problema de transbordamento (CSO).**



Calha ligada ao sistema de esgoto – Calhas ligadas diretamente ao sistema de esgoto combinado agravam os CSOs.



Calhas não ligadas ao sistema de esgoto – O desligamento das calhas reduz os CSOs. O processo envolve cortar a calha, colocar um cotovelo e uma extensão que deságue em uma área permeável adjacente, e fechar o tubo de conexão ao esgoto.



Calha redirecionada para uma cisterna pluvial – As calhas podem ser redirecionadas para cisternas pluviais para que a água da chuva possa ser coletada e armazenada para usos não potáveis (por exemplo, lavagem de exteriores, jardinagem).

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CLEAN WATERWAYS
Healthy Neighborhoods

Controlling CSO's with Sewer Separation

Like many other cities, the older portions of the sewer system carries both sewage and stormwater in a combined sewer system. During storms, a combined sewer system can be overwhelmed,and sewage and stormwater can overflow into our local waterways. This overflow is called combined sewer overflow (CSO). CSOs release pollutants and can be harmful to the environment.

Sewer separation is the conversion of a combined sewer system into two independent systems, sanitary and stormwater.

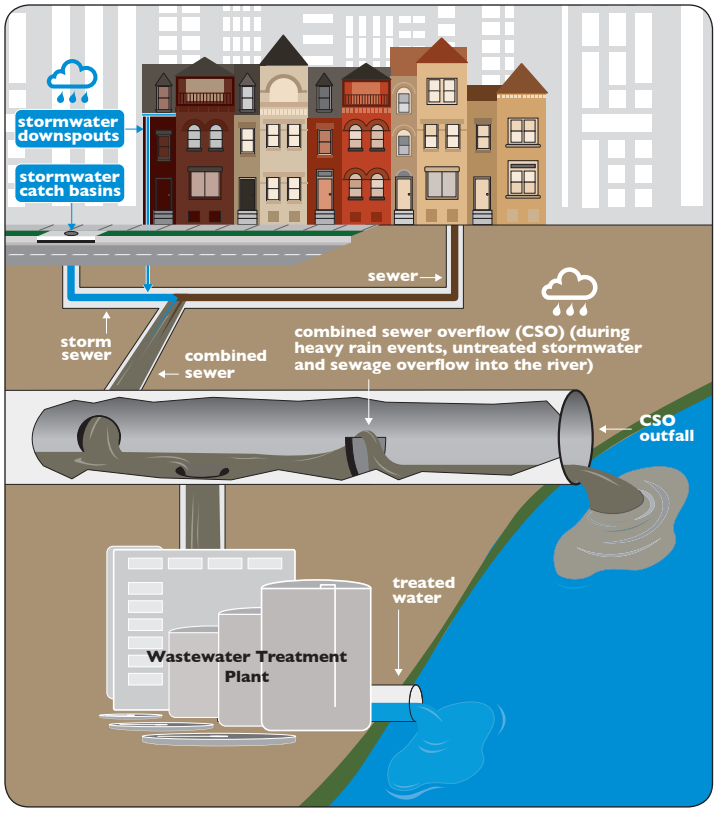
Sewer separation can be a disruptive, costly, and difficult undertaking. This process typically involves the disconnection of all sources of sanitary sewage flow from the existing sewer lateral leaving buildings, and the construction of a new sanitary-only sewer.

The new sanitary sewers convey sanitary sewage only to the sewage treatment plant, thereby reducing extraneous flows and reducing overflows. Complete sewer separation results in the elimination of all CSO events.

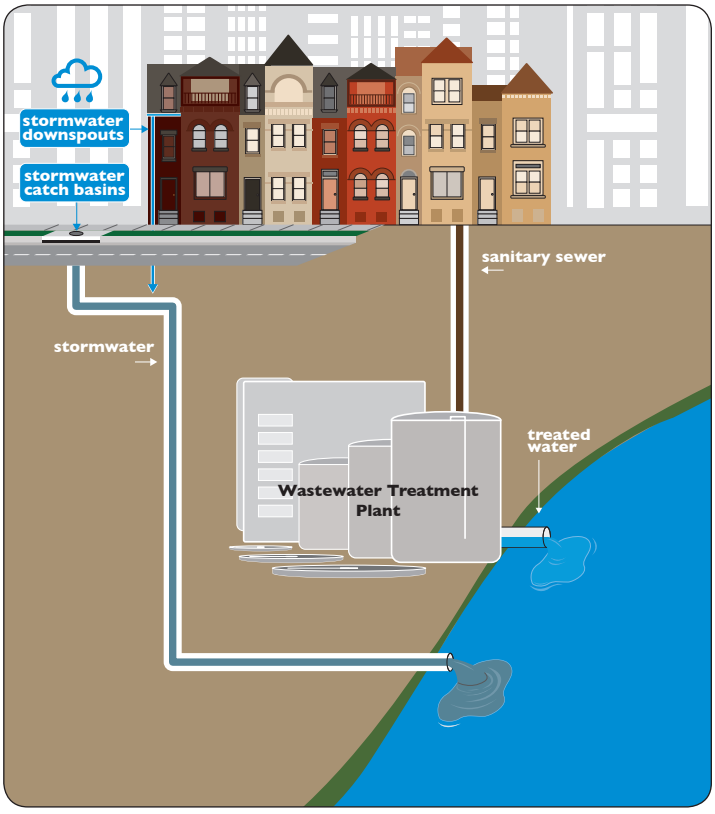
Although sewage is no longer discharged to the waterways with the new separated sewage system, urban stormwater discharging into waterways is still a concern. This can be significant during the early parts of a storm event, which may contain the highest pollutant concentration.

For more information, on combined sewer overflow management and its impacts, visit:
www3.epa.gov/npdes/pubs/sepa.pdf

combined sewer overflow (CSO) system



separated sewer system



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Controlando la descarga combinada de alcantarillado (CSO) con separacion de alcantrilla

En muchas ciudades antiguas, porciones del sistema de alcantarillado conllevan aguas pluviales y aguas residuales en un sistema de alcantarillas combinado. Durante las tormentas, el sistema de alcantarillado combinada puede verse desbordada, y aguas pluviales y aguas residuales pueden desbordarse en nuestras vías fluviales locales. Este desbordamiento se llama la descarga combinada de alcantarillado (CSO). Las CSOs liberan contaminantes y pueden ser perjudiciales para el medio ambiente.

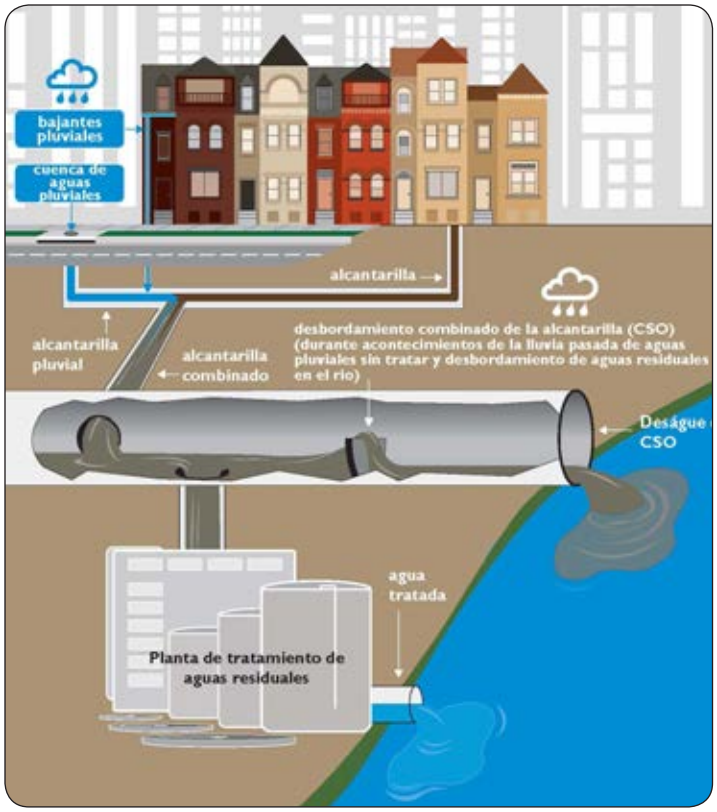
Separación de alcantarilla es la conversión de un sistema de alcantarillado combinado en dos sistemas independientes, sanitario y pluvial.

Separación de alcantarillado puede ser negativo, costoso y difícil. Este proceso normalmente implica la desconexión de todas las fuentes de aguas residuales sanitarias para que fluyan desde la cloaca existente dejando los edificios y la construcción de una nueva alcantarilla sanitaria. Los nuevos alcantarillados sanitarios transmitirán solamente aguas residuales sanitarias a la planta de tratamiento, reduciendo las corrientes extrañas y reduciendo desbordamientos. Separación completa de alcantarillado resulta en la eliminación de todos los eventos de CSO.

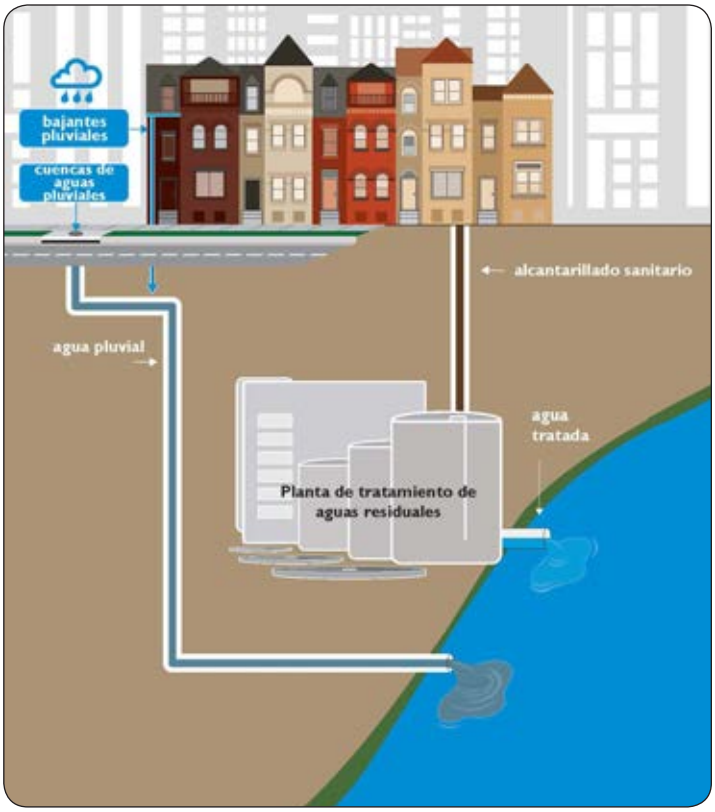
Aunque ya no se descargen aguas residuales a las vías navegables con el nuevo sistema de aguas residuales urbanas, descarga de aguas pluviales que vierten en las vías navegables sigue siendo una preocupación. Esto puede ser importante durante las primeras fases de un evento de tormenta, que puede contener una mayor concentración de contaminantes.

Para obtener más información sobre gestión de desbordamiento de alcantarillas combinadas y separacion de alcantrilla, visite:
www3.epa.gov/npdes/pubs/sepa.pdf

sistema de desbordamiento combinado



sistema de alcantarillado separado



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CLEAN WATERWAYS
Healthy Neighborhoods

Como controlar transbordamento de esgoto combinado (CSO) com separação do esgoto

Em muitas cidades mais antigas, porções do sistema de esgoto transportam esgoto e águas pluviais em um sistema de transbordamento de esgoto combinado (CSO). Durante tempestades, o sistema combinado pode ficar sobrecarregado, e o esgoto e as águas pluviais podem transbordar e penetrar os cursos de água locais. Esse transbordamento é chamado de transbordamento de esgoto combinado (CSO). O CSO libera poluentes que podem ser nocivos ao meio ambiente.

A separação de esgoto é a conversão do sistema de esgoto combinado em dois sistemas independentes, o sanitário e o pluvial.

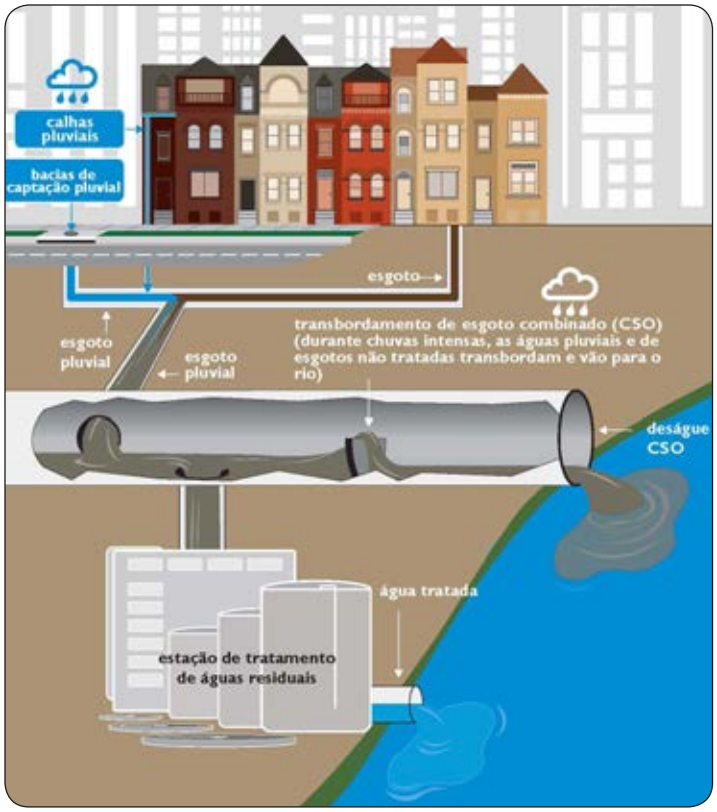
A separação do esgoto pode ser uma empreitada disruptiva, custosa e difícil. O processo comumente exige o desligamento de todas as fontes de fluxo do esgoto sanitário dos coletores laterais das propriedades, e a construção de um novo esgoto exclusivamente sanitário.

O novo esgoto sanitário conduz apenas esgoto sanitário para as estações de tratamento de esgoto, reduzindo fluxos de outra natureza e transbordamentos. A separação completa do esgoto resulta na eliminação de todos os eventos de CSO.

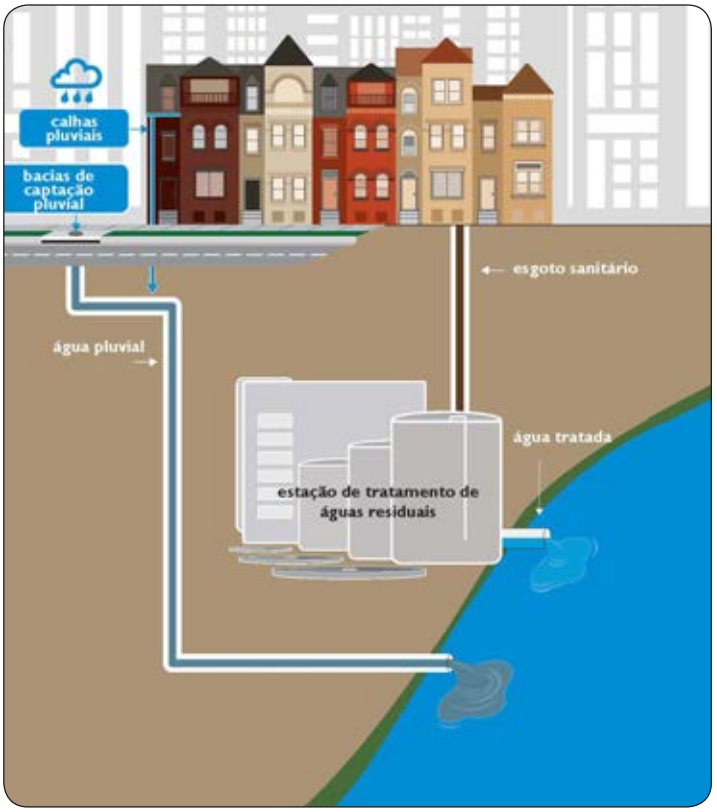
Embora o esgoto não seja mais despejado nos cursos de água com o novo sistema de esgoto independente, as águas pluviais despejadas nos cursos de água continuam a ser motivo de preocupação. Isso pode ser significativo durante o início de temporais, que podem conter alta concentração de poluentes.

Para obter mais informações sobre a gestão de transbordamento de esgoto combinado e sistemas de esgoto separados, visite:
www3.epa.gov/npdes/pubs/sepa.pdf

sistema de desbordamiento combinado



sistema de esgoto separado



June 25, 2018 (Revised 1/25/2019)

APPENDIX I

LTCP Brochure

Spring 2018

CLEAN WATERWAYS
Healthy Neighborhoods

Long Term Control Plan for Combined Sewer Overflows

PROJECT OVERVIEW

There are two principle types of sewer systems in the US: combined sewer systems (CSS) and separate sewer systems (SSS).

In a CSS, stormwater runoff, domestic sewage, and industrial wastewater are collected and combined in a single pipe network. During dry weather conditions, that combined flow is conveyed to the treatment facility for treatment prior to discharge to a water body.

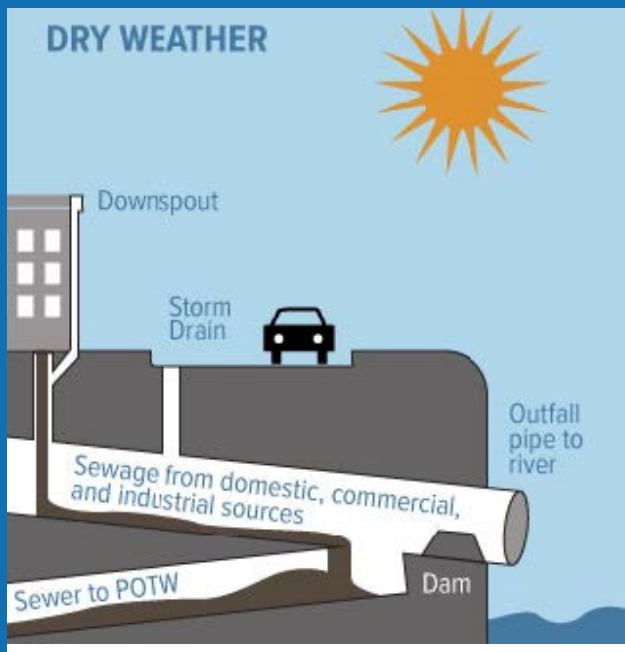
During wet weather, because of the addition of stormwater, the combined flow can exceed the capacity of the conveyance system or wastewater treatment facilities. When this occurs, these systems are designed to discharge the combined storm and wastewater to local waterways through a combined sewer overflow (CSO) outfall.

During a CSO event, stormwater and partially treated or untreated domestic and industrial wastewater are discharged directly into the receiving stream. These CSOs contain microbial pathogens.

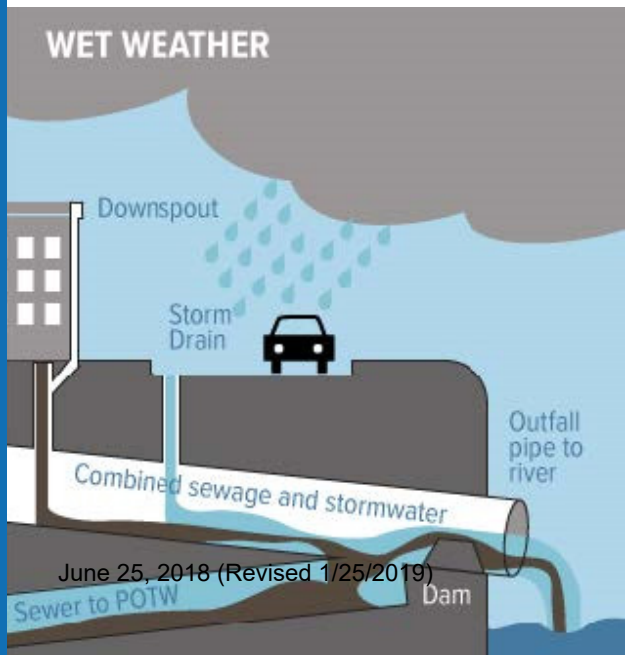
The Clean Waterways, Healthy Neighborhoods program represents the 9 CSS systems within the Passaic Valley Sewerage Commission (PVSC) and the North Bergen Municipal Utilities Authority (NBMUA) service areas. These systems have a total of 114 CSO discharge locations and service a population of close to 1.5 million residents along with thousands of businesses.

Together, we are evaluating ways to reduce the amount of CSO discharges to improve our waterways.

CLEAN WATERWAYS
Healthy Neighborhoods



WHAT'S THE PROBLEM?



CLEAN WATERWAYS
Healthy Neighborhoods

CSO PERMITS

The New Jersey Department of Environmental Protection (NJDEP) regulates CSOs through the New Jersey Pollutant Discharge Elimination System (NJPDES) permitting program. As of July 1, 2015, individual NJPDES permits went into effect for the entities that own CSO discharges or provide conveyance and treatment of combined sewer flow.

The NJPDES permit requirements include public education, evaluation of CSO control alternatives, continued proper system operation and maintenance, and the submission of a Long Term Control Plan (LTCP) for CSO control.

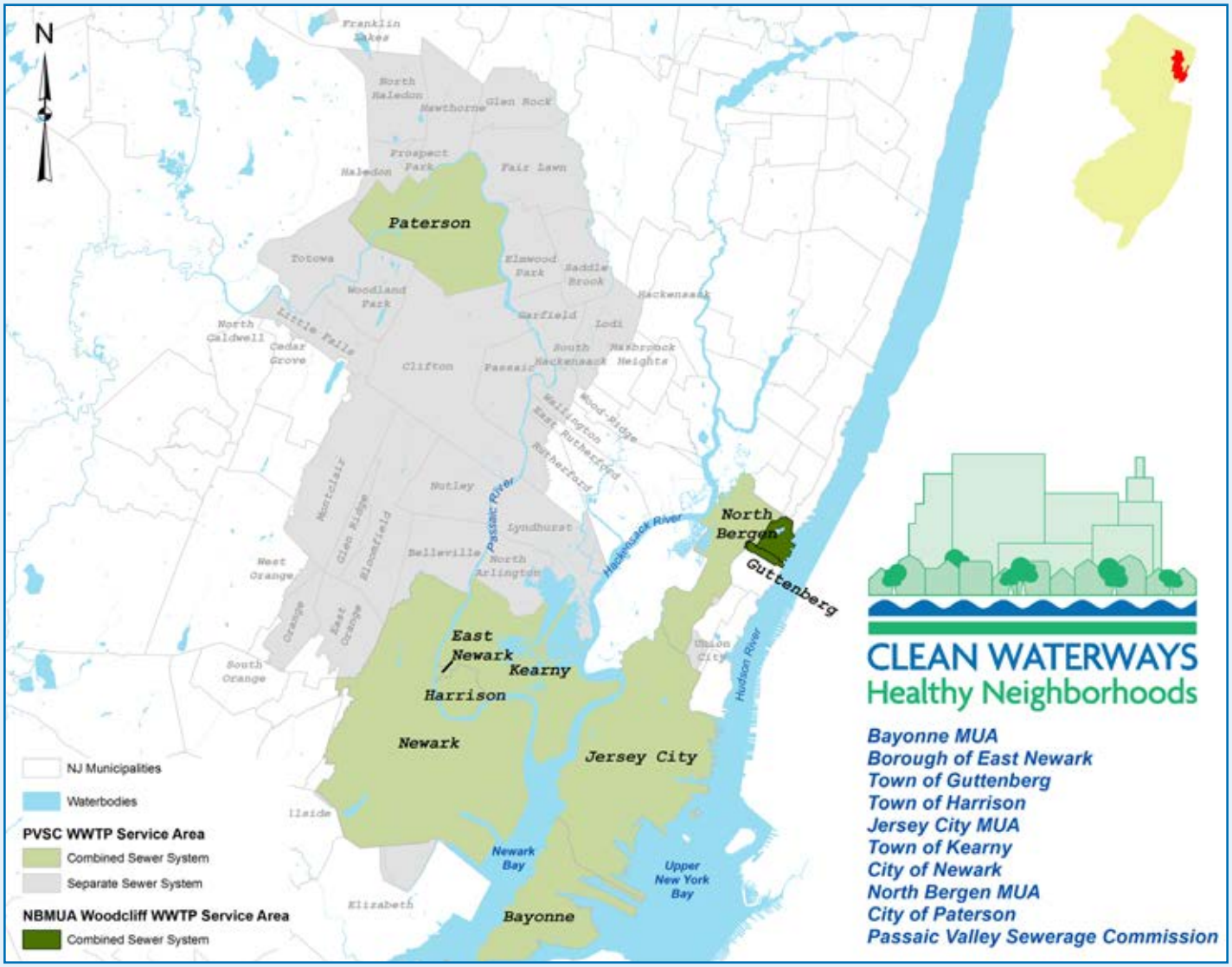
COMBINED SEWER MUNICIPALITIES

PVSC Service Area

Bayonne
East Newark
Harrison
Jersey City
Kearny
Newark
North Bergen
Paterson

NBMUA Service Area

Guttenberg
North Bergen



June 25, 2018 (Revised 1/25/2019)

LONG TERM CONTROL PLAN

The Long Term Control Plan (LTCP) is an evaluation of CSO control alternatives that treat, reduce or eliminate CSO discharges. The purpose of the LTCP is to identify a cost-effective solution that will meet the requirements of the Clean Water Act (CWA). A wide range of technologies and alternatives will be evaluated with considerations given to: regulatory compliance; cost effectiveness; ability to relieve flooding; non-monetary factors such as implementability and operations considerations; and public acceptance.

Under the prior General CSO Permit, the permittees performed feasibility studies that evaluated the cost and performance of various CSO control alternatives. The LTCP will build upon those studies and ultimately identify a system-wide plan, including an implementation schedule.

To support the LTCP development, the permittees are actively collecting water quality data and developing collection system and receiving water models.

Elements of the Long Term Control Plan

- ☑ Monitoring and Modeling
- ☑ Public Participation
- ☑ Consideration of Sensitive Areas
- ☑ Evaluation of Alternatives
- ☑ Cost/Performance Considerations
- ☑ Operational Plan
- ☑ Maximizing Treatment at the Existing Sewage Treatment Plant
- ☑ Implementation Schedule
- ☑ Compliance Monitoring Program

CLEAN WATERWAYS
Healthy Neighborhoods

WHAT CAN BE DONE TO REDUCE CSOs?

There are a number of ways to reduce CSOs and their impacts. Some examples include:

- Optimizing operations for delivering flow to wastewater treatment plants
- Upgrading treatment facilities to allow for more wet weather flow treatment, which may require additional conveyance capacity
- Providing storage for excess volume until conveyance and plant capacity recovers, such as through tanks and tunnels
- Providing satellite treatment facilities
- Reducing flows to collection systems through separate sewers or source controls and green infrastructure

Source: www.phillywatersheds.org

Green infrastructure *is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits.*

PUBLIC OUTREACH AND PARTICIPATION

As with all large infrastructure-related projects, public outreach and participation is an important aspect of the LTCP.

As part of the public outreach efforts, the Clean Waterways, Healthy Neighborhoods permittees have established a Supplemental CSO Team, consisting of interested and impacted members of the public. The Supplemental CSO Team consists of environmental groups, economic and business organizations, recreational water users, and members of academia, among others. The Supplemental CSO Team meets quarterly to receive program updates and to provide feedback, and will act as liaisons between the permittees and the public.

An important part of the public outreach campaign is informing the public where and when CSOs occur. Public notification signs have already been placed at all CSO outfall locations. Additional information is being placed at points of public access, including boat launches and marinas.

The Clean Waterways Healthy Neighborhoods members helped to develop a CSO public notification system, which predicts overflow occurrences based upon radar rainfall data.

Please visit the notification system at:

njcso.hdrgateway.com

LEARN MORE ABOUT PVSC

Visit the Passaic Valley Sewerage Commission website at www.nj.gov/pvsc

Primavera de 2018

CLEAN WATERWAYS
Healthy Neighborhoods

Plan de Control a Largo Plaza para Desbordamientos combinados de alcantarillado

DESCRIPCIÓN DEL PROYECTO

Existen dos tipos principales de sistemas de alcantarillado en los Estados Unidos: sistemas de alcantarillado combinados (CSS) y sistemas de alcantarillado separados (SSS).

En un CSS, las aguas pluviales, las aguas residuales domésticas y las aguas residuales industriales son recogidos y combinadas en una sola red de tuberías. Durante las condiciones climáticas secas, ese flujo combinado se transporta a la planta de tratamiento antes de la descarga a un cuerpo de agua.

Durante el clima húmedo, debido a la adición de las aguas pluviales, el flujo combinado puede exceder la capacidad del sistema de transporte o de las plantas de tratamiento de aguas residuales. Cuando esto ocurre, estos sistemas están diseñados para descargar las aguas pluviales y las aguas residuales combinadas a las vías fluviales locales a través de un descarga combinada de alcantarillado (CSO).

Durante un evento de CSO, las aguas pluviales y las aguas residuales domesticas e industriales, parcialmente tratadas o sin tratamiento, se descargan directamente en la corriente receptora. Estas CSOs contienen patógenos microbianos.

El programa de Clean Waterways, Healthy Neighborhoods representa los 9 sistemas de CSS dentro del servicio de la Comisión del Alcantarillado del Valle Passaic (PVSC, por sus siglas en inglés) y la Autoridad Municipal de Servicios Públicos de North Bergen (NBMUA, por sus siglas en inglés). Estos sistemas tienen un total de 114 ubicaciones de descarga de CSO y sirven una población de 1.5 millones de residentes, junto con miles de negocios.

CLEAN WATERWAYS
Healthy Neighborhoods

¿CUÁL ES LA PROBLEMA?

CLEAN WATERWAYS
Healthy Neighborhoods

PERMISOS DE CSO

El Departamento de Protección Ambiental de Nueva Jersey (NJDEP, por sus siglas en inglés) regula a los CSOs a través del programa de permisos del Sistema de Eliminación de Descargas de Contaminantes de Nueva Jersey (NJPDES, por sus siglas en inglés). A partir del 1 de julio de 2015, los permisos de NJPDES entraron en efecto para las entidades que poseen descargas de CSO o proporcionan el transporte y el tratamiento del flujo combinado de la alcantarilla. Los requisitos del permiso de NJPDES incluyen la educación pública, la evaluación de las alternativas de control de CSO, la operación y mantenimiento del sistema apropiada continuada y la presentación de un plan de control a largo plazo (LTCP) para el control de CSO.

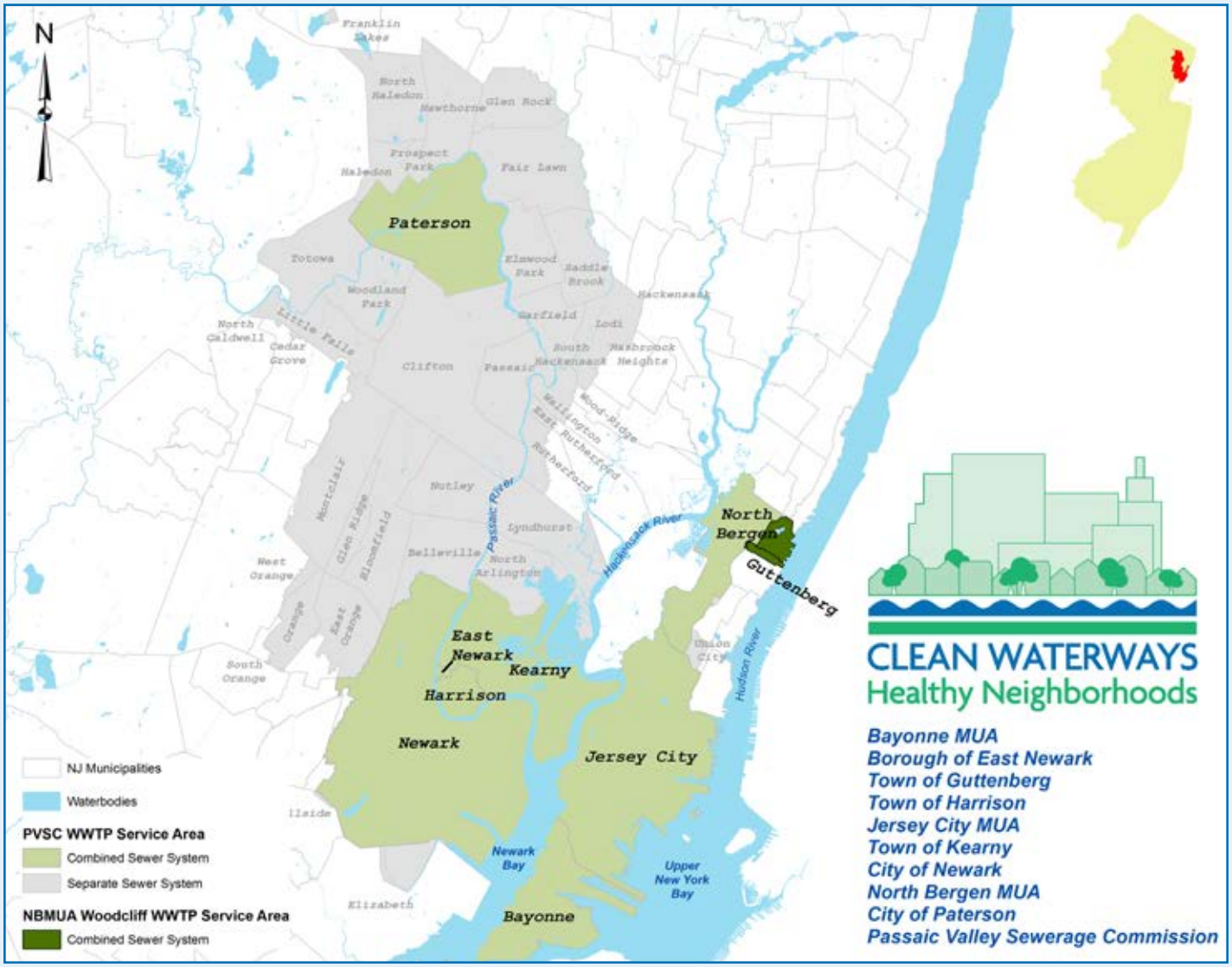
MUNICIPIOS DE LA ALCANTARILLA COMBINADAS

PVSC Área de Servicio

Bayonne
East Newark
Harrison
Jersey City
Kearny
Newark
North Bergen
Paterson

NBMUA Área de Servicio

Guttenberg
North Bergen



June 25, 2018 (Revised 1/25/2019)

PLAN DE CONTROL A LARGO PLAZO

El Plan de Control a Largo Plazo (LTCP) es una evaluación de las alternativas de control de CSO que tratan, reducen o eliminan descargas de CSO. El propósito del LTCP es identificar una solución rentable que cumplirá con los requisitos de la Ley de Agua Limpia (CWA, por sus siglas en inglés). Se evaluará una amplia gama de tecnologías y alternativas con consideraciones dadas a: cumplimiento reglamentario; rentabilidad; capacidad para aliviar las inundaciones; aplicabilidad; consideraciones operacionales; y la aceptación pública.

Bajo el permiso general de CSO previo, los titulares realizaron estudios de viabilidad que evaluaron el costo y el rendimiento de varias alternativas de control de CSO. El LTCP se basará en esos estudios y por último identificará un plan por todo el sistema, incluyendo un horario de implementación.

Para apoyar el desarrollo del LTCP, los titulares están recolectando datos de calidad del agua y desarrollando modelos para sistemas de recolección y recibir agua.

Elementos del Plan de Control a Largo Plazo

- ☑ Monitorización y Modelización
- ☑ Participación Pública
- ☑ Consideración de Áreas Sensibles
- ☑ Evaluación de Alternativas
- ☑ Consideraciones de Costo/Rendimiento
- ☑ Plan de Operación
- ☑ Maximización del Tratamiento en la Planta de Tratamiento de Aguas Residuales Existente
- ☑ Horario de Implementación
- ☑ Programa de Monitoreo de Cumplimiento

CLEAN WATERWAYS
Healthy Neighborhoods

¿QUÉ SE PUEDE HACER PARA REDUCIR CSOS?

Hay varias maneras de reducir los CSOS y sus impactos.
Algunos ejemplos incluyen:

- Optimización de operaciones para la entrega de flujos a plantas de tratamiento de aguas residuales
- Mejorar las plantas de tratamiento para permitir más tratamiento durante clima húmedo, que puede requerir capacidad adicional del transporte
- Proporcionar almacenamiento para el volumen exceso hasta que el transporte y la capacidad de la planta se recupere, como a través de tanques y túneles
- Proporcionar instalaciones de tratamiento satelital
- Reducción de flujos a sistemas de recolección a través de alcantarillas separadas o controles de fuentes e Infraestructura Verde


Source: www.phillywatersheds.org

La Infraestructura Verde es un enfoque rentable y resiliente para la gestión de los impactos de clima húmedo que proporciona muchos beneficios comunitarios.

DIVULGACIÓN Y PARTICIPACIÓN PUBLICA

Como ocurre con todos los proyectos grandes de infraestructura, divulgación y participación publica es un aspecto importante del LTCP.

Como parte de los esfuerzos de divulgación al público, los titulares de Vías Fluviales Limpias, Barrios Saludables han establecido un equipo de CSO suplementarios (equipo SCSO), compuesto por miembros interesados e impactados del público. El equipo está formado por grupos medioambientales, organizaciones económicas y empresariales, usuarios recreativos de las aguas y miembros de la academia, entre otros. El equipo SCSO se reúne cada tres meses para recibir actualizaciones y proveer sus comentarios y actúan como mediadoras entre los titulares y el público.

Una parte importante de la campaña de divulgación publica es informar al público dónde y cuá do CSOs ocurren. Los letreros de notificación publica ya han sido colocados en todas las localidades del desagüe de CSO. Información adicional se colocan en puntos de acceso público, incluyendo lanzamientos del barco y puertos deportivos.

El equipo del proyecto ayudó a desarrollar un sistema de notificación publica de CSOs que predice los eventos de descarga basados en datos de lluvia de radar.

Por favor visite el sistema de notificación:

njcso.hdrgateway.com

MAS INFORMACIÓN SOBRE PVSC

Visite el sitio web de la Comisión del Alcantarillado del Valle Passaic (PVSC): www.nj.gov/pvsc

Primavera de 2018

CLEAN WATERWAYS
Healthy Neighborhoods

Plano de controle de longo prazo de transbordamentos de esgotos combinados

SUMÁRIO DO PROJETO

Existem dois tipos principais de esgoto nos EUA: sistemas de esgoto combinado (CSS) e sistemas de esgoto separado (SSS).

Em um CSS, o escoamento de águas pluviais, o esgoto residencial e as águas residuais industriais são coletados e combinados em uma mesma rede de tubulação. Durante as condições climáticas secas, esse fluxo combinado é transportado para a estação de tratamento para tratamento antes da descarga em um corpo de água.

Durante a estação de chuvas, devido à adição de águas pluviais, o fluxo combinado pode exceder a capacidade do sistema de transporte ou da estação de tratamento de águas residuais. Quando isso ocorre, esses sistemas são projetados para descarregar as águas residuais e pluviais combinadas em cursos de água locais por um sistema de transbordamento de esgoto combinado (CSO).

Durante um transbordamento (CSO), águas pluviais e águas residuais residenciais e industriais parcialmente tratadas ou não tratadas são descarregadas diretamente no fluxo de água receptor. Esses transbordamentos contêm microorganismos patogênicos.

O programa "Clean Waterways, Healthy Neighborhoods" representa os nove sistemas de esgoto combinado (CSS) nas regiões de atendimento da PVSC (Passaic Valley Sewerage Commission) e NBMUA (North Bergen Municipal Utilities Authority). Esses sistemas têm um total de 114 locais de descarga de esgoto combinado e atendem uma população de cerca de 1,5 milhão de habitantes e milhares de empresas.

CLEAN WATERWAYS
Healthy Neighborhoods

¿CUÁL ES LA PROBLEMA?

CLEAN WATERWAYS
Healthy Neighborhoods

PERMISSÕES DE TECS

O NJDEP (New Jersey Department of Environmental Protection) regula os CSOs através do Programa de Permissões do NJPDES (New Jersey Pollutant Discharge Elimination System). Desde 1° de julho de 2015, são exigidas permissões individuais do NJPDES para entidades que possuem descargas de CSO ou que transportam ou fazem o tratamento do fluxo de esgoto combinado. As exigências para obtenção de permissões do NJPDES incluem informação pública, avaliação de alternativas de controle de CSO, operação e manutenção adequada e permanente do sistema, e a apresentação de um Plano de Controle de Longo Prazo (LTCP) para o controle de CSO.

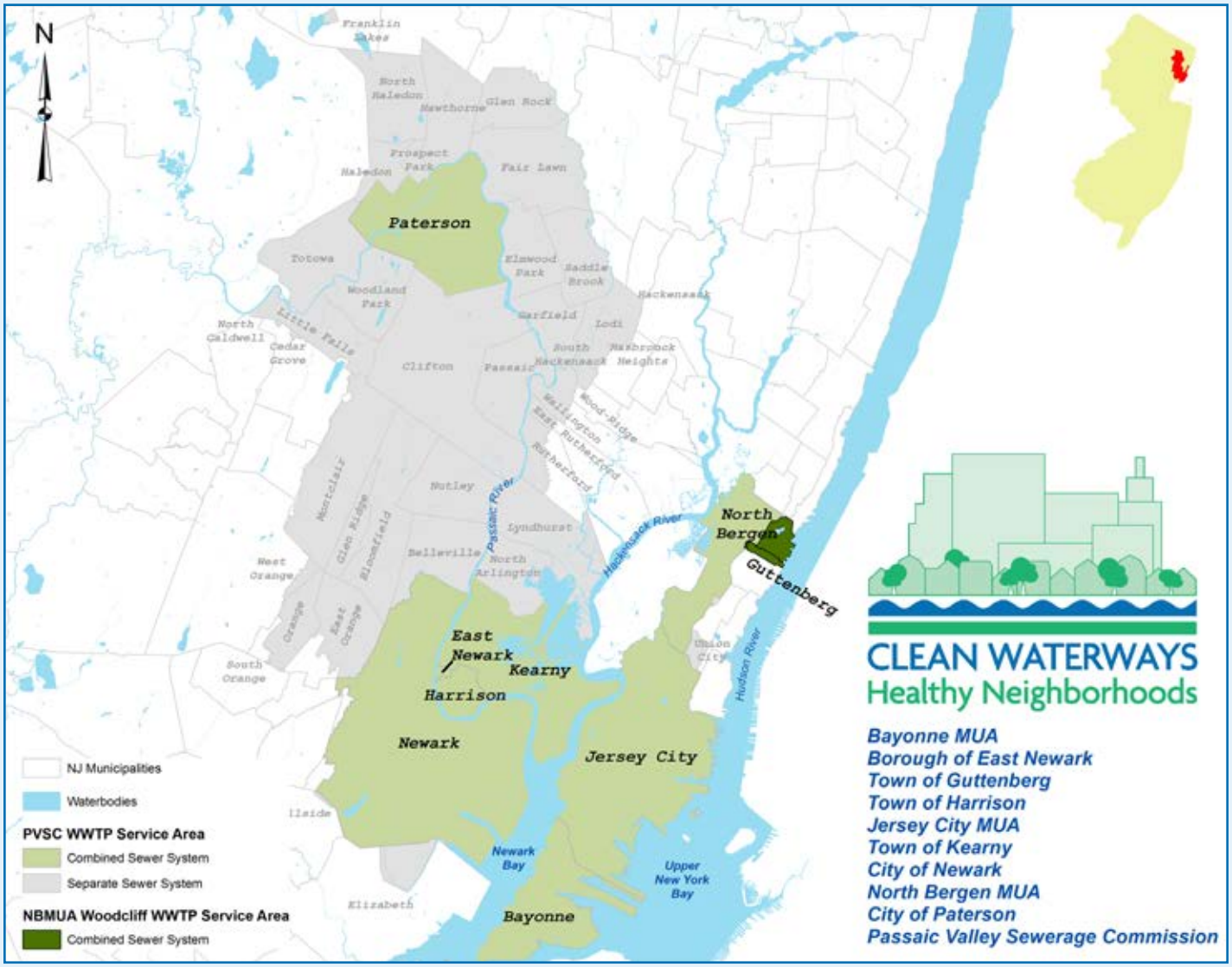
MUNICÍPIOS COM ESGOTO COMBINADO

PVSC Região de atendimento

Bayonne
East Newark
Harrison
Jersey City
Kearny
Newark
North Bergen
Paterson

NBMUA Região de atendimento

Guttenberg
North Bergen



June 25, 2018 (Revised 1/25/2019)

PLANO DE CONTROLE DE LONGO

O Plano de Controle de Longo Prazo (LTCP) é uma avaliação das alternativas de controle de transbordamentos (CSO) que tratam, reduzem ou eliminam as descargas de CSO. O objetivo do LTCP é identificar uma solução econômica que atenda os requisitos da Lei de Água Limpa (CWA — Clean Water Act). Uma vasta gama de tecnologias e alternativas serão avaliadas considerando: conformidade regulamentar; relação custo-benefício; capacidade de aliviar inundações; fatores não monetários, como implementação e operações; e aceitação pública.

Sob o Termo Geral de Permissões de CSO anterior, os permissionários realizavam estudos de viabilidade que avaliavam o custo e o desempenho de várias alternativas de controle de transbordamentos (CSO). O LTCP será feito com base nesses estudos e no final identificará um plano para todo o sistema, incluindo um cronograma de implantação.

Para apoiar o desenvolvimento do LTCP, os permissionários estão coletando ativamente dados sobre a qualidade da água e desenvolvendo modelos de coleta e captação de água.

ELEMENTOS DO PLANO DE CONTROLE DE LONGO PRAZO

- ☑ Monitoração e modelagem
- ☑ Participação pública
- ☑ Consideração de áreas delicadas
- ☑ Avaliação de alternativas
- ☑ Considerações econômicas e de desempenho
- ☑ Plano operacional
- ☑ Maximizar o tratamento na estação de tratamento de esgoto existente
- ☑ Cronograma de implantação
- ☑ Programa de monitoramento de conformidade

CLEAN WATERWAYS
Healthy Neighborhoods

O QUE PODE SER FEITO PARA REDUZIR OS TRANSBORDAMENTOS (CSO)?

Há várias maneiras de reduzir os TECs e seus impactos.
Alguns exemplos:

- Otimização de operações para encaminhamento do fluxo para estações de tratamento de águas residuais
- Modernização das instalações de tratamento para permitir um maior tratamento do fluxo em épocas de chuva, o que pode exigir capacidade adicional de encaminhamento das águas
- Armazenamento para excesso de volume até que a capacidade de encaminhamento do fluxo e da estação se recuperem, tal como por meio de tanques e túneis
- Instalações de tratamento secundárias
- Reduzir fluxos aos sistemas de captação através de esgotos separados ou controles de fonte e infraestrutura verde

A infraestrutura verde é uma abordagem econômica e resiliente para gerenciar os impactos climáticos que proporciona muitos benefícios à comunidade.

DIVULGAÇÃO E PARTICIPAÇÃO PÚBLICAS

Como em todos os projetos grandes de infraestrutura, a divulgação ao público e a sua participação são aspectos importantes do Plano de Controle de Longo Prazo (LTCP).

Como parte dos esforços de divulgação pública, os permissionários do "Clean Waterways, Healthy Neighborhoods" estabeleceram uma Equipe de CSO Suplementar que é formada por membros interessados e afetados do público. A Equipe de CSO Suplementar é formada por grupos ambientais, organizações econômicas e financeiras, usuários de água como forma de lazer e estudiosos, entre outros. A Equipe de CSO Suplementar se reúne trimestralmente para receber atualizações do programa e dar feedback, e agirá como ligação entre os permissionários e o público.

Uma parte importante da campanha de divulgação pública é informar o público onde e quando ocorrem eventos de transbordamento (CSOs). Placas de alerta ao público já foram colocadas nos locais de deságue de CSOs. Estamos colocando informações adicionais em locais públicos como rampas para barcos e marinas.

Os membros do "Clean Waterways, Healthy Neighborhoods" ajudaram a desenvolver um sistema de alerta ao público, com previsão de transbordamentos com base em dados de radares de precipitação

Visite o sistema de alerta em:

njcso.hdrgateway.com

SAIBA MAIS SOBRE A PVSC

Visite o website da PVSC (Passaic Valley Sewerage Commission): www.nj.gov/pvsc

APPENDIX J

City of Newark CSO Brochure

OUR RESPONSE TO STATE REGULATIONS

NJDEP regulates stormwater and CSO discharges under two general permits within the New Jersey Pollutant Discharge Elimination System (NJPDES): the Tier A MS4 Master General Permit and the Final Surface Water Minor Modification Permit, respectively.

Newark's Efforts in 2017

Newark is enforcing Ordinances related to pet waste, litter, improper waste disposal, wildlife feeding, yard waste, and illicit connections. Newark has implemented a street sweeping program whereby all roads are swept weekly with roads in the Central Business District swept daily.

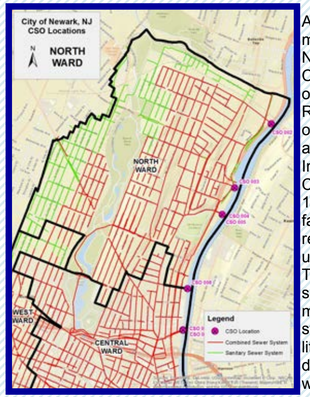
In 2017, the City completed the following:

- Reviewed 217 projects subject to the Stormwater Ordinance.
- Cleaned a total of 514 tons of debris from almost 3,000 catch basins.
- Captured and disposed of approximately 18 cubic yards of solids and floatables at netting facilities; keeping the pollutants from entering our waterways.

HELPFUL LINKS:

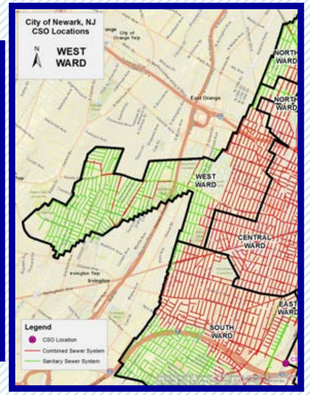
- *Water and Sewer*—Waterandsewer.newarknj.gov
- *Trash and Recycling*—https://www.newarknj.gov/departments/trash-and-recycling
- *Sustainable Stormwater Stewards*— https://www.newarknj.gov/card/sustainability-stewards
- *Newark's Combined and Separate Sewer Systems*—http://www.state.nj.us/dep/dwq/pdf/cso_sewermap_newark.pdf
- *Notifications, Where CSOs May be Occurring* —http://njcso.hdrgateway.com
- *Illegal Dumping*— https://www.newarknj.gov/news/mayor-baraka-and-public-safety-launch-illegal-dumping-task-force, http://stopdumping.nj.gov/
- *NewarkDIG, Community Group Focused on Green Infrastructure*—https://www.newarkdig.org/

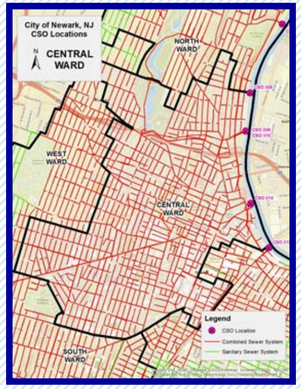
DOES YOUR NEIGHBORHOOD HAVE A SEPARATE OR COMBINED SYSTEM?

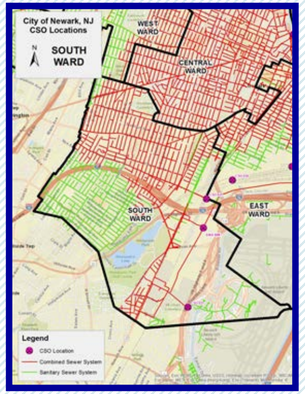


Approximately 11 square miles of the City of Newark are serviced by a CSS. There are 11 CSO outfalls along the Passaic River and 5 CSO outfalls on the Peripheral Ditch along the Newark International Airport. The City of Newark operates 12 netting/screening facilities with the remaining 4 all currently under construction. These facilities capture solids and floatables that made their way into the storm sewers; keeping litter and debris from discharging to our waterbodies.

Warning Signs are posted at every Combined Sewer Overflow Outfall

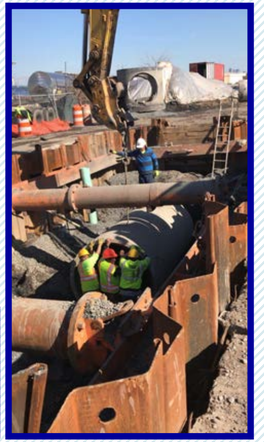






COMBATING COMBINED SEWER OVERFLOWS IN YOUR NEIGHBORHOOD

Current Projects



CSO Solids/Floatables Control Measures – Netting Facilities at Delavan Avenue, Fourth Avenue, and Roanoke Avenue: Construction of permanent CSO control netting facilities (to be installed underground) at three (3) sites.
Status: Currently under construction, estimated completion date for all three sites August 2018.

Peddie Ditch Rehabilitation: Construction of a permanent CSO control netting facility to replace an existing facility installed as a Demonstration Project in the 1990s by USEPA.
Status: Currently in planning and design. Construction to begin in 2018.

Extraneous Flow: Identifying/quantifying unnecessary flow entering the Combined Sewer System throughout Newark.
Status: Study nearing completion, expected early 2018.

GIS Development: Creating electronic mapping data for water and sewer infrastructure utilizing Geographic Information Systems (GIS).
Status: Nearing completion, expected early 2018.

Queen Ditch Restoration
Queen Ditch had been filled in and was blocking overflow during storm events, causing significant flooding.

Newark is reactivating Queen Ditch by dredging the ditch to original levels, constructing a netting facility and installing a box culvert to convey overflow.
Status: Currently under construction, estimated completion date June 2018.

South and Adams Street
Cleaning and rehabilitation of existing heavily silted culverts and installation of storm sewers to alleviate flooding.
Status: Currently in planning and design. Construction to begin in 2018.

Small Sewer Evaluation and Rehabilitation
Comprehensive structural evaluation and rehabilitation of 350 miles of small combined, storm, and sanitary sewers 22-inch and less in diameter.
Status: Currently in planning and design. Construction to begin in 2018.

These nets capture solids and floatables that made their way into the storm sewers; keeping litter and debris from discharging to our waterbodies.

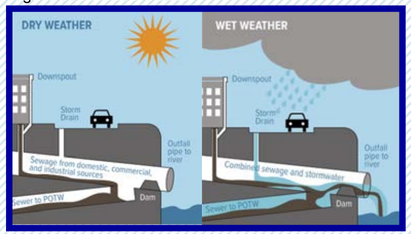
Existing Netting Facility

LEARN MORE ABOUT STORMWATER RUNOFF

Stormwater runoff is generated from rain and snowmelt events that flow over land or impervious surfaces. The runoff picks up pollutants like trash, chemicals, oils, and dirt/sediment that can harm our water bodies. Stormwater controls known as best management practices (BMPs) are used to protect these resources. These BMPs filter out pollutants and/or prevent pollution by controlling it at its source.

Separate Sewer System (SSS)

A separate sewer system consists of two different sewer pipes running one on top of the other, or "piggyback." In most instances, the sanitary pipe is below the storm pipe. The sanitary sewer pipe transports sanitary sewage collected from the laterals (plumbing connections) of homes, businesses, and industry to treatment plants. The stormwater sewer pipe carries water collected from street inlets, building downspouts, and other storm sewer lines to a nearby receiving stream and is discharged through a Stormwater Outfall.



Combined Sewer System (CSS)

Combined sewer systems are sewers that are designed to collect storm runoff, domestic sewage, and industrial wastewater in the same pipe.

Most of the time, combined sewer systems transport all of their wastewater to a sewage treatment plant, where it is treated and then discharged to a water body. During periods of heavy rainfall or snowmelt, the amount of wastewater in a combined sewer system can exceed the capacity of the sewer system or treatment plant. For this reason, combined sewer systems are designed to overflow when required and discharge excess wastewater directly to nearby streams, rivers, or other water bodies. These combined sewer overflows (CSOs), contain not only storm water but also untreated human and industrial waste, toxic materials, and debris.

Due to the volume of CSO flows and their contaminants, CSOs can have a variety of adverse impacts on rivers and bays, impairing vital aquatic habitats, and threatening the safety and health of those who use these waterways for boating, fishing or swimming.

Potential Impacts

Stormwater and CSO can have similar impacts including:

Flooding

Flow in any sewer can get so high that water backs up through manholes and into the basements of homes.

Water Quality and Human Health

- Bacteria and other pathogens can create health hazards, causing beach closures, or contaminating adjacent shell-fishing areas.
- Sanitary sewage items (e.g., syringes, tampons, feces) are at a minimum aesthetically displeasing to sight and smell.

Aquatic Life

- Sediment from stormwater runoff can cloud receiving water bodies prohibiting aquatic growth.
- Excess nutrients can cause algae to flourish and eventually decompose, removing dissolved oxygen from the water. Fish and other aquatic life cannot survive with such low dissolved oxygen levels.
- Household hazardous wastes, including insecticides, pesticides, paint solvents, waste motor oil, and other automobile fluids can kill aquatic life. Land animals and humans can become sick from eating diseased fish or shellfish or ingesting polluted waters.
- Debris including plastic bags, six-pack rings, bottles, and cigarette butts can choke, suffocate, or disable aquatic life including ducks, fish, turtles and birds.

Your Everyday Activities Can Help!

Don't Litter

Where do you think that garbage on the ground goes? If it's picked up by rain and carried to a storm drain, it can go directly to a waterway like the Passaic of Elizabeth River. Garbage on our streets also clog storm drains which causes flooding.

- Report illegal dumping.—**Newark Task Force https://www.newarknj.gov/news/mayor-baraka-and-public-safety-launch-illegal-dumping-task-force**

Refrain During Rain

Help Newark reduce the amount of water entering the CSS during heavy rain by postponing activities such as doing laundry, taking a shower, or running the dishwasher.

GET INVOLVED

Reduce, Reuse, Recycle

Shopping bags, bottles, and other plastic items are choking our waterways; it takes hundreds of years for plastics to break down. Reducing the amount of plastic we use each day goes a long way. If you do use plastic bags or bottles, re-use or recycle them, please!

Get that Oil Leak Fixed

Engine oil leaking from a car will be washed into our storm drains when it rains. When you notice a leak, get it taken care of ASAP.

Scoop Your Dog's Poop

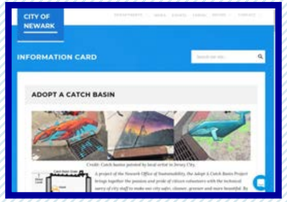
Not only is it mandatory in Newark, but picking up after your dog and disposing in the garbage helps reduce bacteria entering our waterways.

For more tips on how you can help– **http://www.cleanwaternj.org/**

Become a Sustainable Stormwater Steward

The City of Newark Office of Sustainability and Department of Water and Sewer Utilities are recruiting Newarkers to roll up their sleeves and join your neighbors, local community groups, and city officials in implementing sustainability projects. By joining, you can beautify the neighborhood, reduce localized flooding and help reduce the amount of litter and debris getting into our pipes and waterways.

- We are currently offering FREE Rain Barrels to Newark citizens and recruiting volunteers to help install rain barrels in their neighborhood.
- Sign up now to adopt a catch basin. Volunteers will be provided with a FREE "catch basin care kit".



To see more of the program's current offers and initiatives- **Visit https://www.newarknj.gov/card/sustainability-stewards**

PRSRT. STD.
US POSTAGE PAID
NEWARK, NJ
PERMIT NO. 937

Department of Water and Sewer Utilities
Newark City Hall Room B-31F
920 Broad Street
Newark, New Jersey 07102

CITY OF NEWARK
Mayor Ras J. Baraka

CSO Warning Sign at City Dock

2017 Stormwater and Combined Sewer Overflow (CSO) Pollution Prevention Plan

Revised (March 2019)

APPENDIX K

NJDEP Public Participation Process Report Review Letter and Evaluation Table

State of New Jersey

PHIL MURPHY
Governor

SHEILA OLIVER
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Mail Code – 401-02B
Water Pollution Management Element
Bureau of Surface Water Permitting
P.O. Box 420 – 401 E State St
Trenton, NJ 08625-0420
Phone: (609) 292-4860 / Fax: (609) 984-7938

CATHERINE R. McCABE
Commissioner

December 14, 2018

To Distribution List

Re: Review of Public Participation Process Report Required by Part IV.D.3.b.iii

Passaic Valley Sewerage Commissioners, NJPDES Permit No. NJ0021016
Bayonne Municipal Utilities Authority, NJPDES Permit No. NJ0109240
Borough of East Newark, NJPDES Permit No. NJ0117846
Town of Harrison, NJPDES Permit No. NJ0108871
Jersey City Municipal Utilities Authority, NJPDES Permit No. NJ0108723
Town of Kearny, NJPDES Permit No. NJ0111244
City of Newark, NJPDES Permit No. NJ0108758
North Bergen Municipal Utilities Authority, NJPDES Permit No. NJ0108898
City of Paterson, NJPDES Permit No. NJ0108880
North Bergen Municipal Utilities Authority - Woodcliff STP, NJPDES Permit No. NJ0029084
Town of Guttenberg, NJPDES Permit No. NJ0108715

Dear Permittees:

Thank you for your timely submission dated June 2018 entitled "Public Participation Process Report." The report was submitted cooperatively by PVSC with Bayonne Municipal Utilities Authority, Borough of East Newark, Town of Harrison, Jersey City Municipal Utilities Authority, Town of Kearny, City of Newark, North Bergen Municipal Utilities Authority, City of Paterson, North Bergen Municipal Utilities Authority – Woodcliff STP and Town of Guttenberg. Public participation should actively involve the affected/interested public through each of the three steps of the Long-Term Control Plan (LTCP) process. The required elements of the Public Participation Process Report and Supplemental CSO Team are defined at Part IV.G.2.b and Part IV.G.2.c of your NJPDES permit.

The New Jersey Department of Environmental Protection (Department) has evaluated your submission against these permit requirements and requests that you provide a revised Public Participation Process Report within 45 days of this letter, which addresses the topics described in the column titled "Actions" of the attached document.

Department staff are available to speak with you in further detail about our evaluation of your Report and to discuss your revised Report submittal due on January 28, 2019.

Thank you for your cooperation.

Sincerely,

Dwayne Kobesky
Environmental Specialist 3
Bureau of Surface Water Permitting

C: Susan Rosenwinkel, Bureau of Surface Water Permitting
Joe Mannick, Bureau of Surface Water Permitting

Distribution List:

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111 Broadway
Paterson, NJ 07505

Frank Pestana, Executive Director
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- Woodcliff STP
6200 Tonnelle Avenue
North Bergen, NJ 07047

Alberto Gabrera, Town Clerk
Town of Guttenberg
6808 Park Avenue
Guttenberg, NJ 07093

Does the Report include clear discussion of the following:	Summary of Findings	Actions
Goals and desired outcomes for actively involving the affected public.	Section 1.1 states that "The goals of the program are to foster public awareness and to facilitate public involvement in the decision-making process to develop and select the final LTCP." The report also states that the public participation plan will continue to be implemented throughout the continued development of the LTCP.	None.
A description of outreach to hydraulically connected municipalities served by the same sewer treatment plant, including municipalities with separate sewer systems.	Section 2.9.2 titled "Green Infrastructure Municipal Outreach and Technical Assistance Program" includes 40 GI feasibility studies for municipalities throughout the PVSC service area. This section states that PVSC also held pickle barrel workshops in CSO municipalities of Paterson, Harrison and Bayonne as well as the non-CSO municipality of Clifton. PVSC also indicated that they met with several separate sewer system municipalities which is detailed in Table 2-17. Information about this outreach is limited to copies of the letter provided to encourage I/I reduction.	Conduct additional outreach to hydraulically connected separately sewered communities. This could be accomplished, for example, by distributing education materials to county or municipal buildings throughout the PVSC service area. Consider expanding the municipal council meetings to more municipalities in the sewershed described in Section 2.13 and provide additional information on the purpose and timeline for these meetings. If the meetings identified in Table 2-17 discussed other topics besides I/I, provide a summary of those other discussion items.
Identification of the affected public.	The report does not specifically identify the affected public. The report does include a discussion of outreach material available in multiple languages.	Identify the affected public for each CSO municipality and identify specific groups/organizations/entities within the affected public and then identify which outreach and feedback activities are targeted to those segments. Affected public may include: school children, recreational water users, industrial users to the CSS, residents, etc. When identifying the affected public, include an assessment of the dominant languages of the affected public and if and how languages other than English should be built into engagement, including feedback opportunities.
Information on the variety of outreach and engagement activities already completed. • description of outreach methods used, • why each outreach method was selected, and • outcome of the engagement activity (such as completed surveys, number of those in attendance, or summary of feedback from attendees).	The report identifies a variety of methods used in certain municipalities, however, it is not clear what level of engagement was used to involve the affected public throughout each permittee's service area. The report does not provide a description of the outcome of the engagement activities. Sections 2.7 and 2.8 provide information on the meetings that either PVSC or the LTCP Project Team attended with stakeholder groups or community members to present various LTCP topics to inform the public regarding overall LTCP development. JCMUA: Section 2.10.2 details JCMUA's rain barrel program which provides residents with the opportunity to purchase a rain barrel and learn why rain barrels are important in CSO areas. The report indicates that 128 rain barrels have been sold. JCMUA has hosted an Earth Day Fair for the last three years where the public is educated on a variety of environmental and community topics. JCMUA offers an Adopt a Catch Basin program where the public can learn how catch basins operate and educates the community on the importance of ensuring proper functionality. JCMUA has partnered with the Jersey City Office of Innovation and the Jersey City Office of Sustainability to create a handbook the provides information to residents and business owners on how to make the City greener and more resilient. Newark: The City of Newark Department of Water & Sewer Utilities has partnered with the Office of Sustainability to create the Sustainable Stormwater Stewards which recruits citizens to engage and implement sustainability projects in their neighborhoods. Newark is providing rain barrels to residents along with the Adopt a Catch Basin program which educates the public on the operation of catch basins. Newark has created a Sustainability Action Plan: Commitments & Priority Actions which details Newark's shared commitments to implement policies, programs, and build partnerships to achieve the City's goals. Newark has a Green Team which is comprised of local stakeholders actively working to advance policies and programs related to sustainability, community greening and other topics.	Aside from a few details provided regarding PVSC programs within a few municipalities and more detailed information from Jersey City and Newark, the report should be updated to provide more detail from each permittee. The report should provide additional details on the outreach conducted by all permittees; begin tracking metrics and details on events, such as number of participants and outcome of the outreach. Provide information on the effectiveness of existing methods. Additionally, efforts throughout the service area should be noted and detailed in the report. Each permittee should be sufficiently addressed within the report to demonstrate public engagement within the permittee's municipality. JCMUA and Newark: Begin tracking metrics and details on events, such as number of participants, number of catch basins adopted, and outcome of the outreach.
Information on planned outreach and engagement activities: • description of outreach methods to be used, • why each outreach method was selected, and	The report contains a general statement of commitment to public participation and the desire to continue existing activities, such as Supplemental CSO Team meetings, municipal council meetings, and social media use. There is a lack of detail provided, as the report does not demonstrate the level of participation by or in each CSO	Sufficiently demonstrate that the affected public in each CSO permittee's jurisdiction will be offered and informed of feedback opportunities. The report does not state intention to hold any specific general public meetings on LTCP development. Clarify if no public meetings are intended.

• description of desired outcomes.	municipality. While the report makes several statements on the intention to get feedback from stakeholders on LTCP issues and Section 4.1 includes a list of anticipated forums for feedback, the report does not sufficiently demonstrate the specific information feedback will be sought on, nor how the affected public will be informed of these opportunities to provide feedback. Section 2.7 states that PVSC has participated in various events such as presenting the public with information at a table or booth at festivals and other local events. Section 2.11 describes the green infrastructure pilot projects proposed by PVSC in Newark and Jersey City. The proposed projects would be three right-of-way rain gardens in high visibility areas which would allow the CSO permittees within PVSC's treatment district the opportunity to observe the planning and implementation process.	The report indicates that PVSC will be using existing meeting forums as feedback opportunities. Provide details on approximately when these public meetings will occur, the mechanisms to notify the public of the meetings, and the topics of the meeting.
How the public engagement activities provide opportunities for the public to be engaged throughout all three stages of the LTCP development process. • System Characterization • Development and Evaluation of Alternatives, and • Selection of Alternatives and Implementation of the LTCP	The ad hoc stakeholder meetings mentioned in Section 2.8 are described as an opportunity to keep the public informed regarding the overall LTCP development, to receive input from attendees, and to actively include the affected public in the development of long-term CSO controls. Section 5 provides general information about future public participation activities including the use of websites, social media, and brochures. However, there is no description of when these activities will be conducted to align with the development and evaluation of alternatives or selection of alternatives and implementation of the LTCP. Section 4 of the report lists opportunities for the public to comment. Comments will be gathered, tracked and documented and will then be responded to in a joint commentary type response. Newark: Representatives from the City have either hosted or attended various meetings and events to share information regarding green infrastructure, CSOs, and other related topics with the interested public. The City will continue to host/attend these types of meetings. Table 2-16 lists the meeting dates and topics discussed.	Sufficiently demonstrate that engagement and feedback opportunities are planned and will be implemented during the development and evaluation of alternatives and the selection of alternatives and implementation of the LTCP. Demonstrate that these opportunities will be offered to the affected public throughout the permittee's service area. As Section 4 indicates that comments are being tracked and responded to, submit to the Department the tracked comments received so far.
How the feedback from the public will be considered in the decision-making process.	Section 2.7 states that the LTCP Project Team attends regular meetings with existing local groups to present on the development of the LTCP and stakeholders were encouraged to ask questions. Section 4.1 lists opportunities for comment on the LTCP. The NJCSO Group meetings and PVSC CSO Sewer district and NBMUA-Woodcliff Sewer Area permittee meetings should not be listed unless they are open to the public. Section 4.2 and 4.3 mention that comments may be received and that there will be a joint approach to addressing comments.	See previous "actions" above. Section 4.3 states that comments received will be responded to. Provide description of how the permittees will inform the commenters of the responses.
Information on how the public and hydraulically connected communities will be provided with periodic updates on LTCP implementation.	Section 3.2 states that CSO construction related activities are posted on the PVSC website. The report does not discuss providing the public with programmatic LTCP updates.	Provide details on method/potential methods for providing LTCP programmatic updates.
How the public is provided an opportunity to review key draft submittals, such as the Characterization Report, the Public Participation Process Plan, the Consideration of Sensitive Areas, the Development and Evaluation of Alternatives, and the Selection of Alternatives.	Section 4 lists different forums in which PVSC/Permittees may accept public comment, however, it is not clear what the public will be offered to comment on or a timeline of when the draft submittals will be available for public input.	Permittees may consider providing opportunities for the public to review key draft submittals. If PVSC and municipal permittees consider this option, it is recommended that a general timeline is provided with target dates for distribution of draft reports, deadline for submission of comments, and how any changes to the reports before final submission will be shared back to the public. Consider how PVSC and municipal permittees will inform the public that this type of information is available for review.

Does the Public Participation Plan include a discussion of any of the following engagement methods?	Summary of Findings	Actions
Use of Various Methods	The report discusses the use of various methods, but does not demonstrate that various methods are consistently employed to reach the affected public throughout each permittee's jurisdiction.	Demonstrate that various methods are used throughout each permittee's jurisdiction.
• Social Media Posts	Section 3.7 describes a social media plan using Facebook and Twitter to enhance outreach about the LTCP. The page is open to comments and questions which will be answered by PVSC personnel. The PVSC regional Supplemental CSO Team has created a Facebook and Twitter page which promotes LTCP information, including upcoming events and meetings, and other relevant information.	Develop targets for social media and track metrics, such as the frequency of posts, number of followers, and number of posts shared by other users.
• Emails	This is not discussed in the report.	
• Maintained & Routinely Updated Website	The njcleanwaterways.com website provides information for the general public including an opportunity to join a email list. The report mentions CSO information available on specific webpages for PVSC, NBMUA, Newark, JCMUA, and Jersey City, such as rain barrel programs on JCMUA's webpage and a Newark's sustainability stewards. A review of the PVSC, NBMUA, Newark and JCMUA's webpages shows that little information related to the development of LTCP or opportunities for the public to get engaged or provide feedback.	Since it appears that njcleanwaterways.com is the primary website for disseminating information for all of the CSO permittees, a link to njcleanwaterways.com should be in a prominent location on the individual permittee's webpages. Routinely update website to include opportunities for the affected public to provide feedback on the development of the LTCP. Develop targets and begin tracking metrics, such as the number of visits, frequency of updated content, or comments received.
• News Articles	This is not discussed in the report.	
• Mailers/Inserts	This is not discussed in the report.	
• Posters	This is not discussed in the report.	
• Attending and Presenting at Existing Community Group Meetings	PVSC attends meetings with existing groups when invited.	Offer to attend existing meetings at key points in the LTCP development, such as during development and evaluation of alternatives and selection of alternatives and implementation of the LTCP.
• Hosting a booth at community/neighborhood fairs/events	PVSC: Section 2.7 indicates that PVSC participated in various events by presenting the public with information at a table or booth. Events PVSC has participated in include the North Bergen Green and Healthy Family Festival, Day without Water in Jersey City, and the Newark Recycling Summit. JCMUA: JCMUA has hosted an annual Earth Day Fair for the past three years to discuss and demonstrate a variety of environmental and community topics. JCMUA staff handed out brochures as well as sponsored volunteers for planting near housing projects (and also at Liberty Park).	PVSC: Develop targets and begin tracking metrics, such as the number of visits to PVSC sponsored or staffed booths or comments received at events. JCMUA: Develop targets and begin tracking metrics, such as the number of visits to JCMUA sponsored or staffed booths or comments received at events.
• Holding an Open House	This is not discussed in the report.	
• Public Meetings	This is not discussed in the report.	
• Distributing Surveys	This is not discussed in the report.	
• Conducting interviews	This is not discussed in the report.	
• Offering CSO infrastructure tours	PVSC offered a tour of the plant to the Supplemental CSO Team during meeting five.	Does PVSC provide tours to the public or organizations as appropriate for discussions about CSOs? If yes, provide details if this is something that is a part of PVSC's public awareness and participation programs.
• Other: Municipal Council Meetings	Section 2.13 indicates that PVSC meets with local government officials, including business administrators and finance directors.	Provide details if these were part of public meetings including the nature of the discussion.
• Other: Fact Sheets	Fact sheets were developed as part of the public outreach and education efforts. These fact sheets are available in various languages.	Begin tracking metrics on number of fliers distributed.
• Other: Brochure	A LTCP brochure was developed in order to provide additional information to the public regarding the CSO LTCP development. This brochure is distributed to the public at various meetings and public outreach events. Newark: The City of Newark Supplemental CSO Team created a CSO brochure to provide the public with information about state regulations, CSSs, and the mitigation of CSOs.	Begin tracking metrics on number of brochures distributed.
• Other: Educational Outreach Program	Figure 3-2: "PVSC Education and Outreach Program Flyer" is provided showing an educational program for Grades K through 12. However, its implementation or participation by permittees or their schools is not provided.	Provide details on the utilization of the Educational Program and PVSC's involvement and/or other permittee's involvement.

Does the Report include clear discussion of the following:	Summary of Findings	Actions
Has the Supplemental CSO Team been established?	PVSC Regional Team: A regional Supplemental CSO Team has been established. Bayonne and Newark have elected to form local Supplemental CSO Teams in addition to participating on the regional PVSC team. Bayonne: Bayonne has created a Supplemental CSO Team. Newark: Newark has created a Supplemental CSO Team.	None.
• Who was invited to participate on the team?	PVSC Regional Team, Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team, Bayonne and Newark: Provide information on if others were invited to join the team, but either declined or did not respond. Provide information on how invitees were offered to participate (e.g. invitation letter or email).
• Who has joined the Supplemental CSO Team?	PVSC Regional Team: Table 2-1 includes a list of members and their associated organization. Bayonne and Newark: There is no discussion of who has joined the team.	PVSC Regional Team: None. Bayonne and Newark: Provide a list of the team members who have accepted a position on the Supplemental CSO Team and the organization or affected public that they represent.
• Is the membership representative of the area and its needs?	PVSC Regional Team: Table 2-1 lists 24 individuals that represents diverse perspectives including community organizations, environmental organizations, business/industry, and recreational interests across the CSO communities in the PVSC area. It is unclear if representatives from the affected public from East Newark, Guttenberg, and Harrison are on the regional Supplemental CSO Team. Bayonne and Newark: This information is not provided.	PVSC Regional Team: Clarify if representatives of the affected public for East Newark, Guttenberg and Harrison are on the team. If not, consider extending an invitation to these entities and/or conduct additional public participation activities in these three municipalities to compensate for their lack of representation on the Supplemental CSO Team. Bayonne and Newark: Provide a discussion on how the membership is representative of the area and its needs.
• When was the Supplemental CSO Team formed and first convened?	PVSC Regional Team: The first meeting was held on Oct 5, 2016. Bayonne: The first meeting was held on June 29, 2017. Newark: The first meeting was held on April 25, 2017.	None.
• Does the Supplemental CSO Team have goals or statements of purpose?	PVSC Regional Team: Section 2.2 states that the goal of the PVSC regional Supplemental CSO Team is to "work as an informal work group as a liaison between the general public and the decision makers for the permittee." This section also provides a list of responsibilities and expectations for the Supplemental CSO Team. Bayonne: There is no specific goal listed for Bayonne's Supplemental CSO Team although Table 2-7 shows that there was a discussion of the mission of the Supplemental CSO Team at the second meeting. Newark: There is no specific goal listed for Newark's Supplemental CSO Team.	PVSC Regional Team: None. Bayonne: Provide the mission and goals of the Supplemental CSO Team as discussed at the October 2, 2017 meeting. Newark: Provide the mission and goals of the Supplemental CSO Team.
Identification of the periodic meetings/events for the Supplemental CSO Team.	PVSC Regional Team: Meetings have been and will be held on a quarterly basis throughout the development of the LTCP. Bayonne: Bayonne's Supplemental CSO Team's meeting schedule is listed in Table 2-6. The report states that future meetings will continue to be held on a regular basis throughout the development of the LTCP. Newark: Newark's Supplemental CSO Team's meeting schedule is listed in Table 2-5. The report states that future meetings will continue to be held on a regular basis throughout the development of the LTCP.	PVSC Regional Team: None. Bayonne and Newark: State the planned meeting frequency through June 2020.

Description of how information is shared with the Supplemental CSO Team.	PVSC Regional Team: Section 2.2 discusses the SharePoint site accessible only to Supplemental CSO Team members as a mechanism to share and transfer documents for review and comment, share agendas prior to the meetings, and share presentations given at each meeting. In addition to the Supplemental CSO Team meetings, draft reports were provided to the members of the team for review and comment. PVSC's website (www.njcleanwaterways.com) contains additional information such as public education brochures and Supplemental CSO Team meeting presentations which can be accessed by the public. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: None. Bayonne and Newark: Provide a description on how information is distributed to the Supplemental CSO Team.
• Does the Report provide a plan for sharing information and data collected throughout the development of the LTCP?	PVSC Regional Team: The report indicates that information is shared during Supplemental CSO Team meetings and made available on the SharePoint site and the Clean Waters website. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: None Bayonne and Newark: Provide a description of how information and data will be shared throughout the development of the LTCP.
• Does the Report provide when and how the Supplemental CSO Team will be informed of alternatives and provide input to be considered for the evaluation and selection of alternatives?	PVSC Regional Team, Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team, Bayonne and Newark: Provide details on when and how the Supplemental CSO Team will be informed of alternatives and provide input into the evaluation and selection of alternatives.
• Does the Report provide the means by which the public and/or the Supplemental CSO Team will be informed of the ongoing implementation of the LTCP?	PVSC Regional Team, Bayonne, and Newark: This is not discussed in the report.	PVSC Regional Team, Bayonne and Newark: Provide details on the method/potential methods for providing LTCP programmatic updates and construction project specific updates.
• Does the report explain how the Supplemental CSO Team is provided an opportunity to review key draft submittals, such as the Characterization Report, the Public Participation Process Plan, the Consideration of Sensitive Areas, the Development and Evaluation of Alternatives, and the Selection of Alternatives?	PVSC Regional Team: Section 2.2 states that draft reports were provided to members of the Supplemental CSO Team. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: Permittees may consider providing opportunities for the Supplemental CSO Team to review key draft submittals. Since the report states that four draft reports were shared with the Supplemental CSO Team for review, provide details on when reports were distributed to Supplemental CSO Team members, the length of time offered for review, and the comments received. If PVSC considers this option for future submittals, it is recommended that a general timeline be provided with target dates for distribution of draft reports, deadline for submission of comments, and how any changes to the reports before final submission will be shared back to the team. Consider how PVSC will inform the team that this type of information is available for review. Bayonne and Newark: Permittees may consider providing opportunities for the Supplemental CSO Team to review key draft submittals. If Bayonne and Newark consider this option, it is recommended that a general timeline be provided with target dates for distribution of draft reports, deadline for submission of comments, and how any changes to the reports before final submission will be shared back to the team. Consider how Bayonne and Newark will inform the teams that this type of information is available for review.
Does the Report cover when and how input will be collected from the Supplemental CSO Team and considered in the decision-making process?	PVSC Regional Team: General team meeting minutes are provided, but the report does not detail if any comments were received from team members, what the nature of the comments were, and if those comments were considered in the final report. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: Discuss how feedback and perspectives by Supplemental CSO Team members are considered in the decision-making process. Bayonne and Newark: Provide details on how Supplemental CSO Team members' comments are considered during the decision-making process.

Does the Report include a discussion of these best practices:	Summary of Findings	Actions
Is the Supplemental CSO Team meeting schedule, agendas, and meeting material posted on your website or other platform for sharing information?	PVSC Regional Team: Section 2.2 discusses the SharePoint site accessible only to Supplemental CSO Team members as a mechanism to share and transfer documents for review and comment, share agendas prior to the meetings, and share presentations given at each meeting. In addition to the Supplemental CSO Team meetings, draft reports were provided to the members of the team for review and comment. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: None. Bayonne and Newark: Provide details on if the Supplemental CSO Team meeting schedules, agendas, and meeting materials are posted.
Are meeting agendas provided to the Supplemental CSO Team in advance of the meeting? (For example, at least one week in advance of meeting.)	PVSC Regional Team: Report states that meeting agendas are posted prior to the meeting via the SharePoint site. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: None. Bayonne and Newark: Provide details on if meeting agendas are provided to the team prior to the meeting.
How are the meeting materials shared with the Supplemental CSO Team participants after meetings?	PVSC Regional Team: Report states that presentations are posted on SharePoint at the end of the meeting. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: None. Bayonne and Newark: Provide information on if meeting materials are shared after team meetings.
The Supplemental CSO Team's goals or statements of purpose.	PVSC Regional Team: Section 2.2 provides a list of responsibilities and expectations for the Supplemental CSO Team. Bayonne and Newark: This is not discussed in the report.	PVSC Regional Team: None. Bayonne and Newark: Provide the team's goals or purpose.

APPENDIX L

Supplemental CSO Team Meeting No. 8
July 31, 2018

Supplemental CSO Team – Session 8

PVSC Service Area
North Bergen MUA Service Area (Woodcliff Treatment Plant)
Long Term Control Plan

July 31, 2018

CLEAN WATERWAYS
Healthy Neighborhoods

Agenda

- Introduction and Recap
- Project Status Update
- July 1st, 2018 Report Submittals
  Presented by the New Jersey Department of Environmental Protection
- Evaluation of Alternatives
- City of Newark Evaluation of Green Infrastructure for CSO Control
  Presented by Frank Brilhante (HDR)
- Questions
- Adjourn

CLEAN WATERWAYS
Healthy Neighborhoods

Introduction and Recap

CLEAN WATERWAYS
Healthy Neighborhoods

Supplemental CSO Team Members

Member	Organization	Member	Organization
Matt Dorans	Bayonne Chamber of Commerce	Sue Levine	Paterson Smart
TBD	Jersey City Redevelopment Agency	Ruben Gomez	City of Paterson Economic Development
Nicole Miller	Newark DIG	Sheri Ferreira	Greater Paterson Chamber of Commerce
Drew Curtis	Ironbound Community Corporation	Betty Jane Boros	New Jersey Business & Industrial Association
Robin Dougherty	Newark Greater Conservancy/Newark Business Partnership	Meiyin Wu, Ph.D	Montclair State University - Passaic River Institute
Jorge Santos	Newark Community Economic Development Corporation	Christopher C. Obropta, Ph.D	Rutgers University - Cooperative Extension Water Resources
Christopher Pianese	Township of North Bergen	Captain Bill Sheehan	Hackensack Riverkeeper
Janet Castro	Hudson Regional Health Commission Town of North Bergen	Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Thomas Stampe	North Bergen "Sustainable Jersey" group	Laurie Howard	Passaic River Coalition
Nancy Kontos	Bunker Hill Special Improvement District	Ben Delisle	Passaic River Rowing Association
Alison Cucco	Jersey City Environmental Commission	Patricia Hester-Fearon	Town of Kearny
Michele Langa	NY/NJ Baykeeper	Christopher Vasquez	Town of Kearny

Permittees

Permittee	Municipality	WWTP	CSOs
Bayonne MUA	Bayonne	PVSC	30
Borough of East Newark	East Newark		1
Town of Harrison	Harrison		7
Jersey City MUA	Jersey City		21
Town of Kearny	Kearny		5
City of Newark	Newark		18
North Bergen MUA	North Bergen		7
City of Paterson	Paterson		23
PVSC	-		0
Town of Guttenberg	Guttenberg	Woodcliff	1
North Bergen MUA*	North Bergen		1
	Total		114

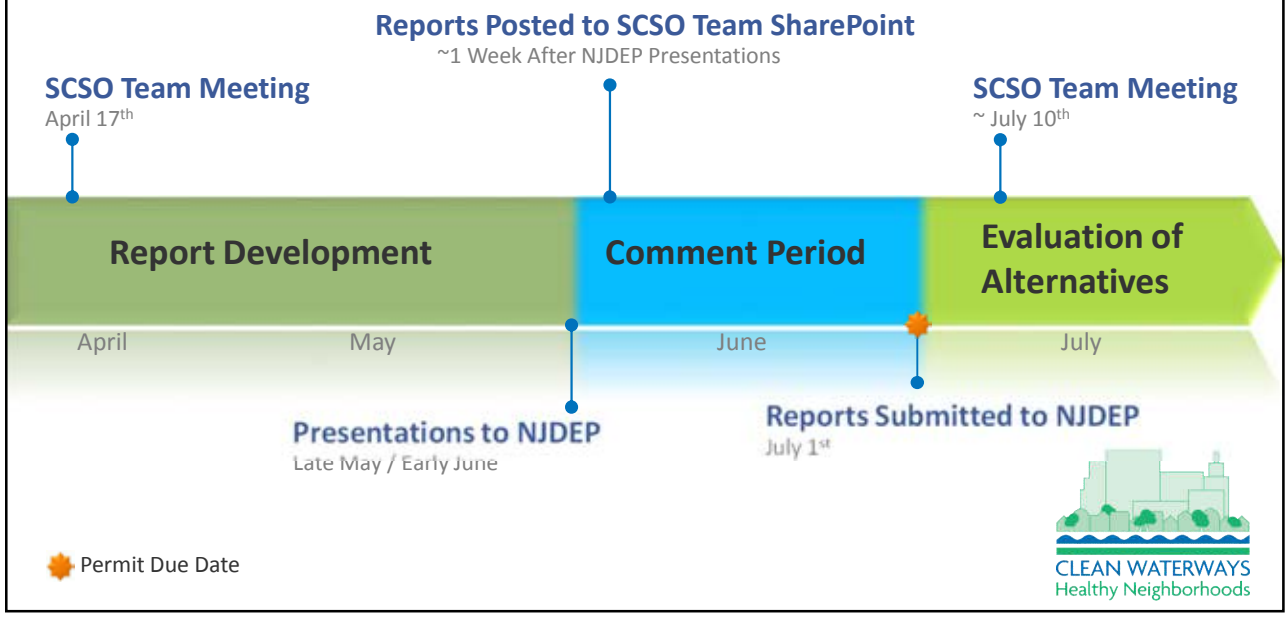
** North Bergen MUA conveys flows to both PVSC and Woodcliff WWTPs*

CLEAN WATERWAYS
Healthy Neighborhoods

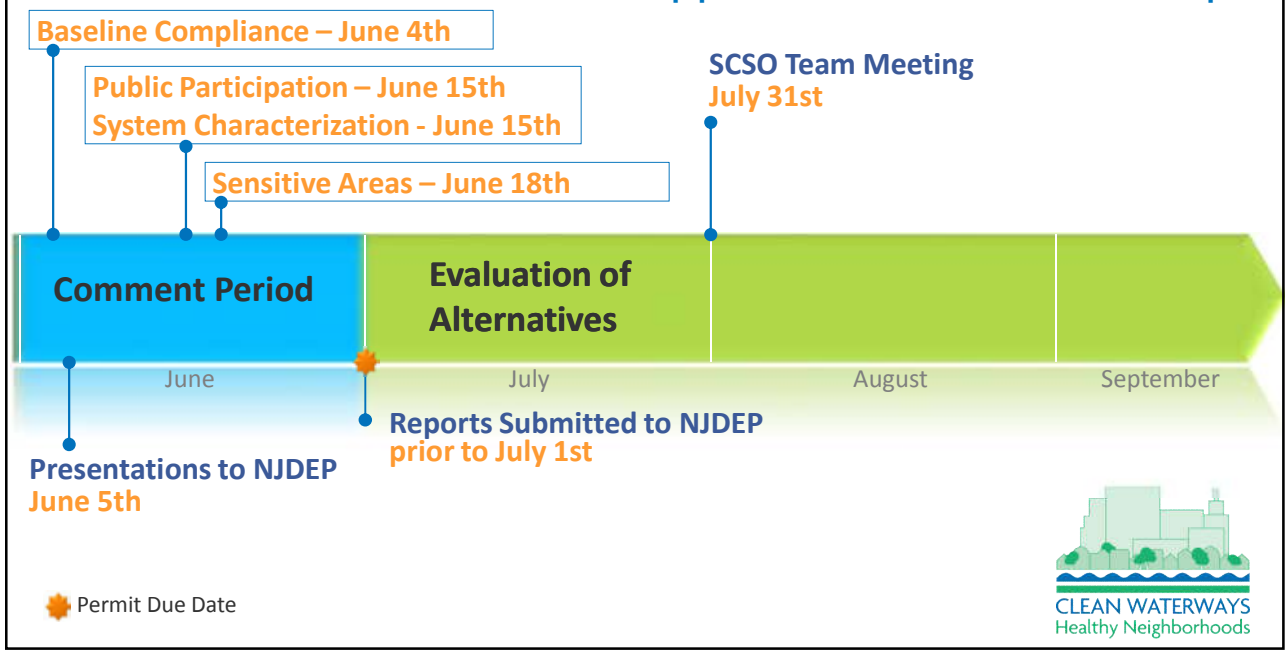
Project Status Update

CLEAN WATERWAYS
Healthy Neighborhoods

Timeline for Submittals and Supplemental CSO Team Input



Timeline for Submittals and Supplemental CSO Team Input



59-Month Program Schedule and Milestones

January 1, 2016
- ✓ Coordinates of pumps, regulators, and outfalls
- ✓ System Characterization Work Plan
- ✓ Baseline Compliance Monitoring Program Work Plan

July 1, 2016
- ✓ Map of Combined and Separate Sewer Areas

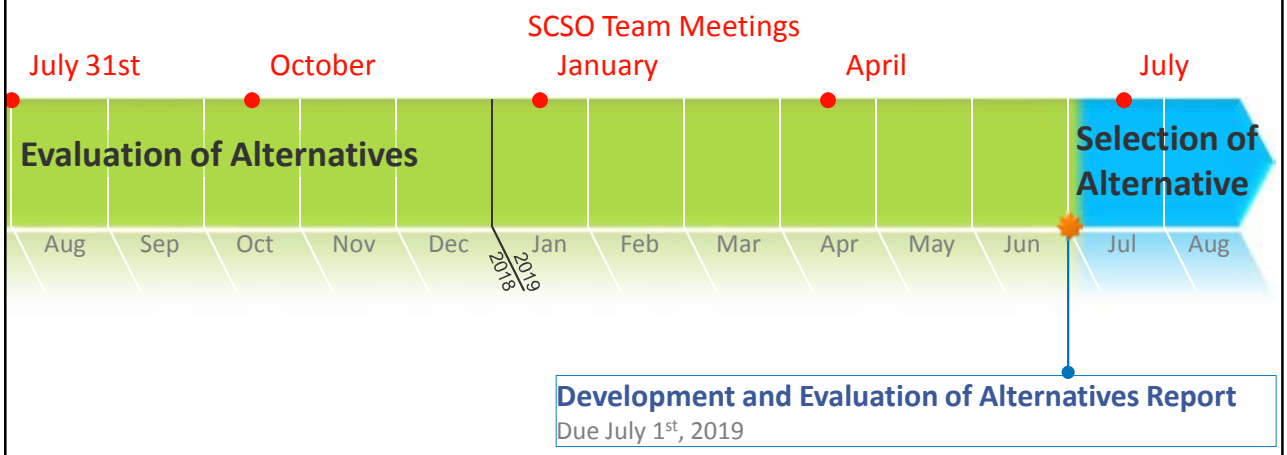
Permit Due Date

July 1, 2018
- ✓ System Characterization Report
- ✓ Public Participation Process Report
- ✓ Compliance Monitoring Program Report
- ✓ Consideration of Sensitive Areas Plan

July 1, 2019
- Development and Evaluation of Alternatives Report

June 1, 2020
- Selection and Implementation of Alternatives Report in the Final LTCP

Timeline for Evaluation of Alternatives



Permit Due Date

Supplemental CSO Team Meeting

CLEAN WATERWAYS
Healthy Neighborhoods

Status of July 1st, 2018 Submissions to NJDEP

presented by: NJDEP

CLEAN WATERWAYS
Healthy Neighborhoods

Evaluation of Alternatives

CLEAN WATERWAYS
Healthy Neighborhoods

National CSO Policy

- Consider a reasonable range of alternatives
- Analysis should be sufficient to make a reasonable assessment of cost and performance
- Selected controls should be sufficient to meet CWA requirements
- Presumption vs. Demonstration Approach

CLEAN WATERWAYS
Healthy Neighborhoods

Presumption vs. Demonstration

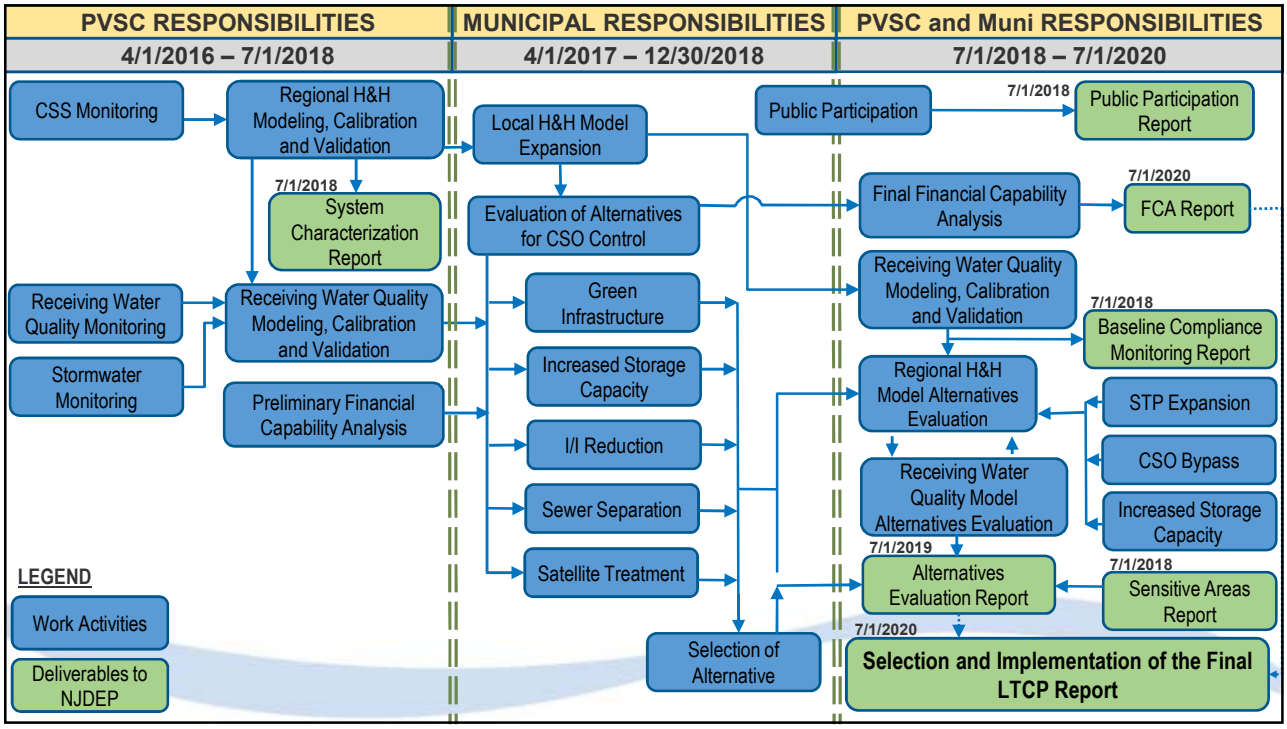
- Two approaches for evaluating compliance with the water quality based requirements of the Clean Water Act
  - Presumption Approach
    achieving one of the following:
    - *No more than an average of four overflow events per year*
    - *The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS during precipitation events*
    - *The elimination or removal of no less than the mass of the pollutants… for the volumes that would be eliminated or captured with 85% capture*
  - Demonstration Approach
    - Demonstrate, through monitoring and modeling, that the LTCP will not preclude the attainment of water quality standards or the receiving water's designated uses.

CLEAN WATERWAYS
Healthy Neighborhoods

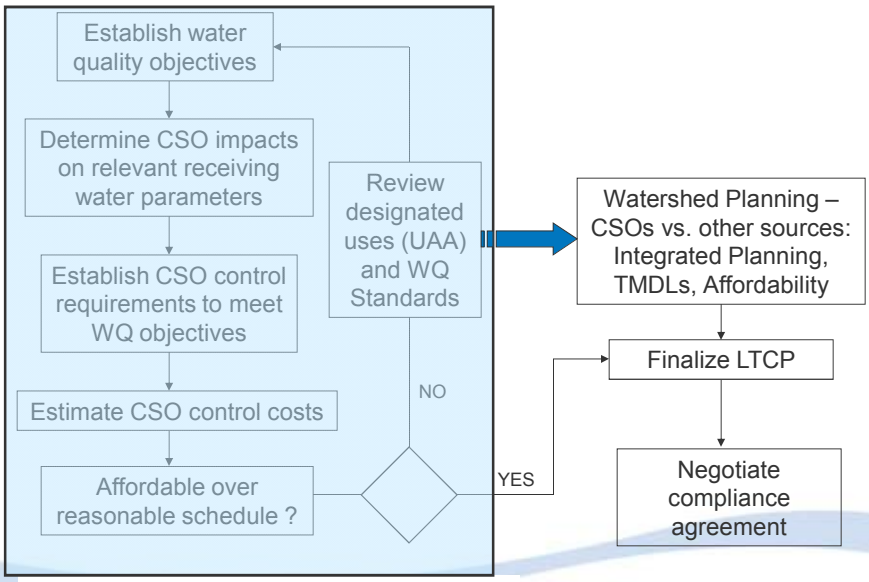
Permit Requirements

- Evaluate the feasibility of potential control alternatives, including:
  - ***Green infrastructure***
  - Increased storage capacity in the collection system
  - Treatment expansion or storage at PVSC
  - Inflow and Infiltration (I/I) reduction
  - Sewer separation
  - ***Treatment of CSO discharge***
  - CSO related bypass of secondary treatment at PVSC

CLEAN WATERWAYS
Healthy Neighborhoods



CSO LTCP Development Process - Affordability



Clean Water Act negotiation cycle

City of Newark Evaluation of Green Infrastructure for CSO Control

presented by: Frank Brilhante

CLEAN WATERWAYS
Healthy Neighborhoods

Questions and Final Discussion

CLEAN WATERWAYS
Healthy Neighborhoods

APPENDIX M

PVSC Educational Outreach Program Schedule (2015 - 2018)

PASSAIC VALLEY SEWERAGE COMMISSION
ENVIRONMENTAL EDUCATION
OUTREACH PROGRAM

2015-2016 School Schedule

89 **170** **23,263**

DATE		SCHOOL	GRADE	GRP#	STUDENTS	TIME	CITY	ADDRESS
Monday	9/7/15	Labor Day						
Tuesday	9/8/15							
Wednesday	9/9/15							
Thursday	9/10/15							
Friday	9/11/15							
Saturday	9/12/15							
Sunday	9/13/15							
Monday	9/14/15							
Tuesday	9/15/15							
Wednesday	9/16/15	Clean Communities						
Thursday	9/17/15							
Friday	9/18/15							
Saturday	9/19/15							
Sunday	9/20/15							
Monday	9/21/15	Ribbon Cutting Kearny						
Tuesday	9/22/15							
Wednesday	9/23/15							
Thursday	9/24/15							
Friday	9/25/15							
Saturday	9/26/15							
Sunday	9/27/15							
Monday	9/28/15							
Tuesday	9/29/15							
Wednesday	9/30/15							
Thursday	10/1/15							
Friday	10/2/15							
Saturday	10/3/15							
Sunday	10/4/15	Head of the Passaic Regatta (Cancelled Weather)						
Monday	10/5/15	P.S. # 23	3-5	1	350	9:30	Jersey City	143 Romaine Avenue, Jersey City, NJ 07307
Tuesday	10/6/15	Mary J. Donohoe	k-2/3-5	2	154/167	9:30/10:30	Bayonne	25 East 5th Street, Bayonne, NJ 07002
Wednesday	10/7/15							
Thursday	10/8/15	Clean Communities Sandy Huber						
Friday	10/9/15	Rosa Parks	6 &7	2	100/100	9:00/11:00	Orange	369 Main Street, Orange, NJ 07050

Saturday	10/10/15							
Sunday	10/11/15							
Monday	10/12/15	**Columbus Day**						
Tuesday	10/13/15	George Washington School	5th	1	230	9:30	Hillside	1530 Leslie Street, Hillside, NJ 07205
Wednesday	10/14/15	Oliver Street School	6 & 7	1	200	1:00	Newark	104 Oliver Street, Newark, NJ 07105
Thursday	10/15/15	School # 9	7th	3	30/30/30	8:45/10:00/11:45	Paterson	6 Timothy Street, Paterson, NJ 07503
Friday	10/16/15	School # 9	7th	1	30	1:45	Paterson	6 Timothy Street, Paterson, NJ 07503
Saturday	10/17/15							
Sunday	10/18/15							
Monday	10/19/15	School # 9	7th	1	30	9:15	Paterson	6 Timothy Street, Paterson, NJ 07503
Tuesday	10/20/15	School 11	k-2/3-5	2	250/250	9:00-10:00	Clifton	147 Merselis Avenue, Clifton, NJ
Wednesday	10/21/15	Woodrow Wilson	k-2/3-5	2	200/200	9:30/10:30	Bayonne	101 West 56th Street, bayonne, NJ 07002
Thursday	10/22/15	Prospect Park E.S.	k-2/3-5/6-8	3	290/280/260	9:15/10:15/11:15	Prospect Park	94 Brown Avenue Prospect Park, NJ 07508
Friday	10/23/15	Roberto Clemente School	k-2/3-4	2	190/160	9:00/10:00	Paterson	434 Rosa Parks Blvd., Paterson, NJ 07501
Saturday	10/24/15							
Sunday	10/25/15							
Monday	10/26/15	Woodrow Wilson	6-8	1	200	9:30	Bayonne	101 West 56th Street, Bayonne, NJ 07002
Tuesday	10/27/15	**Plant Tour (William Paterson Tour)**						
Wednesday	10/28/15	Orchard Elementary School (no dumping signs after)	3rd	1	66	9:00	Ridgewood	230 Demarest Street, Ridgewood, NJ 07451
Thursday	10/29/15	North 13th School	9th	2	19/16	12:15/1:00	Newark	300 North 13th Street, Newark, NJ 07103
Friday	10/30/15	**Halloween Activities at Schools**						
Saturday	10/31/15							
Sunday	11/1/15							
Monday	11/2/15	St. Michael's	3-5/6-8/k-2	3	140/150/115	10:00/11:00/12:00	Newark	27 Crittenden Street, Newark, NJ 07104
Tuesday	11/3/15	**Election Day**						
Wednesday	11/4/15	Mary J. Donohoe	6-8	1	145	9:30	Bayonne	25 East 5th Street, Bayonne, NJ 07002
Thursday	11/5/15							
Friday	11/6/15							
Saturday	11/7/15							
Sunday	11/8/15							
Monday	11/9/15	Garfield H.S.	9,10,11	1	25	9:00	Garfield	500 Palisade Avenue, Garfield, NJ 07072
Tuesday	11/10/15	P.S. # 10	k-2/3-5	2	150/150	9:15/10:15	Belleville	527 Belleville Avenue, Belleville, NJ 07109
Wednesday	11/11/15	**Veterans Day**						
Thursday	11/12/15	Lincoln Community School	3-5/6-8/k-2	3	140/140/140	9:15/10:15/11:15	Bayonne	208 Prospect, Bayonne, NJ 07002
Friday	11/13/15	Academy of St. Francis	k-2/3-5/6-8	3	65/60/71	8:30/9:30/10:30	Totowa	400 Totowa Road, Totowa, NJ 07512
Saturday	11/14/15							
Sunday	11/15/15							
Monday	11/16/15	John M.Bailey School	k-2/3-5	2	223/174	9:15/10:15	Bayonne	75 West 10th Street, Bayonne, NJ 07002
Tuesday	11/17/15	James F. Murray - P.S. 38	k-2/3-5/6-8	3	100/100/100	9:00/10:00/11:00	Jersey City	339 Stegman Parkway, Jersey City, NJ 07305
Wednesday	11/18/15	Woodrow Wilson M.S.	6-8	1	30	3:00	Clifton	1400 Van Houten Avenue, Cliton, NJ 07013
Thursday	11/19/15	P.S. # 16	k-2 / 3-5	2	200/200	9:00/10:00	Jersey City	96 Sussex Street, Jersey City, NJ 07302

Friday	11/20/15	**Photo Shoot!**						
Saturday	11/21/15							
Sunday	11/22/15							
Monday	11/23/15	Radburn School	k-2/3-5	2	250/250	9:00/10:00	Fair Lawn	18-00 Radbrun Road, Fair Lawn, NJ 07410
Tuesday	11/24/15	Emerson M.S.	6,7,8	1		9:30	Union City	318 18th Street, Union City, Nj 07087
Wednesday	11/25/15	John M. Bailey School	6,7,8	1	191	9:15	Bayonne	75 West 10th Street, Bayonne, NJ 07002
Thursday	11/26/15	**Thanksgiving**						
Friday	11/27/15	**Do Not Book**						
Saturday	11/28/15							
Sunday	11/29/15							
Monday	11/30/15	Ridge Street School (classroom)	4th	3	25/25/25	10:00/11:00/1:00	Newark	735 Ridge Street, Newark, NJ 07105
Tuesday	12/1/15	Eastern Christian H.S.	H.S.	2	20/20	8:10/9:35	North Haledon	50 Oakwood Avenue, North Haledon, NJ
Wednesday	12/2/15	P.S. # 23 (annex)	k	2	100/100	9:30/10:30	Jersey City	128 Duncan Avenue, Jersey City, NJ 07306
Thursday	12/3/15	Newark Educators' Community Charter				2:00	Newark	9-11 Hill Street, Newark, NJ
Thursday	12/3/15	Fresh Start High School Academy	9th	1	20	10:45	East Orange	74 Halsted Street, East Orange, NJ
Friday	12/4/15	School Number One	5-6/7-8	2	200/200	9:00/10:00	Little Falls	32 Stevens Avenue, Little Falls, NJ 07424
Saturday	12/5/15							
Sunday	12/6/15							
Monday	12/7/15	P.S. # 14	pre-k-2/3-5-6-8	3	150/150/150	9:30/10:30/1:30	Bayonne	33 East 24th Street, Bayonne, NJ 07002
Tuesday	12/8/15	Hasbrouck Heights H.S.	9-12	1	70		Hasbrouck Heights	379 Boulevard, Hasbrouck Heights, NJ
Wednesday	12/9/15	P.S. # 23 (annex)	1 & 2	2	200/200	9:30/10:30	Jersey City	128 Duncan Avenue, Jersey City, NJ 07306
Thursday	12/10/15							
Friday	12/11/15	Oliver Street School (Do Not Book)	8th	1	150	1:00	Newark	104 Oliver Street, Newark, NJ 07105
Saturday	12/12/15							
Sunday	12/13/15							
Monday	12/14/15							
Tuesday	12/15/15	Garfield M.S.	6	1	500	9:00	Garfield	175 Lanza Avenue, Garfield,NJ 07026
Wednesday	12/16/15	Lincoln M.S.	7th	1	170	9:00	Hawthorne	230 Hawthorne Avenue, Hawthorne, NJ 07506
Thursday	12/17/15	P.S. # 26	k-2	**1**	180	1:00	Paterson	1 East 32nd Street, Paterson, NJ
Friday	12/18/15	Beatrice Gilmore E.S.	3-4	1	250	9:00	Woodland Park	1075 McBride Avenue, Woodland Park, NJ
Saturday	12/19/15							
Sunday	12/20/15							
Monday	12/21/15							
Tuesday	12/22/15	Somerville E.S.	k-2/3-5	2	200/200	9:15/10:15	Ridgewood	45 South Pleasant Avenue, Ridgewood, NJ 07450
Wednesday	12/23/15	**Winter Break**						
Thursday	12/24/15	**Winter Break**						
Friday	12/25/15	**Christmas**						
Saturday	12/26/15							
Sunday	12/27/15							
Monday	12/28/15	**Winter Break**						
Tuesday	12/29/15	**Winter Break**						

Wednesday	12/30/15	**Winter Break**						
Thursday	12/31/15	**Winter Break**						
Friday	1/1/16	**New Year's Day**						
Saturday	1/2/16							
Sunday	1/3/16							
Monday	1/4/16							
Tuesday	1/5/16							
Wednesday	1/6/16	Franklin School	4-6/1-3	2	135/153	8:50/10:00	Bloomfield	85 Curtis Street, Bloomfield, NJ 07003
Wednesday	1/6/16	The Three Kings Celebration Essex County College Gymnasium				4:00-7:00	Newark	
Thursday	1/7/16							
Friday	1/8/16							
Saturday	1/9/16							
Sunday	1/10/16							
Monday	1/11/16	Fairmount School	3rd	1	110	10:00	Hackensack	105 Grand Avenue, Hackensack, NJ 07601
Tuesday	1/12/16							
Wednesday	1/13/16							
Thursday	1/14/16							
Friday	1/15/16	P.S. # 28	3-5/6-8	2	300/300	9:15/10:15	Jersey City	167 Hancock Avenue, Jersey City, Nj 07307
Saturday	1/16/16							
Sunday	1/17/16							
Monday	1/18/16	**Martin Luther King Jr. Day**						
Tuesday	1/19/16	Orchard E.S. (bird houses)	3rd	1	21	9:00	Ridgewood	230 Demarest Street, Ridgewood, NJ 07450
Wednesday	1/20/16	Orchard E.S. (bird houses)	3rd	2	42	9:00/10:00	Ridgewood	230 Demarest Street, Ridgewood, NJ 07450
Thursday	1/21/16	Franklin E.S.	k-2/3-6	2	150/200	9:00/10:00	Saddle Brook	95 Caldwell Avenue, Saddle Brook, NJ 07663
Thursday	1/21/16	Nutley (Chris speaking PM)				6:30-8:00		
Friday	1/22/16							
Saturday	1/23/16							
Sunday	1/24/16							
Monday	1/25/16							
Tuesday	1/26/16							
Wednesday	1/27/16	**Do Not Book (Union Negotiations)**						
Thursday	1/28/16	Vroom School	k-2/3-5/6-8	3	150/150/150	9:00/10:00/11:00	Bayonne	18 West 26th Street, Bayonne, NJ 07002
Friday	1/29/16							
Saturday	1/30/16							
Sunday	1/31/16							
Monday	2/1/16	Lacordaire Academy (rescheduled)	pre-k-2	1	100	10:00	Upper Montclair	155 Lorraine Avenue, Montclair, NJ 07043
Tuesday	2/2/16	Lacordaire Academy	5,6,7,8/pre-k-2	2	80/100	8:30/9:45	Upper Montclair	155 Lorraine Avenue, Montclair, NJ 07043
Wednesday	2/3/16	Lincoln M.S. (STEM) (bird houses)	6,7,8	1	25	2:45-4:00	Kearny	121 Beech Street, Kearny, NJ 07032
confirmed	2/4/16	Bloomfield H.S.	9th	1	25	10:15	Bloomfield	160 Broad Street, Bloomfield,NJ 07003
Friday	2/5/16	Bloomfield H.S.	9th	1	25	1:30	Bloomfield	160 Broad Street, Bloomfield,NJ 07003
Saturday	2/6/16							
Sunday	2/7/16							

Monday	2/8/16	**Do Not Book**						
Tuesday	2/9/16	Woodrow Wilson MS (go earlier meet Admin. Team)	6th	1	450	1:50	Clifton	1400 Van Houten Avenue, Clifton, NJ 07013
Wednesday	2/10/16	Woodrow Wilson MS	7th	1	450	1:50	Clifton	1400 Van Houten Avenue, Clifton, NJ 07013
Thursday	2/11/16	Woodrow Wilson MS	8th	1	450	1:50	Clifton	1400 Van Houten Avenue, Clifton, NJ 07013
Friday	2/12/16	James Madison # 10	k-2/3-5	2	150/150	9:00/10:00	Garfield	62 Alpine Street, Garfield, NJ 07026
Saturday	2/13/16							
Sunday	2/14/16							
Monday	2/15/16	**President's Day**						
Tuesday	2/16/16	Etta Gero #9	3-4/5-6	2	380/320	9:00/10:00	Passaic	140 First Street, Passaic, NJ 07055
Wednesday	2/17/16	Lincoln M.S. (STEM) (bird houses)	6,7,8	1	25	2:45-4:00	Kearny	121 Beech Street, Kearny, NJ 07032
Thursday	2/18/16	P.S. # 26	k-2	1	200	9:15	Paterson	1 East 32nd Street, paterson, NJ 07514
Friday	2/19/16	Robinson School	k-2/3-5/6-8	3	260/260/210	9:00/10:00/11:00	Bayonne	95 West 31st Street, Bayonne, NJ 07002
Saturday	2/20/16							
Sunday	2/21/16							
Monday	2/22/16	Essex High School	9th & 10th	1	10	10:00	Passaic	188 First Street, Passaic, NJ
Tuesday	2/23/16	Americorps NJ Watershed Ambassador Program				10:00-12:00		
Wednesday	2/24/16							
Thursday	2/25/16	Kearny High School	9th, 10th	3	50/50/50	8:30-11:36	Kearny	336 Devon Street, Kearny, NJ
Friday	2/26/16	Kearny High School	9th, 10th	3	50/50/50	11:41-2:40	Kearny	336 Devon Street, Kearny, NJ
Saturday	2/27/16							
Sunday	2/28/16							
Monday	2/29/16	Abraham Lincoln # 6	k-2/3-5	2	195/195	9:30/10:30	Garfield	111 Palisade Avenue, Garfield, NJ 07026
Tuesday	3/1/16	Do Not Book (Meeting)				9:00-10:30		
Wednesday	3/2/16	Do Not Book (above and beyond)						
Thursday	3/3/16	Lincoln School	7th & 8th	2	90/90	9:45/10:45	North Bergen	1206 63rd Street, North Bergen, NJ 07047
Friday	3/4/16	Washington School	4,5	1	130	11:00	Bayonne	191 Avenue B, Bayonne, NJ 07002
Saturday	3/5/16							
Sunday	3/6/16							
Monday	3/7/16	Washington School	4th & 5th	1	70	9:00	North Arlington	175 Albert Street, North Arlington, NJ 07031
Tuesday	3/8/16	Academy 1	6th	1	140	9:00	Jersey City	209 Bergen Avenue, Jersey City, NJ 07305
Wednesday	3/9/16	Washington School	6,7	1	140	11;00	Bayonne	191 Avenue B Bayonne, NJ 07002
Thursday	3/10/16	Do Not Book (Commissioner Meeting)						
Friday	3/11/16	Lincoln School	3rd & 4th	2	90/75	9:45/10:45	North Bergen	1206 63rd Street, North Bergen, NJ 07047
Saturday	3/12/16							
Sunday	3/13/16							
Monday	3/14/16							
Tuesday	3/15/16	14th Avenue School (2 man job)	k-2/3-4	2	150/100	9:30/10:30	Newark	186 14th Avenue, Newark, Nj 07103
Wednesday	3/16/16							
Thursday	3/17/16							
Friday	3/18/16	Lincoln School	5th & 6th	2	90/90	9:45/10:45	North Bergen	1206 63rd Street, North Bergen,NJ 07047
Saturday	3/19/16							

Sunday	3/20/16							
Monday	3/21/16							
Tuesday	3/22/16							
Wednesday	3/23/16							
Thursday	3/24/16							
Friday	3/25/16	**Good Friday**						
Saturday	3/26/16							
Sunday	3/27/16							
Monday	3/28/16							
Tuesday	3/29/16							
Wednesday	3/30/16	Christopher Columbus School	k-2/3-5	2	205/250	9:30/10:30	Garfield	147 Cedar Street, Garfield, NJ 07026
Thursday	3/31/16							
Friday	4/1/16							
Saturday	4/2/16							
Sunday	4/3/16							
Monday	4/4/16							
Tuesday	4/5/16	Elmwood Park Memorial M.S.	6,7,8	3	200/200/200	8:30/9:30/10:30	Elmwood Park	375 River Drive, Elmwood Park, NJ 07407
Wednesday	4/6/16	Explore 2000	6,7,8	2	30/50	8:30/9:30	Jersey City	180 9th Street, Jersey City, NJ 07302
Thursday	4/7/16	P.S. # 27 (Antonia Pantoja School)	3,4,5	1	400	9:30	Elizabeth	505 Morris Avenue, Elizabeth, NJ 07208
Friday	4/8/16	Charles Osbon School	k-1/1-2	2	200/200	9:15/10:15	Woodland Park	50 Lincoln Lane, Woodland Park, NJ 07424
Saturday	4/9/16							
Sunday	4/10/16							
Monday	4/11/16	St. Leo's School	3-5/6-8	2	75/60	9:00/10:00	Elmwood Park	300 Market Street, Elmwood Park, NJ 07407
Tuesday	4/12/16							
Wednesday	4/13/16	Franklin School	k-2	1	215	9:30	Lyndhurst	360 Stuyvesant Avenue, Lyndhurst, NJ 07071 x1
Thursday	4/14/16							
Friday	4/15/16							
Saturday	4/16/16							
Sunday	4/17/16							
Monday	4/18/16							
Tuesday	4/19/16							
Wednesday	4/20/16							
Thursday	4/21/16							
Friday	4/22/16	**Earth Day**						
Saturday	4/23/16							
Sunday	4/24/16							
Monday	4/25/16	Queen of Peace	pre-2/3-5/6-8	3	100/70/100	8:30/9:30/10:30	North Arlington	21 Church Place, North Arlington, NJ 07031
Tuesday	4/26/16							
Wednesday	4/27/16	Nellie Parker School	2,3,4	1	325	9:00	Hackensack	261 Maple Hill Drive, Hackensack, NJ 07601
Thursday	4/28/16	High Mountain School	5-6/7-8	2	150/150	9:00/10:00	North Haledon	515 High Mountain Road, North Haledon, NJ
Friday	4/29/16							

Saturday	4/30/16							
Sunday	5/1/16							
Monday	5/2/16							
Tuesday	5/3/16							
Wednesday	5/4/16							
Thursday	5/5/16	Charles H. Bullock E.S.	k-2/3-5	2	250/250	9:00/9:45	Montclair	55 Washington Street, Montclair, NJ 07042
Friday	5/6/16	Christopher Columbus #8 (bird houses)	k & 3	1	26	9:30	Garfield	147 Cedar Street, Garfield, NJ 07026
Saturday	5/7/16							
Sunday	5/8/16							
Monday	5/9/16	Project Wet Festival Kearny MS					Kearny	
Tuesday	5/10/16	Project Wet Festival Kearny MS					Kearny	
Wednesday	5/11/16	Project Wet Festival Kearny MS					Kearny	
Thursday	5/12/16							
Friday	5/13/16	Harrison High School	9,10,11,12	1	35	10:00	Harrison	800 Hamilton Street, Harrison, NJ
Friday	5/13/16							
Saturday	5/14/16	Kearny Boat House			1000	5am-5pm	Kearny	River Road, Kearny, NJ
Sunday	5/15/16							
Monday	5/16/16							
Tuesday	5/17/16	Demerest School	3rd	1	92	9:30	Bloomfield	465 Broughton Avenue, Bloomfield, NJ 07003
Wednesday	5/18/16	Ferris High School	9,10,11,12	4	20/15/24/15	8:30/10:10/11:00/11:50	Jersey City	35 Colgate Street, Jersey City, NJ 07304
Thursday	5/19/16	Wahlstrom Academy	k	1	50	9:30	East Orange	340 Prospect Street, East Orange, NJ 07017
Friday	5/20/16							
Saturday	5/21/16							
Sunday	5/22/16							
Monday	5/23/16	Becton Regional High School	9th	4	20/20/20/20	8:05/9:04/10:06/11:53	East Rutherford	120 Paterson Avenue, East Rutherford, NJ
Monday	5/23/16	Nutley Board of Education Re: Outdoor Classroom				6:30pm	Nutley	Franklin Ave., Nutley
Tuesday	5/24/16	P.S. 25	k-2/3-5/6-8	3	250/250/250	9:00/10:00/11:00	Paterson	287 Trenton Ave, Paterson, NJ 07503
Wednesday	5/25/16	Benjamin Banneker Academy	k-2/3-5	2	250/150	10:00/11:30	East Orange	500 South Clinton Street, East Orange, NJ 07018
Thursday	5/26/16	Roosevelt School	k-2/3-6	2	200/200	9:00/10:00	Kearny	733 Kearny Avenue, Kearny, NJ 07032
Friday	5/27/16	Roosevelt School	k-2/3-5	2	111/127	9:00/10:00	North Arlington	50 Webster Street, North Arlington, NJ 07031
Friday	5/27/16	(Water Cycle Presentation) Watershed Ambassador					North Arlington	
Saturday	5/28/16							
Sunday	5/29/16							
Monday	5/30/16	**Memorial Day**						
Tuesday	5/31/16	P.S. # 6	3-4/5-6	2	276/240	8:45/9:45	Passaic	85 Hamilton Avenue, Passaic, NJ 07055
Wednesday	6/1/16	Clifton H.S. **(bird houses)**	9th	1	28	10:10	Clifton	333 Colfax Avenue, Clifton, NJ 07013
Thursday	6/2/16	Quitman Street Community School	5th-6th	1	100	10:00	Newark	21 Qutiman Street, Newark, NJ 07103
Friday	6/3/16	New Horizons Community Charter School	K-1/2-3/4-5	2	170/170/150	8:30/9:15/10:00	Newark	45-59 Hayes Street , Newark, NJ 07103
Saturday	6/4/16	Township of North Bergen				12:00-4:00	North Bergen	64th Street Field, North Bergen, NJ
Sunday	6/5/16							
Monday	6/6/16							
Tuesday	6/7/16							

Wednesday	6/8/16							
Thursday	6/9/16							
Friday	6/10/16	Memorial School	6th	1	33	9:30	South Hackensack	1 Dyer Avenue, South Hackensack, NJ
Saturday	6/11/16							
Sunday	6/12/16							
Monday	6/13/16	16th Avenue School	3,4,5	1	200	9:30	Elmwood Park	73 16th Avenue, Elmwood Park, NJ 07407
Tuesday	6/14/16	**Do Not Book**						
Wednesday	6/15/16	Watsessing School	k-2/3-6	2	120/180	9:00/10:00	Bloomfield	71 Prospect Street, Bloomfield, NJ 07003
Thursday	6/16/16							
Friday	6/17/16	**Do Not Book**						
Saturday	6/18/16							
Sunday	6/19/16							
Monday	6/20/16							
Tuesday	6/21/16							
Wednesday	6/22/16							
Thursday	6/23/16							
Friday	6/24/16							
Saturday	6/25/16							
Sunday	6/26/16							
Monday	6/27/16							
Tuesday	6/28/16							
Wednesday	6/29/16							
Thursday	6/30/16							
Friday	7/1/16							
Saturday	7/2/16							
Sunday	7/3/16							
Monday	7/4/16							
Tuesday	7/5/16							
Wednesday	7/6/16	St. Peters University	4,5,6,7,8		30	8:30-11:00		
Thursday	7/7/16	St. Peters University	4,5,6,7,8		30	8:30-11:00		
Friday	7/8/16							
Saturday	7/9/16							
Sunday	7/10/16							
Monday	7/11/16	St. Peter's University	4,5,6,7,8		30	8:30-11:00		
Tuesday	7/12/16	St. Peter's University	4,5,6,7,8		30	8:30-11:00		
Wednesday	7/13/16	St. Peter's University	4,5,6,7,8		30	8:30-11:00		
Thursday	7/14/16	St. Peter's University	4,5,6,7,8		30	8:30-11:00		

PASSAIC VALLEY SEWERAGE COMMISSION
ENVIRONMENTAL EDUCATION
OUTREACH PROGRAM

2016-2017 School Schedule

82 **145 21,708**

DATE		SCHOOL	GRADE	GRP#	STUDENTS	TIME	CITY	ADDRESS
Monday								
Tuesday								
Wednesday								
Thursday	9/1/16							
Friday	9/2/16							
Saturday	9/3/16							
Sunday	9/4/16							
Monday	9/5/16	**Labor Day**						
Tuesday	9/6/16							
Wednesday	9/7/16							
Thursday	9/8/16							
Friday	9/9/16							
Saturday	9/10/16							
Sunday	9/11/16							
Monday	9/12/16							
Tuesday	9/13/16							
Wednesday	9/14/16	Clean Communities						
Thursday	9/15/16	**Great Falls Shutdown**						
Friday	9/16/16							
Saturday	9/17/16							
Sunday	9/18/16							
Monday	9/19/16							
Tuesday	9/20/16							
Wednesday	9/21/16							
Thursday	9/22/16							
Friday	9/23/16							
Saturday	9/24/16							
Sunday	9/25/16							
Monday	9/26/16							
Tuesday	9/27/16							
Wednesday	9/28/16							

Thursday	9/29/16							
Friday	9/30/16							
Saturday	10/1/16							
Sunday	10/2/16							
Monday	10/3/16	Horace Mann School	6-8/k-2/3-5	3	197/174/199	9:00/10:00/11:00	Bayonne	38th Street, Bayonne, NJ 07002
Tuesday	10/4/16							
Wednesday	10/5/16	School One	k-2/3-5	2	150/150	9:00/10:00	Clifton	158 ParkSlope Ave, Clifton, NJ 07011
Thursday	10/6/16	Mary J. Donohoe	k-2/3-5	2	142/170	9:30/10:30	Bayonne	25 East 5th Street, Bayonne, NJ 07002
Friday	10/7/16	Garfield H.S. (special Ed. Room 219)	9th-10th	1	15	9:00	Garfield	500 Palisade Ave., Garfield, NJ
Saturday	10/8/16							
Sunday	10/9/16							
Monday	10/10/16	**Columbus Day**						
Tuesday	10/11/16	Vroom School	k-2/3-5/6-8	3	150/150/150	9:00/10:00/11:00	Bayonne	18 West 26th Street, Bayonne, NJ 07002
Wednesday	10/12/16	P.S. # 23	k,1,2	3	160/160/160	9:30/10:30/11:30	Jersey City	128 Duncan Avenue, Jersey City, NJ 07306
Thursday	10/13/16	Mary J. Donohoe	6-8	1	152	9:30	Bayonne	25 East 5th Street, Bayonne, NJ 07002
Friday	10/14/16	**Do Not Book Watershed Ambassador**						
Saturday	10/15/16							
Sunday	10/16/16							
Monday	10/17/16							
Tuesday	10/18/16	Gantner Avenue E.S.	k-2/3-5	2	165/195	9:00/10:15	Elmwood Park	99 Roosevelt Avenue, ElmwoodPark, NJ 07407
Wednesday	10/19/16							
Thursday	10/20/16	Washington M.S.	6-7/8	2	300/100	9:00/10:00	Harrison	1 North 5 Street, Harrison,NJ
Friday	10/21/16	School Eleven	k-2/3-5	2	240/240	9:00/10:00	Clifton	147 Merselis Avenue, Clifton, NJ 07011
Saturday	10/22/16							
Sunday	10/23/16							
Monday	10/24/16	St. Brendan Catholic School(cancelled) **Chris Guest Speaker**	6-8	1	75	10:00	Clifton	154 East 1st Street, Clifton, NJ 07011
Tuesday	10/25/16	Bloomfield H.S.	12th	2	35/35	11:52-1:37	Bloomfield	160 Broad Street, Bloomfield, NJ 07003
Wednesday	10/26/16	Garfield School	k-2/3-6	2	250/350	9:15/10:15	Kearny	360 Belgrove Drive, Kearny, NJ
Thursday	10/27/16	Montclair High School	10th-12th	2	40/40	10:00	Montclair	100 Chestnut Street, Montclair, NJ
Friday	10/28/16	Washington School	1-2/k	2	145/90	9:00/10:00	Lyndhurst	709 Ridge Road, Lyndhurst, NJ
Saturday	10/29/16							
Sunday	10/30/16							
Monday	10/31/16							
Tuesday	11/1/16	P.S. #4	k-2/3-5	2	100/100	9:30/10:30	Clifton	194 West 2nd Street, Clifton, NJ 07011
Wednesday	11/2/16							
Thursday	11/3/16	Park Ave. E.S.	k-2/3-4	2	151/112	8:50/9:45	Orange	231 Park Avenue, Orange, NJ
Friday	11/4/16	Park Ave. E.S.	5-7	1	144	9:00	Orange	231 Park Avenue, Orange, NJ
Saturday	11/5/16							
Sunday	11/6/16							
Monday	11/7/16	**Ribbon Cutting Nutley**						

Tuesday	11/8/16	**Election Day**						
Wednesday	11/9/16							
Thursday	11/10/16	Eastern Christian School	9th-10th	1	15	10:30	North Haledon	50 Oakwood Ave., North Haledon, NJ 07508
Friday	11/11/16	**Veteran's Day**						
Saturday	11/12/16							
Sunday	11/13/16							
Monday	11/14/16	Lincoln M.S.	7th	1	210	8:30	Hawthorne	230 Hawthorne Avenue, Hawthorne, NJ 07506
Tuesday	11/15/16	**Chris Watershed Training**						
Wednesday	11/16/16	**Lab Day**	8th (AP)	1		all day	Kearny	PVSC
Thursday	11/17/16	School # 13	k-2/3-5	2	250/250	9:30/10:30	Clifton	782 Van Houten Avenue, Clifton, NJ 07011
Friday	11/18/16	Franklin E.S.	k-3/4-6	2	175/175	9:00/10:00	Bloomfield	85 Curtis Street, Bloomfield, NJ 07003
Saturday	11/19/16							
Sunday	11/20/16							
Monday	11/21/16	Bailey E.S.	k-2/3-5	2	308/218	9:15/10:15	Bayonne	75 West 10th Street, Bayonne, NJ 07002
Tuesday	11/22/16	Bailey E.S.	6-8	1	196	9:30	Bayonne	75 West 10th Street , Bayonne, NJ 07002
Wednesday	11/23/16	Memorial Campus	3rd	2	100/100	9:00/10:00	Lyndhurst	319 New York Aveune, Lyndhurst, NJ
Thursday	11/24/16	**Thanksgiving Day**						
Friday	11/25/16	**Day After Thanksgiving**						
Saturday	11/26/16							
Sunday	11/27/16							
Monday	11/28/16							
Tuesday	11/29/16							
Wednesday	11/30/16	Academy of St. Francis of Assisi	k-2/3-5/6-8	3	68/69/64	9:00/10:00/11:00	Totowa	400 Totowa Road, Totowa, NJ 07512
Thursday	12/1/16							
Friday	12/2/16	Nicholas Oresko # 14	k-2/3-5/6-8	3	120/120/210	9:15/10:10/11:10	Bayonne	33 East 24th Street, Bayonne, NJ 07002
Saturday	12/3/16							
Sunday	12/4/16							
Monday	12/5/16							
Tuesday	12/6/16							
Wednesday	12/7/16	P.S. # 23 (bring bags and gloves)	3/4	2	175/175	9:00/10:00	Jersey City	143 RomaineAvenue, Jersey City, NJ 07306
Thursday	12/8/16	P.S. # 23	5	1	175	9:30	Jersey City	143 RomaineAvenue, Jersey City, NJ 07306
Friday	12/9/16	**IBEW Christmas Party**						
Saturday	12/10/16							
Sunday	12/11/16							
Monday	12/12/16	Woodrow Wilson E.S.	k-2/3-5/6-8	3	240/214/187	9:00/10:00/11:00	Bayonne	
Tuesday	12/13/16							
Wednesday	12/14/16							
Thursday	12/15/16							
Friday	12/16/16	Roberto Clemente School	k-2/3-5	2	184/150	9:00/10:00	Paterson	434 Rosa Parks Blvd., Paterson, NJ 07501
Saturday	12/17/16							
Sunday	12/18/16							

Monday	12/19/16							
Tuesday	12/20/16							
Wednesday	12/21/16							
Thursday	12/22/16							
Friday	12/23/16							
Saturday	12/24/16							
Sunday	12/25/16							
Monday	12/26/16	**Christmas Holiday Reserved**						
Tuesday	12/27/16							
Wednesday	12/28/16							
Thursday	12/29/16							
Friday	12/30/16							
Saturday	12/31/16							
Sunday	1/1/17	**New Year's Day**						
Monday	1/2/17							
Tuesday	1/3/17							
Wednesday	1/4/17							
Thursday	1/5/17	Montclair High Schoo				12:15pm		
Friday	1/6/17	**Three Kings Celebration**						
Saturday	1/7/17							
Sunday	1/8/17							
Monday	1/9/17							
Tuesday	1/10/17	Meeting Little Falls				9:30		
Wednesday	1/11/17	Lincoln M.S. Room 125 (birdhouses)	STEM	1	27	2:45-3:50	Kearny	
Thursday	1/12/17							
Friday	1/13/17							
Saturday	1/14/17							
Sunday	1/15/17							
Monday	1/16/17	**Martin Luther King**						
Tuesday	1/17/17							
Wednesday	1/18/17	School # 4	4th	1	50	9:30	Belleville	30 Magnolia Street, Belleville, NJ 07109
Thursday	1/19/17	Franklin School	k-2	1	200/200	9:30/10:30	Kearny	100 Davis Avenue, Kearny, NJ 07032
Friday	1/20/17	Franklin School	3-6	**1**	250/250	9:30/10:30	Kearny	100 Davis Avenue, Kearny, NJ 07032
Saturday	1/21/17							
Sunday	1/22/17							
Monday	1/23/17	Fairmount School	3rd	1	120	9:30	Hackensack	105 Grand Avenue, Hackensack, NJ 07601
Tuesday	1/24/17							
Wednesday	1/25/17	Lincoln M.S Room 125 (birdhouses)	Stem	1	27	2:45-3:50	Kearny	
Thursday	1/26/17	P.S. # 16	k-2/3-5	2	250/200	9:00/10:00	Jersey City	96 Sussex Street, Jersey City, NJ 07302
Friday	1/27/17	Quitman Street School	4-5/6-7	2	70/80	9:00/10:00	Newark	21 Quitman Street, newark, Nj 07103

Saturday	1/28/17							
Sunday	1/29/17							
Monday	1/30/17							
Tuesday	1/31/17	P.S. # 23	6,7,8	3	111/80/111	9:00/10:00/1:15	Jersey City	143 Roamine Avenue, Jersey City, NJ 07306
Wednesday	2/1/17	School 10	k-2/3-5	2	60/65	9:15/10:15	Belleville	527 Belleville Ave., Belleville, Nj 07109
Wednesday	2/1/17	Queen of Peace (Chris Judge)	STEM			3:30-6:30	North Arlington	21 Church Place, North Arlington, NJ
Thursday	2/2/17							
Friday	2/3/17							
Saturday	2/4/17							
Sunday	2/5/17							
Monday	2/6/17	**Do Not Book**						
Tuesday	2/7/17	Lincoln School	7th/8th	2	95/75	9:30/10:30	North Bergen	1206 63rd Street, North Bergen, NJ 07047
Wednesday	2/8/17	Clifton H.S. (bird houses)	11th-12th	1	28	9:21-10:05	Clifton	333 Colfax Avenue, Clifton, NJ 07013
Thursday	2/9/17							
Friday	2/10/17							
Saturday	2/11/17							
Sunday	2/12/17							
Monday	2/13/17							
Tuesday	2/14/17	School # 9	k-2/3-5	2	75/75	9:00/10:00	Belleville	301 Ralph Street, Belleville, Nj 07109
Wednesday	2/15/17	Essex High School	9th	1	9	10:00	Passaic	188 First Street, Passaic, NJ
Thursday	2/16/17	Roosevelt School	k-2/3-5	2	89/155	9:00/10:00	North Arlington	51 Webster Avenue, North Arlington, NJ 07031
Friday	2/17/17							
Saturday	2/18/17							
Sunday	2/19/17							
Monday	2/20/17	**Presidents Day**						
Tuesday	2/21/17							
Wednesday	2/22/17							
Thursday	2/23/17	School # 15	k-2/3-5	2	175/175	9:15/10:25	Clifton	700 Gregory Avenue, Clifton, Nj 07011
Friday	2/24/17							
Saturday	2/25/17							
Sunday	2/26/17							
Monday	2/27/17	**Meeting Little Falls**				7:00pm	Little Falls	
Tuesday	2/28/17							
Wednesday	3/1/17	High Tech High School (Radio Guest)				10:00	North Bergen	
Thursday	3/2/17	**guest speaker DEP**				8:00-3:30	Oxford	
Friday	3/3/17	Washington Community School	6th-8th	1	220	11:00am	Bayonne	191 Avenue B, Bayonne, NJ 07002
Saturday	3/4/17							
Sunday	3/5/17							
Monday	3/6/17							
Tuesday	3/7/17							
Wednesday	3/8/17	Lincoln M.S.	STEM	1	27	2:45	Kearny	

Thursday	3/9/17	John H. Walker M.S	7th/8th	2	300/300	9:30/10:30	Nutley	325 Franklin Ave., Nutley, Nj
Friday	3/10/17							
Saturday	3/11/17							
Sunday	3/12/17							
Monday	3/13/17							
Tuesday	3/14/17							
Wednesday	3/15/17	**Meeting for Lab Day (Montclair H.S.)STORM STELLA**					Montclair	
Thursday	3/16/17							
Friday	3/17/17	School # 9	3-4/5-6	2	400/350	9:00/10:00	Passaic	140 First Street, Passaic, NJ 08055
Saturday	3/18/17							
Sunday	3/19/17							
Monday	3/20/17	Roosevelt School (build bird houses)	1st	1	28	9:00	North Arlington	51 Webster Avenue, North Arlington, NJ 07031
Monday	3/20/17	Montclair H.S. (meeting)				1:00		
Tuesday	3/21/17	Roosevelt School (paint bird houses)	1st	1	28	9:00	North Arlington	51 Webster Avenue, North Arlington, NJ 07031
Wednesday	3/22/17	Bard H.S. Early College Room 321	11th-12th	1	12	9:30-11:15	Newark	
Thursday	3/23/17	Roosevelt School (hang bird houses)	1st	1	28	9:00	North Arlington	51 Webster Avenue, North Arlington, NJ 07031
Friday	3/24/17	*						
Saturday	3/25/17							
Sunday	3/26/17							
Monday	3/27/17	*						
Tuesday	3/28/17	*						
Wednesday	3/29/17	*						
Thursday	3/30/17	*						
Friday	3/31/17	Paterson Charter School (library)	8th	1	85	9:30	Paterson	196 W Railway Ave., Paterson, NJ
Saturday	4/1/17							
Sunday	4/2/17							
Monday	4/3/17							
Tuesday	4/4/17	Linden Avenue School	1st	1	64	10:00	Glen Ridge	205 Linden Avenue, Linden, NJ 07028
Wednesday	4/5/17	Montclair Kimberly Academy	7th	1	20	10:10	Montclair	201 Valley Road, Montclair, NJ
Thursday	4/6/17	Ann Street School	5th	4	28/28/28/28	8:35-2:00	Newark	30 Ann Street, Newark, NJ 07105
Friday	4/7/17	Columbus School # 8	pre-k-2/3-5	2	225/225	9:00/10:00	Garfield	147 Cedar Street, Garfield, NJ 07026
Saturday	4/8/17							
Sunday	4/9/17							
Monday	4/10/17	**Do Not Book**						
Tuesday	4/11/17	Colombus School # 8 (bird houses)	2,3,4,5	1	20	9:00	Garfield	147 Cedar Street, Garfield, NJ 07026
Wednesday	4/12/17	**Kearny Crew Cleanup**						
Thursday	4/13/17	**The Great Falls Shutdown**						
Friday	4/14/17	**Good Friday**						
Saturday	4/15/17							
Sunday	4/16/17							

Monday	4/17/17	Thomas Jefferson E.S.	k-2/3-5	2	130/130	9:15/10:15	Hawthorne	233 Goffle Hill Road, Hawthorne, NJ 07506
Tuesday	4/18/17	Wahlstrom Academy	k-3/4-6	1	65	10:30	East Orange	340 Prospect Street, East Orange, NJ 07017
Wednesday	4/19/17	**Off**						
Thursday	4/20/17	Roosevelt School	k-3/4-6	2	220/225	9:00/10:00	Kearny	733 Kearny Avenue, Kearny, Nj 07032
Friday	4/21/17	West Essex Regional High School	9,10,11,12	1	300	10:45	North Caldwell	65 West Greenbrook Road, North Caldwell, NJ 07006
Saturday	4/22/17	**Earth Day**						
Sunday	4/23/17							
Monday	4/24/17	Lyncrest School	k-2/3-5	2	90/125	9:00/10:00	Fair Lawn	9-04 Morlot Avenue, Fair Lawn, NJ 07410
Tuesday	4/25/17	**Montclair H.S. Lab Day**						
Wednesday	4/26/17	St. Andrew the Apostle	pre k-2/3-5/6-8	3	65/60/65	8:45/9:45/10:45	Clifton	418 Mount Prospect Ave., Clifton, NJ 07012
Thursday	4/27/17	Saint Thomas the Apostle School	k-6	1	85	9:00	Bloomfield	50 Bryd Ave., Bloomfield, NJ 07003
Friday	4/28/17	Queen of Peace E.S.	k-2/3-5/6-8	3	60/80/95	8:30/9:30/10:30	North Arlington	21 Church Place, North Arlington, NJ
Saturday	4/29/17							
Sunday	4/30/17							
Monday	5/1/17	**OFF**						
Tuesday	5/2/17	**Commissioners Reorganization**						
Wednesday	5/3/17	Franklin E.S. (birdhouses)	5th	1	28	10:30	Kearny	100 Davis Avenue, Kearny, NJ 07032
Thursday	5/4/17	St. Anthony H.S.	9th-10th	1	16	10:00	Jersey City	175 8th Street, Jersey City, NJ 07302
Friday	5/5/17	Franklin School	k-2	1	221	9:30	Lyndhurst	360 Stuvesant Ave., Lyndhurst, NJ
Saturday	5/6/17							
Sunday	5/7/17							
Monday	5/8/17	**Off**						
Tuesday	5/9/17	**Off**						
Wednesday	5/10/17							
Thursday	5/11/17	**Do Not Book**						
Friday	5/12/17	**PVSC Municipal Day**						
Saturday	5/13/17	Passic River Sprints						
Sunday	5/14/17							
Monday	5/15/17	P.S. 27	3,5/4	2	180/133	9:30/10:30	Elizabeth	505 Morris Avenue, Elizabeth, NJ 07208
Tuesday	5/16/17	**Project Wet**						
Wednesday	5/17/17	**Project Wet**						
Thursday	5/18/17	Walter F. Robinson School	k-2/3-5/6-8	3	300/250/245	9:00/10:00/11:00	Bayonne	95 West 31st Street, Bayonne, NJ 07002
Friday	5/19/17	Memorial E.S.	6th/8th	2	60	1:00	South Hackensack	1 Dyer Avenue, South Hackensack, NJ 07606
Saturday	5/20/17							
Sunday	5/21/17							
Monday	5/22/17	Abraham Lincoln School # 6	k-2/3-5	2	200/200	9:30/10:30	Garfield	111 Palisade Avenue, Garfield, NJ 07026
Tuesday	5/23/17	Academy 1 M.S.	6th	1	150	9:00	Jersey City	209 Bergen Avenue, Jersey City, Nj 07305
Wednesday	5/24/17	**Clean Communities Kids day (Sandy Huber)**						
Thursday	5/25/17	School # 25	`k-2/3-5/6-8	3	200/200/200	9:00/10:00/11:00	Paterson	287 Trenton Avenue, Paterson, NJ 07503
Friday	5/26/17	McKinley E.S.	6th, 7th	1	160	9:30	Newark	1 Colonnade Place, Newark, NJ 07105
Saturday	5/27/17							

Sunday	5/28/17							
Monday	5/29/17	**Memorial Day**						
Tuesday	5/30/17	DO NOT BOOK						
Wednesday	5/31/17	P.S. # 9	k-2/3-5	2	150/150	9:30/10:30	Clifton	25 Brighton Road, Clifton, NJ 07012
Thursday	6/1/17	Horace Mann School	k-5	1	450	9:00-12:00	Bayonne	West 39th Street, bayonne, NJ 07002
Friday	6/2/17	Sixteeth Ave. School	3,4,5	1	200	9:30	Elmwood Park	73 16th Avenue, Elmwood Park, NJ
Saturday	6/3/17	Annual Green & Health Festival North Bergen						
Sunday	6/4/17							
Monday	6/5/17	P.S. # 1	k-2/3-5	2	138/153	9:00/10:00	Clifton	158 Park Slope, Clifton, NJ
Tuesday	6/6/17							
Wednesday	6/7/17							
Thursday	6/8/17							
Friday	6/9/17	Lincoln School	5th	1	70	8:45	Nutley	301 Harrison Ave., Nutley, NJ 07110
Friday	6/9/17	Franklin E.S. (birdhouses)	5th	1	28	11:00	Kearny	100 Davis Avenue, Kearny, NJ 07032
Saturday	6/10/17							
Sunday	6/11/17							
Monday	6/12/17	Thomas Jefferson ES	k-2/3-5	2	160/160	9:00/10:00	North Arlington	100 Prospect Ave., North Arlington, NJ 07031
Tuesday	6/13/17	School # 1	8th	1	100	9:50	Little Falls	32 Stevens Avenue, Little Falls, NJ 07424
Wednesday	6/14/17							
Thursday	6/15/17							
Friday	6/16/17							
Saturday	6/17/17							
Sunday	6/18/17							
Monday	6/19/17							
Tuesday	6/20/17							
Wednesday	6/21/17							
Thursday	6/22/17							
Friday	6/23/17							
Saturday	6/24/17							
Sunday	6/25/17							
Monday	6/26/17							
Tuesday	6/27/17							
Wednesday	6/28/17	New Roberto Clemente School	6,7,8	1	450	8:45	Paterson	482-506 Market Street, Paterson, NJ 07501
Thursday	6/29/17							
Friday	6/30/17							
Saturday	7/1/17							
Sunday	7/2/17							
Monday	7/3/17							
Tuesday	7/4/17							
Wednesday	7/5/17							
Thursday	7/6/17							
Friday	7/7/17							

Saturday	7/8/17							
Sunday	7/9/17							
Monday	7/10/17							
Tuesday	7/11/17							
Wednesday	7/12/17							
Thursday	7/13/17							
Friday	7/14/17							
Saturday	7/15/17							
Sunday	7/16/17							
Monday	7/17/17							
Tuesday	7/18/17							
Wednesday	7/19/17							
Thursday	7/20/17							
Friday	7/21/17							
Saturday	7/22/17							
Sunday	7/23/17							
Monday	7/24/17							
Tuesday	7/25/17							
Wednesday	7/26/17							
Thursday	7/27/17							
Friday	7/28/17							
Saturday	7/29/17							
Sunday	7/30/17							
Monday	7/31/17							
Tuesday	8/1/17							
Wednesday	8/2/17							
Thursday	8/3/17							
Friday	8/4/17							
Saturday	8/5/17							
Sunday	8/6/17							
Monday	8/7/17							
Tuesday	8/8/17	Harrison Public Library	4yrs-6yrs/7yrs-8yrs	2	25/30	1:30/3:00	Harrison	
Wednesday	8/9/17							
Thursday	8/10/17	Clean Communities					Margate, NJ	

PASSAIC VALLEY SEWERAGE COMMISSION
ENVIRONMENTAL EDUCATION
OUTREACH PROGRAM

2017-2018 School Schedule

93 **151** **19660**

DATE		SCHOOL	GRADE	GRP#	STUDENTS	TIME	CITY	ADDRESS
Monday	9/4/17	Holiday						
Tuesday	9/5/17							
Wednesday	9/6/17							
Thursday	9/7/17	Americorps NJ Watershed Program				8:30-2:00	Trenton	423 East State Street, 1st Floor Conference Room, Trenton
Friday	9/8/17							
Saturday	9/9/17							
Sunday	9/10/17							
Monday	9/11/17							
Tuesday	9/12/17							
Wednesday	9/13/17							
Thursday	9/14/17							
Friday	9/15/17							
Saturday	9/16/17							
Sunday	9/17/17							
Monday	9/18/17							
Tuesday	9/19/17	Clean Communities UTC Meeting				10:00	Newark	Robert Treat Hotel
Wednesday	9/20/17							
Thursday	9/21/17							
Friday	9/22/17							
Saturday	9/23/17							
Sunday	9/24/17							
Monday	9/25/17							
Tuesday	9/26/17	Forest Street School	5th	1	50	10:00	Orange	646 Forest Street, Orange, NJ 07044
Wednesday	9/27/17	P.S. # 9	k-2/3-5	2	60/60	9:00/10:00	Belleville	296 Ralph Street, Belleville, NJ 07109

Thursday	9/28/17	Becton Regional High School	9th-10th	4	20/15/20/20	8:05/9:05/10:05/12:50	East Rutherford	115 Paterson Ave., East Rutherford, NJ 07073
Friday	9/29/17	School One	8th	1	105	11:15	Little Falls	27 Stevens Avenue, Little Falls, NJ
Saturday	9/30/17							
Sunday	10/1/17							
Monday	10/2/17	Hope Academy *	9-12	1	40	10:30	Passaic	261 Harrison Street, Passaic, NJ 07055
Tuesday	10/3/17							
Wednesday	10/4/17							
Thursday	10/5/17	**do not book**						
Friday	10/6/17	School Thirteen	k-2/3-5	2	250/250	9:30/10:30	Clifton	777 Van Houten Avenue, Clifton, NJ
Saturday	10/7/17							
Sunday	10/8/17	2nd Annual Tail of the Passaic Regatta				5:30am-4:30pm		
Monday	10/9/17	**HOLIDAY**						
Tuesday	10/10/17	P.S. # 10	k-2/3-5	2	90/80	9:00/10:00	Belleville	522 Belleville Ave., Belleville, NJ 07109
Wednesday	10/11/17							
Thursday	10/12/17	Jersey City 'A Day Without Water'						
Friday	10/13/17	St. Dominic Academy	9-10	1	70	9:30	Jersey City	2567 John F. Kennedy Blvd., Jersey City, NJ 07304
Saturday	10/14/17							
Sunday	10/15/17	Head of the Passaic River Regatta				5:50am-5:30pm		
Monday	10/16/17	Washington School	k-2/3-5	2	225/225	9:30/10:30	Bayonne	186 Avenue B, Bayonne, NJ 07002
Tuesday	10/17/17	Washington School	6-8	1	225	9:30	Bayonne	186 Avenue B, Bayonne, NJ 07002
Wednesday	10/18/17	Mary J. Donohoe	k-2/3-5	2	140/150	9:30/10:30	Bayonne	20 East 5th Street, Bayonne, Nj 07002
Thursday	10/19/17	Mary J. Donohoe	6-8	1	160	9:30	Bayonne	20 East 5th Street, Bayonne, Nj 07002
Friday	10/20/17	Franklin E.S.	k-3/4-6	2	158/203	9:15/10:15	Bloomfield	80 Curtis Street, Bloomfield, Nj 07003
Saturday	10/21/17							
Sunday	10/22/17							
Monday	10/23/17	Garfield School	k-2/3-6	2	260/260	9:15/10:15	Kearny	355 Belgrove Drive, Kearnt, NJ 07032
Tuesday	10/24/17	Passaic Gifted and Talented Academy #20	6th	1	125	9:00	Passaic	14 Henry Street, Passaic, NJ 07055
Wednesday	10/25/17	Roberto Clemente School	k-2/3-5	2	150/160	9:15/10:15	Paterson	429 Rosa Parks Blvd., Paterson, NJ
Thursday	10/26/17	St. Anthony Apostle	3-5	1	69	9:00	Hawthorne	265 Diamond Bridge Ave., Hawthorne, NJ 07506
Friday	10/27/17	Roosevelt School	4/5-6-8	2	180/240	9:00/10:00	Lyndhurst	525 Styvesant Ave., Lyndhurst, NJ 07071
Saturday	10/28/17							
Sunday	10/29/17							
Monday	10/30/17	**DO NOT BOOK**						

Tuesday	10/31/17	**DO NOT BOOK**						
Wednesday	11/1/17							
Thursday	11/2/17	P.S. # 9 (bird houses)	1	1	20	9:30	Belleville	296 Ralph Street, Belleville, NJ 07109
Friday	11/3/17	Benjamin Banneker Academy	k-2/3-5	2	250/250	9:30/10:30	East Orange	495 South Clinton Street, East Orange, NJ 07018
Saturday	11/4/17							
Sunday	11/5/17							
Monday	11/6/17	Woodrow Wison # 5	prek-2/3-5	2	186/150	9:00/10:00	Garfield	200 Outwater Lane, Garfield, NJ 07026
Tuesday	11/7/17	**HOLIDAY**						
Wednesday	11/8/17	**DO NOT BOOK (UNION MEETING)**						
Thursday	11/9/17							
Friday	11/10/17	**HOLIDAY**						
Saturday	11/11/17							
Sunday	11/12/17							
Monday	11/13/17	Christopher Columbus # 8	k-2	1	150	9:00/10:00	Garfield	142 Cedar Ave., Garfield, NJ 07026
Tuesday	11/14/17	Lincoln School	3rd	1	161	9:00	Harrison	216 Cross Street, Harrison, NJ 07029
Wednesday	11/15/17	John M. Bailey	k-2/3-5	2	200/200	9:30/10:30	Bayonne	70 West 10th Street, Bayonne, NJ 07002
Thursday	11/16/17	P.S. # 17	k-2/3-5	2	300/300	9:15/10:15	Clifton	356 Lexington Ave., Clifton, Nj 07011
Friday	11/17/17	**DO NOT BOOK**						
Saturday	11/18/17							
Sunday	11/19/17							
Monday	11/20/17	School # 12 Annex	k	1	118	9:30	Clifton	220 Ackerman Avenue, Clifton,NJ 07011
Tuesday	11/21/17							
Wednesday	11/22/17	John M. Bailey	6-8	1	174	9:30	Bayonne	70 West 10th Street, Bayonne, NJ 07002
Thursday	11/23/17	**HOLIDAY**						
Friday	11/24/17	**HOLIDAY**						
Saturday	11/25/17							
Sunday	11/26/17							
Monday	11/27/17	School One	k-2/3-5	2	150/150	9:15/10:30	Clifton	153 Park Slope, Clifton, Nj 07011
Tuesday	11/28/17	Lincoln M.S.	7th	1	170	8:30	Hawthorne	225 Hawthorne Ave., Hawthorne, NJ 07506
Wednesday	11/29/17	P.S. # 9 (bird houses paint)	1	1	20	9:30	Belleville	296 Ralph Street Belleville, NJ 07109
Thursday	11/30/17	Washington School	prek-2	1	210	9:30	Lyndhurst	704 Ridge Road, Lyndhurst, NJ 07071
Friday	12/1/17	Quitman Street School	4-5	1	105	9:00	Newark	16 Quitman Street, Newark, NJ
Saturday	12/2/17							
Sunday	12/3/17							

Monday	12/4/17	School # 12 (cancelled)	k-2/3-5	2	200/300	9:30/10:30	Clifton	160 Clifton Ave., Clifton, NJ 07011
Tuesday	12/5/17	Christopher Colunbus # 8	3-4/4-5	2	125/125	9:00/10:00	Garfield	142 Cedar Avenue, Garfield, NJ 07026
Wednesday	12/6/17	**St. Dominick Academy (Jennifer Marques)**				**9:30**		
Thursday	12/7/17	Franklin School Ecology Club	5-6	1	22	12:00	North Bergen	5206 Columbia Ave., North Bergen, NJ 07047
Friday	12/8/17	Roosevelt E.S.	k-2/3-5	2	250/250	9:15/10:15	Hawthorne	45 Roosevelt Avenue, Hawthorne, NJ
Saturday	12/9/17							
Sunday	12/10/17							
Monday	12/11/17	P.S. # 23	k,1,2	3	180/180/180	9:00/10:00/11:00	Jersey City	123 Duncan Avenue, Jersey City, NJ 07306
Tuesday	12/12/17	**Union Christmas Party**						
Wednesday	12/13/17	Franklin E.S. (paint bird houses)	6th	1	15	8:40	Bloomfield	80 Curtis Street, Bloomfield, NJ
Thursday	12/14/17	Coleman School	5th	1	20	3:20-4:00	Glen Rock	95 Pinelynn Road, Glen Rock, NJ
Friday	12/15/17	Orchard Elementary School	3rd	1	52	1:15-2:30	Ridgewood	225 Demarest Street, Ridgewood, NJ 07450
Saturday	12/16/17							
Sunday	12/17/17							
Monday	12/18/17							
Tuesday	12/19/17	Berkeley E.S.	5th	1	48	9:00	Bloomfield	346 Bloomfield Ave., Bloomfield, NJ
Wednesday	12/20/17	Henry Harris ES	3-5/6-8	2	250/250	9:00/10:00	Bayonne	130 Avenue C, Bayonne, NJ 07002
Thursday	12/21/17	Franklin E.S. (bird houses)	6th	1	15	8:40	Bloomfield	80 Curtis Street, Bloomfield, NJ
Friday	12/22/17							
Saturday	12/23/17							
Sunday	12/24/17							
Monday	12/25/17	**HOLIDAY**						
Tuesday	12/26/17							
Wednesday	12/27/17							
Thursday	12/28/17							
Friday	12/29/17							
Saturday	12/30/17							
Sunday	12/31/17							
Monday	1/1/18	**HOLIDAY**						
Tuesday	1/2/18							
Wednesday	1/3/18	Storm (school closings)						
Thursday	1/4/18	Storm (school closings)						
Friday	1/5/18							

Saturday	1/6/18							
Sunday	1/7/18							
Monday	1/8/18	Do Not Book (negotiations)						
Tuesday	1/9/18	St. Dominick's meeting for lab day				9:30		
Wednesday	1/10/18	Orchard Elementary School (8 bird houses)	3rd	1	17	1:10-2:25	Ridgewood	225 Demarest Street, Ridgewood, NJ 07450
Thursday	1/11/18							
Friday	1/12/18	Orchard Elementary School 8 (bird houses)(9bird houses)	3rd	2	17/18	12:30/1:30	Ridgewood	225 Demarest Street, Ridgewood, NJ 07450
Saturday	1/13/18							
Sunday	1/14/18							
Monday	1/15/18	**HOLIDAY**						
Tuesday	1/16/18	Do Not Book (negotiations)						
Wednesday	1/17/18							
Thursday	1/18/18	Bloomfield H.S.	11,12	2	25/25	8:30/11:45	Bloomfield	155 Broad Street, Bloomfield, NJ
Friday	1/19/18	P.S. # 16	k-2/3-5	2	250/250	9:00/10:00	Jersey City	91 Sussex Street, Jersey City, NJ 07302
Saturday	1/20/18							
Sunday	1/21/18							
Monday	1/22/18							
Tuesday	1/23/18	Hold						
Wednesday	1/24/18							
Thursday	1/25/18	Hold						
Friday	1/26/18							
Saturday	1/27/18							
Sunday	1/28/18							
Monday	1/29/18	Lady Liberty Academy Charter School	k-2/3-5	2	165/165	9:00/10:00	Newark	741 Sanford Avenue, Newark, Nj 07106
Tuesday	1/30/18	Lady Liberty Academy Charter School	6,7,8	1	165	9:00	Newark	741 Sanford Avenue, Newark, Nj 07106
Wednesday	1/31/18							
Thursday	2/1/18	Lab Day St. Dominick's						
Friday	2/2/18							
Saturday	2/3/18							
Sunday	2/4/18							
Monday	2/5/18	**DO NOT BOOK**						
Tuesday	2/6/18							
Wednesday	2/7/18	Queen of Peace(Judge) w/2 engineers if possible (STEM)				9:00-3:00		
Thursday	2/8/18	North Bergen High School (bird houses)	9,10,11,12	1	25	3:15-5:00	North Bergen	7412 Kennedy Blvd., North Bergen, NJ 07047

Friday	2/9/18							
Saturday	2/10/18							
Sunday	2/11/18							
Monday	2/12/18	Fairmount E.S.	3rd	1	80	10:00	Hackensack	100 Grand Avenue, Hackensack, NJ 07601
Tuesday	2/13/18	P.S. # 10	k-2/3-5	2	90/90	9:00/10:00	Belleville	522 Belleville Ave., Belleville, NJ 07109
Wednesday	2/14/18	Lincoln School (bird houses)	6,7,8	1	25	2:45-3:50	Kearny	106 Beech Street, Kearny, NJ 07032
Thursday	2/15/18	North Bergen High School (bird houses)	9,10,11,12	1	25	3:15-5:00	North Bergen	7412 Kennedy Blvd., North Bergen, NJ 07047
Friday	2/16/18							
Saturday	2/17/18							
Sunday	2/18/18							
Monday	2/19/18	**HOLIDAY**						
Tuesday	2/20/18	Horace Mann	5,6,7,8	1	250	9:30	Bayonne	20 West 38th Street, Bayonne, NJ 07002
Wednesday	2/21/18							
Thursday	2/22/18							
Friday	2/23/18							
Saturday	2/24/18							
Sunday	2/25/18							
Monday	2/26/18							
Tuesday	2/27/18	Clifton High School	9,10,11,12	1	20	2:15-3:15	Clifton	328 Colfax Ave., Clifton, NJ
Wednesday	2/28/18	Lincoln School (bird houses)	6,7,8	1	25	2:45-3:50	Kearny	106 Beech Street, Kearny, NJ 07032
Thursday	3/1/18	Nutley Rotary Club	adults	1	20	12:00	Nutley	American Bistro 24 Washington Ave., Nutley, NJ
Friday	3/2/18							
Saturday	3/3/18							
Sunday	3/4/18							
Monday	3/5/18	Vroom School (threat rescheduled)						
Tuesday	3/6/18	Spring Garden School (Green Rangers Club)	5th	1	7	11:25	Nutley	54 South Spring Garden Ave., Nutley, NJ 07110
Wednesday	3/7/18							
Thursday	3/8/18	**NJWEA Speaker(Holiday Inn)**						394 Monmouth Street, East Windsor, NJ 08520
Friday	3/9/18	Cub Scout Pack 305 (bird houses)	1,2,3,4,5	1	50	7pm	Kearny	St. Stephen's 676 kearny Ave., Kearny, NJ 07105
Saturday	3/10/18							
Sunday	3/11/18							
Monday	3/12/18	Memorial E.S.	5th-6th	1	50	1:00	South Hackensack	46 Dyer Ave., South Hackensack, NJ 07606
Tuesday	3/13/18							

Wednesday	3/14/18	Lincoln School (bird houses)	6,7,8	1	20	3:00	Kearny	106 Beech Street, Kearny, NJ 07032
Thursday	3/15/18	Frankin School	k-3/4-6	2	160/160	9:05/10:00	Saddle Brook	90 Caldwell Avenue, Saddle Brook, NJ 07663
Friday	3/16/18	Christopher Columbus #8 **(bird houses special ed)**	2,3,4	1	30	9:00	Garfield	142 Cedar Avenue Garfield, NJ 07026
Saturday	3/17/18							
Sunday	3/18/18							
Monday	3/19/18	Do Not Book						
Tuesday	3/20/18	St. Peter's School	k-2/3-5/6-8	3	50/60/60	9:00/10:00/11:00	Belleville	147 William Street, Belleville, NJ 07109
Wednesday	3/21/18	Seton Hall Prep (canceled weather)	9,10,11,12	3	25/25/25	11:15-2:30	West Orange	115 Northfield Avenue, West Orange, NJ 07052
Thursday	3/22/18	P.S. # 25(canceled weather)	k-2/3-5	2	180/210	9:00/10:00	Paterson	282 Trenton Ave., Paterson, NJ 07503
Friday	3/23/18	P.S. # 25	k-2/3-5/6-8	3	180/210/179	9:00/10:00/11:00	Paterson	282 Trenton Ave., Paterson, Nj 07503
Saturday	3/24/18							
Sunday	3/25/18							
Monday	3/26/18	Watershed Ambassador Eval with DEP				10:00		
Tuesday	3/27/18	Roosevelt E.S.	6th	2	250/250	9:30/10:30	Kearny	728 Kearny Ave., Kearny, NJ 07032
Wednesday	3/28/18	P.S. # 30 Alexander D. Sullivan School	3,4,5	2	262/161	9:00/10:00	Jersey City	166 Seaview Ave., Jersey City, NJ 07305
Thursday	3/29/18	Nicholas Oresko School	k-2/3-5/6-8	3	165/165/165	9:00/10:00/11:00	Bayonne	28 East 24th Street, Bayonne, NJ 07002
Friday	3/30/18	**HOLIDAY (Kearny Boat House Cleanup)**						
Saturday	3/31/18							
Sunday	4/1/18							
Monday	4/2/18							
Tuesday	4/3/18	Off						
Wednesday	4/4/18	Off						
Thursday	4/5/18	Off						
Friday	4/6/18	Off						
Saturday	4/7/18							
Sunday	4/8/18							
Monday	4/9/18							
Tuesday	4/10/18	Jefferson ES	k-2/3-5	2	100/132	9:00/10:15	Hawthorne	218 Goffle Hill Road, Hawthorne, NJ 07509
Wednesday	4/11/18	P.S. # 16 (reschedule union meeting)new date pending	k-2/3-5	2	110/110	9:15/10:15	Clifton	720 Grove Street, Clifton, NJ 07013
Thursday	4/12/18	Lyncrest School	k-2/3-5	2	120/140	9:00/10:00	FairLawn	9-04 Morlot Ave., FairLawn, NJ 07405
Friday	4/13/18	**Great Falls Shutdown**						
		Harrison HS Rail Barrel Workshop				3:15		
Saturday	4/14/18	MYSO Regatta Kearny Boathouse						
Sunday	4/15/18							

Monday	4/16/18	Lacordaire Academy (flooding rescheduling)	3-5/k-2	2	50/62	12:20/1:25	Upper Montclair	148 Lorraine Avenue, Upper Montclair, NJ 07047
Tuesday	4/17/18	St. Nicholas School	5,6,7,8	1	80	1:00	Jersey City	113 Ferry Street, jersey City, NJ 07307
Wednesday	4/18/18	Dr. Antonia Pantoja School # 27	3-5/6-8	2	300/300	9:00/10:00	Elizabeth	500 Morris Avenue, Elizabeth, NJ 07208
Thursday	4/19/18	Explore 2000	6,7,8	3	50/56/43	8:30/9:30/10:30	Jersey City	175 9th Street, Jersey City, NJ 07302
Friday	4/20/18	Linden Avenue E.S. ***	1	1	61	12:30	Glen Ridge	200 Linden Avenue, Glen Ridge, NJ 07028
Saturday	4/21/18							
Sunday	4/22/18							
Monday	4/23/18	**Off**						
Tuesday	4/24/18	Off						
Wednesday	4/25/18	Lincoln School (bird houses)	3rd	1	25	9:30	Harrison	216 Cross Street, Harrison, NJ
Thursday	4/26/18	OFF						
Friday	4/27/18							
Saturday	4/28/18							
Sunday	4/29/18							
Monday	4/30/18	off						
Tuesday	5/1/18	Academy 1 MS	6th	1	150	9:00	Jersey City	204 Bergen Avenue, Jersey City, NJ 07305
Wednesday	5/2/18	off						
Thursday	5/3/18							
Friday	5/4/18							
Saturday	5/5/18							
Sunday	5/6/18							
Monday	5/7/18	Ironbound Catholic Academy	5th-8th	1	64	12:45	Newark	361 East Kinney Street, Newark, NJ 07105
Tuesday	5/8/18	Off						
Wednesday	5/9/18							
Thursday	5/10/18	Robinson School	k-2/3-5/6-8	3	265/275/255	9:15/10:15/11:15	Bayonne	90 West 31st Street, Bayonne, NJ 07002
Friday	5/11/18							
Saturday	5/12/18	Passaic River Sprints						
Sunday	5/13/18							
Monday	5/14/18	Project Wet Kearny M.S.						
Tuesday	5/15/18	Project Wet Kearny M.S.						
Wednesday	5/16/18	Abraham Lincoln # 6	k-2/3-5	2	175/225	9:30/10:30	Garfield	106 Palisade Avenue, Garfield, NJ 07026
Thursday	5/17/18	off						
Friday	5/18/18	off						

Saturday	5/19/18							
Sunday	5/20/18							
Monday	5/21/18							
Tuesday	5/22/18							
Wednesday	5/23/18	IBEW						
Thursday	5/24/18							
Friday	5/25/18	off						
Saturday	5/26/18							
Sunday	5/27/18							
Monday	5/28/18	**HOLIDAY**						
Tuesday	5/29/18	Nellie K. Parker School	3--4	1	250	9:30	Hackensack	256 Maple Hill Drive, Hackensack, NJ 07601
Wednesday	5/30/18	S.T.A.R.S Academy (special needs 14-21yrs)	3--5	1	103	9:30	Paterson	760 14th Avenue, Paterson, NJ 07504
Thursday	5/31/18							
Friday	6/1/18	South Hackensack M.S. (birdhouses)	k	2	15/15	9:00/10:00	Sth. Hackensack	4 Dyer Avenue, South hackensack, NJ 07606
Saturday	6/2/18							
Sunday	6/3/18							
Monday	6/4/18	Ridgewood Avenue School	3-4/5-6	2	325/300	9:00/10:00	Glen Ridge	230 Ridgewood Ave, Glen Ridge, NJ 07028
Tuesday	6/5/18							
Wednesday	6/6/18							
Thursday	6/7/18	P.S. # 30 (bird houses)	3rd	1	25	9:00	Jersey City	166 Seaview Avenue, Jersey City, NJ 07305
Friday	6/8/18	P.S. # 30 (paint bird houses)	3rd	1	25	9:00	Jersey City	166 Seaview Avenue, Jersey City, NJ 07305
Saturday	6/9/18							
Sunday	6/10/18							
Monday	6/11/18	Kearny High School	9th	4	15/15/15/15	8:30-11:36	Kearny	331 Devon Street, Kearny, NJ 07032
Tuesday	6/12/18	Kearny High School	9th	4	15/15/15/15	11:41-2:40	Kearny	331 Devon Street, Kearny, NJ 07032
Wednesday	6/13/18	Vroom School	k-2/3-5/6-8	3	117/148/142	9:00/10:00/11:00	Bayonne	13 West 26th Strett, Bayonne, NJ 07002
Thursday	6/14/18	P.S. # 3	k-2/3-5	2	150/150	9:30/10:30	Belleville	225 Joralemon Street, Belleville, NJ 07109
Friday	6/15/18	**off**						
Saturday	6/16/18							
Sunday	6/17/18							
Monday	6/18/18							
Tuesday	6/19/18							
Wednesday	6/20/18							
Thursday	6/21/18							

Friday	6/22/18							
Saturday	6/23/18							
Sunday	6/24/18							
Monday	6/25/18							
Tuesday	6/26/18							
Wednesday	6/27/18							
Thursday	6/28/18							
Friday	6/29/18							
Saturday	6/30/18							
Sunday	7/1/18							
Monday	7/2/18							
Tuesday	7/3/18							
Wednesday	7/4/18	**HOLIDAY**						
Thursday	7/5/18							
Friday	7/6/18							
Saturday	7/7/18							
Sunday	7/8/18							
Monday	7/9/18							
Tuesday	7/10/18							
Wednesday	7/11/18							
Thursday	7/12/18							
Friday	7/13/18							
Saturday	7/14/18							
Sunday	7/15/18							
Monday	7/16/18							
Tuesday	7/17/18	Harrison HS Camp (bird houses)	3rd-5th	1	15	10:00	Harrison	396 Kingsland Ave., Harrison, NJ
Wednesday	7/18/18							
Thursday	7/19/18	Union Meeting						
Friday	7/20/18							
Saturday	7/21/18							
Sunday	7/22/18							
Monday	7/23/18	Harrison HS Camp (bird houses)	3rd-5th	1	15	10:00	Harrison	396 Kingsland Ave., Harrison, NJ
Tuesday	7/24/18							

Wednesday	7/25/18							
Thursday	7/26/18							
Friday	7/27/18							
Saturday	7/28/18							
Sunday	7/29/18							
Monday	7/30/18							
Tuesday	7/31/18							
Wednesday	8/1/18							
Thursday	8/2/18							
Friday	8/3/18							
Saturday	8/4/18							
Sunday	8/5/18							
Monday	8/6/18							
Tuesday	8/7/18							
Wednesday	8/8/18							
Thursday	8/9/18	NJCCC (SPEAKER)				9:00-3:00	Margate	96 South Huntington Avenue, Margate, NJ

APPENDIX N

Supplemental CSO Team Public Meeting Minutes

Supplemental CSO Team Meeting No. 1
SUMMARY
Harrison Elks Lodge
October 5, 2016 – 6:00 PM to 8 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Matt Dorans	Bayonne Chamber of Commerce
Janet Castro	Hudson Regional Health Commission, North Bergen
Molly Greenberg	Ironbound Community Corporation (ICC)
David Donnelly	Jersey City Redevelopment Agency
Meiyin Wu	Montclair State University – Passaic River Institute
Jorge Santos	Newark Community Economic Development Corporation
Thomas Stampe	North Bergen Sustainable Jersey Group
Debbie Mans	NY/NJ Baykeeper
Harvey Morginstin	Passaic River Boat Club
Laurie Howard	Passaic River Coalition
Ben Delisle	Passaic River Rowing Association
Sandra Meola	Paterson SMART
Chris Obropta	Rutgers University Cooperative Extension Water Resources

CSO Permittees & Other Attendees (alphabetical by organization)	
Name	**Representing**
Tim Boyle	Bayonne Municipal Utilities Authority
Michael Molina	Ironbound Community Corporation (ICC)
John Dunlea	Neglia Engineering Associates
Rachael Pepe	NJDEP
Susan Rosenwinkel	NJDEP

Frank Pestana	North Bergen Municipal Utilities Authority
Jim De Block	Paterson
Bridget McKenna	PVSC
Marques Eley, P.E.	PVSC
Michael Witt	PVSC (Outside Council)
Rosana Da Silva	Rutgers Cooperative Extension Water Resources Program
Sheldon Lipke	SJL Consultants

Project Team (alphabetical by organization)	
Name	**Representing**
Timothy Dupuis, P.E.	CDM Smith
David Ksyniak, P.E.	CDM Smith
Arnold Bloch	FHI
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Welcome and Introductions

Bridget McKenna (PVSC) welcomed the Supplemental CSO Team and provided a general introduction of the project and the purpose of the Supplemental CSO Team.

Arnold Bloch (FHI) served as the meeting's facilitator. He asked all attendees to introduce themselves, starting with the Supplemental CSO Team and then moving to CSO permittees and other attendees, finishing with introductions from the project team.

Passaic Valley Sewerage Commission Service Area (See attached PowerPoint slide presentation.)

Michael Hope (Greeley & Hansen) introduced the current long term control plan (LCTP) project, explained its purpose, reviewed pertinent definitions and acronyms to be used over the course of the project, and noted that the LTCP must be completed and submitted to the New Jersey Department of Environmental Protection (NJDEP) by June 1, 2020 per the requirements of the New Jersey Pollutant Discharge Elimination System (NJPDES) Permit. The improvements identified through the LTCP planning process would then be implemented in accordance with the schedule identified in the LTCP. He also outlined the project area, detailing which

municipalities would be impacted, as well as the relevant permittees and their contact information. He explained that there will be two LCTPs (one for PVSC and the 8 hydraulically connected CSO permittees and another for the North Bergen MUA Woodcliff WWTP and the 2 hydraulically connected CSO permittees). It was clarified that the Supplemental CSO Team would provide input on both plans since they impact the same region. He stressed that green infrastructure would be incorporated into the plan wherever possible.

Supplemental CSO team

Michael Hope (Greeley & Hansen) explained that the Supplemental CSO Team is a requirement of the NJPDES Permit. He reiterated the purpose of the group is to serve as a liaison between the public and the decision makers for permittees. He outlined general expectations for the Supplemental CSO Team. He noted that this is not the sole form of public outreach on this project and that the project team has been and intends to continue other forms of public outreach such as speaking to municipalities and attending smaller community meetings as well. He noted that the Supplemental CSO Team is expected to commit to meeting quarterly over the remainder of the five-year project. He emphasized that the deadlines on this project are very strict and tracked by the NJDEP. He presented ground rule examples for the group and noted that a consensus from the Supplemental CSO Team and the public on various issues would be ideal, but is not necessary. Ultimately, the CSO permittees are accountable for project decisions and the Supplemental CSO Team is in place to provide input from affected stakeholders.

In response:

- Debbie Mans (NY/NJ Baykeeper) noted that it would be helpful to lay out expectations around the CSO Team's involvement in decision-making and, specifically, identify how much weight the Supplemental CSO Team's input would have when analyzing alternatives. In a related set of comments, Molly Greenberg (ICC) suggested that the Supplemental CSO Team set some ground rules for the group, establish what it expects from PVSC and the project team, and to create accountability on both sides. She also asked if PVSC could speak to how they will use the Supplemental CSO Team's input and advice. She asked for a clear definition of the relationship between the Supplemental CSO Team, PVSC, and the consultants.

- Bridget McKenna (PVSC) stated that the project team is looking for input from the Supplemental CSO Team, but that input will be weighed against a cost-benefit analysis, among other deciding factors. She noted that the LTCP will represent a product endorsed by all the permittees, of which PVSC is one.

Overview of Separate and Combined Sewer Systems

Michael Hope (Greeley & Hansen) provided a background on combined sewer systems and the history. Combined sewer systems predate wastewater treatment plants and were designed to

convey both sanitary sewerage and stormwater away from the population and out to the receiving waters. Later, wastewater treatment facilities were built along with sewers that intercept flow before going to the river and instead transfer flow to a treatment plant. These interceptor sewers cannot handle the cumulative flow from sanitary sewage and stormwater and when they reach capacity, there are discharges of combined sewage to area waterways. He stated that the LTCP is a process to comply with the National Combined Sewer Overflow Control Policy Clean Water Act. He also noted that PVSC owns the wastewater treatment plant, the interceptor, and some of the regulators, but not the combined sewer outfalls or combined sewer collection systems. Those are owned by the individual permittees. He emphasized that the pollutant of concern in the waters are pathogens.

Regulatory Background

Timothy Dupuis (CDM Smith) began the introduction to the regulatory background of the LTCP. He explained that the purpose of the LTCP is to reduce impacts of Combined Sewer Overflows (CSOs) by reducing the number and frequency of overflows. The project is long term and the NJDEP is working in five-year permit cycles. He explained that the LTCP will focus on the role CSOs play in attaining compliance with water quality standards to not preclude the attainment of water quality standards (i.e., there are other pollutants not produced by CSOs that the project does not aim to reduce, but are contributing to impacts of water quality). While public hearings are not required by the NJPDES Permit, he stated that the project team wants a more interactive process, with public input wherever possible. Since the project is going to be very expensive and capital intensive, public feedback will be considered to a significant degree. This project is expected to be the biggest cost for the relevant municipalities in the last 20 years.

Timothy Dupuis (CDM Smith) outlined a few paths and actions that could be taken to reduce CSOs and their impact, including:

- Upgrades to the wastewater treatment plants;
- Provide storage for excess storm water flow;
- Satellite treatment;
- Sewer separation; and
- Green infrastructure.

Program Progress to Date

Timothy Dupuis (CDM Smith) provided a progress report on the status of the LTCP program and the work completed to date. He explained that the project team is performing regional water quality monitoring.

In response:

- Debbie Mans (NY/NJ Baykeeper) asked if the weekly water quality monitoring would be presented at following meetings. Timothy Dupuis (CDM Smith) noted that the weekly

findings wouldn't be very significant outside of the model, but they could provide an update on the model at future meetings.

- Timothy Dupuis (CDM Smith) explained that the model is reviewed by a Model Evaluation Group consisting of three university professors in the field, from Tufts University, Stevens Institute of Technology, and Oregon State University.

- Molly Greenberg (ICC) suggested that a local university professor from Rutgers University or Montclair State University be added to the Model Evaluation Group.

- Timothy Dupuis (CDM Smith) explained that the Model Evaluation Group is intended to be objective, utilizing experts who have no interest in PVSC operations and conditions.

- Debbie Mans (NY/NJ Baykeeper) reiterated that the model drives a lot of the alternatives analysis and it would be worth digging deeper into the model and methodologies at future meetings. She asked for a list of the names of the professors in the Model Evaluation Group.

Branding of Long Term Control Plan (LTCP) Program

Arnold Bloch (FHI) facilitated the discussion of the project branding. He first showed a few examples of logos and taglines from similar projects in the country. He then showed some potential names and four preliminary logo sketches for the LTCP program. He stated that the logos and names were inspired by the designs of similar projects and were developed by FHI.

In response:

- Sandra Meola (Paterson SMART) stated she liked option three and asked who will ultimately decide on the branding.

- Arnold Bloch (FHI) answered that the decision rests with PVSC and the Permittees, but they have not made any decisions yet and are open to the advice and input of the community.

- Bridget McKenna (PVSC) explained that the purpose of the branding is to reflect that this a green, community project. She noted that the branding should not reflect that this is a PVSC project.

- Ben Delisle (Passaic River Rowing Assn.) said he did not like option four. He commented that it resembled the symbol of a regulatory agency. He also found that "Clean Water, Clean Currents" as a tagline is too generic.

- Harvey Morginstin (Passaic River Boat Club) commented that the project is trying to clean 'grey water' and the tagline and logo should reflect this goal. Arnold Bloch (FHI) noted that 'grey water' is an industry term and most people outside of the environmental community might not understand what grey water is.

- Thomas Stampe (North Bergen Sustainable Jersey Group) emphasized that branding should reflect the regionality of the project.

- Two public members who are not on the Supplemental CSO Team offered their comments. Tim Boyle (Bayonne MUA) added that the LTCP is a very tiered process and stressed that, since the Supplemental CSO Team is an advisory group, its members should go back to the community and possibly derive branding from school art programs. Michael Molina (ICC) agreed that the branding conversation is best held for the next meeting.

- Arnold Bloch (FHI) reminded the team that the meetings are quarterly and the project team would like to get started on branding before the next meeting. He noted that the timeline for creating the branding is a few weeks from Meeting No. 1 and asked that if anyone had any input or suggestions, that they follow up with the project team in the interim.

- Molly Greenberg (ICC) asked if the project team could send out a virtual copy of the logos and preliminary branding to the Supplemental CSO Team.

Next Steps

Arnold Bloch (FHI) asked the Supplemental CSO Team what times are best suited for the quarterly meetings. He asked if there were any specific times and dates that work well for most the team, emphasizing that they do not have to be night meetings if the group wants to meet earlier.

In response:

- David Donnelly (Jersey City Redevelopment Agency) stated that Wednesday evenings are very difficult for him to take off.

- Harvey Morginstin (Passaic River Boat Club) noted that most of the Supplemental CSO Team is also on a CAG which meets on Thursdays. He suggested Tuesday nights.

- Arnold Bloch (FHI) suggested that a doodle poll be sent out before the next Supplemental CSO Team meeting to ensure optimal attendance, and noted that a designated representative could attend in case a Supplemental CSO Team member is

unavailable. He noted that the project team would like to rotate future meetings around the region and the Supplemental CSO Team found this to be a good idea.

Arnold Bloch (FHI) asked the Supplemental CSO Team if they thought that anyone was missing from the Supplemental CSO Team who they thought could contribute.

In response:

- Molly Greenberg (ICC) suggested putting Clean Water as its own group and having a separate Newark DIG representative. She would like to see more of a community presence on the Supplemental CSO Team, with people who are representing communities, not agencies. She would like to see the community have a voice throughout the process, and asked for a current member list.

- Debbie Mans (NY/NJ Baykeeper) suggested that homework for the Supplemental CSO Team could be to identify local groups that the project team can communicate within the municipalities.

- Michael Hope (Greeley & Hansen) stated that the project team would like to get on Newark DIG's agenda and come to a meeting and present. Since Newark DIG meetings are held monthly, the team will likely attend the November meeting.

- Debbie Mans (NY/NJ Baykeeper) suggested that the Supplemental CSO Team should have a group email.

Questions and Final Discussion

Arnold Bloch (FHI) asked if there were any questions or comments from the Supplemental CSO Team.

In response:

- Molly Greenberg (ICC) noted that she found the LTCP process very important. She asked for a definitive guide to continuing community engagement beyond the Supplemental CSO Team. She suggested that there be ground rules to how the agenda is set prior to each meeting, and what information should be shared to the team in the time between meetings.

- Arnold Bloch (FHI) explained that the project team currently sets the agenda for the meetings, and suggested that the agenda be sent to the Supplemental CSO Team prior to the meeting.

- David Donnelly (Jersey City Redevelopment Agency) noted that receiving the agenda prior to a meeting would lend itself to more participation during the meetings, as

Supplemental CSO Team members could prepare for discussion and clear up any unfamiliar concepts before attending. He liked the idea of the Supplemental CSO Team contributing to the topics at future meetings, but suggested that the project team set the agenda for the first few meetings.

- Meiyin Wu (Montclair State University) agreed and added that any presentations and documents to be presented at the meetings be sent well in advance so that the Supplemental CSO Team has ample time to review and be prepared.

- Michael Hope (Greeley & Hansen) stated that the project team has established a SharePoint site for the project and large documents such as the presentations and agendas can be uploaded to the site and organized by meeting.

- Harvey Morginstin (Passaic River Boat Club) asked if the project team could identify similar projects and groups like this across the country. He would like a list of project websites to see what kind of scope those projects have in comparison to this one.

- Debbie Mans (NY/NJ Baykeeper) asked whether naming a regional Supplemental CSO Team complied with requirements, vs. having a Supplemental CSO Team for each of PVSC's permittees.

- Bridget McKenna (PVSC) explained that the NJDEP has developed a public involvement guidance document and, as a result, the project team decided on creating a regional Supplemental CSO Team instead of individual municipal teams. She noted that the project team also intends to talk to municipalities outside of the Supplemental CSO Team and will also attend local meetings to get input.

- Susan Rosenwinkel (NJDEP) noted that the project team is complying with the NJPDES Permit and doing all necessary steps to solicit public involvement. The Model Evaluation Group is something not required by the permit and is another layer of review taken by the project team. Other actions may be beyond the NJPDES Permit.

- Debbie Mans (NY/NJ Baykeeper) asked for an organization chart of all the groups involved in the LTCP and how they report to each other.

- David Donnelly (Jersey City Redevelopment Agency) asked if the project team could provide a primer to the Supplemental CSO Team on the permitting process. Details about the LTCP could direct the team's focus for future meetings.

- Molly Greenberg (ICC) suggested that PVSC consider translating public materials made available for public meetings.

Closing Statements

Mike Witt (Special Counsel to PVSC) closed the discussion with a thank you to the Supplemental CSO Team for volunteering their time to participate in this process. He stressed that this is an expensive program for New Jersey, likely to be in the $1 billion range or greater. For this reason, it is very important to get the community perspective before the permittees make their decisions. He noted that New Jersey is the last state to perform LTCPs. He emphasized that the team is lucky to have NJDEP as a partner in this permit cycle. He explained that he has been tracking consent decrees for a while and the Federal Government does not consider other local issues when issuing consent decrees. Once the Federal Government sees that the plan is not working, they will deliver a consent decree, and they have never lost a consent decree case. He also noted the importance of the Model Evaluation Group and its objectivity throughout the process.

ACTION ITEMS:

- Project team will send out a comprehensive member list to the Supplemental CSO Team.
- Project team will send a doodle poll before the next meeting to check availability of the Supplemental CSO Team.
- Project team will provide the Supplemental CSO Team with names of professors on the Model Evaluation Group.
- Project team will send Supplemental CSO Team an electronic copy of the branding samples.
- Project team will provide Supplemental CSO Team a primer on the permitting.
- Project team will consider the need for translation of public materials into foreign languages that are to be made available at public meetings.
- Supplemental CSO Team will identify groups that the project team can talk to at the municipal level.
- Project team will find a list of similar projects like this across the country and provide website links to Supplemental CSO Team members.
- Project team will upload meeting documents to SharePoint site prior to future meetings.
- Project team will distribute the meeting agenda prior to Supplemental CSO Team prior to future meetings.

Supplemental CSO Team Meeting No. 2
SUMMARY
Bayonne Library
January 10, 2017 – 6:00 PM to 8:00 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Ben Costanza	Bayonne Chamber of Commerce
Captain Bill Sheehan	Hackensack Riverkeeper
Michael Molina	Ironbound Community Cooperation
Betty Jane Boros	New Jersey Business & Industrial Association (NJBIA)
Jorge Santos	Newark Community Economic Development Council (NCEDC)
Nicole Miller	Newark DIG
Debbie Mans	NY/NJ Baykeeper
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Ruben Gomez	City of Paterson
Sheri Ferreira	Paterson Chamber of Commerce
Sandra Meola	Paterson SMART
Chris Obropta	RCE Water Resources Program

CSO Permittees and Representatives (alphabetical by organization)	
John Minnett	Arcadis
Tim Boyle	Bayonne Municipal Utilities Authority
Gary Grey	HDR
John Dunlea	Neglia Engineering
Andrea Adebowale	City of Newark
Hanifa Johnson	City of Newark Water and Sewer Utilities
Kareem Adeem	City of Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority
Jim DeBlock	Paterson
John Lugington	Suez Bayonne
John O'Connor	RCE Water Resources Program

Observers	
John Cupo	City of Bayonne

Deb Peveler	Bayonne Supplemental CSO Committee
Corinne Popowski	Bayonne Supplemental CSO Committee
Kerry Ostendorf	BMC
Sally Rubin	Great Swamp
Bridget McKenna	PVSC
Marques Eley, P.E.	PVSC
Mike Witt	PVSC (Outside Council)
Rosana DaSilva	Rutgers
Sheldon Lipke	SJL Consultants
Jim McGoldrick	PS&S
John O'Connor	
Ken Poesl	

NJDEP	
Jennifer Feltis Cortese	NJDEP
Susan Rosenwinkel	NJDEP

Project Team (alphabetical by organization)	
Timothy Dupuis, P.E.	CDM Smith
David Ksnyiak, P.E.	CDM Smith
Arnold Bloch	FHI
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Welcome and Introductions

Bridget McKenna (PVSC) welcomed the Supplemental CSO Team and provided a general introduction of the project and the purpose of the Supplemental CSO Team.

Arnold Bloch (FHI), serving as the meeting's facilitator, asked all attendees to introduce themselves, starting with the Supplemental CSO Team and then moving to CSO permittees and other attendees, finishing with introductions from the project team.

Michael Hope (Greeley & Hansen) welcomed the Supplemental CSO Team and reviewed the agenda for the meeting. He made note of the project's SharePoint site, which houses all pertinent public documents related to the LTCP and the Supplemental CSO Team meetings.

Recap of Previous Meeting & Current Progress to Date

Michael Hope (Greeley & Hansen) introduced the current long term control plan (LCTP) project, explained its purpose, and noted that the LTCP must be completed and submitted to the New Jersey Department of Environmental Protection (NJDEP) by June 1, 2020 per the requirements of the New Jersey Pollutant Discharge Elimination System (NJPDES) Permit. The improvements identified through the LTCP planning process would then be implemented in accordance with the schedule identified in the LTCP. He also outlined the project area, detailing which municipalities would be impacted, as well as the relevant permittees and their contact information. He explained that there would be two LCTPs (one for PVSC and the 8 hydraulically connected CSO permittees and another for the North Bergen MUA Woodcliff WWTP and its 2 hydraulically connected CSO permittees). He clarified that the Supplemental CSO Team would provide input on both plans. He stressed that green infrastructure would be incorporated into the plan wherever possible.

Michael Hope (Greeley & Hansen) explained that the Supplemental CSO Team is a requirement of the NJPDES Permit. He reiterated the purpose of the group is to serve as a liaison between the public and the decision makers for permittees. He outlined general expectations for the Supplemental CSO Team. He noted that this is not the sole form of public outreach on this project and that the project team has been and intends to continue other forms of public outreach such as speaking to municipalities and attending smaller community meetings. He noted that the Supplemental CSO Team is expected to commit to meeting quarterly over the remainder of the five-year project. He emphasized that the deadlines on this project are very strict and tracked by the NJDEP. He presented ground rule examples for the group and noted that a consensus from the Supplemental CSO Team and the public on various issues would be ideal, but is not necessary. Ultimately, the CSO Permittees are accountable for project decisions, while the Supplemental CSO Team is being asked to provide input on behalf of themselves and affected stakeholders.

Michael Hope (Greeley & Hansen) presented on the current progress to date on the LTCP. He explained that a twelve-week flow-monitoring program was completed. The flow monitoring data will be used to update the hydraulic model. The flow-monitoring measures how much sewer flow is being conveyed through a specific pipe or within a drainage area.

In response:

- Debbie Mans (NY/NJ Baykeeper) asked why the flow was only measured over a twelve-week period.
    - Michael Hope (Greeley & Hansen) responded that there was already a significant amount of existing flow monitoring data collected during previous modeling efforts. The additional data is being used to supplement that existing data and update the model calibration.

- Captain Bill Sheehan (Hackensack Riverkeeper) noted that the past year has been dry and the region is in a bit of a drought. He asked if this would undervalue the flow.
    - Michael Hope (Greeley & Hansen) acknowledged that it was a drier year than usual, but there were enough wet weather incidents to calibrate the model.
- Chris Obropta (RCE) asked if there were any wet weather incidents over 1 inch.
    - Timothy Dupuis (CDM Smith) responded that the monitoring period included events over ½ inch, but also noted that CSO events can occur during rainfall events ¼ inch or less.
- Chris Obropta (RCE) asked if any physical inspections were conducted in conjunction with the installation of flow meters.
    - Michael Hope (Greeley & Hansen) responded that cleaning of some of the systems was coordinated with the Permittees. For example, Paterson was cleaning portions of their combined sewer system.

History of Combined Sewers

Michael Hope (Greeley & Hansen) provided background on combined sewer systems and their history. He noted that PVSC is the second oldest environmental organization in the United States. He stated that combined sewer systems predate wastewater treatment plants and were designed to convey both sanitary sewerage and stormwater away from the population and out to the receiving waters. Later, wastewater treatment facilities were built along with sewers that intercept flow before going to the river and instead convey it to a treatment plant. These interceptor sewers cannot always handle the cumulative flow from sanitary sewage and stormwater, so that when they reach capacity, there are discharges of combined sewage to area waterways. He stated that the LTCP is a process to comply with the National Combined Sewer Overflow Control Policy. Talking about the age of the PVSC system, he noted that a portion of the interceptor used by PVSC is wooden. He explained that PVSC owns the wastewater treatment plant, the interceptor, and some of the regulators but permittees own most of the regulators and the outfalls, as well as the local sewers. The ownership is defined within the maps and the permits. The pollutants of concern in the waters are pathogens.

History of NJDEP Permitting

Susan Rosenwinkel (NJDEP) presented on the history of permitting within the NJDEP. She noted that CSO's are a national concern with most concentrated towards the east coast, as these were the first sewer systems to be built.

Susan Rosenwinkel (NJDEP) explained that on July 1, 2015, 25 individual NJPDES permits were issued that outlined requirements for the completion of a Long-Term Control Plan. The State tied permit conditions to each of the nine different hydraulically connected systems that discharge to one WWTP. This requirement was intended to encourage collaboration between each of the hydraulically connected municipalities since their decisions on solutions affect each other. She introduced the CSO Outfall Interactive Map located on the NJDEP website that helps the public track CSOs in real time.

Susan Rosenwinkel (NJDEP) explained that CSO Permits are comprised of two components: the nine minimum controls (NMC) and the Long Term Control Plan (LTCP). She explained that the LTCP is a three-part process, beginning with system characterization, followed by an evaluation of alternatives, and ending with the selection of the alternatives and development of a recommended plan with an implementation schedule.

In response:

- Nicole Miller (Newark DIG) asked what the reporting requirements are for permittees in terms of the nine minimum controls.
    - Susan Rosenwinkel (NJDEP) responded that the CSO permits require that manuals and permits be kept on-site.
- Jorge Santos (NCEDC) asked if population growth forecasts are factored into the LTCP and the models.
    - Michael Hope (Greeley & Hansen) said that planning documents are used to supplement models for population increases and decreases, but that the majority of the communities are currently implementing redevelopment as opposed to new development. Therefore, the wet weather flows from this redevelopment in terms of new impervious coverage does not necessarily contribute a significant increase in wet weather, but would be coordinated relative to the alternatives analysis.
- Chris Obropta (RCE) referenced one of the alternatives – sewer separation – and noted that this alternative is costly and that its environmental benefit is questionable when the water quality impacts of the separate stormwater system are considered.
- Corinne Popowski (Bayonne Supplemental CSO Committee) mentioned that the warning signs at sewer outfalls are often not at eye level and difficult to see. She said it would be beneficial to educate the public and makes sign more visible; at present you have to know that you're looking for them to find them.
    - Susan Rosenwinkel (NJDEP) noted that the signs are two sided signs so that individuals on the ground and in the water can see these advisory notices.

Permit Responsibilities

Timothy Dupuis (CDM Smith) presented a schedule for deliverables on the LTCP. The schedule outlined key responsibilities for PVSC and for municipal authorities over the course of the LTCP. He explained the purpose of the CSO Notification System and how the system intends to function.

In response:

- Debbie Mans (NY/NJ Baykeeper) asked what the specific role of the Supplemental CSO Team will be at each stage of the timeline and how much they would contribute to the deliverables. She asked if the project team could talk offline with a few members of the Supplemental CSO Team to outline their exact expectations for contribution at each stage of the LTCP's development.

Timothy Dupuis (CDM Smith) noted that ultimately, many people would want to choose the cheapest alternatives, since the project will be funded through taxes. The Supplemental CSO Team can help PVSC work with the public to understand that an alternative that might be costlier is better for the environment and community.

Mike Witt (PVSC) added that the municipalities would ultimately decide on the alternative for the LTCP, but that the selection of the right alternative depends on an educated public. The public needs to know that this will be the largest capital project most of these municipalities will ever make and the right decision needs to be made. He explained that part of his job is to meet with local councils to relay that the investment is inevitable and that they need to come together to make the decision for their community.

In response:

- Chris Obropta (RCE) stated that the alternatives analysis would be very important for letting people decide what the best decision is. There needs to be extensive analysis on each alternative and a list of pros and cons for each should be developed in a way that is understandable for the community at large.

- Nicole Miller (Newark DIG) noted that surrounding non-CSO communities are affected by and contribute to the CSOs. She asked if they would be contacted to be involved in the process.

    - Timothy Dupuis (CDM Smith) explained that they are governed by a different permit and will be contacted for different requirements. He acknowledged that they do have an impact on the CSOs and the LTCP.

- Nicole Miller (Newark DIG) asked how the payment is distributed within the PVSC communities.

    - Mike Witt (PVSC) responded that PVSC has a billing structure in place that is based on flow from each municipality. The costs are generally apportioned by flow with some special charges for industrial users with higher strength waste.

- Andrea Adebowale (City of Newark) gave the example of Newark as a community that has both separate and combined sewer systems.

Branding of LTCP Program

Arnold Bloch (FHI) reviewed the branding process for the LTCP program. He noted that at the previous meeting some initial branding ideas were discussed. He then showed the Supplemental CSO Team the second draft of logos and taglines.

In response:

- Sandra Meola (Paterson SMART) stated that the overall goal of the permit is creating clean water so the communities and waterway users do not fall sick. She said that "healthy" should be a buzzword in the taglines that is missing from the current selection. She suggested "clean rivers, healthy communities" as a possibility.

- Betty Jane Boros (NJBIA) suggested a more personal take on the tagline, using "my" or "our" to create a sense of ownership for the project since the community is paying for it.

- Harvey Morginstin (Passaic River Boat Club) thought the words "goal" and "ocean" should be included to acknowledge that it is a process and to distinguish that this project is not dealing with potable water.

- Corinne Popowski (Bayonne Supplemental CSO Committee) suggested creating a "part of the whole" relationship within the tagline. It should signify that the communities are working together to create something better as a group. They should get the feeling that they own a bit of it personally, and collectively all of it.

- Arnold Bloch (FHI) noted that a challenge with this tagline and branding is that it needs to represent the region, without specifically focusing on one subarea.

- Sandra Meola (Paterson SMART) presented a municipal logo packet with options for similar projects that Paterson SMART had created. She also noted that from the options provided in the LTCP branding packet, she preferred logo 1 with color scheme B. She liked that it showed an urban collaborative, with smaller and larger buildings, and a green space and rivers. She asked the project team to consider reproduction and the quality of logo when printed in black and white or on other materials.

- Nicole Miller (Newark DIG) expressed preference for logo 1, but would like it to incorporate a raindrop to signify water.

- Betty Jane Boros (NJBIA) suggested choosing a blue that is easily reproducible if others need to recreate the logo.

- Deb Peveler (Bayonne Supplemental CSO Committee) suggested a tagline such as "water is life" or something similar that speaks to the extreme importance of clean water.

- Nicole Miller (Newark DIG) liked that logo 3 is a circle in a contained space. She expressed that if logo 1 is selected, it shouldn't look like a floating city. The white should extend to be a part of the logo.

- Ben Costanza (Bayonne Chamber of Commerce) asked if the branding is supposed to represent all 48 communities in PVSC.

- It was also noted that the logo should print well in both color and black and white.

- Timothy Dupuis (CDM Smith) responded that it is to represent the core eight communities affected by the LTCP.

General Comments

Nicole Miller (Newark DIG) asked about discharge monitoring and the parameters of measuring the toxins and how far they reach.

Michael Hope (Greeley & Hansen) responded that the Permittees complete monthly Discharge Monitoring Reports and the number of overflows are reported (but not the volume of each overflow).

Sandra Meola (Paterson SMART) asked if the project team had agendas ready for upcoming meetings.

Timothy Dupuis (CDM Smith) explained that the project team is looking for input from the Supplemental CSO Team on future meeting topics.

Adjournment.

Supplemental CSO Team Meeting No. 3
SUMMARY
Hamilton Club Building, Paterson NJ
April 11, 2017 – 6:00 PM to 8:00 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Nancy Kontos	Bunker Hill Special Improvement District
Captain Bill Sheehan	Hackensack Riverkeeper
Michael Molina	Ironbound Community Cooperation
Meiyin Wu	Montclair State University – Passaic River Institute
Nicole Miller	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Thomas Stampe	North Bergen Sustainable Jersey Group
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Ben Delisle	Passaic River Rowing Association
Sandra Meola	Paterson SMART
Chris Obropta	RCE Water Resources Program
Chris Pianese	Township of North Bergen

CSO Permittees and Representatives (alphabetical by organization)	
Tim Boyle	Bayonne Municipal Utilities Authority
Gary Grey	HDR
John Dunlea	Neglia Engineering
Kareem Adeem	Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority
Jim DeBlock	Paterson

Observers	
Alessandra Rossi	Montclair State University – Passaic River Institute
Jim McGoldrick	PS&S
Bridget McKenna	PVSC
Mike Witt	PVSC (Outside Council)
Rosana DaSilva	Rutgers

NJDEP	
Jennifer Feltis Cortese	NJDEP
Susan Rosenwinkel	NJDEP

Project Team (alphabetical by organization)	
David Ksyniak, P.E.	CDM Smith
Stephanie Brooks	FHI
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Welcome and Introductions

Stephanie Brooks (FHI), serving as the meeting's facilitator, asked all attendees to introduce themselves, starting with the Supplemental CSO Team and then moving to CSO permittees and other attendees, finishing with introductions from the project team.

Michael Hope (Greeley & Hansen) welcomed the Supplemental CSO Team and reviewed the agenda for the meeting. He then reviewed the project's SharePoint site and updated materials and pertinent public documents related to the LTCP and the Supplemental CSO Team meetings.

Recap of Previous Meeting & Current Progress to Date

Michael Hope (Greeley & Hansen) provided a recap of the Supplemental CSO Team purpose and need, Supplemental CSO Team participants, and the various Permittees and number of CSOs in each Permittee municipality.

Mr. Hope then provided an overview of progress to date, and the status of current permit. He noted that advisory/warning signs have now been posted near CSO outfalls, and that discharges from these outfalls can be tracked by the CSO Notification System (available at http://njcso.hdrgateway.com) as well as CSO Monthly Discharge Monitoring Reports. Current work plans and Quality Assurance Program Plans (QAPPs) submitted to and approved by NJDEP include:

- Baseline Compliance Monitoring Program QAPP
- System Characterization and Landside Modeling Program QAPP
- Pathogen Water Quality model QAPP
- Other existing system characterization documents

Mr. Hope noted that meetings are now taking place amongst permittees, and in response to questions by the Supplemental CSO Team, affirmed that these meetings take place monthly. All

attendees have access to the QAPPs and permitting documents at the SharePoint site. Mr. Hope then informed the group that previous collection system models have been evaluated, with further model development underway. The PVSC team has completed a flow monitoring program, are actively updating hydrologic and hydraulic collection system models, and are actively performing water quality monitoring and model development.

Mr. Hope provided more information about the CSO notification system, noting that it is a predictive system, not a monitoring system. It utilizes model-derived rating curves to predict overflow events at each outfall location.

Branding of LTCP Program

Michael Hope (Greeley & Hansen) presented the latest LTCP Program logo, which was selected based on input from both permittees and the Supplemental CSO Team ("Clean Waterways, Healthy Neighborhoods"). The term "Waterways" is more all-encompassing, in consideration of the diverse types of waterbodies impacted by CSO discharges (rivers, streams, and bays). In addition, the diversity of building types in the logo's city skyline captures the variety of cities and neighborhoods impacted by the CSOs.

Detailed Project Schedule

Michael Hope (Greeley & Hansen) presented the latest Supplemental CSO Team meeting schedule, with meetings taking place every three months. Municipal and regional evaluation of CSO control alternatives will begin in the fall of 2017, with public participation throughout the process.

Green Infrastructure (GI) Practices for CSO Control

Michael Hope (Greeley & Hansen) discussed the purpose and benefits of GI as a CSO control alternative. He noted that the primary purpose is to reduce the amount of stormwater going into the system, to reduce overflow during rain events. Additional GI benefits include flood mitigation, cooler temperatures, improved air quality, health improvements, "greening" the city, job creation (installation and maintenance), recreational amenities and increased real-estate values. The "Triple Bottom Line" benefits from green infrastructure include environmental, social and economic.

GI elements work to reduce the volume of runoff to combined sewers. These elements capture and infiltrate stormwater runoff before it enters the combined collection system, they restore the natural hydrologic cycle, and they replenish groundwater aquifers. Less volume entering the collection system results in less overflow.

GI works to decrease the peak rate of runoff by capturing and storing runoff, and slowly releasing the stored volume of water into the collection system after the combined sewer system capacity has recovered. In this region, GI systems are usually designed to capture runoff from the first inch of rainfall, as 90 percent of storms are one inch or less.

Three general GI program initiatives can be used to help reduce combined sewer overflow: on private property; on public property; and in the right-of-way (ROW)..

The positives of GI on private property are that it is usually totally or partially paid for by non-municipal sources, it can be incorporated into redevelopment plans and requirements, and it can be implemented in a variety of ways. On the negative side, municipalities have less control over the GI elements and may require funding incentives, the amount needed long term is uncertain, and numerous approvals and permits may be needed (such as zoning, planning and building).

Positive features of GI on public property include the fact that a government agency already owns and controls the property (such as schools, parks, public housing, etc.), and fewer permits or approvals may be required. Negatively, public property GI requires increased coordination between government agencies, and there are a limited number of sites that can be used.

ROW GI has many positives: the municipality already controls the property, streets are already designed to convey and collect runoff, the ROW makes up a significant portion of the impervious cover in the drainage area, designs can be standardized, and municipalities can group multiple GI projects into a larger construction contract, or incorporate GI into other projects (road/sewer improvements, etc.) which lowers GI construction cost. Negatively, the ROW GI can often be high cost, conflict with utilities, impact parking, and have high maintenance issues.

Case Study: New York City Green Infrastructure Program

Michael Hope (Greeley & Hansen) presented the New York City (NYC) GI program as a case study. NYC's GI program targets controlling the one-inch storm from 10 percent of the combined sewer area impervious surfaces, city-wide, by 2030. Their Green Infrastructure Plan estimates this approach will reduce CSO volume by an additional 2 billion gallons per year over the prior all-grey infrastructure strategy and save money by focusing on cost-effective grey and green infrastructure. The NYC's initial GI program is primarily ROW-focused.

NYC is constructing thousands of ROW bioswales that are deeper than conventional rain gardens or bioswales. These installations are not well known in New Jersey. Smaller sidewalk widths in New Jersey may make ROW bioswales challenging (may need "green strips" instead). Siting is crucial for these bioswales, and often a subsurface utility investigation makes the area unsuitable.

Managing costs and including maintenance costs are crucial elements in the success of any GI program. The LTCP is a living plan guided by adaptive management; the types of GI used and potential post-installation monitoring and maintenance will depend on each site.

Example from one NYC construction contract are listed as follows:
398 Right-of-Way Bioswales (ROWBs)
$11,700 per ROWB
Manage a total of 31 acres of impervious area
$150,000 per impervious acre treated

Additional Costs:
- Siting
- Engineering
- Geotechnical Investigations
- Survey

Paterson SMART

The Paterson SMART team, represented by Sandra Meola (Paterson SMART) and Rosana DaSilva (Rutgers University), then presented on the Paterson SMART GI program, which includes coordination with local agencies (schools, parks, etc.) to incorporate sustainable green infrastructure as stormwater management. These GI projects have been successful in part because of thorough outreach to and alliances with communities and local agencies.

Questions

- Nicole Miller (Newark DIG): regarding GI projects, what are the most effective methods? Is there a hierarchical list?
    - Michael Hope (Greeley & Hansen) responded that ROW bioswales are usually the preferred choice, as they are on public property and have a great deal of storage. Rain gardens are also effective, but it depends on the type of area and what is best suited to it. The GI elements need to be targeted appropriately to municipal and environmental needs.

- Chris Obropta (RCE): it seems as if these GI elements are mostly the same, more an issue of semantics; raingardens hold the water, and bioswales transfer it. Bronx residents were upset because they were not consulted before all these bioswales were installed. We can learn from New York City's mistakes.
    - David Ksyniak (CDM Smith) noted that public outreach is a huge part of this LTCP effort. The NYC agencies involved are aware that they could have done more outreach and have lessons learned.

- Chris Obropta: the Philadelphia Water Department was involved with neighborhoods to build GI, but communities responded suspiciously, with a "you're from the government" attitude.

- Nicole Miller: citizens see "government" behind smiling faces on Newark DIG and Paterson SMART. They really need to understand the GI positives and its job creation aspect.
    - Michael Hope (Greeley & Hansen) responded to both of the above comments that they are excellent points: this is a program, not a random series of projects. It is easy to see the consistent amount of growth and jobs.

- Harvey Morginstin (Passaic River Boat Club & Passaic River Superfund CAG): how do we stop water accumulation on the street, since half of the right-of-way is the street?
    - Michael Hope (Greeley & Hansen) replied that the ROW bioswale "cuts the curb" out so that water on the street gets to the bioswale.

- Harvey Morginstin: suggests porous and permeable pavement; reuse the water for hydroponic gardening.
    - Michael Hope (Greeley & Hansen) replied that water storage and redirection/reuse is possible, but usually storage water isn't reused to water plants, etc., it is just evaporated or redirected.

- Nicole Miller: requests that they keep porous pavements on sidewalks and parking lanes because they are not strong enough to support cars on roadway.
    - David Ksyniak (CDM Smith) noted that Hoboken and New York City are both looking into this.
    - Michael Hope (Greeley & Hansen) responded that porous pavements have high costs – bioswales are often preferred.

- Captain Bill Sheehan (Hackensack Riverkeeper) noted that green strips used to be in New Jersey and New York City in the 1960's, but the cities have now paved up a lot of them. Do these green strips provide benefits?
    - Michael Hope (Greeley & Hansen) noted that the green strips of the past were not designed for stormwater, they only absorbed sidewalk water. Today, the "green strips" being designed in NYC are actually smaller ROW bioswales designed for stormwater storage – however, we need to be sure what is going on underneath, because utility pipes, etc. can prevent green strip use. Excavation is required. We will need to analyze for access as well – there are some ADA restrictions, as people still need to get through.

- Nicole Miller: regarding parking meters, bus stops, etc.: in the cities of Paterson and Newark parking is hard enough, we can't remove parking.

    - Michael Hope (Greeley & Hansen) noted that bus stop owners need to be brought to the table. Cities will need to decide on GI spacing.
    - David Ksyniak (CDM Smith) stated that we are not interested in removing parking.

- Chris Obropta: when you run into one of these obstacles, you can find other things, such as a curb bump-out in front of a fire hydrant.

- Ben Delisle (Passaic River Rowing Association): what is the development cost of one of these bioswales?
    - Michael Hope (Greeley & Hansen) noted the cost information above.

- Thomas Stampe (North Bergen Sustainable Jersey Group): can't bioswales be made less wide – three feet instead of five feet – and be made the length of the sidewalk with a bioswale on each side?
    - Michael Hope (Greeley & Hansen) answered that yes, this design more resembles green strips. GI is a necessary part of the LTCP – not the only part, but needs to be adjusted and personalized for each area.

- Chris Obropta: we need to get the community involved, educate them and let them be part of the decision. Block by block, to each neighborhood.

- Mike Witt (PVSC Outside Council) responded that PVSC is not going to do any GI, as they don't own any property. The community/municipalities are going to be responsible for making GI a possibility.

- Chris Obropta: there need to be examples so people can see and decide for themselves.

- Ben Delisle: cost breakdown is informative and will save us some money because of better decision-making.

- Susan Rosenwinkel (NJDEP): permit requires evaluation of seven alternatives, and GI is one of them. Municipalities do not have to use GI, but they will understand the costs & benefits of GI either way.
    - Michael Hope (Greeley & Hansen) noted that GI is often favored by the public.

- Chris Pianese (Township of North Bergen): the biggest obstacle as an administrator is selling this to the public. Where's the priority, because some people are waiting for crumbling streets and how can we justify to them a $20,000 bioswale? Perhaps add the GI to another project that the people need – add it as you pave a street, etc.

- Chris Obropta: Philadelphia is doing that right now (re: above)

- Michael Hope (Greeley & Hansen) noted that Philadelphia is replacing water and sewer mains, paving streets, and adding GI in the process. It is cost beneficial, and the public can get behind it.

- Chris Obropta: concerns about using the fabric filter – may build up a biofilm and stop absorbing the water, something similar happened up at UConn. What is the life expectancy?
    - Michael Hope (Greeley & Hansen) replied that it is 20-30 years. It does require maintenance. All infrastructure does, whether green or grey.

- Susan Rosenwinkel: whatever infrastructure you choose, NJDEP is going to require an operations and maintenance report to see that it is working.

- Michael Hope (Greeley & Hansen) noted that PVSC is coordinating with three municipalities for GI pilot projects (Paterson, Jersey City and Newark)

Next Steps

- PVSC will provide the permittees with updated hydraulic models

- The permittees will expand the models in their community, as necessary, and evaluate a variety of alternatives for CSO control.

- As part of the alternatives evaluation process, the permittees will consider how receptive the municipalities are to green infrastructure
    - Communities may be interested in including GI as part of beautification and infrastructure
    - The permittees and municipalities will need to work to create incentives for green infrastructure implementation; commit to these incentives and include them in municipal plans (i.e. tax incentives, discounts, cash back, etc.)

- Supplemental CSO Team members should speak to their constituents about the LTCP program and the types of CSO control alternatives that could be implemented.
    - If Supplemental CSO Team members are hearing that communities are interested in green infrastructure, NOW is the time to gather and provide that feedback.

- Key components (added benefits) to include in municipal plans tied to green infrastructure development, as shared by Supplemental CSO Team members:
    - Beautification
    - Crime prevention by design

- Revitalization
- Business improvement districts

Next meeting: July 2017

Adjournment.

Supplemental CSO Team Meeting No. 4
SUMMARY
Newark City Hall Rotunda, Newark NJ
July 11, 2017 – 5:30 PM to 8:30 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Captain Bill Sheehan	Hackensack Riverkeeper
Alison Cucco	Jersey City Environmental Commission
Meiyin Wu	Montclair State University – Passaic River Institute
Nicole Miller	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Thomas Stampe	North Bergen Sustainable Jersey Group
Debbie Mans	NY/NJ Baykeeper
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Ben Delisle	Passaic River Rowing Association
Sandra Meola	Paterson SMART
Chris Obropta	RCE Water Resources Program
Chris Pianese	Township of North Bergen

CSO Permittees and Representatives (alphabetical by organization)	
Tim Boyle	Bayonne Municipal Utilities Authority
Gary Grey	HDR
Neelesh Tekal	Jersey City Office of Innovation
John O'Connor	Kearny
John Dunlea	Neglia Engineering
Kareem Adeem	Newark Water and Sewer Utilities
Hanifa Johnson	Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority
Jim DeBlock	Paterson

Observers	
Rina Dalal	T&M Associates
Alessandra Rossi	Montclair State University – Passaic River Institute
Hazel England	Great Swamp Watershed Association
Jorge Santos	NYCEDC
Jim McGoldrick	PSTS

Marques Eley	PVSC
Bridget McKenna	PVSC
Mike Witt	PVSC (Outside Council)
Rosana DaSilva	Rutgers

NJDEP	
Jennifer Feltis Cortese	NJDEP
Biswarup Guha	NJDEP
Joe Mannick	NJDEP
Rachael Pepe	NJDEP
Susan Rosenwinkel	NJDEP

Project Team (alphabetical by organization)	
Timothy Dupuis, P.E.	CDM Smith
Mitch Heineman, P.E.	CDM Smith
David Ksyniak, P.E.	CDM Smith
Stephanie Brooks	FHI
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen
Praveen Vankayala	Greeley & Hansen

Welcome and Introductions

Michael Hope (Greeley-Hansen) asked all attendees to introduce themselves, starting with the Supplemental CSO Team and then moving to CSO permittees and other attendees, finishing with introductions from the project team. Mr. Hope then reviewed the meeting agenda and recapped previous Supplemental CSO Team meeting results. Mr. Hope also reviewed the Supplemental CSO Team roster and explained the current progress to date of the current CSO Permit.

CSO Permitting Status and Q&A

Susan Rosenwinkel (NJDEP) updated the Supplemental CSO Team on the status of the CSO permit. She noted that it has been two years since the permits became effective and there are 25 individual permits. She explained that seven strategies need to be evaluated as CSO control alternatives.

Nicole Miller (Newark DIG) asked for clarification on the viability of two of the alternatives – sewer separation and inflow/infiltration reduction. Susan Rosenwinkel (NJDEP) explained that sewer separation is costly since storm-water is not always clean and needs to be filtered and noted that inflow/infiltration reduction is also expensive.

New Jersey Water Quality Standards Update and Q&A

Biswarup Guha (NJDEP) presented on the New Jersey Surface Water Quality Standards and criteria. He explained that classifications of salinity are based on uses, and that water quality criteria protects uses through various policies. Surface waters are classified based on the type of waterbody and the designated use of the waterbody. New Jersey has both fresh and saline waters. Freshwaters are classified as FW1 (not subject to any man-made wastewater discharges) and FW2 waters (all other freshwaters except Pinelands waters). Freshwaters are further classified based on trout status, trout production (FW2-TP), trout maintenance (FW2-TM), and non-trout (FW2-NT). Saline waters are classified as saline estuarine (SE) and saline coastal (SC). SE waters are further classified into SE1, SE2, and SE3 based on their designated uses, with SE1 being the highest quality water.

Mr. Guha then explained the overview of classification in the New York and New Jersey Harbor. When classifying water for uses, numeric criteria based in science is the only measure used. Mr. Guha noted that economic and technological feasibility are not considered.

Debbie Mans (NY/NJ Baykeeper) asked if the classifications in New York's waters are also being evaluated, and what is the criteria for classification.

Mr. Guha responded that the New York Harbor is also being evaluated and classification is based on bacterial quantity, measuring the counts of bacteria per 100ml of water.

Nicole Miller (Newark DIG) asked how often the waters are tested, what triggers testing during off-season periods, and if harbor testing is done after CSO events.

Mr. Guha explained that harbor testing is done in the peak summer on a weekly basis, biweekly in the springtime and monthly in the winter.

Ms. Mans asked why enterococcus testing is used for classification of SE1 waters, but not for SE2 and SE3.

Mr. Guha explained that testing analyzes for various barometers. Mr. Guha explained that the Beach Act created revised primary contact recreational criteria and NJDEP selected the more stringent option for testing, known as the Statistical Threshold Value (STV).

Ms. Miller asked why the measurement criteria is higher for freshwater.

Mr. Guha explained that freshwaters are tested for E. coli which is certified as a more stringent testing option.

Ms. Mans noted that most of the water in the New Jersey harbor is classified SE2 and SE3. She asked if there are any anticipated changes to the criteria.

Mr. Guha explained that studies are currently underway to see how to improve the water quality and change the classification criteria.

Hydrologic and Hydraulic Modeling Update and Q&A

Praveen Vankayala (Greeley & Hansen) presented on the hydrologic and hydraulic models being used for the study. He explained that models help decision makers simulate future conditions and simulate changes to water quality. Mr. Vankayala distinguished between hydrologic modeling, which demonstrates how much runoff is entering the collection system, and hydraulic modeling which shows how surface runoff is being routed. He explained that modeling is a part of the NJDEP permit requirements.

Harvey Morginstin (Passaic River Boat Club & Passaic River Superfund CAG) stated that the town of Bloomfield is listed as a separate sewer system in the presentation but he believes it is actually a combined system.
Michael Hope (Greeley & Hansen) explained that Bloomfield is a separate sewer system.

Mr. Vankayala presented on the existing models that are being used by the project team to analyze the waters. He explained that nine current models already exist and they are being combined into an integrated model using InfoWorks. He provided a snapshot of the integrated model and explained that temporary flow meters were placed to help integrate the model.

Sandra Meola (Paterson SMART) asked how long the temporary flow meters were installed for. She asked what an inclometer is.

Mr. Vankayala explained that the temporary flow meters were installed for 12 weeks from May 2016 to July 2016. He added that inclinometers measure where gates open and incline. He explained that the next steps in the modeling process are to calibrate and validate the model and utilize the model for system characterization and alternatives analysis.

Ms. Mans asked how long it will take to calibrate the model.

Mr. Vankayala responded that the project team is currently in the process of calibrating the model and that it should be complete in the next few weeks.

Ms. Miller asked why the testing period for the temporary flow meters was only twelve weeks. She asked if an analysis was conducted to test the results of the temporary flow meters with the flow of the last few years.

Mr. Hope explained that twelve weeks allows for a significant collection of data to calibrate the model. He noted that since the project team is using previously calibrated models with their own data from previous years, twelve weeks of data was enough to recalibrate the integrated

model. If the project team had to start the model from scratch, flow meters would have collected data for a longer period of time.
John O'Connor (Kearny) asked how often the temporary flow meters are calibrated.

Mr. Vankayala explained that the meters are calibrated on a weekly basis and data can be seen in real time. He noted that if a problem arises with one of the meters, staff can be sent out to troubleshoot the problem.

Mr. Morginstin asked who monitors the plant overflows at PVSC if the final destination of all sewage is to PVSC.

Bridget McKenna (PVSC) explained that all sewage goes to outfall where it is treated and disinfected and monitored daily. She noted that if there is an overflow on the main outfall, the flow goes to a second outfall and is treated and let out into the Newark Bay, though this is a rare occurrence.

Chris Obropta (RCE Water Resources Program) noted that the pipes for outfalls may be clogged. He asked if this is being inspected and entered as part of the model.

Timothy Dupuis (CDM Smith) explained that the pipes are currently being inspected and 90% of inspections have been completed. The data is being entered to update the models. He added that pipe inspection is the responsibility of the municipal engineers.

Ms. Meola asked if the CSO Team could schedule a tour of the PVSC facility.

Ms. McKenna responded that a tour could be scheduled, noting that a daytime tour would allow for more sight of the plant.

Ms. Mans noted that having an agenda in advance of the meeting is helpful.

Mr. Hope thanked attendees and adjourned the meeting.

Supplemental CSO Team Meeting No. 5
SUMMARY
PVSC Headquarters, Newark NJ
October 16, 2017 – 3:00 PM to 6:00 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Ruben Gomez	City of Paterson
Captain Bill Sheehan	Hackensack Riverkeeper
Drew Curtis	Ironbound Community Corporation
Nicole Miller	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Thomas Stampe	North Bergen Sustainable Jersey Group
Debbie Mans	NY/NJ Baykeeper
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Ben Delisle	Passaic River Rowing Association
Sally Rubin	Paterson SMART
Chris Pianese	Township of North Bergen
Ruben Gomez	City of Paterson
Captain Bill Sheehan	Hackensack Riverkeeper
Drew Curtis	Ironbound Community Corporation

CSO Permittees and Representatives (alphabetical by organization)	
Kareem Adeem	Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority
Jim DeBlock	Paterson

Observers	
Breana Whittaker	City of Newark
Kim Gaddy	Clean Water Action
Sandra LaVigne	Great Swamp Watershed Association
Cali Alexander	Jersey Water Works (JWW)
Rob Thomas	Newark Department of Engineering
Mo Kinberg	NJ Future
Larry Levine	Natural Resources Defense Council (NRDC)
Alisa Valderrama	Natural Resources Defense Council (NRDC)
Marques Eley	PVSC

Bridget McKenna	PVSC
Mike Witt	PVSC (Outside Council)
Rosana DaSilva	Rutgers
Sheldon Lipke	SJL Consultants
Rina Dalal	T&M Associates

NJDEP	
Stan Cache	NJDEP
Jennifer Feltis Cortese	NJDEP
Joe Mannick	NJDEP
Susan Rosenwinkel	NJDEP

Project Team (alphabetical by organization)	
Timothy Dupuis	CDM Smith
David Ksnyiak, P.E.	CDM Smith
Stephanie Brooks	FHI
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Introduction and Recap

Michael Hope (Greeley & Hansen) welcomed and introduced the Supplemental Combined Sewer Overflow (SCSO) Team members. He reviewed the agenda and recapped the results of previous SCSO Team meetings. Mr. Hope also reviewed the roster of SCSO Team members and explained the progress to date of the current CSO Permit. He noted that Drew Curtis from Ironbound Community Corporation (ICC) would be taking the place of Molly Greenberg on the SCSO Team.

Introduction to Alternatives Analysis

Michael Hope (Greeley & Hansen) explained the two approaches for evaluating compliance with the water quality based requirements of the Clean Water Act: a) the presumption approach and; b) the demonstration approach. The presumption approach satisfies water quality compliance when one of the following criteria are met: a) no more than an average of four overflow events per year; b) the elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS during precipitation events or; c) the elimination or removal of no less than the mass of the pollutants for the volumes that would be eliminated or captured with 85% capture. The demonstration approach evaluates water quality compliance by demonstrating, through monitoring and modeling, that the Long-Term Control Plan (LTCP) will not preclude the attainment of water quality standards or the receiving water's designated uses.

Michael Hope (Greeley & Hansen) reviewed topics covered in previous SCSO Team meetings. He provided a summary of the permit requirements, green infrastructure evaluation, increased collection system storage evaluation, treatment expansion or storage at PVSC evaluation, inflow and infiltration (I&I) reduction evaluation, sewer separation, treatment of CSO discharge evaluation and secondary treatment bypass evaluation.

Nicole Miller (Newark DIG) asked about the pros and cons of the presumption approach compared to the demonstration approach and if both approaches consider future growth. Michael Hope (Greeley & Hansen) explained that the presumption approach is less costly initially because a water quality model does not need to be developed at the start. However, a water quality model will still need to be developed afterwards to evaluate the effectiveness of control measures. Since a model isn't used initially, it is possible to exceed the requirements for water quality, which could be extremely costly. When using the demonstration approach, a water quality model is developed initially and is used to guide improvements, resulting in a more secure and precise adjustment of water quality. Michael Hope explained that both models will account for future growth and noted that PVSC has not decided at this time which approach to pursue, though the initial water model has already been developed.

Nicole Miller (Newark DIG) noted that I&I from MS4 communities affects CSO communities. She asked if the project team could provide data on that effect. Michael Hope (Greeley & Hansen) stated that the project team will work on procuring that information.

Kim Gaddy (Clean Water Action) asked who makes the ultimate decision on the alternative and how the SCSO Team will find out the decision. She stated that she would like the voices of the SCSO Team and the community to be heard and resonate throughout the project. Michael Hope (Greeley & Hansen) explained that the decision ultimately rests with the permittees. He noted that it will be an ongoing discussion and the alternatives will be presented to the SCSO Team before a decision is made to gain feedback from community groups.

Stimulating Green Infrastructure on Private Property

Alisa Valderrama (NRDC) presented on catalyzing green infrastructure opportunities on private property. She explained the motivation for green infrastructure (GI), which mimics natural hydrologic processes to capture, infiltrate, and evapo-transpire rainwater at or near the site where it falls. An increasing number of cities and municipalities are committed to "green" approaches to meet their Clean Water Act goals and keep polluted runoff out of waterways. These approaches work in many soil conditions and highly infiltrative soils are not required for adequate functioning of the majority of GI with proper design and installation. Green stormwater strategies are attractive because they provide a range of public benefits that traditional "gray" solutions lack, including: improved air quality; regulation of urban temperatures; reduced flood risk (in some cases); improved property values in underserved communities; and improved overall urban resiliency.

Alisa Valderrama (NRDC) explained that public property is the obvious choice for siting GI but can often be costly due to complex systems below ground that are not as prevalent under private property. She cited Philadelphia as an example of a city pioneering private property GI through Green City Clean Waters which is committed to "greening" 10,000 acres within the combined sewershed by 2036. There are three key sources of greened acres: 1) retrofits on public right of way and other publicly owned

impervious areas; 2) private property retrofits required by on-site capture standards for new and re-development (for example by requiring buildings above a certain size to capture the first inch of rainfall) and; 3) voluntary private property retrofits obtained through incentives. She explained that the impervious area (IA) based stormwater fees for commercial properties already in place are necessary but not sufficient for a robust GI market. The 80% discount to property owners who installed GI was not enough incentive to install GI, due to the high retrofit costs. The City of Philadelphia decided to subsidize GI installation due to its relatively low cost on private property compared to public right of way. Philadelphia now expects that roughly two-thirds of its GI acreage will come from private retrofits.

Drew Curtis (ICC) asked how Philadelphia is funding these subsidies. Alisa Valderrama (NRDC) stated that Philadelphia funds its program through stormwater fee revenue. She noted that alternate sources of funding can be derived, as New Jersey does not collect stormwater fees.

Alisa Valderrama (NRDC) explained the key points of the Philadelphia grant program, noting that the program covers upfront costs of stormwater management opportunities on private land. Grants typically cover nearly all the costs of GI retrofits, which estimates between $100,000 to $150,000 per acre of impervious property. Applicants agree to install the GI and maintain GI practice for a forty-five-year period in exchange for the grant dollars. The stormwater fee discount remains in effect so long as owner maintains the GI. The City reserves the right to enter the property to evaluate the maintenance of GI.

Nicole Miller (Newark DIG) asked how the implementation and funds are managed for this program? Alisa Valderrama (NRDC) explained that some cities may outsource the management to a dedicated firm. Milestone funding for GI implementation is also a popular method of funding. She noted that every city needs to find its own configuration that works for them.

Alisa Valderrama (NRDC) presented on the lessons learned from other cities' GI implementation efforts. She noted that successful programs have worked to understand the local opportunities on impervious areas and localized flooding areas and then sought motivated commercial property owners, regardless of stormwater fee, and have provided a discount on stormwater capture.

Cali Alexander (JWW) asked how to incentivize the reduction of impervious areas in new development through a reexamination of zoning laws. She noted that there are currently overbuilt impervious areas such as parking lots for big-box stores that largely remain empty and could benefit from conversion to GI spaces. Alisa Valderrama (NRDC) explained that an economic case would need to be made to property owners through price incentives. The city can provide subsidies for GI relative to their cost for maintaining impervious areas. New development IA reduction and GI implementation on private property can be incentivized through community outreach and grant programs.

Nicole Miller (Newark DIG) asked if there was any pushback from property owners upon implementation of the GI requirements for new and re-development in Philadelphia. Alisa Valderrama (NRDC) stated that there was almost no pushback on new and re-development implementation, but they received pushback on the implementation of the IA stormwater tax. Parking lot owners were upset because they now had to pay a significant fee for their properties compared to the low potable water tax. Philadelphia dealt with the pushback by allowing for a phase-in period for the fee and gave the most affected owners a longer phase-in period of ten years.

Nicole Miller (Newark DIG) asked if Philadelphia focused on private property GI subsidization because of the reduced cost of implementation on private property. Alisa Valderrama (NRDC) confirmed that the cost benefit to the City motivated the grant program. It costs more to implement GI on public right of way because of all the internal infrastructure under the city's public spaces. Ms. Valderrama noted that Philadelphia did not initially expect this much private implementation, but contractors have created businesses for private GI installation and the costs are incentivizing more and more property owners.

Debbie Mans (NY/NJ Baykeeper) asked if New York City's robust GI program could be used as an example for New Jersey since they both do not have an IA stormwater tax. Alisa Valderrama (NRDC) explained that NYC has a grant program, but it is relatively small and not very popular, funded with 15 million dollars over the past five years. Ms. Valderrama stated that the grant program is funded by standard rate payer charges which do not have water fees itemized.

Bayonne CSO Treatment Demonstration Project

Stan Cache (NJDEP) presented on the Wet Weather Flow Treatment and Disinfection Demonstration Project, which used Bayonne as a study site for implementation for satellite combined sewer treatment. Stan Cache provided background on the options for CSO management. He noted that the options of eliminating CSOs through separation of sewers or I&I reduction is costly and discussed some of the other options to reduce and store excess runoff. He explained that the key for smaller municipalities could be end-of-pipe or satellite treatment of CSOs which is a new technology that is more cost effective than rerouting CSOs for treatment. He explained that the purpose of the Wet Weather Flow Treatment and Disinfection Demonstration Project was to have one comprehensive study for CSO permittees to verify the performance and costs of satellite treatment, with Bayonne as the host. New Jersey was the first state to undertake and study this measure and received grant funding through an Environmental Protection Agency project endorsement. The demonstration site was established at the highest point of rain collection in Bayonne with the objectives of selecting and verifying the performance of end-of-pipe technologies to treat CSO discharge and improving engineering practitioners understanding of wet weather events.

Stan Cache (NJDEP) stated that six pilot technologies were selected for testing: Storm King for solids removal; Terre Kleen for solids removal; Flex Filter for enhanced solids removal; Trojan for disinfection; Aquionics for disinfection and; Injex/Verdent, peracetic acid for disinfection. These technologies were selected for their suitability for remote satellite facilities, documented performance, simple operation, small footprint, ease of maintenance and cost. Mr. Cache provided the project summary and timeline. The project concluded that high performance satellite end-of-pipe treatment can be used to protect public health and aquatic biology, provide a cost-effective solution for incremental CSO reductions, and offer green spaces and other community amenities. In addition, satellite treatment facilities can be unmanned, odor free and adaptable to multiple locations.

Debbie Mans (NY/NJ Baykeeper) asked what the next steps are for implementing end-of-pipe treatment technologies. Stan Cache (NJDEP) explained that they are a cost-effective approach that can be pushed forward as part of the Long-Term Control Plan (LTCP).

Nicole Miller (Newark DIG) asked if using peracetic acid to treat runoff water is safe for the public. Stan Cache (NJDEP) explained that toxicity tests had been conducted for safety and the peracetic acid increases dissolved oxygen. Adequate dissolved oxygen is necessary for good water quality.

Sheldon Lipke (SJL Consultants) inquired if the units can be operated unmanned during test periods. Stan Cache (NJDEP) responded that after working out initial kinks in the installation, the units can be operated unmanned. He added that the satellite technology can be used a tertiary water treatment site when it is not raining.

Nicole Miller (Newark DIG) asked which of the six technologies worked the best. Stan Cache (NJDEP) explained that the Flex Filter in conjunction with the disinfectants performed the best.

Michael Hope (Greeley & Hansen) thanked attendees and adjourned the meeting.

Supplemental CSO Team Meeting No. 6
Meeting Summary
North Bergen Municipal Building
North Bergen, NJ
January 9, 2018 – 6:00 PM to 8:00 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Captain Bill Sheehan	Hackensack Riverkeeper
Nicole Miller	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Debbie Mans	NY/NJ Baykeeper
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Ben Delisle	Passaic River Rowing Association
Sandra Meola	Paterson SMART
Christopher Obropta	Rutgers University – Cooperative Extension Water Resources
Janet Castro	Township of North Bergen
Chris Pianese	Township of North Bergen

CSO Permittees and Representatives (alphabetical by organization)	
Kareem Adeem	Newark Water and Sewer Utilities
John Napolitano	North Bergen Municipal Utilities Authority
Frank Pestana	North Bergen Municipal Utilities Authority

Observers	
Giselle Diaz	Boswell Engineering
Gary Grey	HDR Inc.
Moriah Kinberg	JC Make It Green
Norberto Hernandez	Neglia Engineering Associates
Jason Neff	PS&S
Marques Eley	PVSC
Mike Witt	PVSC (Outside Council)
Rosana DaSilva	Rutgers University – Cooperative Extension Water Resources
Dr. Wolfram Hoefer	Rutgers University
Emily McGale	Rutgers University
David Smith	Rutgers University

Summer Sprofera	Rutgers University
Sheldon Lipke	SJL Consultants
Rina Dalal	T&M Associates

NJDEP	
Jennifer Feltis Cortese	NJDEP
Joe Mannick	NJDEP
Rachael Pepe	NJDEP

Project Team (alphabetical by organization)	
David Ksyniak, P.E.	CDM Smith
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Introduction and Recap

Michael Hope (Greeley & Hansen) welcomed and introduced the Supplemental Combined Sewer Overflow (SCSO) Team members. He reviewed the agenda and recapped the results of previous SCSO Team meetings. Mr. Hope also reviewed the roster of SCSO Team members and explained the progress to date of the current CSO Permit. He introduced the two feature presentations: 1) the Passaic Valley Regional Planning and Design Studio, and 2) the PVSC and Rutgers Green Infrastructure Municipal Outreach and Technical Assistance Program, both of which are collaborations with Rutgers University.

Michael Hope (Greeley & Hansen) reminded the TAC that the North Bergen Municipal Utilities Authority (MUA) conveys flows to both the Passaic Valley Sewerage Commission (PVSC) and the Woodcliff Waste Water Treatment Plants (WWTPs).

Michael Hope (Greeley & Hansen) reviewed the 59-month program schedule and noted that the next deliverables are due July 1, 2018: The Project Team will submit to the New Jersey Department of Environmental Protection (NJDEP) a System Characterization Report, a Public Participation Process Report, a Compliance Monitoring Program Report, and a Consideration of Sensitive Areas Plan. He explained the Public Participation Process Report will include a summary of the SCSO meetings as well as other public outreach activities, such as ad hoc meetings and permittee meetings.

Sandra Meola (Paterson SMART) asked when the SCSO Team will get a draft of the deliverables to be submitted on July 1, 2018. Michael Hope (Greeley & Hansen) explained that the Project Team will be ready to present in the next few months and will have more information available at the next SCSO meeting in April 2018.

Debbie Mans (NY/NJ Baykeeper) expressed that the most important part of the Long Term Control Plan (LTCP) is the Development and Evaluation of Alternatives Report, which is due July 1, 2019. She asked when the draft information would be presented to the SCSO Team, noting that NY/NJ Baykeeper would find it unacceptable to receive the information a month before submission with no ability to comment

or provide input. Mike Witt (PVSC) explained that the completion timeline is up to the individual permittees, as July 1, 2019 is just the final submission date to NJDEP.

Christopher Obropta (Rutgers University – Cooperative Extension Water Resources) asked when the cost analysis will be conducted and made available to the towns for their respective LTCPs. Michael Hope (Greeley & Hansen) explained that this will be part of the final report. He also said that it is unlikely that the preliminary report will have this information, as it is hard to determine the detailed costs early on without detailed analysis. He noted that the preliminary report will address costs briefly, but exact costs will be analyzed as the project gets phased down.

Christopher Obropta (Rutgers University – Cooperative Extension Water Resources) emphasized that it is important that the towns know of the costs with enough time to prepare their budget. He asked when the towns will know or if any cost estimate could be given. Mike Witt (PVSC) explained that the Project Team has the 2007 cost estimates for the LTCPs for the region. Marques Eley (PVSC) noted that the 2007 plan was a little different as it was geared towards disinfection, but it was estimated to cost $90 to $100 million per town, and approximately $2 billion districtwide.

Nicole Miller (Newark DIG) asked for clarification on the 18-month deadline for the alternatives report. Michael Hope (Greeley & Hansen) explained that the 18-month deadline is for submission to the NJDEP.

Michael Hope (Greeley & Hansen) provided an overview of current activities being conducted by the Project Team. He noted that the Project Team a) has completed the water quality monitoring b) is developing the model, c) is currently working on the monthly discharge monitoring reports, and d) is evaluating the financial capabilities of the towns. In addition, Infiltration and Inflow (I&I) analysis is being conducted, as it is one of the required alternatives to be considered. He added that the Project Team is proceeding on two Green Infrastructure (GI) pilot projects and has been developing public outreach materials.

Debbie Mans (NY/NJ Baykeeper) asked if the financial capability was only being evaluated for Combined Sewer Overflow (CSO) communities. Michael Hope (Greeley & Hansen) clarified that the project team is currently only looking at the eight CSO communities.

Moriah Kinberg (JC Make It Green) asked what kind of public outreach materials are being developed. Michael Hope (Greeley & Hansen) explained that three fact sheets are currently in publication, a project website is in progress and a social media plan has been developed for possible implementation.

Christopher Obropta (Rutgers University – Cooperative Extension Water Resources) asked if the public outreach materials had general information about CSOs or if they provided region specific facts and data. Michael Hope (Greeley & Hansen) explained that the public outreach materials have both general information and region-specific information. He noted that the brochures provide general education on CSOs, GI, and water treatment, while the draft website delves a little deeper into regional details.

Debbie Mans (NY/NJ Baykeeper) asked if the public outreach materials have been developed in different languages. Michael Hope (Greeley & Hansen) explained that these considerations are still under review.

Nicole Miller (Newark DIG) asked when the SCSO team will be able to see the outreach materials. Michael Hope (Greeley & Hansen) explained that the fact sheets are furthest along in production and will be available by the next SCSO meeting in April, if not before.

Christopher Obropta (Rutgers University – Cooperative Extension Water Resources) stated that simply cleaning the sewer system will increase capacity and decrease operating costs. He asked if the cleaning impacts had been analyzed. Michael Hope (Greeley & Hansen) explained that each individual system is owned and operated by the permittees who will have a better idea of what's happening with their respective systems.

Kareem Adeem (Newark Water and Sewer Utilities) stated that CDM Smith is currently cleaning the Newark sewer system as part of a four-year contract (currently in its eigth month).

David Ksyniak (CDM Smith) added that CDM Smith is also examining PVSC's system. Marques Eley (PVSC) clarified that PVSC is currently almost two years into its examination of conditions assessment.

Nicole Miller (Newark DIG) asked what the purpose of the SCSO Team is if the Project Team is creating pilot projects and distributing fact sheets without consulting or involving the SCSO Team. Michael Hope (Greeley & Hansen) explained that PVSC is supporting municipalities through the design and construction phase of the project and the SCSO Team will have input in these decisions. The permittees, as the owners of these systems, will oversee maintenance.

Sandra Meola (Paterson SMART) asked why the City of Paterson has not started cleaning their system. Michael Hope (Greeley & Hansen) explained that the City is deciding if and when to do it

Nicole Miller (Newark DIG) asked if the Project Team is involved in distributing the public outreach materials. Michael Hope (Greeley & Hansen) explained that the Project Team has given the permittees materials and they can distribute as they see appropriate. David Ksyniak (CDM Smith) added that Jersey Future and Blue Drop have been involved with the creation of the public outreach materials.

Passaic Valley Regional Planning and Design Studio

Presented by Dr. Wolfram Hoefer and David Smith; Rutgers University, Department of Landscape Architecture

Dr. Wolfram Hoefer (Rutgers University) introduced PVSC's collaboration with his Junior Landscape Planning and Design Studio Class in which students created a Passaic Valley Open Space System which addresses flooding, reduction of stormwater run-off, and water pollution, while creating safe and easy access to the Passaic River. Due to the limitations of the Studio, the student collaboration did not factor political or financial considerations into their analysis.

Dr. Wolfram Hoefer (Rutgers University) emphasized that students wanted to find a way to use the massive capital investment to also improve the quality of life for residents and visitors to the area. GI as part of the open space system would not only beautify the area and enhance the experience of visitors and residents walking along the Passaic River but would also work to reduce the amount of flooding and runoff in along the river. To properly understand the conditions along the Passaic River, the students collected an inventory of conditions at the river, studying the hydrology, flood zones, open space and ecology, demographics, sustainability of municipalities and development of the area. The students also identified industrial, contaminated, and brownfield remediation sites, as well as pollution. They found that the Passaic River has been shaped by the industrial revolution but also by climate. In terms of ecology, students found that the Passaic River is the lifeline of natural systems, but wetlands are reduced because parts of the river are trapped in concrete. Population density analysis demonstrated that the Paterson and Newark urban areas have the highest population density, with low median household incomes and many children. The students wanted to provide open spaces for children while

enhancing the environment. Students found it particularly interesting to see how the government interacts with pollution by essentially giving 'permits to pollute' and they pondered how emissions could be reduced through this framework.

Nicole Miller (Newark DIG) asked what source was used to determine the brownfield sites. Dr. Wolfram Hoefer (Rutgers University) stated that the sites were identified through NJDEP Geographic Information System (GIS) data and it is assumed to be roughly accurate.

Dr. Wolfram Hoefer (Rutgers University) talked about how he had his class break into seven groups to come up with interventions for seven design sites along the Passaic River. Each group had to develop an understanding and familiarity with their area and create innovative solutions for the problems that persist there. He introduced two of his students, Emily McGale and Summer Sprofera, who presented on their solutions for the Totowa and Woodland Park area.

Emily McGale (Rutgers University) explained that her group was overwhelmed by the pollution in the Passaic River and determined that one solution would not alleviate all the problems in the area. They realized they would require different interventions throughout their site. She explained that the group determined how much water needed to be handled for each area and created interventions based on those calculations. She noted that some areas of the site had steep slopes that would be best handled by sequences of storage and treatment of runoff along the slopes. She also noted that many shopping malls in the area provided impervious surface areas that needed to be reimagined; the group suggested redesigning extraneous space into a water plaza that slowly filters water into the ground, becoming an efficient and visually appealing space while addressing the larger problem at hand.

Summer Sprofera (Rutgers University) stated that her group examined the environmental history of their site and broke it down into sections of high risk, medium risk, and low risk for flooding and other environmental concerns. She explained that streets were categorized into commercial, residential and highways.

Dr. Wolfram Hoefer (Rutgers University) summarized the results of the other six class groups. The results are listed below:

- Group 2 handled runoff and flooding concerns in the Paterson area. The group created a framework of park systems that would connect the fragmented green spaces of Paterson while remediating the polluted waters of the Passaic River. The intervention seeks to protect flood prone areas against rising storm waters as well as capture stormwater runoff to lessen the flow into the surrounding CSOs.
- Group 3 determined that there are not enough natural systems to protect the Passaic River in their test site encompassing Elmwood Park, Fair Lawn, and Paterson. They sought to find interventions to reduce CSO overflows and introduce green spaces. They identified phytoremediation (i.e., the use of living green plants for in place removal, degradation, or containment of contaminants in soils, sludges, sediments, surface water and groundwater), floating island filters, mussel filtration and constructed riparian zones as remediation strategies that will help reduce CSO overflow, flood zones, and pollution both in the soil and the water.

- Group 4 developed interventions for Wallington which has a very high flood risk throughout the site. They determined that a riverfront walk and a mid- and lower-flood plain park (removing and relocating residents) would be the best intervention for this site.
- Group 5 determined that the site encompassing Belleville, Nutley and Lyndhurst would benefit from elevated highways and recreational areas surrounding the Passaic River, with green allees (i.e., walkways lined with trees or tall shrubs) connecting the river to the residential area.
- Group 6 developed interventions for the densely populated Newark area around Passaic River. The group recommended converting an abandoned rail corridor into green walkways that would connect the City.
- Group 7 determined that their test site of Kearny and Harrison needed a reconnection to the Passaic River, proposing green roofs and gutter gardens as interventions for residential areas, as well as green islands and planted landforms as interventions for industrial areas.

Rosana DaSilva (Rutgers University) suggested that municipal action teams get access to some of this work, so it can be discussed within the community. Dr. Wolfram Hoefer (Rutgers University) stated that the body of work will be uploaded to the CUES webpage: http://cues.rutgers.edu/passaic-valley/

Nicole Miller (Newark DIG) stated that she liked the ideas but felt that it is an incomplete effort because of lack of consideration of politics and money. She liked the small, implementable suggestions such as gutter gardens for houses and apartment buildings. Dr. Wolfram Hoefer (Rutgers University) explained that the purpose of the Design Studio was not to sell these interventions as the solutions to the problems at hand. The role of the studio limited the analysis that could be conducted. However, he noted that public input and community considerations are taught in the course as well. Mike Witt (PVSC) added that the groups had to present their projects twice for their midterm and final examination to an audience of other Rutgers University professors and PVSC representatives. He noted that they were asked difficult questions about their respective projects and had to have a full understanding of their work and the climate that it would be utilized in. He stated that there are some innovative ideas that can be tweaked for real world application, but the project was devoid of political and monetary considerations to encourage out of the box thinking. David Smith (Rutgers University) explained that the project was done in an undergraduate college class, so a complete consideration of political and financial constraints would not have been possible. He added that it was a great experiment because students considered problems and solutions without constraints, thereby challenging status quo thinking.

Nicole Miller (Newark DIG) stated that she understood but was concerned because GI usually gets taken off the table first as a cost saving measure.

Jennifer Feltis Cortese (NJDEP) asked if funding was mentioned throughout the project. Dr. Wolfram Hoefer (Rutgers University) explained that funding was mentioned but not properly examined. He explained that the students and landscape architects understand the property values grow with GI, open space, and reduced flooding.

Green Infrastructure Municipal Outreach and Technical Assistance Program

Presented by Rosana DaSilva; a partnership between PVSC and Rutgers Cooperative Extension Water Resources Program

Rosana DaSilva (Rutgers University) explained the objectives of the GI pilot program with PVSC, which is currently in its fifth year. It aims to provide community-based technical assistance, outreach, and education about GI demonstration projects, as well as to conduct municipal GI assessments. She noted that the project is unique because GI is being retrofitted into existing developments, not being input into open areas. She explained that the team has completed 39 GI feasibility studies thus far, with 13 municipalities agreeing to implement two projects.

Nicole Miller (Newark DIG) asked why the other 26 municipalities have not committed to their GI projects. Rosana DaSilva (Rutgers University) explained that the team has completed their studies and is encouraging them to sign on, clarifying that if they do not agree to implement their projects within two years, they will have to pay PVSC $10,000 for the cost of the study. She noted that the team is encouraging the municipalities to use this money to each implement two small GI demonstration projects instead.

Ben Delisle (Passaic River Rowing Association) asked if the plans for the 13 municipalities who have agreed to undertake their GI projects are available publicly. Rosana DaSilva (Rutgers University) responded affirmatively.

Nicole Miller (Newark DIG) asked if the plans include a proposed amount of water that will be removed. She asked if the projects that had been implemented have information for how much water has been removed. Rosana DaSilva (Rutgers University) stated that from the existing GI demonstrations 280,000 gallons of water have been removed. She said that she needs to check the models for the proposed amounts of water to be reduced.

Rosana DaSilva (Rutgers University) presented some of the GI demonstration projects that have been completed, including the projects at Elysian Fields Community Garden in Paterson, the Greater Newark Conservancy, Horace Mann School in Bayonne, Lincoln Middle School garden in Kearny, Watsessing Elementary School in Bloomfield, and the Hawkins Street Elementary School in Newark. She mentioned some of the proposed demonstration projects, including projects at Langston Hughes Elementary School in East Orange and the Abraham Lincoln School in Garfield.

Rosana DaSilva presented on two case studies conducted at Harrison Public Library and P.S. 5 Dr. Michael Conti School. The project at Harrison Public Library cost less than $2,000 and is a good example of what a rain garden in a private residence might look like. The project at P.S. 5 is a New Jersey Environmental Infrastructure Trust (NJEIT) project and cost $260,000 to build.

Kareem Adeem (Newark Water and Sewer Utilities) asked how long the project took to complete. Rosana DaSilva (Rutgers University) explained that the project took one month to complete from start of construction, but it took two years to secure the NJEIT funding.

Michael Hope (Greeley & Hansen) thanked attendees and adjourned the meeting.

Supplemental CSO Team Meeting No. 7
Meeting Summary
City Hall
Jersey City, NJ
April 17, 2018 – 5:30 PM to 8:30 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Captain Bill Sheehan	Hackensack Riverkeeper
Drew Curtis	Ironbound Community Corportation
Alison Cucco	Jersey City Environmental Commission
Nicole Miller	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Michele Langa	NY/NJ Baykeeper
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Ben Delisle	Passaic River Rowing Association
Sandra Meola	Paterson SMART
Christopher Obropta	Rutgers University – Cooperative Extension Water Resources
Patricia Hester-Fearon	Town of Kearny
Chris Pianese	Township of North Bergen

CSO Permittees and Representatives (alphabetical by organization)	
Tim Boyle	Bayonne Department of Public Works
Tom Gibbons	Jersey City Municipal Utilities Authority
John Minnett	Jersey City Municipal Utilities Authority
Kareem Adeem	Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority

Observers	
Arjun Janekiram	City of Jersey City
Mira Prinz-Arey	City of Jersey City
Breana Whitaker	City of Newark
Stan Stephensen	EPA
Richard Isleib	HDR Inc.
Philip Jonat	Jersey City Environmental Commission
Scott Mittman	Jersey City Environmental Commission

Luis Rios	Jersey City Environmental Commission
Mario Verdibello	Jersey City Environmental Commission
Aaron Johnson	Jersey City Division of Architecture
Jasmine Wade	Jersey City Office of Innovation
Kate Lawrence	Jersey City Office of Sustainability
John Dunlea	Neglia Engineering Associates
Bill Montgomery	New Jersey City University
Moriah Kinberg	New Jersey Future
Jason Neff	PS&S
Marques Eley	PVSC
Bridget McKenna	PVSC
John Pietrykoski	PVSC
Mike Witt	PVSC (Outside Council)
Ashwani Vasishth	Ramapo College of New Jersey
Tom Hilmer	RES
Sheldon Lipke	SJL Consultants
Debra Italiano	Sustainable Jersey City
Mohammed Ali	T&M Associates

NJDEP	
Joe Mannick	NJDEP
Rachael Pepe	NJDEP

Project Team (alphabetical by organization)	
David Ksyniak, P.E.	CDM Smith
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Introduction and Recap

Michael Hope (Greeley & Hansen) welcomed and introduced the Supplemental Combined Sewer Overflow (SCSO) Team members. He reviewed the agenda and recapped the results of previous SCSO Team meetings. Mr. Hope also reviewed the roster of SCSO Team members and explained the progress to date of the current CSO Permit. He introduced the two feature presentations: 1) a review of the water model, and 2) the PVSC Green Infrastructure pilot projects.

Michael Hope (Greeley & Hansen) reviewed the 59-month program schedule and noted that the next deliverables are due July 1, 2018: The Project Team will submit to the New Jersey Department of Environmental Protection (NJDEP) a System Characterization Report, a Public Participation Process Report, a Compliance Monitoring Program Report, and a Consideration of Sensitive Areas Plan. He

explained that the Public Participation Process Report will include a summary of the SCSO meetings as well as other public outreach activities, such as ad hoc meetings and permittee meetings.

Michael Hope (Greeley & Hansen) provided an overview of current activities being conducted by the Project Team. He noted that the Project Team a) has completed the water quality monitoring b) is developing the model, c) is currently working on the monthly discharge monitoring reports, and d) is evaluating the financial capabilities of the towns. In addition, Infiltration and Inflow (I&I) analysis is being conducted, as it is one of the required alternatives to be considered. He added that the Project Team is proceeding on two Green Infrastructure (GI) pilot projects and has been developing public outreach materials.

HDR Water Quality Modeling

Richard Isleib (HDR) presented the water quality model used in the development of the Long Term Control Plan (LTCP) for this study. He explained that the model is built to test water quality and is based on the New Jersey Harbor Discharges Group (NJHDG) Long-Term Ambient Water Quality Monitoring Program data. He explained that the model was built to satisfy the demonstration approach. The demonstration approach evaluates water quality compliance by demonstrating, through monitoring and modeling, that the Long-Term Control Plan (LTCP) will not preclude the attainment of water quality standards or the receiving water's designated uses.

Richard Isleib (HDR) reviewed the modeling process and baseline sampling results. He explained that the water testing period was April 2016 through May 2017, adding that 2016 was not a typical year for the baseline condition as it was unusually dry. Mr. Isleib reviewed the results from some of the sampling points in the Passaic River.

Nicole Miller (Newark DIG) asked what the possible sources of water contamination are when the sample is taken upstream of a combined sewer overflow (CSO). Richard Isleib (HDR) explained that there are various potential sources of contamination, noting it is not as important to identify the source of contamination as it is to identify the actual contaminant.

Nicole Miller (Newark DIG) asked if these samples were taken in wet or dry conditions. Richard Isleib (HDR) explained that the samples are random and could be either. He explained that datapoint clusters can identify the weather conditions at the time of sampling.

Richard Isleib (HDR) clarified that concentrations of contaminants do not dip to very low levels, meaning that there are consistent dry weather contaminants. The baseline for contaminants is lower in the summer as bacteria die more rapidly in the heat and warmer water. He added that the baseline is higher in Newark Bay, which has various levels of salinity. Mr. Isleib explained that rivers have stricter criteria for contamination, while the criteria for open waters is less strict.

Nicole Miller (Newark DIG) asked if the model tests for E. Coli presence in Newark Bay. Richard Isleib (HDR) stated that E. Coli is only tested for in freshwater.

Christopher Obropta (Rutgers RCE) asked if the changing tide affects contamination levels. Richard Isleib (HDR) explained that no attempt was made to sample according to the changing tides.

An attendee asked if sampling was done mid-channel or closer to the shore. She emphasized that sampling should be done by the shore where most people are using the water and where this likely to

be the most contamination. Richard Isleib (HDR) confirmed that the sampling was done mid-channel. He explained that this is the most accurate way to build the model, which will be able to impart information on conditions near the shore once fully developed.

Harvey Morginstin (Passaic River) urged the project team to go beyond the minimum criteria for open waters since they are not as strict and there is considerable pollution allowed through the criteria.

Tomas Hilmer (RSE) expressed concern that the model does not encapsulate the worst occurrences. Richard Isleib (HDR) explained that the samples were taken locally over 12 to 19 months to capture variation in events so that model can reasonably reproduce conditions.

Nicole Miller (Newark DIG) asked if industrial commercial pollutants were tested in this model. Richard Isleib (HDR) explained that they were not part of this model but there are other models that are testing other aspects of water quality.

An attendee asked if the model is complying to the State pathogen indicator standard or will the project team push the State to adopt stricter criteria. Michael Hope (Greeley & Hansen) explained that the model is complying to state standards.

An attendee asked if the State has expressed goal setting for lowering contamination level criteria around the areas that are used for boating. Michael Hope (Greeley & Hansen) explained that they are not.

Nicole Miller (Newark DIG) stated that it is important to inform the public about conditions of water around the areas that they use as they might not be aware of what the conditions are. She expressed the importance of getting feedback from the public on the contamination levels and minimum criteria and work on changing them according to their input. Michael Hope (Greeley & Hansen) emphasized that the project team is looking to the SCSO team to help communicate this information to the public.

Sandra Meola (Paterson SMART) asked how the SCSO team should communicate this information in a productive way that the general public will understand. Richard Isleib (HDR) recommended that the SCSO team use the CSO outfall checking tool and recommended that people stay away from waters for 72 hours after an event. Michael Hope (Greeley & Hansen) added that it should be communicated that while the water sampling is done in the middle of the channel, there are various models working together to provide the larger picture that addresses all public concerns.

Chris Obropta (Rutgers RCE) asked how the model is being tested for accuracy. Michael Hope (Greeley & Hansen) explained that the Model Evaluation Group (MEG) comprised of university scientists and professors, as well as the NJDEP, is reviewing the model at every stage. Richard Isleib (HDR) added that the model measures from Cape May to Block Island and purposefully evaluates a large area to account for water pollution.

Overview of NJDEP Deliverable Reports

Michael Hope (Greeley & Hansen) provided an overview of the reports due to NJDEP on July 1, 2018. This includes the System Characterizations Report, the Public Participation Process Report, Compliance Monitoring Program Report, and the Consideration of Sensitive Areas Plan.

Nicole Miller (Newark DIG) asked if the Compliance Monitoring Program Report will distinguish between wet and dry events. Michael Hope (Greeley & Hansen) responded affirmatively.

Nicole Miller (Newark DIG) asked if the reports will be completed in collaboration with the municipalities. Michael Hope (Greeley & Hansen) responded affirmatively.

Drew Curtis (ICC) asked if the SCSO team will be able to provide comments on the report prior to submission to NJDEP. Michael Hope (Greeley & Hansen) stated that the team will be able to provide feedback.

Drew Curtis (ICC) asked if PVSC is allowed to go beyond the CSO policy when considering sensitive areas in the Consideration of Sensitive Areas Plan. Michael Hope (Greeley & Hansen) explained that new sensitive areas are recognized and evaluated but cost efficiency is considered before classification. Drew Curtis added that an environmental justice aspect is missing from the Plan checklist and should be prioritized.

An attendee asked if algae blooms are considered in this study. Michael Hope (Greeley & Hansen) explained that they are not.

Captain Bill Sheehan (Hackensack Riverkeeper) asked if the project team will formally respond to comments on the reports. Michael Hope (Greeley & Hansen) stated that there would not be enough time or resources to formally address all comments received, but they will be accepted and considered.

An attendee asked if the general public will have the opportunity to comment on the reports prior to submission. Michael Hope (Greeley & Hansen) explained that this conversation and outreach to the public needs to be conducted by the SCSO team.

Nicole Miller (Newark DIG) asked if the municipalities will get a chance to see the reports. Michael Hope (Greeley & Hansen) explained that the reports would be submitted to the municipalities around the same time as they are submitted to NJDEP.

An attendee asked how the LTCP will account for future residents as the population grows. Michael Hope (Greeley & Hansen) explained that future conditions are considered as part of this Plan. He stated that population projections from local planning boards were inserted into the model.

Review of Public Outreach Materials

Michael Hope (Greeley & Hansen) reviewed the outreach materials and platforms for the LTCP. He presented the website, Facebook page and Twitter page for the project, as well as the the brochure and three fact sheets which are all translated into Portuguese and Spanish.

Nicole Millller (Newark DIG) suggested that the outreach materials all link to the website and social media pages, with language encouraging the public to learn more and provide their comments.

Drew Curtis (ICC) recommended adding Arabic as one of the translation languages for the outreach materials. He explained that there is a large Arabic speaking population in Paterson.

Green Infrastructure Pilot Projects

David Ksyniak (CDM Smith) reviewed the three Green Infrastructure (GI) pilot projects that PVSC is doing in conjunction with municipalities.

Nicole Millller (Newark DIG) suggested that the pilot projects be protected from trampling as they are in high-traffic areas and also include signage to educate passersby about what they are. David Ksyniak (CDM Smith) explained that protective barriers are being explored and there is informational signage around the projects.

An attendee asked if these pilot projects will make a dent in the water reduction in these areas. Michael Hope (Greeley & Hansen) explained that these GI pilot projects will have a miniscule effect on their own and serve to educate and incentivize the municipalities and the public to spur more GI projects.

Captain Bill Sheehan (Hackensack Riverkeeper) emphasized that these GI projects should not take away parking spaces as this would elicit a negative reaction from the public. David Ksyniak (CDM Smith) confirmed that these GI projects did not compromise parking spaces. An attendee suggested that public outreach be done to inform the public that GI projects can be installed without the loss of city parking.

Nicole Miller (Newark DIG) suggested that public education on economies of scale be a part of the outreach for the GI projects. She expressed concern that the municipality and the public would install a GI project, see little to no reduction in water levels, and chock the whole thing up as a waste of time and money. She noted that it is imperative that the municipality understands that the more GI retrofits are installed, the more water can be controlled.

Michael Hope (Greeley & Hansen) thanked attendees and adjourned the meeting.

Supplemental CSO Team Meeting No. 8
Meeting Summary
Kearny Town Hall
Kearny, New Jersey
July 31, 2018 – 5:30 PM to 8:30 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Drew Curtis	Ironbound Community Corporation (ICC)
Dr. Meiyin Wu	Montclair State University
Kim Gaddy	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Patricia Hester-Fearon	Town of Kearny

CSO Permittees and Representatives (alphabetical by organization)	
Kareem Adeem	Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority

Observers	
Alexander Mirescu	Jersey City Environmental Commission
Denise Ganzer	Junior Woman's Club of Arlington
Jenny King	Junior Woman's Club of Arlington
Jane Mackesy	Kearny AWAKE
Alessandra Rossi	Montclair State University
John Dening	Mott MacDonald
John Dunlea	Neglia Engineering Associates
Moriah Kinberg	New Jersey Future
Jason Neff	PS&S
Marques Eley	PVSC
Bridget McKenna	PVSC
Mike Witt	PVSC (Outside Council)
Sheldon Lipke	SJL Consultants
Mohammed Ali	T&M Associates

New Jersey Department of Environmental Protection	
Dwayne Kobesky	NJDEP
Rachael Pepe	NJDEP

Project Team (alphabetical by organization)	
David Ksyniak, P.E.	CDM Smith
Stephanie Brooks	FHI
Zainab Kazmi	FHI
Frank Brillante	HDR
Michael Hope, P.E.	Greeley & Hansen

Introduction and Recap

Michael Hope (Greeley & Hansen) welcomed and introduced the Supplemental Combined Sewer Overflow (SCSO) Team members. He reviewed the agenda and recapped the results of previous SCSO Team meetings. Mr. Hope also reviewed the roster of SCSO Team members and explained the progress to date of the current CSO Permit.

Michael Hope (Greeley & Hansen) reviewed the 59-month program schedule and noted that the deliverables due July 1, 2018 have been submitted to the New Jersey Department of Environmental Protection (NJDEP), including: a System Characterization Report, a Public Participation Process Report, a Compliance Monitoring Program Report, and a Consideration of Sensitive Areas Plan. He noted that the NJDEP is currently reviewing the deliverables.

Michael Hope (Greeley & Hansen) noted that the project team meets monthly with each permittee community to present on progress and collect guidance and feedback. These meetings are separate from the SCSO Team meetings, although permittees are present at all SCSO Team meetings as well.

Overview of NJDEP Deliverable Reports

Dwayne Kobesky (NJDEP) provided an overview of the CSO process and the reports submitted to NJDEP on July 1, 2018. The submitted reports included the System Characterizations Report, the Public Participation Process Report, Compliance Monitoring Program Report, and the Consideration of Sensitive Areas Plan. Mr. Kobesky explained that multidisciplinary teams were created at NJDEP to assist permittees with the CSO process. He reminded the SCSO Team that 25 permits were issued by the NJDEP to 25 owners of CSO outfalls, including 9 treatment plants and 16 municipalities.

A SCSO Team member asked if the modeling for the reports considered tidal increase for coastal communities. Michael Hope (Greeley & Hansen) explained that the hydraulic model considers tide changes.

Drew Curtis (ICC) asked if the water sampling accounted for contaminants entering the water stream through interactions with brownfields. Michael Hope (Greeley & Hansen) explained that the water was sampled at the sewage system and not at street level, so any contaminants that enter the water system at that point would be accounted for in the water testing.

Dr. Meiyin Wu (Montclair State University) asked if the hydraulic model was built using data specifically collected from this part of the region, and if the model accounts for testing in different kinds of water. Dwayne Kobesky (NJDEP) noted that it was modeled locally and accounts for water variations.

Kim Gaddy (Newark DIG) asked why the SCSO Team and members of the public did not have the opportunity to comment on reports prior to submittal. Michael Hope (Greeley & Hansen) explained that the permittees and SCSO members are responsible for conducting the majority of the public outreach. Drew Curtis (ICC) explained that the City of Newark is working to hold ten public meetings throughout Newark over the next eleven months to inform the public of this effort. Mike Witt (PVSC) explained that because PVSC is not going to be evaluating and selecting between alternatives, the permittees are responsible for representing the voice of their constituents through their alternative selection.

Kim Gaddy (Newark DIG) asked what resources PVSC can provide to help permittees conduct outreach. Mike Witt (PVSC) stated PVSC can provide technical resources and relevant information, especially the technical reports.

Patricia Hester-Fearon (Town of Kearny) asked if the average community member will be able to understand the model results. Mike Witt (PVSC) explained that the reports are very technical, but the outputs are easy to understand and relay to the public.

A SCSO Team member asked if there could be a way to share best practices for outreach among the permittees to ensure that outreach is not imbalanced. Bridget McKenna (PVSC) explained that materials can be uploaded to the collaboration portal on SharePoint and permittees can present at future SCSO meetings to share what they have been doing and what has worked well for them.

Evaluation of Alternatives

Michael Hope (Greeley & Hansen) reviewed the national CSO policy and process for evaluating CSOs and creating a Long Term Control Plan (LTCP) for CSO mitigation.

Drew Curtis (ICC) asked for clarification on the mass of pollutants calculation. Michael Hope (Greeley & Hansen) explained that this measured pathogens at their wet weight.

Harvey Morginstin (Passaic River Boat Club) asked what it meant if a CSO is bypassed. Michael Hope (Greeley & Hansen) explained that this accounted for excess water flow bypassing the second portion of treatment during a heavy wet weather event, while still meeting the permit requirements for treatment. He explained that bypassed flow is disinfected and then blended back with flow that has received primary and secondary treatment. Mr. Hope noted that this process allows for maximizing flow to the treatment plant and reduces pathogen load to CSOs.

Michael Hope (Greeley & Hansen) explained that there may be storms larger than the system may be able to handle, which goes to show that the LTCP is not eliminating CSOs but instead getting the system to compliant to the National CSO Policy.

A SCSO Team member asked if climate change is incorporated into the model and what baseline predictions are being used for flooding. Michael Hope (Greeley & Hansen) explained that 2004 is the baseline average year to represent the last 70 years.

Review of Schedule and Responsibilities Matrix

Michael Hope (Greeley & Hansen) reviewed the affordability schedule, noting that it would cost the average ratepayer about 2% of their median household income. He explained that the schedule could be adjusted to determine the feasibility of affordability.

Newark Hydraulic Model Review

Frank Brillante (HDR) presented an overview of the Newark hydraulic model creation and process. He explained that the technical complex model was converted to an InfoWorks model for real time control capability.

A SCSO Team member asked if the models account for sediment or buildup in the system. Michael Hope (Greeley & Hansen) responded affirmatively.

Kim Gaddy (Newark DIG) explained that if no one takes ownership of bioswales or green infrastructure elements, they will not be managed and will not be useful to the community. Drew Curtis (ICC) explained that green infrastructure maintenance can be a creator of new jobs once the scale reaches a certain point.

Michael Hope (Greeley & Hansen) thanked attendees and adjourned the meeting.

Meeting Photos

Supplemental CSO Team Meeting No. 9
Meeting Summary
PVSC Main Training Center
Newark, New Jersey
October 16, 2018 – 6:00 PM to 8:00 PM

Attendees:

Supplemental CSO Team (alphabetical by organization)	
Name	**Representing**
Drew Curtis	Ironbound Community Corporation (ICC)
Nicole Miller	Newark DIG
Betty Boros	New Jersey Business & Industrial Association
Harvey Morginstin	Passaic River Boat Club & Passaic River Superfund CAG
Laurie Howard	Passaic River Coalition
Ben Delisle	Passaic River Rowing Association
Sue Levine	Paterson SMART
Christopher C. Obropta	Rutgers University - RCE

CSO Permittees and Representatives (alphabetical by organization)	
Mark Del Bove	Arcadis
John Minnet	Arcadis
Berana Whittaker	City of Newark
Rich Haytas	Jersey City Municipal Utilities Authority
Brian Messler	Jersey City Municipal Utilities Authority
Rob Thomas	Newark Department of Engineering
Kareem Adeem	Newark Water and Sewer Utilities
Frank Pestana	North Bergen Municipal Utilities Authority
Rocco Russomanno	Town of Harrison
Christopher Vasquez	Town of Kearny

Observers	
Clyde Wilber	Clyde Wilber LLC
Sarah Galst	Hazen
Paul Saurer	Hazen
John Dunlea	Neglia Engineering Associates
Moriah Kinberg	New Jersey Future
Jason Neff	PS&S
Marques Eley	PVSC

Bridget McKenna	PVSC
Mike Witt	PVSC (Outside Council)
Sheldon Lipke	SJL Consultants
Mohammed Ali	T&M Associates

New Jersey Department of Environmental Protection	
Lisa Congiu	NJDEP
Jennifer Feltis Cortese	NJDEP
Joe Mannick	NJDEP
Shaza Rizvi	NJDEP
Susan Rosenwinkel	NJDEP

Project Team (alphabetical by organization)	
David Ksyniak, P.E.	CDM Smith
Stephanie Brooks	FHI
Zainab Kazmi	FHI
Michael Hope, P.E.	Greeley & Hansen

Introduction and Recap

Michael Hope (Greeley & Hansen) welcomed and introduced the Supplemental Combined Sewer Overflow (SCSO) Team members. He reviewed the agenda and recapped the results of previous SCSO Team meetings. Mr. Hope also reviewed the roster of SCSO Team members and explained the progress to date of the current CSO Permit. He noted that Dr. Meiyin Wu, representing Passaic River Institute, will no longer be part of the SCSO Team and a replacement will be sought.

Michael Hope (Greeley & Hansen) reviewed the 59-month program schedule and noted that the deliverables due July 1, 2018 have been submitted to the New Jersey Department of Environmental Protection (NJDEP), including: a System Characterization Report, a Public Participation Process Report, a Compliance Monitoring Program Report, and a Consideration of Sensitive Areas Plan. He noted that the NJDEP is currently reviewing the deliverables.

Drew Curtis (ICC) asked if the project team has received any feedback from NJDEP on the reports submitted on July 1, 2018. Michael Hope (Greeley & Hansen) stated that NJDEP has submitted comments on the Compliance Monitoring Program Report and are currently reviewing the rest of the reports.

Timeline for Evaluation of Alternatives

Moriah Kinberg (New Jersey Future) asked what deliverables are soon to be due from permittees. Michael Hope (Greeley & Hansen) explained that the final modeling results for alternatives analysis will be due at the end of the year, though the final report will not be due till July 2019.

Christopher Obropta (Rutgers - RCE) expressed concern that there would not be enough time to gather public input on alternatives if they need to send modeling results by the end of the year. Michael Hope (Greeley & Hansen) explained that permittees will choose their alternatives analysis and conduct input as needed. He explained that July 1st, 2019 is the hard deadline for alternative selection and the permittees can collect input after they submit their modeling results in December 2018 as well. He noted that the preliminary alternatives list is needed December 2018 to understand the regional alternatives.

Drew Curtis (ICC) stated that the City of Newark is conducting ten community-wide meetings, two in each ward, until May 2019. The meetings are supported by an involvement grant and changes to the alternatives report will be submitted following the meetings.

Preliminary Screenings of Technologies

Michael Hope (Greeley & Hansen) provided the SCSO Team with a matrix detailing preliminary screenings of technologies. He requested that the SCSO Team review and submit comments to the matrix. He explained that all technologies listed as potential alternatives have been assigned a control level dependent on their effectiveness at reducing bacteria and volume. Permittees will choose which to advance further, with the understanding that technologies with low control levels may have to be coupled with other measures.

Christopher Obropta (Rutgers - RCE) asked why Green Infrastructure technology is assigned a "low" control level. Michael Hope (Greeley & Hansen) noted that Green Infrastructure technology is only "high" control when there is drainage under the infrastructure. Mr. Obropta stated that caveats such as this should be clarified within the table to avoid misleading permittees and steering them away from selecting Green Infrastructure as a viable control measure.

Christopher Obropta (Rutgers - RCE) asked what the control classifications are based on and if there is empirical evidence to support these claims. He noted that the technology descriptions may be misleading and the project team should provide references to back up the claims for those who may be interested in learning more. Mr. Obropta explained that permittees will immediately gravitate towards measures that are marked "high" for bacteria and volume reduction unless caveats explaining the effectiveness of "low" control alternatives are added to the matrix.

Moriah Kinberg (New Jersey Future) inquired why a cost column is missing from the matrix. Michael Hope (Greeley & Hansen) explained that cost should not be factored into the decision-making at this stage of the analysis. He noted that costs will be included in the development of the alternatives report. Mr. Hope stated that ancillary community benefits, such as community greening or beautification, will be added to the list later as well.

CSO Bypass Alternative

Joe Mannick (NJDEP) reviewed the Alternatives Analysis Report process, explaining that seven CSO Control Alternatives need to be evaluated as a requirement of the permit. One of those alternatives is evaluating the bypass of secondary treatment. Mr. Mannick reviewed the four-phase treatment cycle, explained that secondary treatment is the standard minimum treatment required for every sewage treatment plant. This phase removes suspended waste through biological treatment. Normal operations see an equal flow through all four parts of the treatment cycle, but bypass operations skip over secondary treatment. Mr. Mannick explained that legal requirements are set only for the treated water quality, therefore bypassing treatment steps is allowed as long as the final treated water complies with

requirements. Bypassing secondary treatment in combined sewer systems during wet weather events allows for water that would enter waterways through outfalls to receive some level of treatment.

Michael Hope (Greeley & Hansen) explained that only excess flow gets bypassed. Once it receives secondary bypass treatment, it must comply with all permit requirements.

Bridget McKenna (PVSC) explained that PVSC does not have the ability to bypass secondary treatment in their permit and does not have the facilities to accommodate it either.

No Feasible Alternatives (NFA) Analysis

Sarah Galst and Paul Saurer (Hazen) explained that the no feasible alternatives report is a study of the treatment plant and how that ties into the alternatives.

Sarah Galst (Hazen) stated that PVSC is the fifth largest sewage treatment plant in the nation. She explained that the alternatives in the NFA report analyze what measures can be imparted to enhance the wet weather handling capacity of the plant. Ms. Galst explained that the current secondary treatment capacity for the PVSC plant is 400 mgd, but the plant was built for a capacity of 720 mgd. The goal of the NFA is to evaluate alternatives that expand wet weather treatment capacity to 720 mgd while maintaining compliance with the effluent permit.

Sarah Galst (Hazen) said that three tools were used to measure the feasibility of alternatives: the Infoworks model, the BioWin process model, and Computational Fluid Dynamics.

Sarah Galst (Hazen) provided a review of the alternatives analyzed, which included operational modifications and infrastructure modifications. A summary of the alternatives is listed below:

- Operational Modifications:
    - Operational Step-Feed: does not reach 720 mgd capacity without compromising standards
    - Chemically Enhanced Primary Treatment (CEPT): not impactful to PVSC
- Infrastructure Modifications:
    - Secondary bypass: allows for treatment of an additional 320 mdg, allowing for 720 mgd capacity
    - Step-Feed: increases flow through secondary treatment, but does not provide capacity for 720 mgd
    - BioActiflo: unprecedented to create this technology for the scale needed at PVSC; proposed infrastructure location is reserved for future oxygen production plant
    - RAS Storage: increases flow through secondary treatment, but does not provide capacity for 720 mgd; proposed infrastructure location is reserved for future oxygen production plant
    - Reroute Recycle Streams: increases flow through secondary treatment but does not provide capacity for 720 mgd; improvement in treatment for both dry and wet weather
    - FC modifications: increases flow through secondary treatment but does not provide capacity for 720 mgd

Sarah Galst (Hazen) reviewed the costs associated with each alternative and provided the recommended alternatives. Recommendations include installing a secondary bypass for flows over 400 mgd and sludge recycle reroute to the PCs, as an interim measure. The projected cost is $27M, with a relatively short implementation time frame. The recommended alternative could decrease CSOs by 1,400 MG per year, equaling a 37% decrease.

Moriah Kinberg (New Jersey Future) asked which outfalls would be impacted by the implementation of these alternatives. Michael Hope (Greeley & Hansen) stated that the analysis to determine that still needs to be done.

Mike Witt (PVSC) explained that the plant improvements can be completed within the next five years and would pose an immediate benefit, as compared to the long-term alternatives that will come out of the LTCP.

Jersey City MUA Evaluation of Alternatives for CSO Control

John Minnet and Mark Del Bove (Arcadis) presented on the status of evaluation of alternatives for CSO control for Jersey City.

Mark Del Bove (Arcadis) provided an overview of the Jersey City MUA combined sewer system, which runs for approximately 230 miles. He noted that it is mostly small, older pipes, made of vilified clay and brick.

John Minnet (Arcadis) presented on the process for development and evaluation of CSO control alternatives.

Drew Curtis (ICC) asked if the Green Infrastructure installment will be institutionalized into an ordinance. John Minnet (Arcadis) explained that it has been in place as an ordinance since 2007. He noted it is currently being revisited to address flood control, but the ordinance is enforced for all new developments.

Nicole Miller (Newark DIG) asked if there are any incentives for Green Infrastructure installment. Mark Del Bove (Arcadis) stated that there were not.

Nicole Miller (Newark DIG) asked if a plan for sewer separation is in motion for Jersey City. Mark Del Bove (Arcadis) explained that the Jersey City MUA is strongly encouraging developers to look at sewer separation for new projects.

General Comments

Harvey Morginstin (Passaic River Boat Club) asked if the project team has considered floating storage bogs on shallow water clay beds. He stated that there is a new technology that utilizes a 'U'-shaped vertical tunnel to store outfall volume, allowing for primary treatment as solids collect to the bottom.

Michael Hope (Greeley & Hansen) thanked attendees and adjourned the meeting.